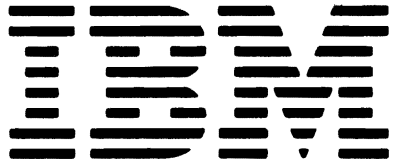


SR30-0532-3

IBM System/38

IBM System/38
Application Programming
Workshop
Student Workbook

Student Name: _____



SR30-0532-3

IBM System/38

IBM System/38
Application Programming
Workshop
Student Workbook

Preface

This Student Workbook is to be used by students who wish to learn how to develop application programs on the IBM System/38.

It has been designed to be used in conjunction with the IBM System/38 Application Programming Workshop (Course code A2004.)

Fourth Edition (December 1981)

This edition includes updates for Release 3 of System/38 software.

Changes are periodically made to the information herein; any such changes will be reported in subsequent editions.

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Introduction to Exercises

These lab exercises supplement the lectures given in the course "IBM System/38 Application Programming Workshop" (Course Code A2004). Their primary goal is to provide you hands-on System/38 experience *with emphasis on tasks needed to make an entire application run*. This approach should, hopefully, provide you with ample opportunities for considering the various options available to you, rather than requiring you to do a lot of detailed coding in either COBOL or RPG III. Most of the source code you'll need will be provided for you to modify or "tailor" so as to yield your own, unique application-solution. Keep in mind, therefore, that the provided source-code solutions are not intended to be the "best" or "only way" — they simply permit you to concentrate more fully on the *application-solution-alternatives*.

In the lab this week you are going to create physical and logical files, display files, COBOL-OR-RPG III, and CL programs.

In order to do this, we have adopted the following naming conventions:

For programs—AALSSI

Where AA is the application

Ex: AP—Accounts Payable
AR—Accounts Receivable
BI—Billing

L is the source language

Ex: R—RPG III D—DFU C—COBOL
L—CL Q—Query

SS is the program number; generally corresponds to lab step no.

/ is your team identification (assigned by your instructor)

Example: APR10A is Accounts Payable program number 10 for Team A and was written in RPG III

For Files—AATDDDDI

Where AA is the application

Ex: PA—Payroll
SA—Sales Analysis
IN—Inventory

T is the file type

Ex: P—Physical Data Base File
L—Logical Data Base File
D—Display File

DDDD is the alphameric file name

Ex: CUST—Customer Master
VEND—Vendor File
TRAN—Transaction File

/ is your team identification (assigned by your instructor)

The library *APLIB* contains the following objects which you will use throughout the week, as indicated.

- APC210* – The COBOL sub-program used on day 2.
- APR210* – The RPG III sub-program used on day 2.
- APR250* – The Check Writing program used on day 3.
- APR350* – The End-of-Year Vendor Master Update program used on day 3.
- APWSTUDEX* – This CL program is invoked every time you sign on. It sets up your library list, your interactive job output queue and invokes the programmer menu.
- APWSYSFAM* – This CL program is used by RPG programmers while doing the System Familiarization exercise on day 1.
- APWSYSFAM2* – This CL program is used by COBOL programmers while doing the System Familiarization exercise on day 1.
- APWOUTQ/*
APWOUTQ2 – These are output queues used for holding your printouts until the instructor routes them to a printer. You should find out which one your team is assigned to.
- APC30PRT* – This is an external printer device file used by COBOL programmers on day 3.
- APLSCHVN* – This logical file is used in the subfile exercise on day 4.
- APLVEND* – This logical file is used to validate vendor numbers before you enter transactions on day 2.
- APPFREF* – This is the Accounts Payable field reference file, used throughout the lab to save you from keying the standard field definitions used in this application.
- APPSRC* – This is the source file, initially loaded with 9 source members for your use (described below), and where you may keep your source code.
- APPVEND* – This is the physical Vendor Master File and has an arrival sequence access path. It is used throughout the lab.
- APWDSPLY/*
APWDSPLY2 – These are display device files used in the System Familiarization exercise on day 1.
- ESDFMTS* – This is a display device file used by your System Familiarization generated programs.
- QCLSRC* – This is a source file needed should you use the SDA Menu Generator in an optional exercise.
- APWJOB1/*
APWJOB2 – These are job descriptions used primarily to route your batch printouts to *APWOUTQ* or *APWOUTQ2* respectively.

The Source File, *APPSRC*, in *APLIB* contains these source members for your use as indicated.

- APC200/*
APR200 – These are the incomplete COBOL and RPG III source modules used on day 2.
- APC210/*
APR210 – These complete source modules are available for your use on day 2. They have already been compiled as is. They are here should you want to explore sub-programming further.
- APC300/*
APR300 – These incomplete source modules are used on day 3 in the batch programming exercise.
- APC400/*
APR400 – These incomplete source modules are used on day 4 in the subfile exercise.
- APDSRCH* – This incomplete display, DDS source module, is used on day 4 in the subfile exercise.

FOR THE REMAINING EXERCISES, SIGN ON TO THE SYSTEM/38
USING THE PASSWORD GIVEN YOUR TEAM BY THE INSTRUCTOR

******(Make the entries below, and press enter, *every* time you sign on:)

```
                                PROGRAMMER MENU
Select one of the following:
1. Design/execute DFU app      (app), ,(options)
2. Design/execute query app   (app), ,(options)
3. Create object              object name, type, pgm for CMD, (text)
4. Call program               program name
5. Execute command            command
6. Submit job                 (job name), (command)
7. Display submitted jobs
8. Edit source                (srcmbr), (type), (text)
9. Design display format      (srcmbr)
90. Sign off                  (*NOLIST #LIST)

Types: BSCF, CBL, CL, CLP, CMD, CMNF, DSPF, LF, PF, PRTF, RPG, TXT

Option:   Parm:           Type:   Parm 2:
Command:

Text:
Src file: APPSRC   Src lib: APLIB   Obj lib: APLIB   Log requests: *YES
CF3 - Command entry  CF4 - Prompt (3 & 5 only)  CF6 - DSPMSG
```

→ (Enter).

****NOTE:** You may, optionally, enter control language commands (see appendices).

****NOTE:** Throughout the following text, remember that a small "x" is used in place of your team identification.

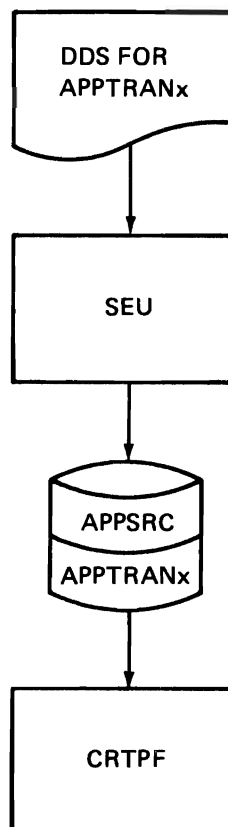
Lab Exercises

The objective of this set of exercises is to create a physical file of accounts payable transaction records that will be used for various purposes throughout the application. A status code in the record will be used to determine at what stage in the overall application a record is. This code will also be used to determine if a record meets the select/omit criteria for a given logical file. The possible codes are:

E = Entered
T = To Be Paid
P = Paid
D = Distributed—to be deleted

Also, as part of these exercises, a logical file will be created. This file will be used for entry and correction of records using the data file utility. This logical file will also be used for other purposes later in the week.

CREATING A PHYSICAL TRANSACTION FILE (DAY 1)



(x is your team number.)

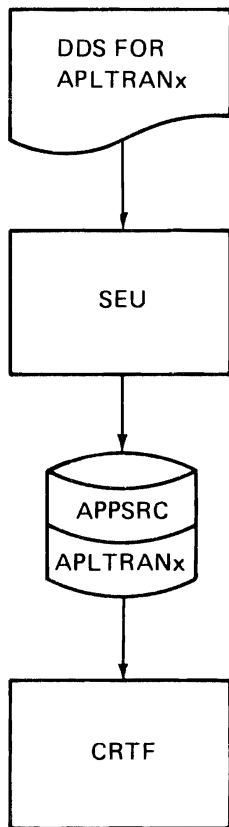
1. Using the Supplied Data File work sheets, (in appendices) code the Data Description specification for the physical file *APPTRANx*. Use the field definitions from the field reference file, *APPREF*. The *APPTRANx* file should be built in arrival sequence.
2. Key the data description specification into the source file *APPSRC* using the edit source utility. This source file member should be named *APPTRANx*. To do this, enter the following:
OPTION: 8 PARM: APPTRANx
TYPE: PF
3. Enter the control language command and parameters to create your accounts payable physical transaction file. The file should have the same name as the source member.
OPTION: 3

CREATING A LOGICAL TRANSACTION FILE (DAY 1)

- 3a. As an optional step, you may display the description of files being created by entering the following:

OPTION: 5

COMMAND: DSPFD APPTRANx



4. Code the Data Description Specifications for the Accounts Payable Logical Transactions File *APLTRANx*. (See Appendices.) This file will have the same format as the *APPTRANx* file created in the previous step. It should be accessed by invoice number within vendor number and should only include records with an "E" in the status code.

5. Using the edit source utility, enter the DDS specifications into a source member *APLTRANx* in the *APPSRC* source file. Use the following entries:

OPTION: 8 PARM: APLTRANx

TYPE: LF

6. Create your Accounts Payable Logical Transaction File. Enter the following:

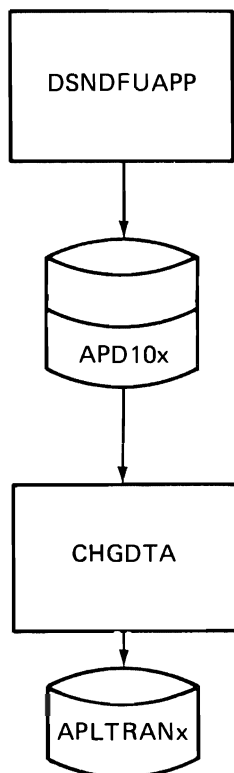
OPTION: 3

- 6a. Optional step:

OPTION: 5

COMMAND: DSPFD APLTRANx

USING DFU TO ENTER TRANSACTIONS (DAY 2)



7. Use the Data File Utility to enter the supplied data into the physical file via the logical file you created in the prior step. The only fields you will enter are: Vendor Number, Invoice Number, Date Received, Merchandise Amount, Status Code, and Department Number. Status code should be placed in each record as a constant "E".

Key the following to create the DFU application:

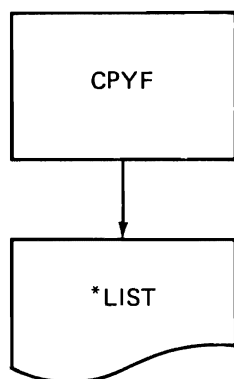
OPTION: 1 PARM: APD10x

8. Execute the Data File Utility Program you created and enter at least five records in into your *APLTRANx* file. (See test data section for data—in appendices.)

OPTION: 5

COMMAND: CHGDTA APD10x

COPYING A FILE TO THE PRINTER (DAY 2)



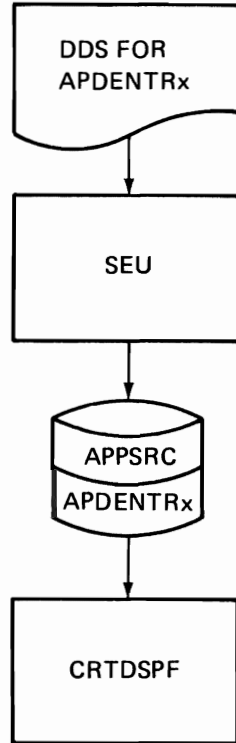
9. Copy the file (you have entered records into) to the printer and verify that the records were added correctly. Use the following control language command:

OPTION: 5

COMMAND: CPYF APLTRANx
 *LIST PRTFMT(*HEX)

The objective of this set of exercises is to create a high level language program to permit data entry from a work station. The records keyed are to be added to your accounts payable transaction file APLTRANx.

CREATING A DISPLAY FILE (DAY 2)



10. Using the supplied display screen layout and the Field Reference File, (in appendices) code the Data Description Specifications for the display file *APDENTRx*. Use "Invalid Vendor Number" as the error message and use indicator 50 to condition the error message.

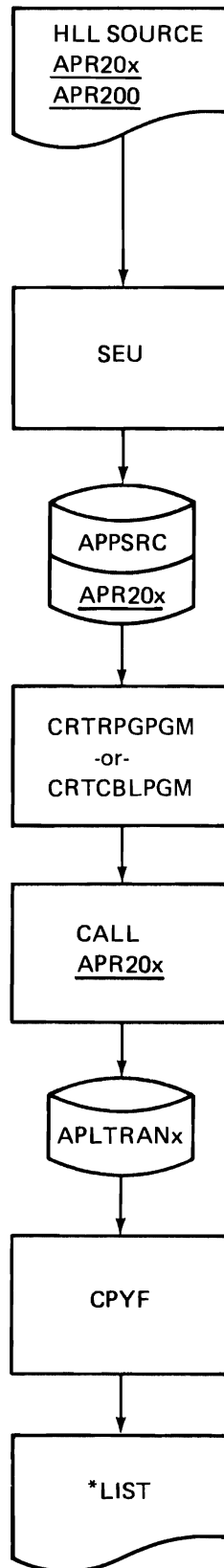
11. Key the Data Description Specifications into the source file *APPSRC* using the edit source utility. The source member name should be *APDENTRx*. The format name should be *APENTR*.

OPTION: 8 PARM: APDENTRx
TYPE: DSPF

12. Enter the option to create the display file.

OPTION: 3

USING YOUR PROGRAM TO ENTER TRANSACTIONS (DAY 2)



NOTE: COBOL Programmers should substitute APC200 for APR200; APC20x for APR20x; APC210 for APR210; CBL for RPG.

13. Study the source code printout for APR200, given in the appendices. Modify it so that your team's files will be accessed (APDENTRx, APLTRANx).

14. Use the edit source utility BROWSE/COPY facility to obtain a copy of APR200 source code. Key in the changes from the previous step.

Name your source member APR20x.

OPTION: 8 PARM: APR20x

TYPE: RPG

15. Enter the control language command to compile your program. Your program should have the same name as your source member APR20x.

OPTION: 3

16. Execute your program using the supplied data in appendices.

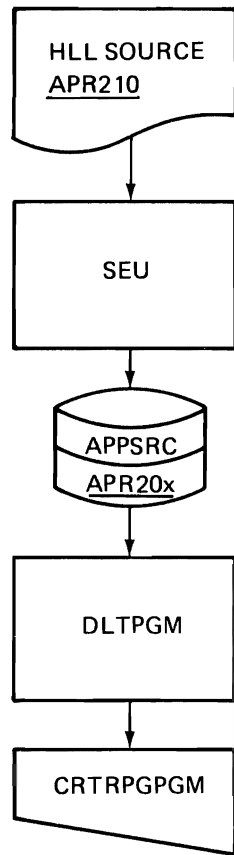
OPTION: 4

17. Copy your data file to the printer to verify that the new records were added correctly.

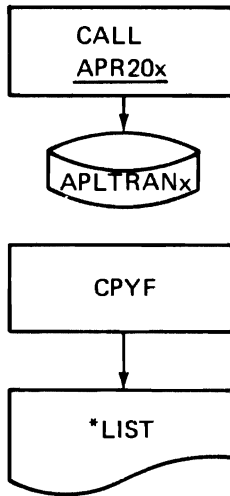
COMMAND: CPYF APLTRANx *LIST
PRTFMT(*HEX)

OPTION: 5

UTILIZING A SUB-PROGRAM (DAY 3)



18. Study the source code supplied for sub-program APR210 given in the appendices.
19. Notice that APR210 does all processing relevant to the Accounts Payable logical file APLVEND.
20. Modify your program APR20x to use the sub-program APR210 (already compiled and resident in APLIB; ready for your use). Do this by removing APR20x references to APLVEND, constructing parameter lists and using a CALL statement to pass the VNDNBR field to the sub-program and receive indicator 50 status in return.
21. Use the edit source utility to change your high level language program (APR20x) to call the validation sub-program, APR210.
OPTION: 8 PARM: APR20x
TYPE: RPG
22. Re-compile your program.
OPTION: 3
THEN PRESS RESET AND CF11.



23. Execute your program, APR20x. Use the supplied data (in appendices) to add at least five transactions to your file.

OPTION: 4

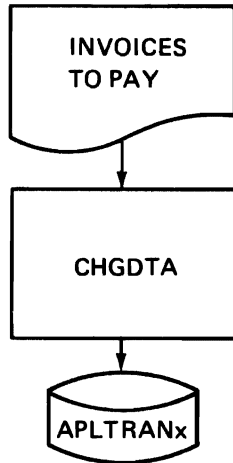
24. Copy your data file to the printer to verify that the new records were added.

COMMAND: CPYF APLTRANx *LIST
PRTFMT(*HEX)

OPTION: 5

The objective of this set of exercises is to create a control language program to execute a batch job stream. Included are a number of tasks to insure that the proper records are used in this batch execution.

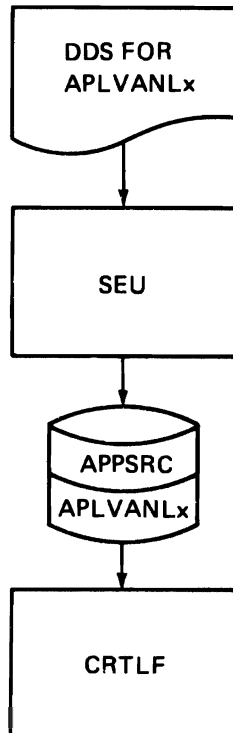
**USING THE DATA FILE UTILITY TO UPDATE
A DATA FILE (DAY 3)**



25. Execute the data file utility (APD10x, from Step 8) and designate the following records as invoices to be paid. Do this by changing the status code to a "T".

Vendor No.	Invoice No.
00221	2
00221	5
00221	16
00714	1
00714	4
00714	11
05075	3

**CREATING A LOGICAL FILE OVER MULTIPLE
PHYSICAL FILES (DAY 3)**



26. Code the Data Description Specifications for a logical file, *APLVANLx*, to be used in a vendor purchase analysis program. This file should contain vendor master records from *APPVEND* followed by any unpaid invoice records ("E" or "T" in status code) from your transaction file, *APPTRANx*. All records in this logical file should be in vendor number sequence. Refer to the data file worksheet for *APLVANLx* (in appendices).

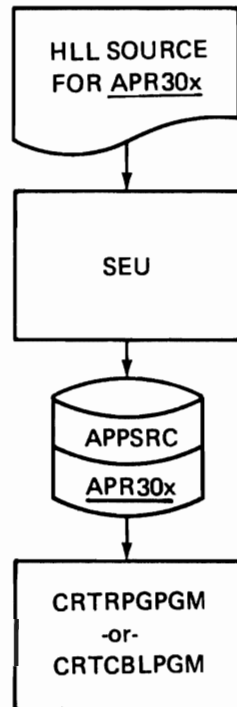
27. Key the Data Description Specifications into the source file *APPSRC* in a member named *APLVANLx* using the source entry utility.

28. Create your accounts payable logical vendor analysis file, *APLVANLx*.

CREATING A BATCH PROGRAM (DAY 3)

NOTE: COBOL Programmers should substitute APC300 for APR300; APC30x for APR30x; CBL for RPG.

COBOL programmers should also note that APC300 will automatically access an external printer device file named APC30PRT, already created for you in APLIB. You should study the APC30PRT DDS – source code given in the appendices – to see how it provides the convenience and productivity of the RPG III O-specs for you.

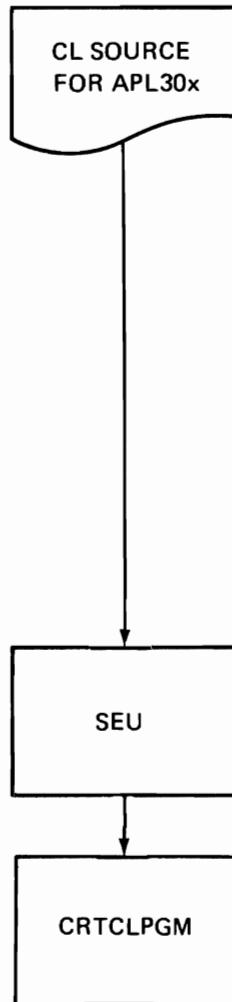


29. Code a high level language program to produce the vendor purchase analysis report, APR30x. Calculation and output specifications are included at the end of this section and are resident in the APPSRC file in a member named APR300. Write the file description and input specifications. Specify that the file APLVANLx will use externally defined data. It will be necessary to add a level break on vendor number.

30. Use the Source Entry Utility to enter your specifications into a source member named APR30x. To enter the input specifications for APR30x, it will be necessary to use the "IX" and "JX" SEU formats. With the BROWSE/COPY function of SEU, copy the calculations and output specifications from the source member APR300.

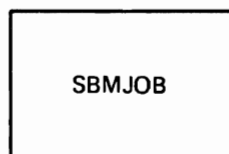
31. Select and enter the appropriate option to compile your program, APR30x.

CREATING A CONTROL LANGUAGE PROGRAM—"JOB STREAM" (DAY 3)



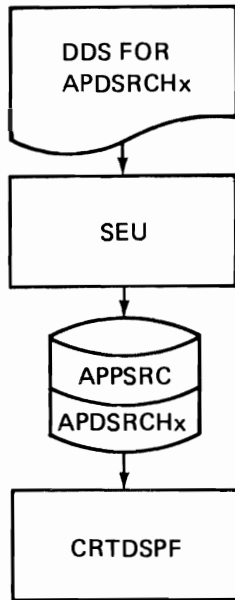
32. Code a control language program (named *APL30x*) to execute the following programs as a "Job Stream":
 - A. The check writing program *APR250*. An over-ride command will be necessary to utilize your physical file, *APPTRANx*. When overriding the *APPTRANX* file specify *LVLCHK(*NO)*. It will also be necessary to over-ride the printer file "APCHECKS" so that the output will be directed to "QPRINT".
 - B. The vendor purchase analysis program *APR30x* that you created in the previous step.
 - C. The end-of-year reset program, *APR350*. This job resets the balances in the *APPVEND* so that each team will see the same results on the printed report.
33. Key the control language program to the source file, *APPSRC* utilizing the source entry utility. Use the type "CLP". Name the file member, *APL30x*.
34. Select and enter the appropriate option to compile your control language program.

EXECUTING A SERIES OF PROGRAMS IN THE BATCH SUBSYSTEM (DAY 3)



35. Execute your control language program in the batch sub-system. To do this enter the following command:
OPTION: 6
COMMAND: CALL APL30x

For this set of exercises, the objective is to modify and create a display file which includes the record formats for a subfile. This display file will be used in conjunction with a supplied program to perform an alphabetic search of the vendor master file.

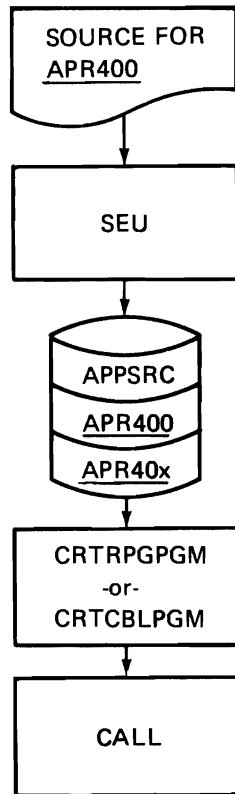


CREATING A SUB-FILE (DAY 4)

36. a. Study the Display Screen Layout named *APDSRCH*, in the appendices. Note especially record names, field names, indicators and desired screen layout.
b. Now, compare the supplied DDS source module (also in the appendices) against a, above.
c. Modify *APDSRCH* source code so that it will meet the requirements given on the screen layout.
37. Use the Edit Source Utility Browse/Copy feature to obtain a copy of *APDSRCH* from APPSRC.APLIB. Insert your changes from step 36 above. Be sure that your source member is named *APDSRCHx*.
38. Select and enter the appropriate option to create your display file, *APDSRCHx*. For ease of testing specify *LVLCHK(*NO)*.

UTILIZING A SUB-FILE VIA YOUR PROGRAM (DAY 4)

NOTE: COBOL Programmers should substitute APC400 for APR400; APC40x for APR40x; CBL for RPG.



39. Modify the supplied program (APR400)

so that it will process your display file. To do this, use the Source Entry Utility to create a source member named APR40x. Next, use the Browse/Copy function to copy the supplied program, APR400, to your source member. Finally, change the File Description specifications to reflect the name of your file. (Source Code may be found in appendices.)

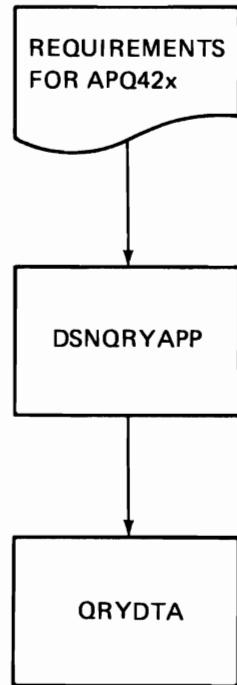
40. Select and enter the appropriate option to compile your program, APR40x. Save your program listing for a subsequent lab step.

41. Execute your program using the various function keys (ROLLUP, ROLLDOWN, etc.). Use the following search codes:

BESTCO
JOHNSON
SMITH
XBEER

The objective of this exercise is to produce an analytical report utilizing the QUERY facility.

UTILIZING THE QUERY FACILITY TO PRODUCE A REPORT (DAY 5)



42. Create a QUERY definition named *APQ42x* that will produce a report to meet the following requirements:

- a. Report heading should read "QUERY exercise for Teamx." Page headings should read "Preferred Vendors."
- b. Only vendors with an "A" rating for delivery *and* service should be selected.
- c. The following fields should appear in the sequence listed:
 1. VNDCLS
 2. VNDNBR
 3. VNDNAM
 4. PCHYTD
 5. DCTYTD
 6. DISCPC*
 7. SRVRTG
 8. DELRTG
- d. Records should be listed in sequence by PCHYTD (descending sequence) within VNDCLS (ascending sequence).
- e. Sub-totals should print for each class.
- f. The data base file to be used for this exercise is *APLVEND* which includes the *VENDMAST* format.

OPTION: 2 PARM: APQ42x
PARM 2: 1

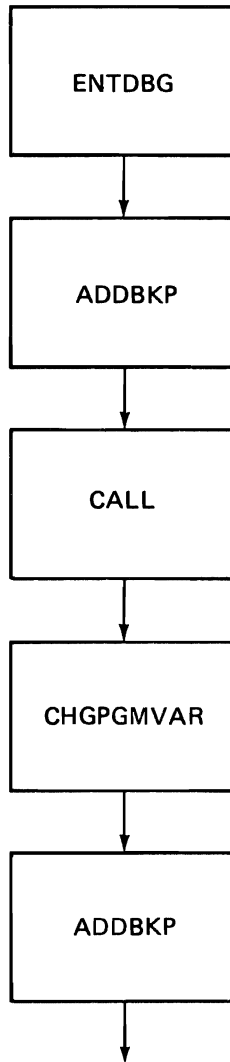
43. Enter the following options to produce the report:

OPTION: 5 COMMAND: QRYDTA APQ42x
OUTPUT(*LIST)

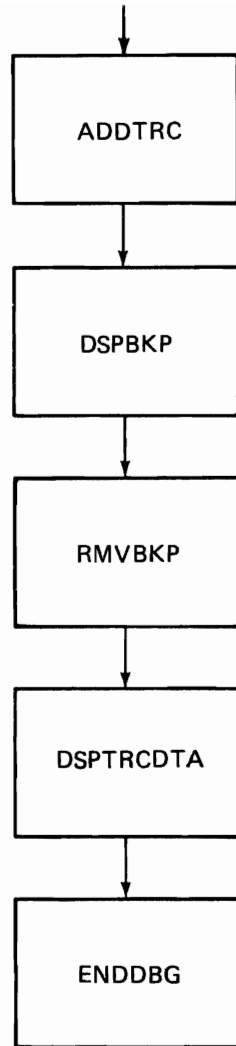
* DISCPC is to be calculated by dividing DCTYTD by PCHYTD.

USING DEBUG MODE (DAY 5)

The objective of this exercise is to use the System/38 debug feature. It will use the program you modified to access a display subfile. This should free you to concentrate on the debug commands and features, instead of the program itself. (Use the program listing generated at step 40 for this exercise.)



44. Obtain a command entry display by pressing CF3 at the Programmer Menu. Place the program APC40x/APR40x in debug mode by entering the appropriate command (INCREASE TRACE MAXIMUM TO 400 STATEMENTS).
45. Select and enter the appropriate command to yield a breakpoint (#1) at the statement following the one writing the subfile display. At this breakpoint, specify the display of these variables: IN75, IN76, IN77, and CODE1.
46. Execute your program (APC40x or APR40x) and enter "SMITH", then "ACE" to reach the breakpoint.
47. At the breakpoint, do the following:
 - a. Verify variables displayed
 - b. Modify the variable CODE1 to be "BESTCO"
 - c. Add another breakpoint (#2) at the last executable statement in your program.
 - d. Continue with program execution.
48. Verify that the subfile begins with the record for "Best and Company." Press the ENTER key.



49. At breakpoint #1 enter the appropriate command to yield a trace of the program. Continue program execution.

50. Press CF 1. This should yield breakpoint #1. Press ENTER to go to breakpoint #2.

51. Remove all breakpoints.

52. Display and verify the trace data.

53. Terminate debug mode.

APW LAB COMPLETE

System Familiarization Exercise for the RPG III Programmer

The objective of this set of exercises is to enter a simple program using the S/38 facilities, compile it, and execute it.

Read the instructions carefully, then perform the keying required.

At the conclusion of these exercises, you will have created an inquiry program that utilizes a display file and a logical file.

If the inquiry program does not execute, or anything not described in these instructions occurs, call the instructor or lab assistant for help.

READ ALL INSTRUCTIONS CAREFULLY BEFORE BEGINNING

1. Your assigned work station should have a display that is blank except for the upper left. The upper left should read:

Enter Password to sign on:

_ (cursor)

If your display is not like this, call the instructor for assistance.

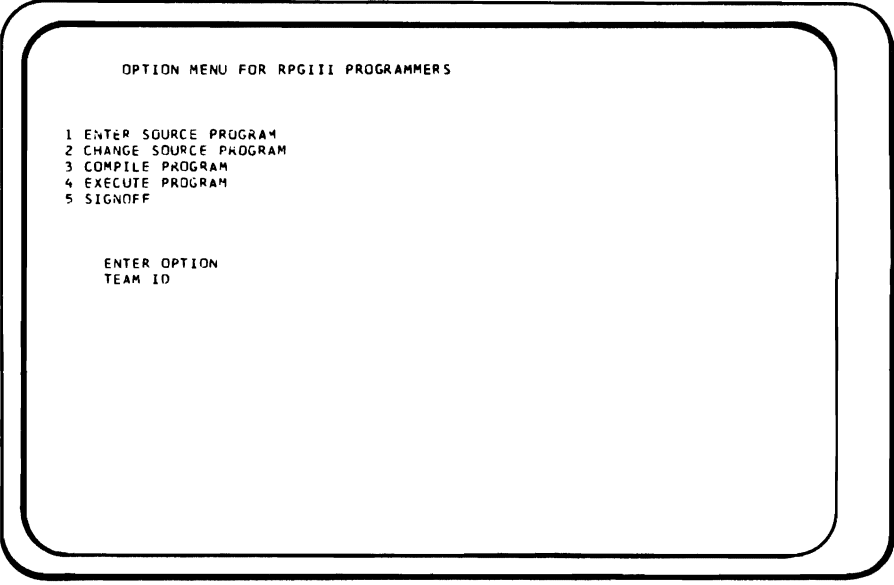
Otherwise, sign on by:

Keying the following password "APWRPG".

Then press the "ENTER" key.

Note: These characters will not appear as you key, but the cursor will move.

In a few seconds, a menu screen should appear displaying the following:



```
OPTION MENU FOR RPGIII PROGRAMMERS

1 ENTER SOURCE PROGRAM
2 CHANGE SOURCE PROGRAM
3 COMPILE PROGRAM
4 EXECUTE PROGRAM
5 SIGNOFF

ENTER OPTION
TEAM ID
```

2. The first thing you want to do is enter the source program statements. In order to retrieve the formatted Source Entry Screen:
 - a. Key the number "1" to the right of the word "OPTION" (Cursor will automatically move to the team # area).
 - b. Key the character assigned to your team by the instructor.
 - c. Press the "ENTER" key.

3. You are now ready to enter the File Descriptions and Calculations for the program. The cursor is positioned in the upper left corner of the screen. Key "IPF" (Insert with Prompting for File description format) as shown in figure 1. Press "ENTER".

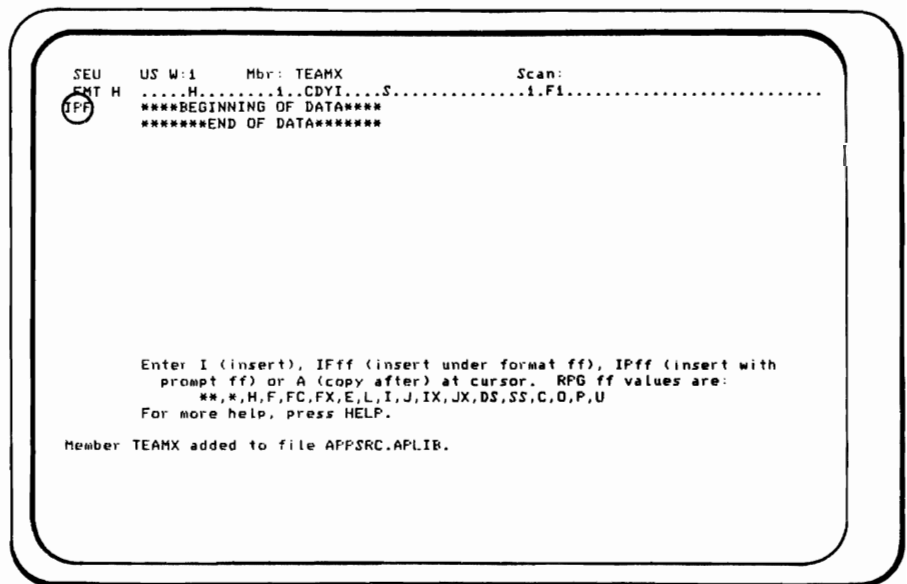


Figure 1

- Key the first File Description as shown in figure 2. After completion of entry (WORKSTN), press "ENTER".

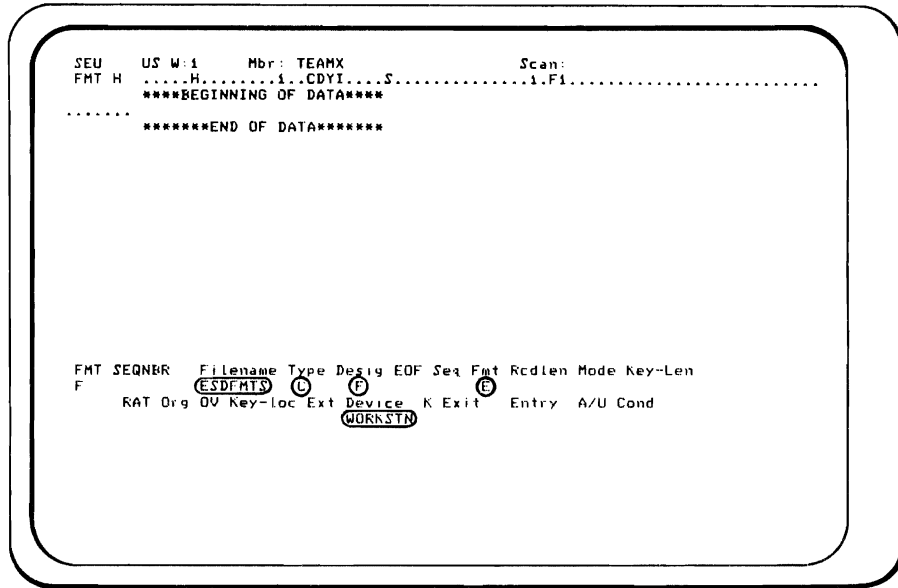


Figure 2

- Key the second File Description as shown in figure 3. After keying the last entry (DISK), press "ENTER".

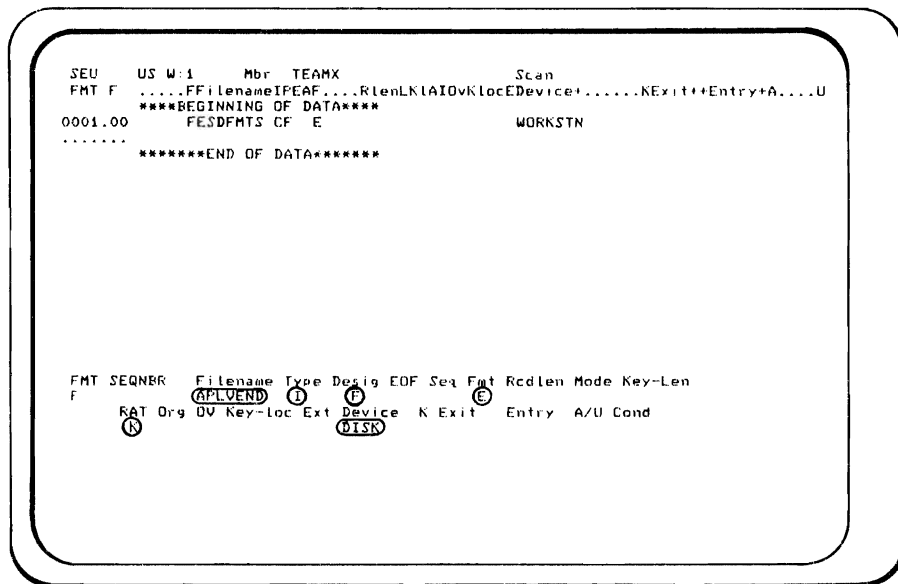



Figure 3

6. You are now ready to enter the calculations. However, the File Description format is still displayed and the cursor is positioned to allow entry of another File Description specification. Press the "Field Backspace"  key to position the cursor in the "SEQNBR" field.
7. Key "IPC" (Insert with Prompting-Calculation format) as shown in figure 4 and press "ENTER".

```

SEU      US W:1      Mbr: TEAMX                      Scan:
FMT F    .....FFilename IPEAF.....RlenLNIAIDvKlocEDevice+.....KExi
          ****BEGINNING OF DATA****
0001.00      FESDFMTS CF E                          WORKSTN
0002.00      FAFLVEND IF E                          K      DISK
          .....
          *****END OF DATA*****

FMT SEQNBR  Filename Type Desig EOF Seq Fmt Rcdlen Mode Key-Loc
F          (IPC)
          RAT Org OV Key-loc Ext Device K Exit Entry A/U Cond

```

Figure 4

- Key the first calculation statement as shown in figure 5. After keying the last entry, (TAG), press "ENTER".

```

SEU   US W:1   Mbr: TEAMX                               Scan:
FMT F   ....FFilenameIPEAF....RlenLKlAIOvKlocEDevice+.....KExi
      ****BEGINNING OF DATA****
0001.00   FESDFMTS CF E                               WORKSTN
0002.00   FAFLVEND IF E                               K           DISK
.....
      *****END OF DATA*****

FMT SEQNBR   Level N01N02N03 Factor1   Opcode Factor2
C                               (LOOP)   (TAG)
      Result Len Dec H/A HiLoEq Comment

```

Figure 5

- Key the second calculation statement as shown in figure 6. After keying the entry (VNDINQ), press "ENTER".

```

SEU   US W:1   Mbr: TEAMX                               Scan:
FMT F   ....FFilenameIPEAF....RlenLKlAIOvKlocEDevice+.....KExi
      ****BEGINNING OF DATA****
0001.00   FESDFMTS CF E                               WORKSTN
0002.00   FAFLVEND IF E                               K           DISK
0003.00   C           LOOP           TAG
.....
      *****END OF DATA*****

FMT SEQNBR   Level N01N02N03 Factor1   Opcode Factor2
C                               (EXPMT) (VNDINQ)
      Result Len Dec H/A HiLoEq Comment

```

Figure 6

10. Key the third calculation statement as shown in figure 7. After keying the entry, (50), press "ENTER".

```

SEU      US W:1      Mbr: TEAMX      Scan:
FMT F    .....FFilenameIFEAF.....RlenLKlAIOvKlocEDevice+.....KExi
*****BEGINNING OF DATA*****
0001.00  FESDFHTS CF E      WORKSTN
0002.00  FAPLVEND IF E      K      DISK
0003.00  C      LOOP      TAG
0004.00  C      EXFMTUNDING
.....
*****END OF DATA*****

FMT SEQNBR  Level N01N02N03 Factor1  Oprnd# Factor2
C           Result Len Dec H/A HiLoEq Comment
                               (50)
                               (NEXT) (CHAIN) (APLVEND)

```

Figure 7

11. Key the fourth calculation statement as shown in figure 8. After keying the entry, (LR), press "ENTER".

```

SEU      US W:1      Mbr: TEAMX      Scan:
FMT F    .....FFilenameIFEAF.....RlenLKlAIOvKlocEDevice+.....KExi
*****BEGINNING OF DATA*****
0001.00  FESDFHTS CF E      WORKSTN
0002.00  FAPLVEND IF E      K      DISK
0003.00  C      LOOP      TAG
0004.00  C      EXFMTUNDING
0005.00  C      NEXT      CHAINAPLVEND      50
.....
*****END OF DATA*****

FMT SEQNBR  Level N01N02N03 Factor1  Oprnd# Factor2
C           Result Len Dec H/A HiLoEq Comment
                               (50) (LR)
                               (NEXT) (CHAIN) (APLVEND) (SETON)

```

Figure 8

12. Key the last calculation statement as shown in figure 9. After keying the entry, (LOOP), press "ENTER".

```

SEU      US W.1      Mbr: TEAMX      Scan
FMT F    .....FFilenameIPEAF....RlenLKIAIOvKLocEDevice+.....KExi
        ****BEGINNING OF DATA****
0001.00      FESDFMTS CF E          WORKSTN
0002.00      FAPLVEND IF E          K          DISK
0003.00      C          LOOP          TAG
0004.00      C          NEXT          EXFMTVNDING
0005.00      C          99          CHAINAPLVEND          50
0006.00      C          SETON          LR
        .....
        *****END OF DATA*****

FMT SEQNR  Level NO1NO2NO3 Factor1  Noode Factor2
C          (N99)          (GOTO) (LOOP)
        Result Len Dec H/A HiLoEq Comment

```

Figure 9

13. At this point, you are ready to call for the Exit Application prompt, (End-of-Job). To do this, press the "CMD" key and the "1" (at the top of the keyboard). This will cause the Exit Application Prompt (figure 10) to appear.

```

SEU                      EXIT

Select one of the following:
  1. Exit without update
  2. Exit and update member
  3. Exit and create a new member
  4. Update member, no exit
  5. Create member, no exit
  6. Return to edit screen

Option: 2

MEMBER      FILE      LIÉ
TEAMX      APPSRC     AFL
Resequence member (Y N):  Y Start: 1.00 Increa

For options 1 to 3
Return to member list (Y N): N

For options 1 to 6:
Print source listing (Y N)  N

TOTAL RECORDS      ADDED      CHANGED      DELETED      SYNTAX
7                  7

```

Figure 10

14. Simply press the "ENTER" key to return to the original menu.
15. You are now ready to compile the program, option 3. Make entries as follows:
 - a. Key the number "3" to the right of "OPTION".
 - b. Key your team character to the right of "TEAM#".
 - c. Press the "ENTER" key.
16. During the compilation, input will be inhibited at your work station (indicated by a square of light on the right side of the display—next to a printed label "Input Inhibited"). Your keyboard will be locked at this time.
17. When the light goes out, your work station will be ready to accept the next request, which will be to execute the program, option 4. Make the following entries at this time:
 - a. Key the number "4" to the right of "OPTION".
 - b. Key your team character to the right of "TEAM#".
 - c. Press the "ENTER" key.
18. Follow the instructions on the "VENDOR MASTER INQUIRY" display. The following vendor numbers are valid entries:
 - 00221
 - 00714
 - 05075
 - 10504
 - 11002

Be sure to press the "ENTER" key after keying the vendor number.
19. Enter an invalid vendor number (95137) to verify that the error message appears. When the error message is displayed, press the "ERROR RESET" key to free the keyboard.
20. When satisfied with results of inquiries, bring program to end-of-job by:
 - a. Pressing "CMD" key.
 - b. Pressing the "1" key at the top of the keyboard.
21. This is the end of the familiarization exercise, therefore, you should "sign-off" by selecting option 5.
 - a. Key the number "5" to the right of "OPTION".
 - b. Press the "ENTER" key.

System Familiarization Exercise for the COBOL Programmer

The objective of this set of exercises is to enter a simple (24-line COBOL) program using the System/38 facilities, compile it, and execute it. It also lets you concentrate on becoming familiar with the workstation keyboard.

When completed, you will have created an inquiry program that uses both display and logical-database files.

Should you encounter any difficulties or unusual situations along the way, be sure to obtain help from the instructor or lab assistant.

READ ALL OF THE INSTRUCTIONS FOR EACH STEP BEFORE PERFORMING IT!!

1. Your assigned work station should have a display that is blank except for the upper left. The upper left should read:

Enter Password to sign on:

_ (cursor)

If your display is not like this, call the instructor for assistance.

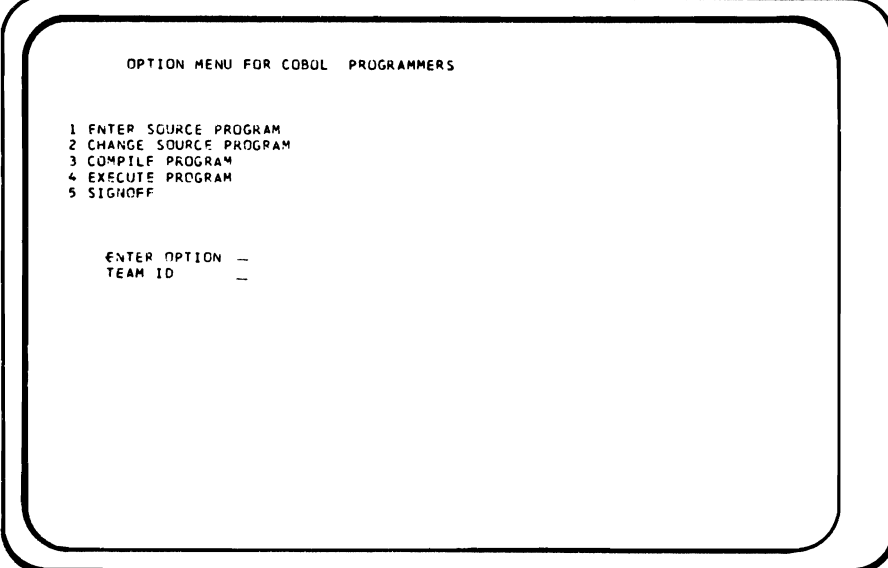
Otherwise, sign on by:

Keying the following password "APWCBL".

Then press the "ENTER" key.

Note: These characters will not appear as you key, but the cursor will move.

In a few seconds, a menu screen should appear displaying the following:



```
OPTION MENU FOR COBOL PROGRAMMERS

1 ENTER SOURCE PROGRAM
2 CHANGE SOURCE PROGRAM
3 COMPILE PROGRAM
4 EXECUTE PROGRAM
5 SIGNOFF

ENTER OPTION _
TEAM ID _
```

2. The first thing you want to do is enter the COBOL program source statements. To do this:
 - a. Key the number "1" to the right of the word "OPTION". (The cursor automatically moves to team # area.)
 - b. Key the character assigned your team by the instructor.
 - c. Press the "ENTER" key.
3. You are now ready to use the System/38 Edit Source Utility to enter your COBOL statements. The cursor is positioned at the upper left. Key "IPCB" (Insert with Prompting for COBOL statements) as shown in figure 1. Press "ENTER".

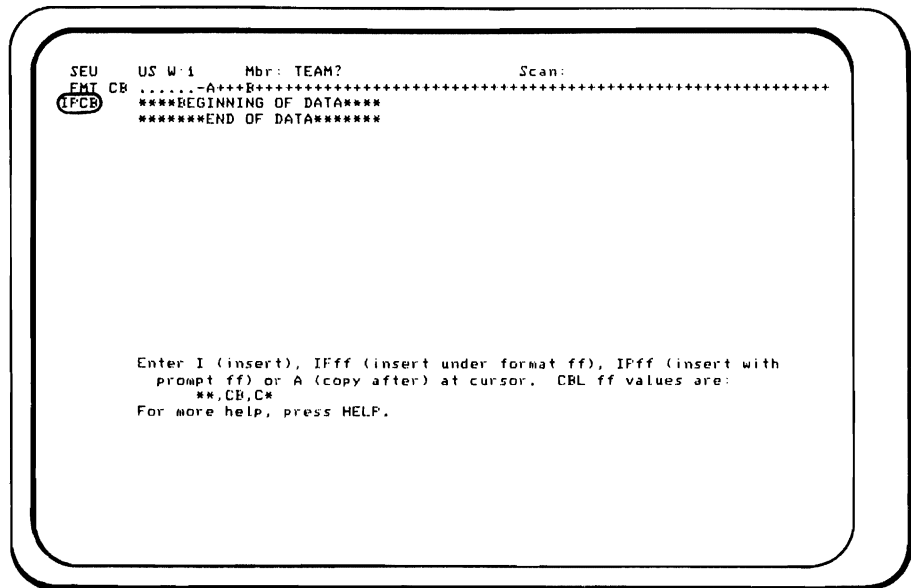


Figure 1

4. Key in the first line (ENVIRONMENT DIVISION) as shown in figure 2.

```
SEU   US W:1   Mbr: TEAM?           Scan:
FMT CB .....-A+++B+*****
      ****BEGINNING OF DATA****
.....
      *****END OF DATA*****

FMT SEQNBR  Cont Area-A Area-B
CB          (ENV) (RONMENT DIVISION)
```

Figure 2

After completion of the entry, press "ENTER".

5. Key in line 2 as shown in figure 3; then press "ENTER".

```
SEU   US W:1   Mbr: TEAM?           Scan:
FMT CB .....-A+++B+*****
      ****BEGINNING OF DATA****
0001.00    ENVIRONMENT DIVISION.
.....
      *****END OF DATA*****

FMT SEQNBR  Cont Area-A Area-B
CB          (CONF) (IGURATION SECTION)
```

Figure 3

6. Key in line 3 as shown in figure 4; then press "ENTER".

```
SEU  US W:1  Mbr: TEAM?                               Scan:
FMT CB .....-A+++B+++++.....
      ****BEGINNING OF DATA****
0001.00 ENVIRONMENT DIVISION.
0002.00  CONFIGURATION SECTION.
.....
      *****END OF DATA*****

FMT SEQNBR  Cont Area-A Area-B
CB          (SOUR) (CE-COMPUTER. IBM-S38)
```

Figure 4

7. Key in line 4 as shown in figure 5; then press "ENTER".

```
SEU  US W:1  Mbr: TEAM?                               Scan:
FMT CB .....-A+++B+++++.....
      ****BEGINNING OF DATA****
0001.00 ENVIRONMENT DIVISION.
0002.00  CONFIGURATION SECTION.
0003.00 SOURCE-COMPUTER. IBM-S38.
.....
      *****END OF DATA*****

FMT SEQNBR  Cont Area-A Area-B
CB          (OBJE) (CT-COMPUTER. IBM-S38)
```

Figure 5

8. Key in line 5 as shown in figure 6; then press "ENTER".

```
SEU   US W:1   Mbr: TEAM?                               Scan:
FMT CB .....-A+++B+++++*****
      ****BEGINNING OF DATA****
0001.00 ENVIRONMENT DIVISION.
0002.00 CONFIGURATION SECTION.
0003.00 SOURCE-COMPUTER. IBM-S38.
0004.00 OBJECT-COMPUTER. IBM-S38.
.....
      *****END OF DATA*****

FMT SEQNBR Cont Area-A Area-B
CB          (INPU) (T-OUTPUT SECTION)
```

Figure 6

9. Key in line 6 as shown in figure 7; then press "ENTER".

```
SEU   US W:1   Mbr: TEAM?                               Scan:
FMT CB .....-A+++B+++++*****
      ****BEGINNING OF DATA****
0001.00 ENVIRONMENT DIVISION.
0002.00 CONFIGURATION SECTION.
0003.00 SOURCE-COMPUTER. IBM-S38.
0004.00 OBJECT-COMPUTER. IBM-S38.
0005.00 INPUT-OUTPUT SECTION.
.....
      *****END OF DATA*****

FMT SEQNBR Cont Area-A Area-B
CB          (FILE) (CONTROL)
```

Figure 7

10. Key in line 7 as shown in figure 8; then press "ENTER".

```
SEU   US W:1   Mbr: TEAM?                               Scan:
FMT CB .....-A+++B+++++*****
      ****BEGINNING OF DATA****
0001.00 ENVIRONMENT DIVISION.
0002.00 CONFIGURATION SECTION.
0003.00 SOURCE-COMPUTER. IBM-S38.
0004.00 OBJECT-COMPUTER. IBM-S38.
0005.00 INPUT-OUTPUT SECTION.
0006.00 FILE-CONTROL.
.....
      *****END OF DATA*****

FMT SEQNBR  Cont Area-A Area-B
CB          _____ SELECT DSP1 ASSIGN WORKSTATION-ESDFMTS _____
```

Figure 8

11. (The warning message at the bottom indicates that you have not yet finished entering the SELECT statement.) Key in line 8 as shown in figure 9; then press "ENTER".

```
SEU   US W:1   Mbr: TEAM?                               Scan:
FMT CB .....-A+++B+++++*****
      ****BEGINNING OF DATA****
0001.00 ENVIRONMENT DIVISION.
0002.00 CONFIGURATION SECTION.
0003.00 SOURCE-COMPUTER. IBM-S38.
0004.00 OBJECT-COMPUTER. IBM-S38.
0005.00 INPUT-OUTPUT SECTION.
0006.00 FILE-CONTROL.
0007.00 SELECT DSP1 ASSIGN WORKSTATION-ESDFMTS
.....
      *****END OF DATA*****

FMT SEQNBR  Cont Area-A Area-B
CB          _____ ORGANIZATION TRANSACTION _____

A period is required before $EOF$. Line not accepted.
```

Figure 9

12. Note that the warning message disappears because line 8 completed the SELECT statement. Now key in line 9 as shown in figure 10; then press "ENTER".

```

SEU   US W:1   Mbr: TEAM?                               Scan
FMT CB .....-A+++B+*****
****BEGINNING OF DATA****
0001.00 ENVIRONMENT DIVISION.
0002.00 CONFIGURATION SECTION.
0003.00 SOURCE-COMPUTER. IBM-S38.
0004.00 OBJECT-COMPUTER. IBM-S38.
0005.00 INPUT-OUTPUT SECTION.
0006.00 FILE-CONTROL.
0007.00 SELECT DSP1 ASSIGN WORKSTATION-ESDFMTS
0008.00 ORGANIZATION TRANSACTION.
.....
*****END OF DATA*****

FMT SEQNBR  Cont Area-A Area-B
CB          _____ SELECT DB1 ASSIGN DATABASE-APLVEND ORGANIZATION

```

Figure 10

13. Key in line 10 as shown in figure 11; then press "ENTER".

```

SEU   US W:1   Mbr: TEAM?                               Scan
FMT CB .....-A+++B+*****
****BEGINNING OF DATA****
0001.00 ENVIRONMENT DIVISION.
0002.00 CONFIGURATION SECTION.
0003.00 SOURCE-COMPUTER. IBM-S38.
0004.00 OBJECT-COMPUTER. IBM-S38.
0005.00 INPUT-OUTPUT SECTION.
0006.00 FILE-CONTROL.
0007.00 SELECT DSP1 ASSIGN WORKSTATION-ESDFMTS
0008.00 ORGANIZATION TRANSACTION.
0009.00 SELECT DB1 ASSIGN DATABASE-APLVEND ORGANIZATION
.....
*****END OF DATA*****

FMT SEQNBR  Cont Area-A Area-B
CB          _____ INDEXED ACCESS RANDOM RECORD VNDNBR OF VENDMAST.

$EOF$ invalid organization. Line not accepted.

```

Figure 11

14. Key in line 11 as shown in figure 12; then press "ENTER".

```
SEU   US W:1   Mbr: TEAM?                               Scan
FMT CB .....-A+++B+++++*****
****BEGINNING OF DATA****
0001.00      ENVIRONMENT DIVISION.
0002.00      CONFIGURATION SECTION.
0003.00      SOURCE-COMPUTER. IBM-S3B.
0004.00      OBJECT-COMPUTER. IBM-S3B.
0005.00      INPUT-OUTPUT SECTION.
0006.00      FILE-CONTROL.
0007.00      SELECT DSP1 ASSIGN WORKSTATION-ESDFMTS
0008.00      ORGANIZATION TRANSACTION.
0009.00      SELECT DB1 ASSIGN DATABASE-APLVEND ORGANIZATION
0010.00      INDEXED ACCESS RANDOM RECORD VNDNBR OF VENDMAST.
.....
*****END OF DATA*****

FMT SEQNBR  Cont Area-A Area-B
CB          (DATA) (DIVISION)
```

Figure 12

15. Key in line 12 as shown in figure 13; then press "ENTER".

```
SEU   US W:1   Mbr: TEAM?                               Scan
FMT CB .....-A+++B+++++*****
****BEGINNING OF DATA****
0001.00      ENVIRONMENT DIVISION.
0002.00      CONFIGURATION SECTION.
0003.00      SOURCE-COMPUTER. IBM-S3B.
0004.00      OBJECT-COMPUTER. IBM-S3B.
0005.00      INPUT-OUTPUT SECTION.
0006.00      FILE-CONTROL.
0007.00      SELECT DSP1 ASSIGN WORKSTATION-ESDFMTS
0008.00      ORGANIZATION TRANSACTION.
0009.00      SELECT DB1 ASSIGN DATABASE-APLVEND ORGANIZATION
0010.00      INDEXED ACCESS RANDOM RECORD VNDNBR OF VENDMAST.
0011.00      DATA DIVISION.
.....
*****END OF DATA*****

FMT SEQNBR  Cont Area-A Area-B
CB          (FILE) (SECTION)
```

Figure 13

16. Key in line 13 as shown in figure 14; then press "ENTER".

```
SEU   US W:1   Mbr: TEAM?                               Scan:
FMT CB .....-A+++B+++++*****
      ****BEGINNING OF DATA****
0001.00 ENVIRONMENT DIVISION.
0002.00 CONFIGURATION SECTION.
0003.00 SOURCE-COMPUTER. IBM-S38.
0004.00 OBJECT-COMPUTER. IBM-S38.
0005.00 INPUT-OUTPUT SECTION.
0006.00 FILE-CONTROL.
0007.00 SELECT DSP1 ASSIGN WORKSTATION-ESDFMTS
0008.00 ORGANIZATION TRANSACTION.
0009.00 SELECT DB1 ASSIGN DATABASE-APLVEND ORGANIZATION
0010.00 INDEXED ACCESS RANDOM RECORD VNDNBR OF VENDMAST.
0011.00 DATA DIVISION.
0012.00 FILE SECTION.
.....
      *****END OF DATA*****

FMT SEQNBR   Cont Area-A Area-B
CB           (FD)  (DSP1 LABEL RECORD OMITTED)
```

Figure 14

17. Key in line 14 as shown in figure 15; then press "ENTER".

```
SEU   US W:1   Mbr: TEAM?                               Scan:
FMT CB .....-A+++B+++++*****
      ****BEGINNING OF DATA****
.0001.00 ENVIRONMENT DIVISION.
0002.00 CONFIGURATION SECTION.
0003.00 SOURCE-COMPUTER. IBM-S38.
0004.00 OBJECT-COMPUTER. IBM-S38.
0005.00 INPUT-OUTPUT SECTION.
0006.00 FILE-CONTROL.
0007.00 SELECT DSP1 ASSIGN WORKSTATION-ESDFMTS
0008.00 ORGANIZATION TRANSACTION.
0009.00 SELECT DB1 ASSIGN DATABASE-APLVEND ORGANIZATION
0010.00 INDEXED ACCESS RANDOM RECORD VNDNBR OF VENDMAST.
0011.00 DATA DIVISION.
0012.00 FILE SECTION.
0013.00 FD DSP1 LABEL RECORD OMITTED.
.....
      *****END OF DATA*****

FMT SEQNBR   Cont Area-A Area-B
CB           (03) (DSP. COPY DDS-VNDING OF ESDFMTS)
```

Figure 15

18. Notice the COPY warning message at the bottom. This simply means that the COPY is not performed by the Edit Source Utility—but will be performed later, when you compile the program. Notice, also, that the COPY warning message keeps line 14 in the entry area. To continue entry, press the “FIELD BACKSPACE”



key until the cursor is in the “SEQNBR” field. Now key in “IPCB” as shown in figure 16; then press “ENTER”.

```

SEU   US W:1   Mbr: TEAM?                               Scan:
FMT CB .....-A+++B+++++*****
****BEGINNING OF DATA****
0001.00 ENVIRONMENT DIVISION.
0002.00 CONFIGURATION SECTION.
0003.00 SOURCE-COMPUTER. IBM-S38.
0004.00 OBJECT-COMPUTER. IBM-S38.
0005.00 INPUT-OUTPUT SECTION.
0006.00 FILE-CONTROL.
0007.00 SELECT DSP1 ASSIGN WORKSTATION-ESDFMTS
0008.00 ORGANIZATION TRANSACTION.
0009.00 SELECT DB1 ASSIGN DATABASE-APLVEND ORGANIZATION
0010.00 INDEXED ACCESS RANDOM RECORD VNDNBR OF VENDMAST.
0011.00 DATA DIVISION.
0012.00 FILE SECTION.
0013.00 FD DSP1 LABEL RECORD OMITTED.
0014.00 01 DSP COPY DDS-VNDINGQ OF ESDFMTS.
*****END OF DATA*****

FMT SEQNBR Cont Area-A Area-B
CB IPCB 00 01 DSP. COPY DDS-VNDINGQ OF ESDFMTS.

Syntax of COPY statement checked but COPY not performed.

```

Figure 16

19. Key in line 15 as shown in figure 17; then press “ENTER.”

```

SEU   US W:1   Mbr: TEAM?                               Scan:
FMT CB .....-A+++B+++++*****
****BEGINNING OF DATA****
0001.00 ENVIRONMENT DIVISION.
0002.00 CONFIGURATION SECTION.
0003.00 SOURCE-COMPUTER. IBM-S38.
0004.00 OBJECT-COMPUTER. IBM-S38.
0005.00 INPUT-OUTPUT SECTION.
0006.00 FILE-CONTROL.
0007.00 SELECT DSP1 ASSIGN WORKSTATION-ESDFMTS
0008.00 ORGANIZATION TRANSACTION.
0009.00 SELECT DB1 ASSIGN DATABASE-APLVEND ORGANIZATION
0010.00 INDEXED ACCESS RANDOM RECORD VNDNBR OF VENDMAST.
0011.00 DATA DIVISION.
0012.00 FILE SECTION.
0013.00 FD DSP1 LABEL RECORD OMITTED.
0014.00 01 DSP. COPY DDS-VNDINGQ OF ESDFMTS.
.....

FMT SEQNBR Cont Area-A Area-B
CB 01 DB1 LABEL RECORDS STANDARD

Syntax of COPY statement checked but COPY not performed.

```

Figure 17

20. Key in line 16 as shown in figure 18; then press "ENTER".

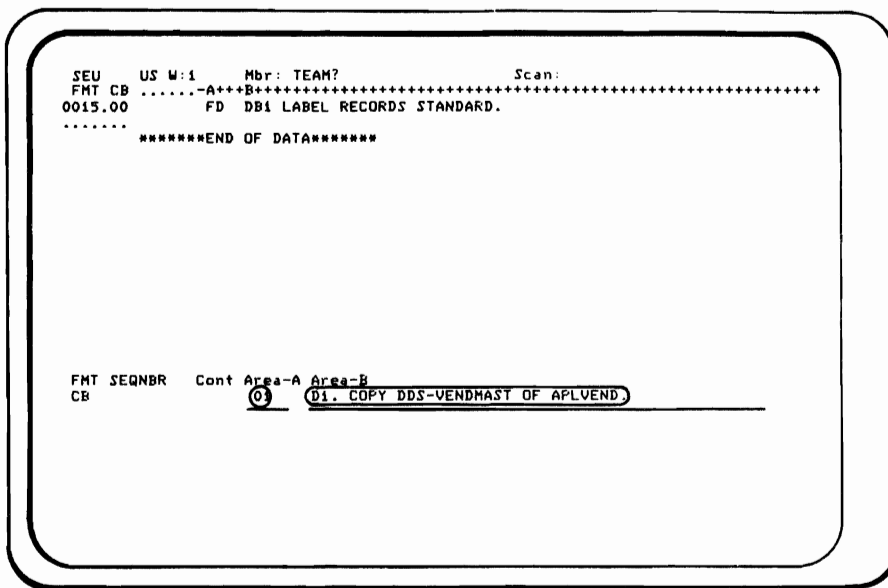


Figure 18

21. Key in "IPCB" as shown in figure 19 (to acknowledge COPY-warning message and continue inserting).

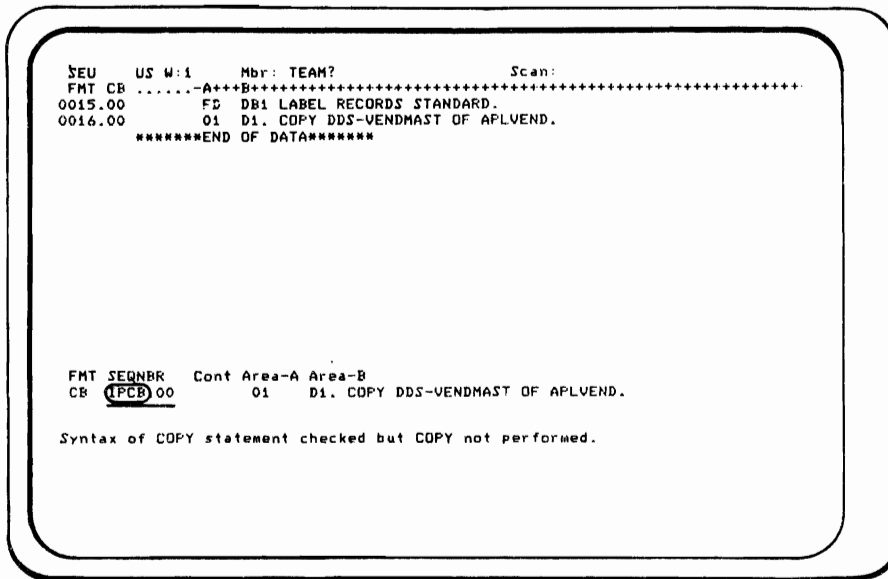


Figure 19

22. Key in line 17 as shown in figure 20; then press "ENTER".

```
SEU    US W:1    Mbr: TEAM?                Scan:
FMT CB .....-A+++B+++++
0015.00      FD  DB1 LABEL RECORDS STANDARD.
0016.00      01  D1. COPY DDS-VENDMAST OF APLVEND.
.....
*****END OF DATA*****

FMT SEQNBR  Cont Area-A Area-B
CB          (PROC) (EDURE DIVISION)

Syntax of COPY statement checked but COPY not performed.
```

Figure 20

23. Key in line 18 as shown in figure 21; then press "ENTER".

```
SEU    US W:1    Mbr: TEAM?                Scan:
FMT CB .....-A+++B+++++
0015.00      FD  DB1 LABEL RECORDS STANDARD.
0016.00      01  D1. COPY DDS-VENDMAST OF APLVEND.
0017.00      01  D1. COPY DDS-VENDMAST OF APLVEND.
.....
*****END OF DATA*****

FMT SEQNBR  Cont Area-A Area-B
CB          (BEG) (N. OPEN I-O DSP1 INPUT DB1. MOVE ZEROS TO VNDING-O)

Syntax of COPY statement checked but COPY not performed.
```

Figure 21

24. Key in line 19 as shown in figure 22; then press "ENTER".

```
SEU   US W:1   Mbr: TEAM?                               Scan:
FMT CB .....-A+++B+++++.....
0015.00      FD DB1 LABEL RECORDS STANDARD.
0016.00      01 D1. COPY DDS-VENDMAST OF APLVEND.
0017.00      PROCEDURE DIVISION.
0018.00      BEGIN. OPEN I-O DSP1 INPUT DB1. MOVE ZEROS TO VNDINQ-O.
.....
*****END OF DATA*****

FMT SEQNBR  Cont Area-A Area-B
CB          LOOP . WRITE DSP FORMAT "VNDINQ"

Syntax of COPY statement checked but COPY not performed.
```

Figure 22

25. Key in line 20 as shown in figure 23; then press "ENTER".

```
SEU   US W:1   Mbr: TEAM?                               Scan
FMT CB .....-A+++B+++++.....
0015.00      FD DB1 LABEL RECORDS STANDARD.
0016.00      01 D1. COPY DDS-VENDMAST OF APLVEND.
0017.00      PROCEDURE DIVISION.
0018.00      BEGIN. OPEN I-O DSP1 INPUT DB1. MOVE ZEROS TO VNDINQ-O.
0019.00      LOOP. WRITE DSP FORMAT "VNDINQ".
.....
*****END OF DATA*****

FMT SEQNBR  Cont Area-A Area-B
CR 0020.00  _____ READ DSP1. IF IN99 = B"1" THEN GO QUIT.

Syntax of COPY statement checked but COPY not performed.
```

Figure 23

26. Key in line 21 as shown in figure 24 (don't forget the period at the end); press "ENTER".

```

SEU  US W:1  Mbr TEAM?                               Scan:
FMT CB .....-A+++B+++++.....
0015.00      FD DB1 LABEL RECORDS STANDARD.
0016.00      01 D1. COPY DDS-VENDMAST OF APLVEND.
0017.00      PROCEDURE DIVISION.
0018.00      BEGIN. OPEN I-O DSP1 INPUT DB1. MOVE ZEROS TO VNDINQ-O.
0019.00      LOOP. WRITE DSP FORMAT "VNDINQ".
0020.00      READ DSP1. IF IN99 = B"1" THEN GO QUIT.
.....
*****END OF DATA*****

FMT SEQNBR  Cont Area-A Area-B
CB          _____ MOVE B"0" TO IN50. MOVE NEXT-DDS TO VNDNBR OF VENDMAST
①
Syntax of COPY statement checked but COPY not performed.

```

Figure 24

27. Key in line 22 as shown in figure 25; then press "ENTER".

```

SEU  US W:1  Mbr TEAM?                               Scan
FMT CB .....-A+++B+++++.....
0015.00      FD DB1 LABEL RECORDS STANDARD.
0016.00      01 D1. COPY DDS-VENDMAST OF APLVEND.
0017.00      PROCEDURE DIVISION.
0018.00      BEGIN. OPEN I-O DSP1 INPUT DB1. MOVE ZEROS TO VNDINQ-O.
0019.00      LOOP. WRITE DSP FORMAT "VNDINQ".
0020.00      READ DSP1. IF IN99 = B"1" THEN GO QUIT.
0021.00      MOVE B"0" TO IN50. MOVE NEXT-DDS TO VNDNBR OF VENDMAST.
.....
*****END OF DATA*****

FMT SEQNBR  Cont Area-A Area-B
CB          _____ READ DB1 INVALID MOVE B"1" TO IN50 GO LOOP.
Syntax of COPY statement checked but COPY not performed.

```

Figure 25

28. Key in line 23 as shown in figure 26; then press "ENTER".

```
SEU      US W:1      Mbr: TEAM?                      Scan:
FMT CB   .....-A+++B+++++.....
0015.00  FD DB1 LABEL RECORDS STANDARD.
0016.00  01 D1. COPY DDS-VENDMAST OF APLVEND.
0017.00  PROCEDURE DIVISION.
0018.00  BEGIN. OPEN I-O DSP1 INPUT DB1. MOVE ZEROS TO VNDINQ-O.
0019.00  LOOP. WRITE DSP FORMAT "VNDINQ".
0020.00  READ DSP1. IF IN99 = B"1" THEN GO QUIT.
0021.00  MOVE B"0" TO IN50. MOVE NEXT-DDS TO VNDNBR OF VENDMAST.
0022.00  READ DB1 INVALID MOVE B"1" TO IN50 GO LOOP.
.....
*****END OF DATA*****

FMT SEQNBR  Cont Area-A Area-B
CB          _____ MOVE CORR VENDMAST TO VNDINQ-O. GO LOOP.

Syntax of COPY statement checked but COPY not performed.
```

Figure 26

29. Key in line 24 as shown in figure 27; then press "ENTER".

```
SEU      US W:1      Mbr: TEAM?                      Scan:
FMT CB   .....-A+++B+++++.....
0015.00  FD DB1 LABEL RECORDS STANDARD.
0016.00  01 D1. COPY DDS-VENDMAST OF APLVEND.
0017.00  PROCEDURE DIVISION.
0018.00  BEGIN. OPEN I-O DSP1 INPUT DB1. MOVE ZEROS TO VNDINQ-O.
0019.00  LOOP. WRITE DSP FORMAT "VNDINQ".
0020.00  READ DSP1. IF IN99 = B"1" THEN GO QUIT.
0021.00  MOVE B"0" TO IN50. MOVE NEXT-DDS TO VNDNBR OF VENDMAST.
0022.00  READ DB1 INVALID MOVE B"1" TO IN50 GO LOOP.
0023.00  MOVE CORR VENDMAST TO VNDINQ-O. GO LOOP.
.....
*****END OF DATA*****

FMT SEQNBR  Cont Area-A Area-B
CB          _____ QUIT. CLOSE DSP1 DB1. STOP RUN.

Syntax of COPY statement checked but COPY not performed.
```

Figure 27

30. Now you are ready to exit the Edit Source Utility. To do this, press the "CMD" key and the "1" (at the top of the keyboard). This will yield the EXIT menu (figure 28). Key in a "2" as shown in figure 28; then press "ENTER".

```
SEU                EXIT

Select one of the following:
 1. Exit without update
 2. Exit and update member
 3. Exit and create a new member
 4. Update member, no exit
 5. Create member, no exit
 6. Return to editing

Option: 2

For options 2 to 5:
  Resequence member (Y N): Y
  MEMBER TEAM? FILE APPSRC LIBRARY
  Y Start: 1.00 Increment: 1.00

For options 1 to 3:
  Return to member list (Y N): N

For options 1 to 6:
  Print source listing (Y N): N

TOTAL RECORDS    ADDED    CHANGED    DELETED    SYNTAX ERRORS LEFT
      24             24             24             24             2
```

Figure 28

31. You are now ready to compile the program, option 3. Make entries as follows:
 - a. Key the number "3" to the right of "OPTION".
 - b. Key your team character to the right of "TEAM#".
 - c. Press the "ENTER" key.
32. During the compilation, input will be inhibited at your work station (indicated by a square of light on the right side of the display—next to a printed label "Input Inhibited"). Your keyboard will be locked at this time.
33. When the light goes out, your work station will be ready to accept the next request, which will be to execute the program, option 4. Make the following entries at this time:
 - a. Key the number "4" to the right of "OPTION".
 - b. Key your team character to the right of "TEAM#".
 - c. Press the "ENTER" key.
34. Follow the instructions on the "VENDOR MASTER INQUIRY" display. The following vendor numbers are valid entries:
 - 00221
 - 00714
 - 05075
 - 10504
 - 11002

Be sure to press the "ENTER" key after keying the vendor number.
35. Enter an invalid vendor number (95137) to verify that the error message appears. When the error message is displayed, press the "ERROR RESET" key to free the keyboard.
36. When satisfied with results of inquiries, bring program to end-of-job by:
 - a. Pressing "CMD" key.
 - b. Pressing the "1" key at the top of the keyboard.
37. This is the end of the familiarization exercise, therefore, you should "sign-off" by selecting option 5.
 - a. Key the number "5" to the right of "OPTION".
 - b. Press the "ENTER" key.

Accounts Payable Field Reference File

```

5714UT1 R03 M00 810708                SEU SOURCE LISTING
SOURCE FILE:      APWSRC.APWINSTLIB      MEMBR:      APPREF
SEQNBR... 1 ... 2 ... 3 ... 4 ... 5 ... 6 ... 7 ...

100      A*
1200     A** FIELD REFERENCE FILE FOR ACCOUNTS PAYABLE
300      A** STUDENT EXERCISES
400      A*
500      A          R REFFMT                TEXT('FIELD REFERENCE FILE')
600      A*
700      A** FIELDS USED IN MULTIPLE RECORDS
800      A*
900      A          VNDNPR                5 0      TEXT('VENDOR ID NUMBER')
1000     A          COLHDG('VENDOR' 'NUMBER')
1100     A          EDTCDE(Z)
1200     A          DEPTNO                3 0      TEXT('DEPARTMENT CHARGED')
1300     A          COLHDG('DEPARTMENT' 'NUMBER')
1400     A          EDTCDE(Z)
1500     A          ACTCD                1        TEXT('A=ACTIVE D=DELETE S=SUSPEND')
1600     A          COLHDG('ACTIVE' 'RECORD' 'CODE')
1700     A*
1800     A** FIELDS IN VENDOR MASTER RECORD
1900     A*
2000     A          VNDNAM                25      TEXT('VENDOR NAME')
2100     A          COLHDG('VENDOR' 'NAME')
2200     A          VNDAD1                25      TEXT('ADDRESS LINE 1')
2300     A          COLHDG('ADDRESS LINE 1')
2400     A          VNDAD2                25      TEXT('ADDRESS LINE 2')
2500     A          COLHDG('ADDRESS LINE 2')
2600     A          VNDAD3                25      TEXT('ADDRESS LINE 3')
2700     A          COLHDG('ADDRESS LINE 3')
2800     A          VNDZIP                5 0      TEXT('ZIP CODE')
2900     A          COLHDG('ZIP' 'CODE')
3000     A          EDTCDE(Z)
3100     A          VNDACD                3 0      TEXT('AREA CODE')
3200     A          COLHDG('AREA' 'CODE')
3300     A          EDTCDE(Z)
3400     A          VNDPHN                7 0      TEXT('PHONE NUMBER')
3500     A          COLHDG('PHONE')
3600     A          EDTCDE(Z)
3700     A          VTRMPC                3 3      TEXT('NORMAL PROMPT PAY DISCOUNT %')
3800     A          COLHDG('TERMS' '%')
3900     A          EDTCDE(Z)
4000     A          VTRMDA                2 0      TEXT('NORMAL NO. OF DAYS FOR TERMS')
4100     A          COLHDG('TERMS' 'DAYS')
4200     A          EDTCDE(Z)
4300     A          VNDCLS                2 0      TEXT('VENDOR CLASS')
4400     A          COLHDG('CLASS')
4500     A          EDTCDE(Z)
4600     A          VNDCLS                25      TEXT('VENDOR SALESMAN')
4700     A          COLHDG('SALESPERSON')
4800     A          DCTMTD                7 2      TEXT('DISCOUNT TAKEN THIS MONTH')
4900     A          COLHDG('DISCOUNT' 'TAKEN' 'MTD')
5000     A          DCTYTD                9 2      TEXT('DISCOUNT TAKEN THIS YEAR')
5100     A          COLHDG('DISCOUNT' 'TAKEN' 'YTD')
5200     A          PCHMTD                9 2      TEXT('PURCHASES THIS MONTH')
5300     A          COLHDG('PURCHASES' 'MTD')
5400     A          PCHYTD                11 2     TEXT('PURCHASES THIS YEAR')
5500     A          COLHDG('PURCHASES' 'YTD')
5600     A          BALOWE                9 2      TEXT('BALANCE OWED')
5700     A          COLHDG('BALANCE' 'OWED')
5800     A          SRVRTG                1        TEXT('SERVICE RATING')
5900     A          COLHDG('SERVICE' 'RATING')
6000     A          DELRTG                1        TEXT('DELIVERY RATING')
6100     A          COLHDG('DELIVERY' 'RATING')
6200     A          SCHCOD                10A     TEXT('SEARCH CODE')
6300     A          COLHDG('SEARCH' 'CODE')
6400     A          CHECKIME
6500     A          COMNNTS                25      TEXT('COMMENTS ABOUT THIS VENDOR')
6600     A          COLHDG('COMMENTS ABOUT' 'VENDOR')
6700     A*
6800     A** FIELDS USED IN TRANSACTION RECORD
6900     A*
7000     A          INVNBR                8 0      TEXT('VENDORS INVOICE AMOUNT')
7100     A          COLHDG('VENDOR' 'INVOICE' 'NUMBER')
7200     A          DATREC                6 0      TEXT('DATE RECEIVED')
7300     A          COLHDG('DATE' 'RECEIVED')
7400     A          EDTCDE(Y)
7500     A          MERCH                 7 2      TEXT('MERCHANDISE AMOUNT')
7600     A          COLHDG('MERCHANDISE' 'AMOUNT')
7700     A          NET                   7 2      TEXT('NET AMOUNT PAID')
7800     A          COLHDG('NET' 'AMOUNT' 'PAID')
7900     A          STATUS                 1        TEXT('E=ENTERED T=TO PAY D=DELETE +
8000     A          P=PAID')
8100     A          COLHDG('STATUS' 'OF' 'RECORD')
8200     A          DTPAID                6 0      TEXT('DATE PAID')
8300     A          COLHDG('DATE' 'PAID')
8400     A          EDTCDE(Y)
8500     A          CHECK#                6 0      TEXT('CHECK NUMBER')
8600     A          COLHDG('CHECK' 'NUMBER')
8700     A          EDTCDE(Z)

```

***** END OF SOURCE *****

DATA FILE WORK SHEET

APPLICATION: ACCOUNTS PAYABLE FILE NAME APPVEND

PHYSICAL

LOGICAL IF LOGICAL, PHYSICAL files used: _____

Page 1 of 2

FORMAT NAME	FIELD NAME	LENGTH	TYPE	DEC.	KEY FLD. (SEQ.)	COMMENTS
VENDMAST						VENDOR MASTER
	VNDNBR	5	N	0		VENDOR I.D.
	VNDNAM	25	A			NAME
	VNDAD1	25	A			ADDRESS LINE 1
	VNDAD2	25	A			ADDRESS LINE 2
	VNDAD3	25	A			ADDRESS LINE 3
	VNDZIP	5	N	0		ZIP CODE
	VNDACD	3	N	0		AREA CODE
	VNDPHN	7	N	0		PHONE NO.
	VTRMPC	3	N	3		TERMS DISC. %
	VTRMDA	2	N	2		TERMS-DAYS
	VNDCLS	2	N	0		CLASS
	ACTD	1	A			ACTIVITY
						A=ACTIVE
						S=SUSPENDED
						D=DELETE
	VNDSLS	25	A			SALESPERSON
	DCTMTD	7	N	2		DISCOUNT MTD
	DCTYTD	9	N	2		DISCOUNT YTD
	PCHMTD	9	N	2		PURCHASES MTD
	PCHYTD	11	N	2		PURCHASES YTD

DATA FILE WORK SHEET

APPLICATION: ACCOUNTS PAYABLE FILE NAME APPTRANx

PHYSICAL

LOGICAL IF LOGICAL, PHYSICAL files used: _____

Page 1 of 1

FORMAT NAME	FIELD NAME	LENGTH	TYPE	DEC.	KEY FLD. (SEQ.)	COMMENTS
PAYBLE						VENDOR INVOICES
	VNDNBR	5	N	0		VENDOR I.D.
	INVNBR	8	A			INVOICE NO.
	DATREC	6	N	0		DATE RECEIVED
	MERCH	7	N	2		MERCHANDISE AMOUNT
	NET	7	N	2		NET PAID
	STATUS	1	A			STATUS
						E=ENTERED
						T=TO BE PAID
						P=PAID
						D=DELETE
	DTPAID	6	N	0		DATE PAID
	CHECK#	6	N	0		CHECK NUMBER
	DEPTNO	3	N	0		DEPARTMENT CHARGED
	NOTE: THESE FIELDS ARE DEFINED IN THE ACCOUNTS					
	PAYABLE FIELD REFERENCE FILE <u>APPFREF</u> AND					
	SHOULD BE CREATED USING THE REFERENCING					
	FUNCTION.					

DISPLAY FILE – APDENTx
SCREEN LAYOUT

RECORD NAME: APENTR

```

... .. 1 ... .. 2 ... .. 3 ... .. 4 ... .. 5 ... .. 6 ... .. 7 ... .. 8
*****
1 *
2 *          ACCOUNTS PAYABLE INVOICE          DDDDDD   TT:TT:TT
3 *
4 *
5 *          VENDOR NUMBER          -----
6 *          INVOICE NUMBER          -----
7 *          DATE RECEIVED           -----
8 *          MERCHANDISE AMOUNT      -----
9 *          DEPARTMENT CHARGED      -----
10 *
11 *
12 *
13 *
14 *
15 *
16 *
17 *
18 *
19 *
20 *          PRESS ENTER TO CONTINUE          COMMAND KEY 12 - END OF JOB
21 *
22 *
23 * (ERROR MESSAGE "INVALID VENDOR NUMBER" WHEN INDICATOR 50 IS ON)
24 *
*****

```

INPUT FIELDS:						
ORDER	NAME	TYPE	LENGTH	LINE	PQS	COMMENTS FROM APPREF
1	VNDNBR	I	5,0	5	46	'VENDOR ID NUMBER
2	INVNBR	I	8,0	6	43	'VENDORS INVOICE AMOUNT
3	DATREC	I	6,0	7	43	'DATE RECEIVED
4	MERCH	I	7,2	8	43	'MERCHANDISE AMOUNT
5	DEPTND	I	3,0	9	48	'DEPARTMENT CHARGED

INDICATORS:
ATTENTION KEY 12-99

DISPLAY FILE APDSRCH SCREEN LAYOUT

RECORD NAMES: SCHCTL
SCHRCO

REVERSE IMAGE

```

... .. 1 ... .. 2 ... .. 3 ... .. 4 ... .. 5 ... .. 6 ... .. 7 ... .. 8
*****
1 * SFLPAG
2 *
3 *
4 * ENTER CHARACTERS FOR SEARCH -----> CODE 1
5 *
6 * FIELD EXIT KEY TO SEARCH
7 *
8 * CMD KEY 1 - END OF JOB
9 *
10 * VENDOR NAME SALES PERS ZIP NUMBER
11 * VNDNAM VNDSLS VNDZIP VNDNBR
12 * 00000000000000000000000000000000 00000000000000000000000000000000 66666 66666 *
13 * 00000000000000000000000000000000 00000000000000000000000000000000 66666 66666 *
14 * 00000000000000000000000000000000 00000000000000000000000000000000 66666 66666 *
15 * 00000000000000000000000000000000 00000000000000000000000000000000 66666 66666 *
16 * 00000000000000000000000000000000 00000000000000000000000000000000 66666 66666 *
17 * 00000000000000000000000000000000 00000000000000000000000000000000 66666 66666 *
18 * 00000000000000000000000000000000 00000000000000000000000000000000 66666 66666 *
19 * 00000000000000000000000000000000 00000000000000000000000000000000 66666 66666 *
20 * 00000000000000000000000000000000 00000000000000000000000000000000 66666 66666 *
21 * 00000000000000000000000000000000 00000000000000000000000000000000 66666 66666 *
22 *
23 *
24 *
*****

```

SCHCTL { 1-8
SCHRCO { 10-21

HIGH INTENSITY { 1-8

INPUT FIELDS:						
ORDER	NAME	TYPE	LENGTH	LINE	POS	COMMENTS
1	SFLPAG	I	2,0	1	3	NON-DISPLAY, AND PROTECTED. DEFAULT TO SUBFILE PAGE-SIZE.
2	CODE1	I	10	4	41	FIELD EXIT KEY MUST BE PRESSED TO GO TO NEXT FIELD

INDICATOR USAGE:		
99-ATTN KEY1	N55	- ROLLUP KEY CONDITIONING
30-ROLLUP KEY	75	- SUBFILE DISPLAY
PRESSED	76	- SUBFILE DISPLAY CONTROL
	77	- SUBFILE CLEAR
	55	- THE '++' SIGN

SPECIAL OUTPUT FIELDS:		
NAME	LENGTH	COMMENTS
RRN	2,0	RELATE TO SFLRCDNBR, HIDDEN; OUTPUT

Program Description—APR20x/APC20x

should:

1. Write the accounts payable entry screen (APDENTRx) to the work station and read it back.
2. If the operator pressed command key 12, end this program. This will return you to the command entry screen.
3. If the command key 12 was not pressed, it is assumed that the required data fields were entered.
4. Verify that the vendor number exists in file *APLVEND*.
5. If the vendor is not found, write the APDENTx screen with the indicator on to cause an appropriate error message to be displayed.
6. If the vendor is found, write the entered data and a status code of "E" to the *APLTRANx* file and go to step 1.

Sub-Program Description—APR210/APC210

This program is called by the Accounts Payable Entry Program—*APC20x/APR20x* and passes two parameters:

1. The vendor number to be checked.
2. An indicator to be returned if the vendor is not found.

This program uses base file *APLVEND*, the vendor master file.

When called, this program will access *APLVEND*, turn on an indicator if the requested record is not found, and return to the calling program.

Program Description—APR30x/APC30x

should:

1. Read a vendor master record and calculate the average discount percent taken for purchases month-to-date (field "A") and year-to-date (field "B").
2. Read all unpaid invoice records for the same vendor and calculate the total of all current unpaid purchases (field "C").
3. When the vendor number changes, calculate final totals of purchases and discounts as follows:
 - TPM = Total "paid" purchases MTD
 - TPU = Total "unpaid" purchases MTD
 - TPY = Total "paid" purchases YTD
 - TDM = Total discount taken MTD
 - TDY = Total discount taken YTD
4. At end-of-job, calculate the average discount percent taken based on the final totals.
 - MPC = Average month-to-date discount
 - YPC = Average year-to-date discount

Program Description—APL30x

APL30x should:

1. Override a data base file using the following command:
`OVRDBF FILE(APPTRANX) TOFILE(APPTRANx) LVLCHK(*NO)`
2. Override a print file using the following command:
`OVRPRTF FILE(APCHECKS) TOFILE(QPRINT)`
3. Cause the following programs to be executed.
 - a. APR250
 - b. APR30x-or-APC30x
 - c. APR350

SOURCE FILE: APPSRC.APL18

MEMBER: APC200

SEONRR*... 1 ... 2 ... 3 ... 4 ... 5 ... 6 ... 7

```

100 IDENTIFICATION DIVISION.
200 PROGRAM-ID. APC20.
300 ENVIRONMENT DIVISION.
400 CONFIGURATION SECTION.
500 SOURCE-COMPUTER. IBM-S38.
600 OBJECT-COMPUTER. IBM-S38.
700 INPUT-OUTPUT SECTION.
800 FILE-CONTROL.
900 SELECT *PLTRAN-FILE ASSIGN DATABASE-APLTRAN ORGANIZATION
1000 INDEXED ACCESS RANDOM RECURS VNDNBR OF PAYBLE.
1100 SELECT APDENTR-FILE ASSIGN WORKSTATION-APDENTR
1200 ORGANIZATION IS TRANSACTION.
1300 SELECT APLVEND-FILE ASSIGN DATABASE-APLVEND ORGANIZATION
1400 INDEXED ACCESS RANDOM RECORD VNDNBR OF VENDMAST.
1500 DATA DIVISION.
1600 FILE SECTION.
1700 FD APLTRAN-FILE LABEL RECORD IS STANDARD.
1800 O1 DBFILE.
1900 COPY DDS-PAYBLE OF APLTRAN REPLACING ==CHECK#== BY CHECKS.
2000 FD APDENTR-FILE LABEL RECORD IS OMITTED.
2100 O1 DISPLAY-FILE. COPY DDS-APENTR OF APDENTR.
2200 FD APLVEND-FILE LABEL RECORDS STANDARD.
2300 O1 APLVEND. COPY DDS-VFNDMAST OF APLVEND-APL18 REPLACING
2400 ==CHECK#== BY CHECKS.
2500 PROCEDURE DIVISION.
2600 BEGIN. OPEN I-O APLTRAN-FILE APDENTR-FILE INPUT APLVEND-FILE.
2700 LOOP. WRITE DISPLAY-FILE FORMAT IS "APENTR".
2800 READ APDENTR-FILE. IF IN99 = B"1" THEN GO JUIT.
2900 MOVE B"0" TO IN50. MOVE VNDNBR OF APENTR-I TO VNDNBR OF
3000 VENDMAST.
3100 READ APLVEND-FILE INVALID MOVE B"1" TO IN50 GO LOOP.
3200 MOVE "E" TO STATUS-DDS. MOVE CORR APENTR-I TO PAYBLE.
3300 MOVE ZERO TO NET DTPAID CHECKS DEPTNO OF PAYBLE.
3400 WRITE DBFILE. GO LOOP.
3500 JUIT. CLOSE APLTRAN-FILE APDENTR-FILE APLVEND-FILE. STOP RUN.

```

* * * * * E N D O F S O U R C E * * * * *

5714UT1 R03 M00 810708

SEU SOURCE LISTING

SOURCE FILE: APPSRC.APLIB

MEMBER: APR200

SEQNBR*... 1 ... 2 ... 3 ... 4 ... 5 ... 6 ... 7

```
100      H
200      FAPLTRAN O E          K          DISK
300      FAPDENTR CF E          WORKSTN
400      FAPLVEND IF E          K          DISK
500      C          LOOP
600      C          TAG
700      C          99          EXPMTAPENTR
800      C          99          SETON          LR
900      C          VNDNBR      SETOF          50
1000     C          CHAINAPLVEND          50
1100     C          MOVE 'E'      STATUS
1200     C          N50          WRITEPAYBLE
1300     C          GOTO LOOP
1400     C          END          TAG
```

***** END OF SOURCE *****

SOURCE FILE: APPSRC.APLIB

MEMBER: APC210

SEQNBR*... 1 ... 2 ... 3 ... 4 ... 5 ... 6 ... 7

```
100      IDENTIFICATION DIVISION.
200      PROGRAM-ID. APC210.
300      ENVIRONMENT DIVISION.
400      CONFIGURATION SECTION.
500      SOURCE-COMPUTER. IBM-S38.
600      OBJECT-COMPUTER. IBM-S38.
700      INPUT-OUTPUT SECTION.
800      FILE-CONTROL.
900          SELECT APLVEND-FILE ASSIGN DATABASE-APLVEND ORGANIZATION
1000         INDEXED ACCESS RANDOM RECORD VNDNBR OF VENDMAST.
1100     DATA DIVISION.
1200     FILE SECTION.
1300     FD  APLVEND-FILE LABEL RECORDS STANDARD.
1400     01  DBFILE. COPY DDS-VENDMAST OF APLVEND-APLIB REPLACING
1500         **CHECK#** BY CHECKS.
1600     LINKAGE SECTION.
1700     01  VNDNBR-LINK PIC 9(5) COMP-3.
1800     01  SWITCH-LINK PIC 1.
1900     PROCEDURE DIVISION USING VNDNBR-LINK, SWITCH-LINK.
2000     BEGIN. OPEN I-O APLVEND-FILE. MOVE B"0" TO SWITCH-LINK.
2100     MOVE VNDNBR-LINK TO VNDNBR OF VENDMAST.
2200     READ APLVEND-FILE INVALID MOVE B"1" TO SWITCH-LINK.
2300     QUIT. EXIT PROGRAM.
```

***** END OF SOURCE *****

5714UT1 R03 M00 810708

SEU SOURCE LISTING

SOURCE FILE: APPSRC.APLIB

MEMBER: APR210

SEQNBR*... .. 1 2 3 4 5 6 7

```
100      H
200      FAPLVEND IF E           K           DISK
300      C           *ENTRY      PLIST
400      C           PARM        KEY        50
500      C           PARM *IN90   SWITCH   1
600      C           KEY         CHAINAPLVEND 90
700      C           RETRN
```

* * * * * E N D O F S O U R C E * * * * *

SEQNBR*... 1 ... 2 ... 3 ... 4 ... 5 ... 6 ... 7

```

100 H
200 FAPPTRANKIP E          DISK
300 FAPLVEND UF E          K      DISK
400 FAPCHECKSO F          0132 OF  PRINTER
500 IPAYBLE
600 I          VNDNBR          VNDNBRL1
700 C          NL1          GOTO NORM
800 C          Z-ADDO          CHKTOT 102
900 C          Z-ADDO          MERTOT 92
1000 C          ADD 1          CHECK# 60
1100 C          NORM          TAG
1200 C          STATUS          CABNE*T*          LAST          2525
1300 C          MOVE UDATE          DTPAID
1400 C          MOVE *P*          STATUS
1500 C          ADD MERCH          MERTOT
1600 C          Z-ADDMERCH          NETAMT 92
1700 C          ADD NETAMT          CHKTOT
1800 C          LAST          TAG
1900 CL1          CHKTOT          CABEQO          LSTL1          25
2000 CL1          VNDNBR          CHAINAPLVEND          01
2100 CL1          ADD MERTOT          PCHMTD
2200 CL1          ADD MERTOT          PCHYTD
2300 CLING1          UPDATVENDMAST
2400 CL1          LSTL1          TAG
2500 UAPCHECKSO 107 NIP LIN25
2600 O          OR 1 NIPNLIN25
2700 O          INVNBR          9
2800 O          DATRECY          18
2900 O          MERCH 1          38
3000 O          NETAMT1          81
3100 O          T 1924 LIN25
3200 O          CHKTOT1          81
3300 U          T 29 LIN25
3400 O          CHECK#          82
3500 O          T 1 LIN25
3600 O          VNDNAM          35
3700 O          T 1 LIN25
3800 O          VNDAD1          35
3900 O          UDATE Y          55
4000 O          CHKTOT1          80 *S*
4100 O          T 1 LIN25
4200 O          VNDAD2          35
4300 O          T 1 LIN25
4400 O          VNDAD3          35
4500 O          T 1 LIN25
4600 O          VNDZIP          35
    
```

***** END OF SOURCE *****

SOURCE FILE: APCSRC.APWINSTLIB

MEMBER: APR300

SEQNBR*... 1 ... 2 ... 3 ... 4 ... 5 ... 6 ... 7 ... 8 ... 9 ... 0

```

100      H                                     APR300
200      C      L1                           Z-ADD0      C      92
300      C      02                           GOTO UNPAID
400      C          PCHMTD                     CABEQO      NEXT
500      C          DCTMTD                     DIV PCHMTD   ATEMP    44H
600      C          ATEMP                       MULT 100    A      42
700      C          NEXT                         TAG
800      C          PCHYTD                     CABEQO      NEXT1
900      C          DCTYTD                     DIV PCHYTD   BTEMP    44H
1000     C          BTEMP                       MULT 100    B      42
1100     C          NEXT1                       TAG
1200     C          GOTO OUT
1300     C          UNPAID                       TAG
1400     C          ADD MERCH                   C
1500     C          OUT                         TAG
1600     CL1      ADD PCHMTD                     TPM      112
1700     CL1      ADD DCTMTD                     TDM      92
1800     CL1      ADD PCHYTD                     TPY     122
1900     CL1      ADD DCTYTD                     TDY     102
2000     CL1      ADD C                          TPU     112
2100     CLR      TPM                           CABEQO      NEXT2
2200     CLR      TDM                           DIV TPM     MPCTMP    44H
2300     CLR      MPCTMP                       MULT 100    MPC      42
2400     CLR      NEXT2                       TAG
2500     CLR      TPY                           CABEQO      NEXT3
2600     CLR      TDY                           DIV TPY     YPCTMP    44H
2700     CLR      YPCTMP                       MULT 100    YPC      42
2800     CLR      NEXT3                       TAG
2900     JQPRINT H      202      OF
3000     O      OR      1P
3100     O      78 *VENDJR PURCHASE ANALYSIS*
3200     O      H      1      OF
3300     O      OR      1P
3400     U      73 *M O N T H - T O - D A T*
3500     O      75 *E*
3600     J      112 *Y E A R - T U - D A T E*
3700     O      130 *C U R R E N T*
3800     O      H      1      OF
3900     O      OR      1P
4000     O      6 *VENDJR*
4100     O      76 *DISCOUNTS      AVG*
4200     U      113 *DISCOUNTS      AVG*
4300     O      127 *UNPAID*
4400     U      H      2      OF
4500     O      OR      1P
4600     O      6 *NUMBER*
4700     O      25 *VENDJR NAME*
4800     U      45 *NORMAL TERMS*
4900     O      58 *PURCHASES*
5000     O      77 *TAKEN      DIS%*
5100     O      91 *PURCHASES*
5200     O      114 *TAKEN      DIS%*
5300     O      129 *PURCHASES*
5400     O      T      2      L1
5500     U      VNDNBR      6
5600     O      VNDNAM B   32
5700     O      VTRMPC4B   37
5800     O      VTRMDAZB   41
5900     O      38 *%*
6000     U      PCHMTD1B   59
6100     O      DCTMTD1B   70
6200     O      A      38   77
6300     U      PCHYTD1B   93
6400     O      DCTYTD1B  107
6500     U      B      38  114
6600     O      C      18  130
6700     U      46 *DAYS*
6800     U      T      22     LR
6900     U      37 *F I N A L T O T A L S -*
7000     O      TPM      1   59
7100     U      TPY      1   93
7200     U      TPU      1  130
7300     U      T      1     LR
7400     U      TDM      1   70
7500     O      MPC      3   77
7600     O      TDY      1  107
7700     U      YPC      3  114
7800     O      78 *%*
7900     O      115 *%*

```

***** E N D O F S O U R C E *****

SEQNR#... 1 ... 2 ... 3 ... 4 ... 5 ... 6 ... 7 .

```

100 IDENTIFICATION DIVISION.
200 PROGRAM-ID. APC300.
300 ENVIRONMENT DIVISION.
400 CONFIGURATION SECTION.
500 SOURCE-COMPUTER. IBM-S38.
600 OBJECT-COMPUTER. IBM-S38.
700 SPECIAL-NAMES. I-O-FEEDBACK IS PI.
800 INPUT-OUTPUT SECTION.
900 FILE-CONTROL.
1000 SELECT APLVANL ASSIGN TO DATARASE-
1100
1200 SELECT PRINTOUT ASSIGN TO FORMATFILE-APC30PRT.
1300 DATA DIVISION.
1400 FILE SECTION.
1500 FD APLVANL LABEL RECORD IS STANDARD.
1600 01 D. COPY DDS-ALL-FORMATS OF REPLACING ==CHECK#== BY U
1700
1800 FD PRINTOUT LABEL RECORD IS STANDARD.
1900 01 PR. COPY DDS-ALL-FORMATS OF APC30PRT.
2000 WORKING-STORAGE SECTION.
2100 01 CC PIC 9(9)V9(2) COMP-3 VALUE IS 0.
2200 01 TPM1 PIC 9(11)V9(2) COMP-3 VALUE IS 0.
2300 01 TDM1 PIC 9(9)V9(2) COMP-3 VALUE IS 0.
2400 01 TPY1 PIC 9(12)V9(2) COMP-3 VALUE IS 0.
2500 01 TDY1 PIC 9(10)V9(2) COMP-3 VALUE IS 0.
2600 01 TPU1 PIC 9(11)V9(2) COMP-3 VALUE IS 0.
2700 01 MPCTMP PIC 9(4)V9(4) COMP-3 VALUE IS 0.
2800 01 MPC1 PIC 9(4)V9(2) COMP-3 VALUE IS 0.
2900 01 YPCTMP PIC 9(4)V9(4) COMP-3 VALUE IS 0.
3000 01 YPC1 PIC 9(4)V9(2) COMP-3 VALUE IS 0.
3100 01 ATEMP PIC 9(4)V9(4) COMP-3 VALUE IS 0.
3200 01 AA PIC 9(4)V9(2) COMP-3 VALUE IS 0.
3300 01 BTEMP PIC 9(4)V9(4) COMP-3 VALUE IS 0.
3400 01 BB PIC 9(4)V9(2) COMP-3 VALUE IS 0.
3500 01 D1.
3600 05 FILLER PIC X(144).
3700 05 LNO PIC 599 USAGE COMP-4.
3800 77 UVFL-LINE PIC 599 USAGE COMP-4 VALUE IS 60.
3900 PROCEDURE DIVISION.
4000 BEGIN. OPEN INPUT APLVANL OUTPUT PRINTOUT.
4100 HEADINGS. WRITE PR FORMAT "HEADING1" WRITE PR FORMAT "HEADING2"
4200 WRITE PR FORMAT "HEADING3" WRITE PR FORMAT "HEADING4".
4300 LP. READ APLVANL END GO QUIT. IF D6-FORMAT-NAME = "PAYBLE" CO
4400 UNP. MOVE CORR VENDMAST TO WORKREC-D. IF PCHMTD OF D = 0
4500 GO NEXT1. COMPUTE ATEMP ROUNDED = DCTMTD OF D / PCHMTD
4600 OF D. COMPUTE AA = ATEMP * 100.
4700 NEXT1. IF PCHYTD OF D = 0 THEN GO TO OUT.
4800 COMPUTE BTEMP ROUNDED = UCTYTD OF U / PCHYTD OF D.
4900 COMPUTE BB = BTEMP * 100.
5000 OUT. ADD PCHMTD OF D TO TPM1. ADD DCTMTD OF D TO TDM1.
5100 ADD PCHYTD OF D TO TPY1. ADD UCTYTD OF D TO TDY1.
5200 MOVE AA TO A. MOVE BB TO B. MOVE CC TO C. WRITE PR FORMAT
5300 "WORKREC". MOVE 0 TO CC. ACCEPT D1 FROM PI FOR PRINTOUT.
5400 IF LNO > 59 PERFORM HEADINGS. GO LP.
5500 QUIT. IF TPM1 = 0 GO NEXT2. COMPUTE MPCTMP ROUNDED = TDM1 / TPM1
5600 COMPUTE MPC1 = MPCTMP * 100.
5700 NEXT2. MOVE TPM1 TO TPM OF LR1-0. MOVE TPY1 TO TPY OF LR1-0.
5800 MOVE TPU1 TO TPU OF LR1-0. WRITE PR FORMAT "LR1".
5900 IF TPY1 = 0 GO ENDIT. COMPUTE YPCTMP ROUNDED = TDY1 / TPY1.
6000 COMPUTE YPC1 = YPCTMP * 100.
6100 ENDIT. MOVE TDM1 TO TDM OF LR2-0. MOVE MPC1 TO MPC OF LR2-0.
6200 MOVE TDY1 TO TDY OF LR2-0. MOVE YPC1 TO YPC OF LR2-0.
6300 WRITE PR FORMAT "LR2". CLOSE APLVANL PRINTOUT. STOP RUN.
6400 UNP. ADD MERCH TO CC TPU1. GO LP.

```

***** END OF SOURCE *****

APC30PRT

```

SEQNBR..... 1 ..... 2 ..... 3 ..... 4 ..... 5 ..... 6 ..... 7 .
100      A          R HEADING1
200      A
300      A          SKIPB(4)
400      A          55*VENDOR PURCHASE ANALYSIS*
500      A          R HEADING2          SPACEB(2)
600      A          51*MONTH - T O - D A T E*
700      A          +14*YEAR - T O - D A T E*
800      A          +05*C U R R E N T*
900      A          R HEADING3          SPACEB(2)
1000     A          1*VENDOR*
1100     A          +54*DISCOUNTS  AVG*
1200     A          +22*DISCOUNTS  AVG*
1300     A          +07*UNPAID*
1400     A          R HEADING4          SPACEB(2)
1500     A          1*NUMBER*
1600     A          +08*VENDOR NAME*
1700     A          +03*NORMAL TERMS*
1800     A          +04*PURCHASES*
1900     A          +05*TAKEN  DIS%*
2000     A          +05*PURCHASES*
2100     A          +07*TAKEN  DIS%*
2200     A          +06*PURCHASES*
2300     A          R WORKREC          SPACEB(2)
2400     A          VNDNR          55          1
2500     A          VNDNAM          25A         +01
2600     A          VTRMPC          4 3         +02EDTWRD('O. %')
2700     A          VTRMDA          25         +01EDTWRD('O (DAYS')
2800     A          PCHMTD          9 2         +01EDTWRD(' , , O. ')
2900     A          DCTMTD          5 2         +03EDTWRD(' O. ')
3000     A          A              3 2         +04EDTWRD('O. ')
3100     A          PCHYTD          8 2         +05EDTWRD(' , O. ')
3200     A          DCTYTD          4 2         +08EDTWRD(' O. ')
3300     A          B              3 2         +05EDTWRD('O. ')
3400     A          C              11 2        +01EDTWRD(' , , O. ')
3500     A          R LR1          SPACEB(2)
3600     A          TPM            12 2        13*F I N A L T O T A L S*
3700     A          TPY            10 2        +09EDTWRD(' , , , $G. ')
3800     A          TPU            13 2        +18EDTWRD(' , , , $O. ')
3900     A          R LR2          SPACEB(2)
4000     A          TDM            6 2         +19EDTWRD(' , , , $O. ')
4100     A          MPC            3 2         61EDTWRD(' , , $O. ')
4200     A          TDY            8 2         +04EDTWRD('O. %')
4300     A          YPC            3 2         +15EDTWRD(' , , $O. ')
          A          YPC            3 2         +05EDTWRD('O. %')

```

***** E N D O F S O U R C E *****

5714UT1 R03 M00 810708

SEU SOURCE LISTING

SOURCE FILE: APPSRC.APLIB

MEMBER: APDSRCH

SEQNBR#... 1 ... 2 ... 3 ... 4 ... 5 ... 6 ... 7

```

100 A DSPSTZ(24 80 *DS3)
200 A REF( APPVEND.APLIB)
300 A PRINT
400 A *DS3 MSGLOC(24)
500 A R SCH SFL
600 A R SCH SFLCTLSCHRCDI
700 A CA01199 *END QF JOB*)
800 A N10 ROLLUP(30)
900 A OVERLAY
1000 A 11 SFLDSP
1100 A 12 SFLDSPCTL
1200 A 13 SFLCLR
1300 A 14 SFLEND
1400 A SFLSTZ(0050)
1500 A SFLPAG(0010)
1600 A SFLPAG 25 OI 1 3DSPATR(ND PR)
1700 A OFT(*10*)
1800 A RRN 25 OH SFLKCONBR
1900 A 2 31 *VENDOR SEARCH*
2000 A DSPATR(RI)
2100 A CODE1 10A I 4 41PUTRETAIN
2200 A CHECK(FE ER)
2300 A 10 9 *VENDOR NAME*
2400 A 10 38 *SALESPERS*
2500 A 10 62 *ZIP*
2600 A 10 71 *NUMBER*
2700 A 4 2 *ENTER CHARACTERS FOR SEARCH*
2800 A DSPATR(HI)
2900 A 8 2 *CMD KEY 1 - END OF JOB*
3000 A DSPATR(HI)
3100 A 6 2 *FIELD EXIT KEY TO SEARCH*
3200 A DSPATR(HI)
3300 A 4 30 *----->*
```

***** END OF SOURCE *****

✓ CHECK APDSRCH SCREEN LAYOUT FOR NEEDED CHANGES.

SOURCE FILE: APCSRC.APWINSTLIB

MEMBER: APR350

SEQUENCE#... 1 ... 2 ... 3 ... 4 ... 5 ... 6 ... 7 ... 8 ... 9 ... 0

```

100      H
200      FAPPVEND UF E
300      C
400      C          START
500      C          Z-ADD500.      DISK
600      C          TAG          DUM  102
700      C          READ VENDMAST
800      C          ADD 250.00    DUM
900      C          Z-ADD00M      PCHYTD
1000     C          Z-ADD15.00    DCTYTD
1100     C          Z-ADD72.00    DCTYTD
1200     C          UPDATVENDMAST
1300     C          GOTO START
1400     C          NO1
1500     C          NO1
1600     C          SETON          LR

```

***** END OF SOURCE *****

5714UT1 R03 M00 810708

SEU SOURCE LISTING

SOURCE FILE: APWSRC.APWINSTLIBR

MEMBER: APR400

SEQNRR... 1 ... 2 ... 3 ... 4 ... 5 ... 6 ... 7 ... 8

```

100      H
200      FAPDSRCH CF E
300      F
400      FAPLSCHVNIF E
500      C
600      C
700      C
800      C
900      C      FILL
1000     C      *IN30
1100     C      CODE1
1200     C
1300     C
1400     C
1500     C
1600     C
1700     C
1800     C
1900     C
2000     C
2100     C
2200     C      55
2300     C
2400     C
2500     C      N55
2600     C
2700     C
2800     C
2900     C
3000     C      99
3100     C      99
3200     C
3300     C

```

APR400

```

      K
      SETON
      EXFMTSCHCTL
      SETOF
      TAG
      IFEO *0*
      SETON
      SETLLAPLSCHVN
      WRITESCHRCO
      SETOF
      Z-ADDO      RRN
      Z-ADDO      DSPREC 20
      SETOF
      END
      ADD SFLPAG      DSPREC
      TAG
      CABEQDSPREC      DISPLAY
      READ APLSCHVN
      GOTO DISPLAY
      ADD 1      RRN
      WRITESCHCTL
      GOTO MORE
      TAG
      SETON
      EXFMTSCHNCD
      SETOF
      SETON
      GOTO END
      GOTO FILL
      TAG
      KSFIL
      SCHCTL
      76
      DISPLAY CTLREC
      76
      IN30*ROLLUP KEY
      77
      CLR SFL
      77
      55
      ROLLUP;ADD PAGE
      ONLY 1 SFLPAGE
      55*EOF&NOT SFLEND
      45ADD A SFL REC
      7576
      7576
      LR 99=CF1 (QUIT)

```

***** END OF SOURCE *****

SOURCE FILE: APPSRC.APLIR

MEMBER: APC400

SEQNBR*... 1 ... 2 ... 3 ... 4 ... 5 ... 6 ... 7

```

100 IDENTIFICATION DIVISION.
200 PROGRAM-ID. APC400.
300 ENVIRONMENT DIVISION.
400 CONFIGURATION SECTION.
500 SOURCE-COMPUTER. IBM-S38.
600 OBJECT-COMPUTER. IBM-S38.
700 INPUT-OUTPUT SECTION.
800 FILE-CONTROL.
900 SELECT ITMFL ASSIGN DATABASE-APLSCHVN ORGANIZATION INDEXED
1000 ACCESS SEQUENTIAL RECORD KEY SCHCOD OF ITMFL.
1100 SELECT SFRLCD ASSIGN WORKSTATION-APDSRCH ORGANIZATION
1200 TRANSACTION ACCESS DYNAMIC RELATIVE KEY RECNO STATUS SK.
1300 DATA DIVISION.
1400 FILE SECTION.
1500 FD SFRLCD LABEL RECORD OMITTED.
1600 01 SFREC. COPY DDS-ALL-FORMATS OF APDSRCH.
1700 FD ITMFL LABEL RECORD IS STANDARD.
1800 01 ITMREC. COPY DDS-VENDMAST OF APLSCHVN.
1900 WORKING-STORAGE SECTION.
2000 77 ONE PIC IS 1 VALUE IS B"1".
2100 77 CLR PIC 1 VALUE IS B"0".
2200 77 SK PIC XX.
2300 77 DSPREC PIC S99.
2400 77 RECNO PIC 99.
2500 77 PAGE-SIZE PIC 99.
2600 PROCEDURE DIVISION.
2700 BEGIN. OPEN I-O SFRLCD INPUT ITMFL. MOVE SPACES TO SCHCOD OF
2800 ITMFL. MOVE ONE TO IN76.
2900 WRITE SUBFILE SFREC FOKMAT "SCHRDD" INVALID GO OUT.
3000 READ SUBFILE SFRLCD FORMAT "SCHRDD" INVALID GO OUT.
3100 MOVE CODE1 OF SCHCTL-I TO SCHCOD OF ITMFL.
3200 MOVE SFLPAG OF SCHCTL-I TO PAGE-SIZE.
3300 FILL. IF IN30 = CLR PERFORM CLEAR-SFL. ADD PAGE-SIZE TO DSPREC.
3400 NOKE. IF RECNO = DSPREC THEN GO TO DISPLAY.
3500 READ ITMFL AT END MOVE ONE TO IN55 GO TO DISPLAY.
3600 MOVE CORR VENDMAST TO SCHRCD. ADD 1 TO RECNO.
3700 WRITE SUBFILE SFREC FOKMAT "SCHRCD" INVALID GO OUT. GO MURE.
3800 DISPLAY. MOVE ONE TO IN75 IN76. MOVE CLR TO IN77.
3900 MOVE RECNO TO RRN OF SCHCTL-D.
4000 WRITE SUBFILE SFREC FOKMAT "SCHRDD" INVALID GO OUT.
4100 READ SUBFILE SFRLCD FORMAT "SCHRDD" INVALID GO OUT.
4200 IF IN99 = ONE GO OUT. MOVE CODE1 TO SCHCOD OF ITMFL. GO FILL.
4300 OUT. STOP RUN.
4400 CLEAR-SFL. MOVE ONE TO IN77.
4500 WRITE SUBFILE SFREC FOKMAT "SCHRDD" INVALID GO OUT.
4600 START ITMFL KEY NOT < SCHCOD OF ITMFL INVALID GO OUT.
4700 MOVE CLR TO IN77 IN55. MOVE ZFRO TO RECNO DSPREC.

```

* * * * * E N D O F S O U R C E * * * * *

SYSFAM SOURCE MODULES

```

5714UT1 R03 M00 810708                SEU SOURCE LISTING
SOURCE FILE:                            MEMBER:  RPGTEAM
SEQNBR°... .. 1 ... .. 2 ... .. 3 ... .. 4 ... .. 5 ... .. 6 ... .. 7

100    FESDFMTS CF  E                WORKSTN
200    FAPLVEND IF E                DISK
300    C                LOOP        TAG
400    C                EXFMTVNDINQ
500    C                NEXT        CHAINAPLVEND        50
600    C 99                SETON
700    C N99                GOTD LOOP                LR

* * * * * E N D   O F   S O U R C E * * * * *

```

```

5714UT1 R03 M00 810708                SEU SOURCE LISTING
SOURCE FILE:    APPSRC.APLIB          MEMBER:  CBLTEAM
SEQNRR°... .. 1 ... .. 2 ... .. 3 ... .. 4 ... .. 5 ... .. 6 ... ..

100    ENVIRONMENT DIVISION.
200    CONFIGURATION SECTION.
300    SOURCE-COMPUTER. IBM-S38.
400    OBJECT-COMPUTER. IBM-S38.
500    INPUT-OUTPUT SECTION.
600    FILE-CONTROL.
700        SELECT DSP1 ASSIGN WORKSTATION=ESDFMTS
800        ORGANIZATION TRANSACTION.
900        SELECT DB1 ASSIGN DATABASE=APLVEND ORGANIZATION
1000    INDEXED ACCESS RANDOM RECORD VNDNPR OF VENDMAST.
1100    DATA DIVISION.
1200    FILE SECTION.
1300    FD  DSP1 LABEL RECORD OMITTED.
1400    D1  DSP. COPY DDS-VNDINO OF ESDFMTS.
1500    FD  DB1 LABEL RECORDS STANDARD.
1600    G1  D1. COPY DDS-VENDMAST OF APLVFND.
1700    PROCEDURE DIVISION.
1800    BEGIN. OPEN I-O DSP1 INPUT DB1. MOVE ZEROS TO VNDINO-O.
1900    LOOP. WRITE DSP FORMAT "VNDINO".
2000    READ DSP1. IF IN99 = B"1" THEN GO QUIT.
2100    MOVE B"0" TO IN50. MOVE NEXT-DDS TO VNDNBR OF VENDMAST.
2200    READ DB1 INVALID MOVE B"1" TO IN50 GO LOOP.
2300    MOVE CORR VENDMAST TO VNDINO-O. GO LOOP.
2400    QUIT. CLOSE DSP1 DB1. STOP RUN.

* * * * * E N D   O F   S O U R C E * * * * *

```

Data To Be Entered Into APLTRANx file

	Vendor No.	Invoice No.	Date Rec'd	Merchandise Amount	Dept. No.
For Step 8	00714	1	11 25 79	15,760.00	010
(via APD10x)	00221	2	11 25 79	650.00	012
	05075	3	11 26 79	2,000.00	010
	00714	4	11 29 79	3,750.00	220
	00221	5	12 05 79	7,500.00	102
	10504	6	12 07 79	250.00	010
For Step 16	00010	7	01 21 80	10,000.00	220
(via APR20x/	*00050	8	01 21 80	650.00	010
APC20x)	05075	9	01 25 80	2,500.00	151
	*62478	10	02 02 80	500.00	010
	00714	11	02 05 80	1,000.00	055
For Step 23	*00020	12	02 01 80	10,000.00	300
(via APR20x/	*01015	13	02 03 80	10,000.00	220
APC20x and	05075	14	01 30 80	3,500.00	012
APR210/	*00116	15	02 07 80	1,000.00	102
APC210)	00221	16	01 15 80	1,000.00	101
	10504	17	02 30 80	500.00	010

Note: Status code should be placed in the record as a constant "E".

*Invalid vendor numbers.

Valid Vendor and Department Numbers

VALID VENDOR NUMBERS

00010	24001
00011	24133
00016	25256
00021	30188
00145	33333
00210	34681
00221	45892
00296	56330
00305	56567
00313	63200
00431	63218
00612	63410
00688	65321
00714	72302
01148	73013
03535	84210
05075	88714
06183	94613
06242	94946
07374	96431
07733	
10502	
10504	
11002	
13130	
15864	
21178	

VALID DEPARTMENT NUMBERS

010
012
050
055
101
102
151
220
300

Optional Command Entries

You may enter these command language commands (for the indicated steps) by pressing CF3 (to obtain command entry display) instead of using programmer menu options:

2. ::EDTSRC APPSRC APPTRANx *PF
3. ::CRTPF APPTRANx.APLIB
SRCFILE(APPSRC)
- 3a.:: DSPFD APPTRANx
5. ::EDTSRC APPSRC APLTRANx *LF
6. :: CRTLF APLTRANx.APLIB
SRCFILE(APPSRC)
7. ::DSNDFUAPP APP(APD10x.APLIB)
OPTION(*SELECT)
8. ::CHGDTA APD10x
9. ::CPYF APLTRANx *LIST
PRTFMT(*HEX)
- 11.::EDTSRC APPSRC APDENTRx *DSPF
- 12.::CRTDSPF APDENTRx.APLIB
SRCFILE(APPSRC)
SRCMBR(APDENTRx)
-or-
::DSNFMT APPSRC APDENTRx APLIB APWJOB
- 14.::EDTSRC APPSRC{APR20x *RPG}
{APC20x *CBL}
- 15.::CRTRPGPGM APR20x.APLIB
SRCFILE(APPSRC)
SRCMBR(APR20x)
-or-
::CRTCLPGM APC20x.APLIB
APPSRC APC20x
- 17.::CPYF APLTRANx *LIST
PRTFMT(*HEX)
- 21.::EDTSRC APPSRC{APR20x *RPG}
{APC20x *CBL}
22. **Re-compile your program.**
::DLTPGM{APR20x.APLIB}
{APC20x.APLIB}
- 23.::CALL {APR20x}
{APC20x}
24. **Copy your data file to the printer to verify that the new records were added.**
::CPYF APLTRANx *LIST
PRTFMT(*HEX)
35. **Execute your control language program in the batch sub-system. To do this enter the following command:**
::SBMJOB JOB(TeAMx) JOB(QBATCH)
RQSDTA('CALL APL30x.APLIB')
INLLIBL(APLIB QGPL QTEMP)
USER(*CURRENT)
/*BATCH JOB FROM TeAMx*/
42. DSNQRYAPP APP(APQ42x.APLIB)
OPTION(1)

Optional SDA Lab Exercise #1

The goal of this exercise is to use SDA to replace and test your APDENTRx display (source code and display file) created in lab steps 10 through 12. You should not do this exercise until those lab steps are complete *and* the instructor tells you to do so.

Before you start, obtain an Edit Source printout of your source member APDENTRx. Use it, as you go, to check off how you would use SDA to create each DDS statement. Keep in mind that you can use the HELP key at any time while using SDA.

The following 28 steps should yield a new APDENTRx source file and display file.

Optional SDA Exercise #1: APDENTRx

1. Remove the APDENTRx DDS-source statements.

```
PROGRAMMER MENU
Select one of the following:
1. Design/execute DFU app      (app), ,(options)
2. Design/execute query app   (app), ,(options)
3. Create object              object name, type, pgm for CMD, (text)
4. Call program               program name
5. Execute command            command
6. Submit job                 (job name), (command)
7. Display submitted jobs
8. Edit source                (srcmbr), (type), (text)
9. Design display format      (srcmbr)
90. Sign off                  (*NOLIST *LIST)

Types: BSCF, CBL, CL, CLF, CMD, CMNF, DSPF, LF, PF, PRTF, RPG, TXT

Option: B  Parm: APDENTRx  Type: DSPF Parm 2:
Command:

Text:
Src file: APPSRC  Src lib: APLIB  Obj lib: APLIB  Jobd: APWJOB  Log requests: *YES
CF3 - Command entry  CF4 - Prompt (3 & 5 only)  CF6 - DSPMSG
```

→ (ENTER)

```
SEU  US W 1  Mbr APDENTRx  Scan
FMT DF: ....AAN01N02N03T.Name+++++RLent+TDpBlinfoFunctions+++++
*****BEGINNING OF DATA*****
D999.00  A                                     DSPSIZ(24 80 *DS3)
0002.00  A                                     REF(AFFREF.APLIB)
0003.00  A                                     PRINT
0004.00  A  *DS3                               MSGLOC(24)
0005.00  A                                     TEXT('TEAMX TRANS-ENTRY SCR
0006.00  A                                     CA12(99 'EJ')
0007.00  A                                     2 21'ACCOUNTS PAYABLE INVOICE'
0008.00  A                                     2 5BDAT
0009.00  A                                     2 69TIME
0010.00  A                                     5 11'VENDOR NUMBER'
0011.00  A                                     I 5 46
0012.00  A 50  VNDNBR  R                       ERRMSG('INVALID VENDOR NUMB
0013.00  A                                     6 11'INVOICE NUMBER'
0014.00  A                                     I 6 43
0015.00  A                                     7 11'DATE RECEIVED'
0016.00  A                                     I 7 43
0017.00  A                                     8 11'MERCHANDISE AMOUNT'
0018.00  A                                     I 8 43
0019.00  A                                     9 11'DEPARTMENT CHARGED'
0020.00  A                                     I 9 48
```

→ (ENTER)

```

SEU   US W:1      Mbr: APDENTRX      Scan:
FMT DP .....AANO1NO2NO3T.Name+++++RLen+TDpBlinPosFunctions+++++
****BEGINNING OF DATA****
*****END OF DATA*****

Enter I (insert), IFff (insert under format ff), IPff (insert with
prompt ff) or A (copy after) at cursor. DSFF ff values are:
**,*A*,DP
For more help, press HELP.

```

→(CF1)

```

SEU                               EXIT
Select one of the following
1. Exit without update
2. Exit and update member
3. Exit and create a new member
4. Update member, no exit
5. Create member, no exit
6. Return to editing

Option 2
For options 2 to 5:
  Resequence member (Y N)
MEMBER      FILE      LIBRARY
APDENTRX    APFSRC    APLIB
Y Start:    1.00  Increment:  1.00

For options 1 to 3:
  Return to member list (Y N)  N

For options 1 to 6
  Print source listing (Y N)  N

TOTAL RECORDS  ADDED  CHANGED  DELETED  SYNTAX ERRORS LEFT
                22

```

✓

→(ENTER)

2. Start SDA to generate a new APDENTRx.

```
PROGRAMMER MENU
Select one of the following:
1. Design/execute DFU app      (app), ,(options)
2. Design/execute query app   (app), ,(options)
3. Create object              object name, type, pgm for CMD, (text)
4. Call program               program name
5. Execute command            command
6. Submit job                 (job name), (command)
7. Display submitted jobs
8. Edit source                (srcmbr), (type), (text)
9. Design display format      (srcmbr)
90. Sign off                  (*NOLIST *LIST)

Types: BSCF, CBL, CL, CLP, CMD, CMNF, DSPF, LF, PF, PRTF, RPG, TXT

Option: 9  Parm: APDENTRx  Type:      Parm 2:
Command:

Text:
Src file: APPSRC      Src lib: APLIB      Obj lib: APLIB      Jobd: APWJOBDD
      CF3 - Command entry  CF4 - Prompt (3 & 5 only)  CF6 - DSPMSG
Member APDENTRx file APPSRC.APLIB updated with 0 records.
```



→(ENTER)

```
SDA                                OPTION MENU
SELECT ONE OF THE FOLLOWING:
1. DESIGN DISPLAY RECORD FORMATS
2. DESIGN A MENU
3. TEST AN EXISTING DISPLAY RECORD FORMAT

OPTION: 1

-----

WITHIN SDA:
PRESS HELP KEY TO DISPLAY HELP TEXT FOR THE CURRENT DISPLAY.
PRESS CF1 KEY TO EXIT ANY OPTION AND ALLOW SAVING THE CHANGES.
PRESS CF2 KEY TO RACK UP TO THE PREVIOUS DISPLAY IN A SERIES.
PRESS ENTER/REC ADV TO ADVANCE TO THE NEXT DISPLAY.
```

→(ENTER)

3. Enter Record Format Name and request file-level entry prompts.

```

SDA                                DESIGN RECORD FORMAT MENU
SELECT ONE OF THE FOLLOWING:
1. FILE DEFINITION
2. RECORD FORMAT DEFINITION
3. FIELD DEFINITION
4. SUBFILE CONTROL RECORD DEFINITION
5. SUBFILE RECORD FORMAT DEFINITION
6. SAVE DDS/CREATE DISPLAY DEVICE FILE

OPTION: 1

NEW OR EXISTING DISPLAY RECORD FORMAT          RECORD FORMAT: APENTR
(BLANK FOR RECORD FORMAT LIST DISPLAY)

ENTER THE SOURCE FILE FOR DDS                  DDS SOURCE FILE: APPSRC
LIBRARY                                        LIBRARY:      APLIB
NEW OR EXISTING MEMBER NAME                   MEMBER:      APJENTRX
(BLANK FOR MEMBER LIST DISPLAY)

ENTER ADDITIONAL RECORD FORMATS TO BE        ADDITIONAL RECORDS:
DISPLAYED ON THE WORK DISPLAY
    
```

→(ENTER)

4. Enter REF and DSPSIZ keywords.

```

SDA                                FILE DEFINITION
1. GENERAL FILE KEYWORDS              3. PRINT KEYWORDS
2. COMMAND KEYS AND INDICATOR TEXT

OPTION: 3

----- 1. GENERAL FILE KEYWORDS -----
DEVICES SUPPORTED WITH THIS FILE          DSPSIZ  SELECT  CONDITION  MSGLOC
(SPECIFY 1 TO SELECT THE PRIMARY DISPLAY  24X80   1        %DS3      24
SIZE. SPECIFY 2 TO SELECT ALTERNATE      12X80   1        %DS2      12
DISPLAY SIZES.)                          16X64   1        %DS1      16

DO NOT UNDERLINE INPUT CAPABLE FIELDS    CHGINPDT (Y N):
ALLOW BLANKS FOR INPUT FIELDS            CHECK(AR) (Y N):

RETRIEVE FIELD DESCRIPTIONS FROM THE FOLLOWING
DATA BASE FILE                            REF       APPREF
LIBRARY                                    LIBRARY:  APLI*
RECORD FORMAT                             RECORD:

RECORD FORMAT WHEN PASSING UNFORMATTED DATA  PASSRCD
    
```

→(ENTER)

5. Select print keyword and terminate file-level entries.

```
SDA                                FILE DEFINITION
1. GENERAL FILE KEYWORDS           3. PRINT KEYWORDS
2. COMMAND KEYS AND INDICATOR TEXT
OPTION: 1
----- 3. PRINT KEYWORDS -----
PRINT KEY SUPPORTED WITH THIS FILE          PRINT: Y (Y N) NNN NNN NNN OR *
TO HAVE CPF HANDLE PRINTING, USING A PRINTER DEVICE FILE, SPECIFY:
  DEVICE FILE                               FILE:
  LIBRARY                                    LIBRARY:
  LEAVE PRINT FILE OPEN UNTIL DISPLAY FILE CLOSED  OPENPRT (Y N):
  -- OR --
TO HAVE YOUR PROGRAM HANDLE PRINTING, SPECIFY:
  SET THIS RESPONSE INDICATOR IF PRINT KEY IS PRESSED  IND:
  INDICATOR TEXT:
```

→ (CF2)

6. Initiate record-level keyword definition.

```
SDA                                DESIGN RECORD FORMAT MENU
SELECT ONE OF THE FOLLOWING:
1. FILE DEFINITION
2. RECORD FORMAT DEFINITION
3. FIELD DEFINITION
4. SUBFILE CONTROL RECORD DEFINITION
5. SUBFILE RECORD FORMAT DEFINITION
6. SAVE DDS/CREATE DISPLAY DEVICE FILE
OPTION: 2
NEW OR EXISTING DISPLAY RECORD FORMAT      RECORD FORMAT:      APENTP
(BLANK FOR RECORD FORMAT LIST DISPLAY)
ENTER THE SOURCE FILE FOR DDS              DDS SOURCE FILE:    APPSRC
LIBRARY                                    LIBRARY:            APLIB
NEW OR EXISTING MEMBER NAME                MEMBER:              APUFNTRX
(BLANK FOR MEMBER LIST DISPLAY)
ENTER ADDITIONAL RECORD FORMATS TO BE      ADDITIONAL RECORDS:
DISPLAYED ON THE WORK DISPLAY
```

→ (ENTER)

7. Make text and CA12 entries, then terminate record level entry.

```
SDA                                RECORD FORMAT DEFINITION
RECORD: APENTR    TEXT: TEAMX TRANSACTION ENTRY SCREEN
 1. COMMAND KEYS AND INDICATOR TEXT    4. GENERAL RECORD KEYWORDS
 2. OUTPUT KEYWORDS                    5. OVERLAY KEYWORDS
 3. INPUT KEYWORDS                      6. ROUTING FEEDBACK
OPTION: 2

----- 1. COMMAND KEYS AND INDICATOR TEXT -----
KEY- CONDITIONING ALLOWED: (CF01-24 CA01-24 CLEAR ROLLUP ROLLODOWN HELP HOME)
KEY- WITHOUT CONDITIONING: (INDTXT VLDCMDKEY SETOF/SETOFF CHANGE)
NNM NNN NNN OR + KEY   IND   TEXT
                   CA12  99  END OF JOB
```

(ROLL FOR MORE)

→ (CF2)

8. Begin field-level entries.

```
SDA                                DESIGN RECORD FORMAT MENU
SELECT ONE OF THE FOLLOWING:
 1. FILE DEFINITION
 2. RECORD FORMAT DEFINITION
 3. FIELD DEFINITION
 4. SUBFILE CONTROL RECORD DEFINITION
 5. SUBFILE RECORD FORMAT DEFINITION
 6. SAVE DDS/CREATE DISPLAY DEVICE FILE
OPTION: 3

NEW OR EXISTING DISPLAY RECORD FORMAT      RECORD FORMAT:    APENTR
(BLANK FOR RECORD FOMAT LIST DISPLAY)

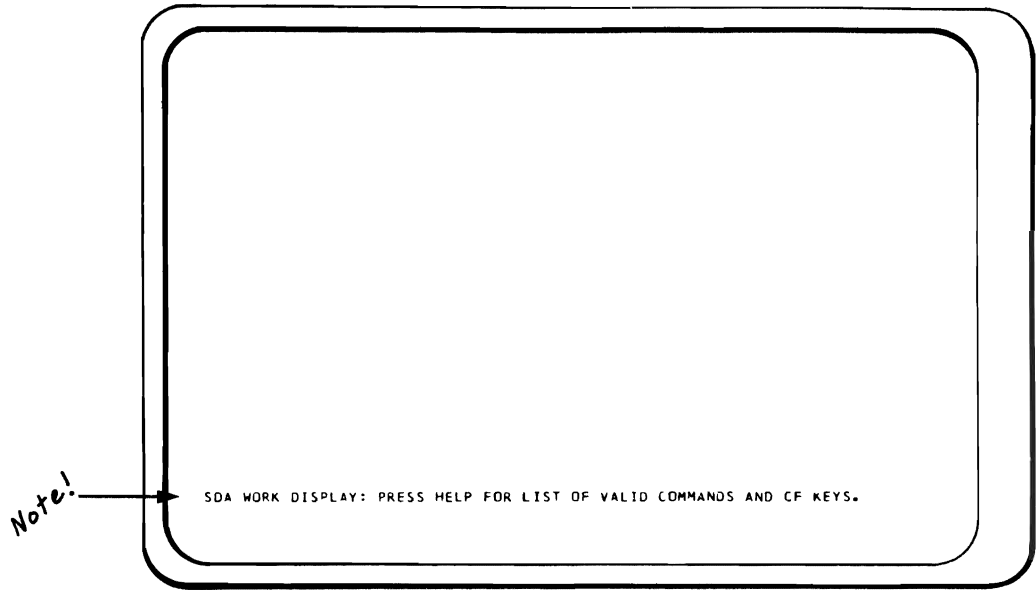
ENTER THE SOURCE FILE FOR DDS              DDS SOURCE FILE:   APPSRC
LIBRARY                                    LIBRARY:           APLIB

NEW OR EXISTING MEMBER NAME                MEMBER:            APDENTRX
(BLANK FOR MEMBER LIST DISPLAY)

ENTER ADDITIONAL RECORD FORMATS TO BE     ADDITIONAL RECORDS:
DISPLAYED ON THE WRK DISPLAY
```

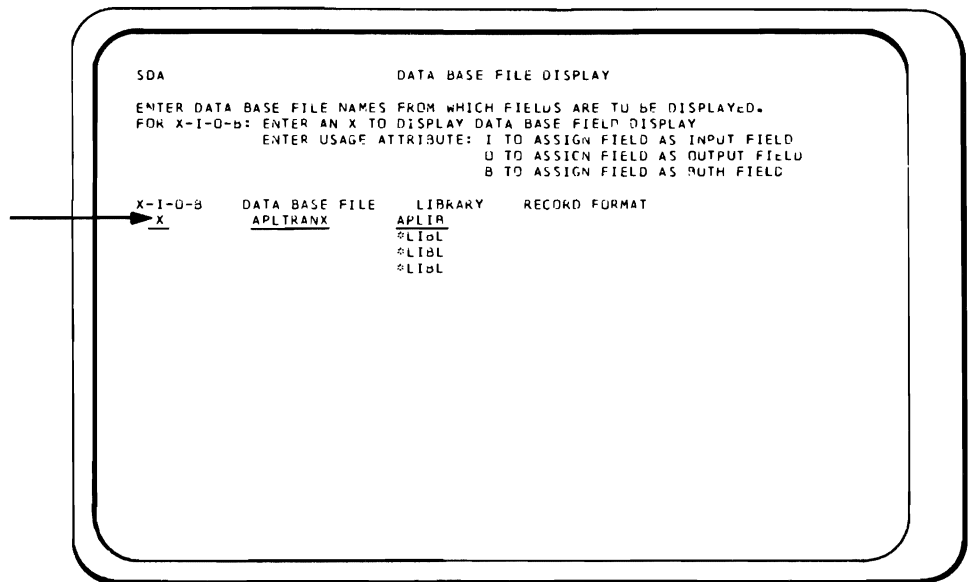
→ (ENTER)

9. Before entering on the blank workscreen, request database fields you'll be using.



→ (CF11)

10. Specify your logical file (APLTRANx).



→ (ENTER)

```

SDA                                DATA BASE FORMAT LIST
DATA BASE FILE:  APLTRANX  LIBRARY:  APLIB
RECORD FORMAT LIST:
1 PAYBLE

```

1 - SELECT RECORD FORMAT TO USE WITH DATA BASE FILE DISPLAY

→ (ENTER)

11. Select the 5 input fields and return to work display.

```

SDA                                DATA BASE FIELD DISPLAY
RECORD:  PAYBLE
TO SCRULL THE FILE ENTER THE NUMBER OF FIELDS TO ROLL      ROLL: 15
TO SEARCH THE FILE FOR A FIELD ENTER THE FIELD NAME         FIELD:
FOR X-I-O-B  ENTER X FOR THE EXTENDED DATA BASE FIELD DISPLAY.
                ENTER I, O, OR B FOR USAGE AND SELECTION OF THE FIELD.
X-I-O-B  FIELD      LENGTH TYPE      COLUMN HEADING
I        VNDNR      5.0 P      VENDOR NUMBER
I        INVNR      8.0 P      VENDOR INVOICE NUMBER
I        DATREC     6.0 P      DATE RECEIVED
I        MERCH      7.2 P      MERCHANDISE AMOUNT
          NET        7.2 P      NET AMOUNT PAID
          STATUS     1 C      STATUS OF RECORD
          DTPAID     6.0 P      DATE PAID
          CHECK#     6.0 P      CHECK NUMBER
          DEPTNO     3.0 P      DEPARTMENT NUMBER

```

→ (CF2)


```
SDA                                DATA BASE FILE DISPLAY
ENTER DATA BASE FILE NAMES FROM WHICH FIELDS ARE TO BE DISPLAYED.
FOR X-I-O-B: ENTER AN X TO DISPLAY DATA BASE FIELD DISPLAY
ENTER USAGE ATTRIBUTE: I TO ASSIGN FIELD AS INPUT FIELD
                      O TO ASSIGN FIELD AS OUTPUT FIELD
                      B TO ASSIGN FIELD AS BOTH FIELD

X-I-O-B  DATA BASE FILE  LIBRARY  RECORD FORMAT
          APLTRANX       APLIB     PAYBLE
                               *LIBL
                               *LIBL
                               *LIBL
```

→ (CF2)

12. Obtain a "ruler" around work display.

```
1:VNDNBR 2:INVNBR 3:DATREC 4:MERCH 5:DEPTNJ
```

→ (CF8)

13. Enter the display title (a character constant) on line 2.

```
..... 1 ..... 2 ..... 3 ..... 4 ..... 5 ..... 6 ..... 7 ..... 8
2      'ACCOUNTS PAYABLE INVOICE'
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
1:VNDNBR 2:INVNBR 3:DATREC 4:MERCH 5:DEPTNO
```

→(ENTER)

14. Enter all remaining constants and place the database-input fields with associated text to the left (small "L").

```
..... 1 ..... 2 ..... 3 ..... 4 ..... 5 ..... 6 ..... 7 ..... 8
2      ACCOUNTS PAYABLE INVOICE          *DATE      *TIME
3
4
5      L11
6      L21
7      L31
8      L41
9      L51
10
11
12
13
14
15
16
17
18
19
20     *PRESS ENTER TO CONTINUE *      *COMMAND KEY 12 - END OF JOB*
21
22
23
1:VNDNBR 2:INVNBR 3:DATREC 4:MERCH 5:DEPTNO
```

→(ENTER)

15. Request error-message entry for vendor number field.

```

... 1 ... 2 ... 3 ... 4 ... 5 ... 6 ... 7 ... 8
2   ACCOUNTS PAYABLE INVOICE          DD/DD/DD  TT:TT:TT
3
4
5   VENDOR NUMBER: 233333-
6   VENDOR INVOICE NUMBER: 33333333-
7   DATE RECEIVED: 333333-
8   MERCHANDISE AMOUNT: 333333-
9   DEPARTMENT NUMBER: 333-
10
11
12
13
14
15
16
17
18
19
20  PRESS ENTER TO CONTINUE          COMMAND KEY 12 - END OF JOB
21
22
23
24
  
```

→(ENTER)

```

SDA          EXTENDED FIELD DEFINITION
FIELD: VNDNR  USAGE: I  LINE: 05  POS: 45  LENGTH: 5,0
  1. DISPLAY ATTRIBUTES
  2. KEYING OPTIONS          5. VALIDITY/CHFLK      7. GENERAL KEYWORDS
  3. FIELD REFERENCE        6. MESSAGES          8. SUBFILE KEYWORDS
OPTION: 6

----- 1. DISPLAY ATTRIBUTES -----
THE FOLLOWING DISPLAY ATTRIBUTES CAN BE SELECTED ON CONDITIONED.

FIELD CONDITIONING          DSPATR (Y N) NNN NNN NNN OR *
HIGH INTENSITY              HI
REVERSE IMAGE               RI
COLUMN SEPARATORS          CS
BLINK                       BL
NONDISPLAY                  ND
UNDERLINE                   UL
POSITION CURSOR            PC
SET MODIFIED DATA TAG     MDT
PROTECT FIELD              PR
OPERATOR ID MAGNETIC CARD  OID
SELECT BY LIGHT PEN        SP
  
```

→(ENTER)

16. Insert ERRMSG text and conditioning; then return to work display.

```
SDA                                EXTENDED FIELD DEFINITION
FIELD: VNONBR      USAGE: I   LINE: 05  POS: 45  LENGTH: 5,0
1. DISPLAY ATTRIBUTES          7. GENERAL KEYWORDS
2. KEYING OPTIONS              8. SUBFILE KEYWORDS
3. FIELD REFERENCE            6. MESSAGES
OPTION: 7
----- 6. MESSAGES -----
IF YOUR MESSAGES ARE NOT IN A MESSAGE FILE ENTER: (ROLL WITH CURSOR FOR MORE)
NNN NNN NNN OR + ERRMSG - MESSAGE TEXT          RESP IND
50          INVALID VENDOR NUMBER
+
IF YOUR MESSAGES ARE IN A MESSAGE FILE ENTER: (ROLL WITH CURSOR FOR MORE)
NNN NNN NNN OR + ERRMSGID FILE LIBRARY
+
```

→ (CF2)

17. Request a print of the work display (it will print at SDA termination).

```
.... 1 .... 2 .... 3 .... 4 .... 5 .... 6 .... 7 .... c
2          ACCOUNTS PAYABLE INVOICE          DD/DD/DD  TT:TT:TT
3
4
5          VENDOR NUMBER: 33333-
6          VENDOR INVOICE NUMBER: 33333333-
7          DATE RECEIVED: 333333-
8          MERCHANDISE AMOUNT: 3333333-
9          DEPARTMENT NUMBER: 333-
10
11
12
13
14
15
16
17
18
19
20          PRESS ENTER TO CONTINUE          COMMAND KEY 12 - END OF JOB
21
22
23
24
```

→ (CF6)

18. Terminate record-level entries.

```
..... 1 ..... 2 ..... 3 ..... 4 ..... 5 ..... 6 ..... 7 ..... 8
2          ACCOUNTS PAYABLE INVOICE          DD/DD/DD    TT:TT:TT
3
4
5          VENDOR NUMBER: 33333-
6          VENDOR INVOICE NUMBER: 3333333-
7          DATE RECEIVED: 33333-
8          MERCHANDISE AMOUNT: 3333333-
9          DEPARTMENT NUMBER: 333-
10
11
12
13
14
15
16
17
18
19
20      PRESS ENTER TO CONTINUE          COMMAND KEY 12 - END OF JOB
21
22
23      WORK DISPLAY PRINT COMPLETE.
```

→(CF2)

19. Begin the save/create operation.

```
SDA          DESIGN RECORD FORMAT MENU
SELECT ONE OF THE FOLLOWING:
1. FILE DEFINITION
2. RECORD FORMAT DEFINITION
3. FIELD DEFINITION
4. SUBFILE CONTROL RECORD DEFINITION
5. SUBFILE RECORD FORMAT DEFINITION
6. SAVE DDS/CREATE DISPLAY DEVICE FILE
OPTION: 6
NEW OR EXISTING DISPLAY RECORD FORMAT          RECORD FORMAT:      APENTR
( BLANK FOR RECORD FORMAT LIST DISPLAY)
ENTER THE SOURCE FILE FOR DDS                  DDS SOURCE FILE:     APPSRC
LIBRARY                                        LIBRARY:             APLIB
NEW OR EXISTING MEMBER NAME                   MEMBER:              APDENTRX
( BLANK FOR MEMBER LIST DISPLAY)
ENTER ADDITIONAL RECORD FORMATS TO BE        ADDITIONAL RECORDS:
DISPLAYED ON THE WORK DISPLAY
```

→(ENTER)

20. Replace existing DDS-source and submit batch job to create a new display file.

```
SDA                SAVE DDS/CREATE DISPLAY DEVICE FILE.

SAVE THE GENERATED DDS SOURCE                (Y N): Y
SOURCE FILE WHERE DDS IS TO BE SAVED:        R APPSRC
LIBRARY:                                       APLIB
MEMBER:                                       APDENTRX
(BLANK FOR MEMBER LIST DISPLAY)

CREATE A DISPLAY DEVICE FILE FROM THE DDS      (Y N): Y
DISPLAY DEVICE FILE:                          R APDENTRX
LIBRARY:                                       APLIB
IF CREATE FAILS, DISPLAY SPOOLED LISTING      (Y N): Y
REPLACE EXISTING FILE                         (Y N): Y
PROMPT FOR ADDITIONAL CRTDSPF PARAMETERS      (Y N):

SUBMIT DISPLAY DEVICE FILE CREATION IN BATCH   (Y N): Y
JOB DESCRIPTION:                              APWJOB0
LIBRARY:                                       *LT0L

* MEMBER APDENTRX AND FILE APDENTRX EXIST. CF11 TO REPLACE.
```

→(CF11)

```
SDA                SAVE DDS/CREATE DISPLAY DEVICE FILE

SAVE THE GENERATED DDS SOURCE                (Y N): Y
SOURCE FILE WHERE DDS IS TO BE SAVED:        R APPSRC
LIBRARY:                                       APLIB
MEMBER:                                       APDENTRX
(BLANK FOR MEMBER LIST DISPLAY)

CREATE A DISPLAY DEVICE FILE FROM THE DDS      (Y N): Y
DISPLAY DEVICE FILE:                          R APDENTRX
LIBRARY:                                       APLIB
IF CREATE FAILS, DISPLAY SPOOLED LISTING      (Y N): Y
REPLACE EXISTING FILE                         (Y N): Y
PROMPT FOR ADDITIONAL CRTDSPF PARAMETERS      (Y N):

SUBMIT DISPLAY DEVICE FILE CREATION IN BATCH   (Y N): Y
JOB DESCRIPTION:                              APWJOB0
LIBRARY:                                       *LT0L

* MBR APDENTRX SAVED; BATCH CREATE SUBMITTED. PRESS ENTER.
```

→(ENTER)

21. Terminate SDA.

```
SDA                                DESIGN RECORD FORMAT MENU
SELECT ONE OF THE FOLLOWING:
  1. FILE DEFINITION
  2. RECORD FORMAT DEFINITION
  3. FIELD DEFINITION
  4. SUBFILE CONTROL RECORD DEFINITION
  5. SUBFILE RECORD FORMAT DEFINITION
  6. SAVE DDS/CREATE DISPLAY DEVICE FILE

OPTION:

NEW OR EXISTING DISPLAY RECORD FORMAT          RECORD FORMAT:    APENTR
(BLANK FOR RECORD FORMAT LIST DISPLAY)

ENTER THE SOURCE FILE FOR DDS                  DDS SOURCE FILE:  APPSRC
LIBRARY                                         LIBRARY:          APLIB
NEW OR EXISTING MEMBER NAME                    MEMBER:           APENTRX
(BLANK FOR MEMBER LIST DISPLAY)

ENTER ADDITIONAL RECORD FORMATS TO BE         ADDITIONAL RECORDS:
DISPLAYED ON THE WORK DISPLAY
```

→(CF1)

```
SDA                                OPTION MENU
SELECT ONE OF THE FOLLOWING:
  1. DESIGN DISPLAY RECORD FORMATS
  2. DESIGN A MENU
  3. TEST AN EXISTING DISPLAY RECORD FORMAT

OPTION:

-----

WITHIN SDA:
PRESS HELP KEY TO DISPLAY HELP TEXT FOR THE CURRENT DISPLAY.
PRESS CF1 KEY TO EXIT ANY OPTION AND ALLOW SAVING THE CHANGES.
PRESS CF2 KEY TO BACK UP TO THE PREVIOUS DISPLAY IN A SERIES.
PRESS ENTER/REC ADV TO ADVANCE TO THE NEXT DISPLAY.
```

→(CF1)

```

                                PROGRAMMER MENU
Select one of the following:
1. Design/execute DFU app      (app), ,(options)
2. Design/execute query app   (app), ,(options)
3. Create object              object name, type, pgm for CMD, (text)
4. Call program               program name
5. Execute command            command
6. Submit job                 (job name), (command)
7. Display submitted jobs
8. Edit source                (srcmbr), (type), (text)
9. Design display format      (srcmbr)
90. Sign off                  (*NOLIST *LIST)

Types: BSCF, CBL, CL, CLP, CMD, CMNF, DSPF, LF, PF, PRTF, RPG, TXT

Option:  Parm: APDENTRX  Type:      Parm 2:
Command:

Text:
Src file: APPSRC      Src lib: APLIB      Obj lib: APLIB      Log requests: *YES
        CF3 - Command entry  CF4 - Prompt (3 & 5 only)  CF6 - DSPMSG

```

→ (WAIT FOR JOB-COMPLETE ALARM)

 {
→ (CF6)

```

                                MESSAGE QUEUE - WS05
                                Delivery: *NOTIFY  Msgq sev: 00
Job APWJOB01.APWTEAMX.002892 completed normally on 10/20/81 at 11:41:06.

CF6 - Remove a message          CF7 - Display all          CF8 - Remove all

```

→ (CF8)

22. Verify the printouts (display file create and work display printout); and then begin an SDA test of your new display.

```
PROGRAMMER MENU
SELECT ONE OF THE FOLLOWING:
1. DESIGN/EXECUTE DFU APP      (APP), +(OPTIONS)
2. DESIGN/EXECUTE QUERY APP   (APP), +(OPTIONS)
3. CREATE OBJECT              OBJECT NAME, TYPE, PGM FOR CMD, (TEXT)
4. CALL PROGRAM               PROGRAM NAME
5. EXECUTE COMMAND            COMMAND
6. SUBMIT JOB                 (JOB NAME), (COMMAND)
7. DISPLAY SUBMITTED JOBS
8. EDIT SOURCE                (SRCMBR), (TYPE), (TEXT)
9. DESIGN DISPLAY FORMAT      (SRCMBR)
90. SIGN OFF                  (*NOLIST *LIST)

TYPES: BSCF, CBL, CL, CLP, CMD, CMNF, DSPF, LF, PF, PRPF, RPG, TXT

OPTION: 9  PARM: APDENTRX  TYPE:      PARM 2:
COMMAND:

TEXT:
SRC FILE: APPSRC      SRC LIB: APL18      OBJ LIB: APL18      LOG REQUESTS: *YES
CF3 - COMMAND ENTRY  CF4 - PROMPT (3 & 5 ONLY)  CF6 - DSPMSG
```

→(ENTER)

```
SDA OPTION MENU
SELECT ONE OF THE FOLLOWING:
1. DESIGN DISPLAY RECORD FORMATS
2. DESIGN A MENU
3. TEST AN EXISTING DISPLAY RECORD FORMAT

OPTION: 3

-----

WITHIN SDA:
PRESS HELP KEY TO DISPLAY HELP TEXT FOR THE CURRENT DISPLAY.
PRESS CF1 KEY TO EXIT ANY OPTION AND ALLOW SAVING THE CHANGES.
PRESS CF2 KEY TO BACK UP TO THE PREVIOUS DISPLAY IN A SERIES.
PRESS ENTER/REC ADV TO ADVANCE TO THE NEXT DISPLAY.
```

→(ENTER)

```

SDA                                RECORD FORMAT TEST
DISPLAY DEVICE FILE:                R APDENTRX
LIBRARY:                            *LIBL
RECORD FORMAT:                       APENTR
(BLANK FOR RECORD FORMAT LIST DISPLAY)

ADDITIONAL DISPLAY REGRD FORMATS
RECORD FORMATS:

```

→(ENTER)

23. For the first test-run, leave the error indicator off.

```

SDA                                OUTPUT DATA FOR TEST
RECORD: APENTR                      ENTER PROGRAM OUTPUT DATA AND INDICATOR SETTINGS:
FIELD NAME                          FIELD VALUE      FIELD NAME      FIELD VALUE
*IN50                               : 0:

```

→(ENTER)

24. Enter some "typical" data.

```
ACCOUNTS PAYABLE INVOICE          10/20/81    11:43:54

VENDOR NUMBER: 12345
VENDOR INVOICE NUMBER: 654321
DATE RECEIVED: 101681
MERCHANDISE AMOUNT: 10000
DEPARTMENT NUMBER: 25

PRESS ENTER TO CONTINUE          COMMAND KEY 12 - END OF JOB
```

→(ENTER)

25. Verify the data input from the display.

```
SDA                                INPUT DATA FOR TEST
RECORD: APENTR
FIELD NAME      FIELD VALUE      FIELD NAME      FIELD VALUE
*IN99          : 0:              VNDWBR         : 12345:
INVNR          : 00654321:       DATREC         : 101681:
MERCH          : 0010000:       DEPTNU         : 025:

DISPLAY INPUT BUFFER: (Y/N)
```

→(ENTER)

26. For this run, activate the error message.

SDA
RECORD: APENTR
FIELD NAME : 1
*IN50

OUTPUT DATA FOR TEST
ENTER PROGRAM OUTPUT DATA AND INDICATOR SETTINGS:
FIELD VALUE FIELD NAME FIELD VALUE

→ (ENTER)

ACCOUNTS PAYABLE INVOICE 10/20/81 11:43:54

VENDOR NUMBER: 12345
VENDOR INVOICE NUMBER: 854321
DATE RECEIVED: 101681
MERCHANDISE AMOUNT: 10000
DEPARTMENT NUMBER: 25

PRESS ENTER TO CONTINUE COMMAND KEY 12 - END OF JOB

INVALID VENDOR NUMBER

→ (RESET-REQUIRED!)

→ (CF12)

27. Verify that CF12 turns on indicator 99 and terminate SDA.

✓

```
SDA                                INPUT DATA FOR TEST
RECORD: APENTR
FIELD NAME      FIELD VALUE      FIELD NAME      FIELD VALUE
*IN99          : 1:              VNDNR          : 12345:
INVNR          : 00654321:       DATREC         : 101681:
MERCH          : 0010000:       DEPTNO         : 025:
```

DISPLAY INPUT BUFFER: (Y/N)

→ (CF1)

```
SDA                                OPTION MENU
SELECT ONE OF THE FOLLOWING:
1. DESIGN DISPLAY RECORD FORMATS
2. DESIGN A MENU
3. TEST AN EXISTING DISPLAY RECORD FORMAT

OPTION:

-----

WITHIN SDA:
PRESS HELP KEY TO DISPLAY HELP TEXT FOR THE CURRENT DISPLAY.
PRESS CF1 KEY TO EXIT ANY OPTION AND ALLOW SAVING THE CHANGES.
PRESS CF2 KEY TO BACK UP TO THE PREVIOUS DISPLAY IN A SERIES.
PRESS ENTER/REC ADV TO ADVANCE TO THE NEXT DISPLAY.
```

→ (CF1)

28. This completes Optional Lab Exercise 1 (the SDA generation and test of display file APDENTRx). If you have time, you should also repeat lab steps 22 through 24 using unique transaction numbers (beyond 17).

Optional SDA Lab Exercise #2

The goal of this exercise (like the first) is to use SDA to replace and test a display file (source code and display file). This time the display file is APDSRCHx, the one you created in lab steps 36–38.

You should not do this exercise until those lab steps are completed and the instructor tells you to do so.

Before you start, obtain a copy of the DDS source code that you used in lab steps 36–38. Use it, as you do this exercise, to checkoff how you would use SDA to create each statement.

Don't forget to use the HELP key at any time SDA is running.

The following 16 steps should yield a new APDSRCHx source member and a device file similar to yours.

1. Clear out the APDSRCHx source file.

```
                                PROGRAMMER MENU
Select one of the following:
 1. Design/execute DFU app      (app), ,(options)
 2. Design/execute query app   (app), ,(options)
 3. Create object              object name, type, pgm for CMD, (text)
 4. Call program               program name,
 5. Execute command           command
 6. Submit job                 (job name), (command)
 7. Display submitted jobs
 8. Edit source                (srcmbr), (type), (text)
 9. Design display format      (srcmbr)
90 Sign off                    (*NOLIST *LIST)

Types: BSCF, CBL, CL, CLP, CMD, CMNF, DSFF, LF, FF, PRTF, RPG, TXT

Option: B  Parm: APDSRCHX  Type: DSPE Parm 2:
Command:

Text:
Src file: APPSRC  Src Lib: APLIB  Obj Lib: APLIB  Log requests: *YES
CF3 - Command entry  CF4 - Prompt (3 & 5 only)  CF6 - DSPMSG
Member APDSRCHX file APPSRC.APLIB updated with 37 records.
```

→ (ENTER)

```

SEU      US W:1      Mbr: APDSRCHX      Scan:
FHT DP   ....AAN01N02N03T.Name+++++RLen++TdpBlInPosFunctions+++++
*****BEGINNING OF DATA*****
0999.00  A                                     DSPSIZ(24 80 *DS3)
0002.00  A                                     REF (APPVEND,APLIB)
0003.00  A                                     PRINT
0004.00  A *DS3                               MSGLOC(24)
0005.00  A                                     SFL
0006.00  A      R SCHRCO                      R      12  2
0007.00  A      UNDNAM                      R      12 31
0008.00  A      UNDSLS                      R      12 61
0009.00  A      UNZIP                       R      12 71
0010.00  A      UNPBR                      P      12 71
0011.00  A      R SCHCTL                    SFLCTL(SLHRCO)
0012.00  A N55                               CA01(99 'END OF JOB')
0013.00  A                                     ROLLUP(30)
0014.00  A      75                          OVERLAY
0015.00  A      76                          SFLDSP
0016.00  A      77                          SFLDSPCTL
0017.00  A      55                          SFLCLR
0018.00  A                                     SFLEND
0019.00  A                                     SFLSIZ(0050)
0020.00  A      SFLPAG                      25 01 1 3DSPATR(ND PR)

```

→ (ENTER)

```

SEU      US W:1      Mbr: APDSRCHX      Scan:
FHT DP   ....AAN01N02N03T.Name+++++RLen++TdpBlInPosFunctions+++++
*****BEGINNING OF DATA*****
*****END OF DATA*****

```

Enter I (insert); IFff (insert under format ff), IPff (insert with prompt ff) or A (copy after) at cursor. DSFF ff values are:
 **,A*,DP
 For more help, press HELP.

→ (CF1)


```

SEU                               EXIT
Select one of the following:
1. Exit without update
2. Exit and update member
3. Exit and create a new member
4. Update member, no exit
5. Create member, no exit
6. Return to editing

Option: 2

For options 2 to 5:                MEMBER      FILE      LIBRARY
APDSRCHX  APPSRC  APLIB
Resequence member (Y N):          Y Start.   1.00  Increment:  1.00

For options 1 to 3:
Return to member list (Y N):      N

For options 1 to 6:
Print source listing (Y N)        N

TOTAL RECORDS      ADDED      CHANGED      DELETED      SYNTAX ERRORS LEFT
                                     37

```

→ (ENTER)

2. Begin SDA generation of APDSRCHx source code.

```

                                PROGRAMMER MENU
Select one of the following:
1. Design/execute DFU app          (app), ,(options)
2. Design/execute query app       (app), ,(options)
3. Create object                   object name, type, pgm for CMD, (text)
4. Call program                    program name
5. Execute command                 command
6. Submit job                       (job name), (command)
7. Display submitted jobs
8. Edit source                      (srcmbr), (type), (text)
9. Design display format           (srcmbr)
90. Sign off                        (*NOLIST *LIST)

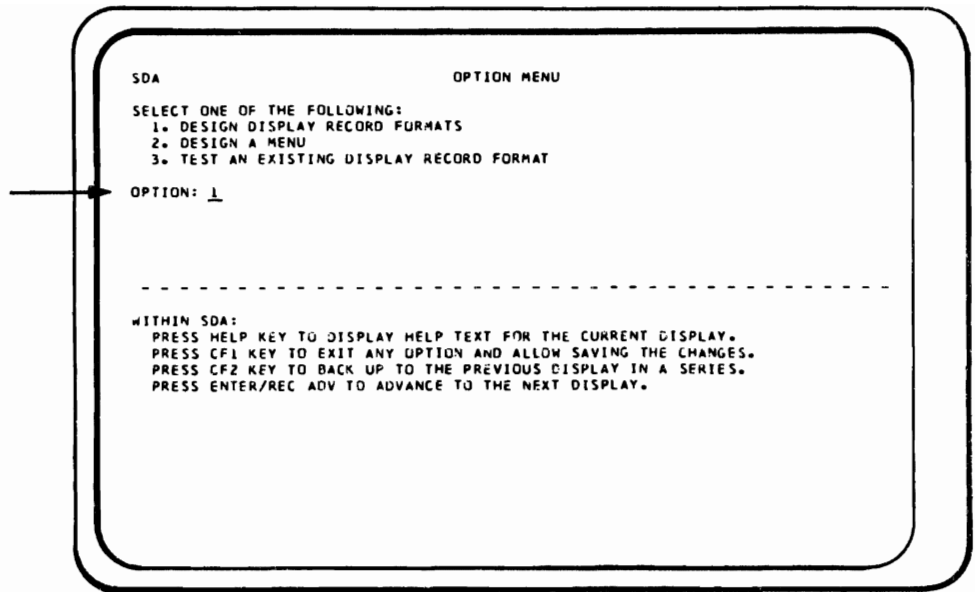
Types: BSCF, CBL, CL, CLP, CMD, CMNF, DSPF, LF, PF, PRTF, RPG, TXT

Option: 9  Param: APDSRCHX  Type:      Param 2:
Command:

Text:
Src file: APPSRC  Src lib: APLIB  Obj lib: APLIB  Job: APNJOB  Log requests: *YES
CF3 - Command entry  CF4 - Prompt (3 & 5 only)  CF6 - DSPMSG
Member APDSRCHX file APPSRC.APLIB updated with 0 records.

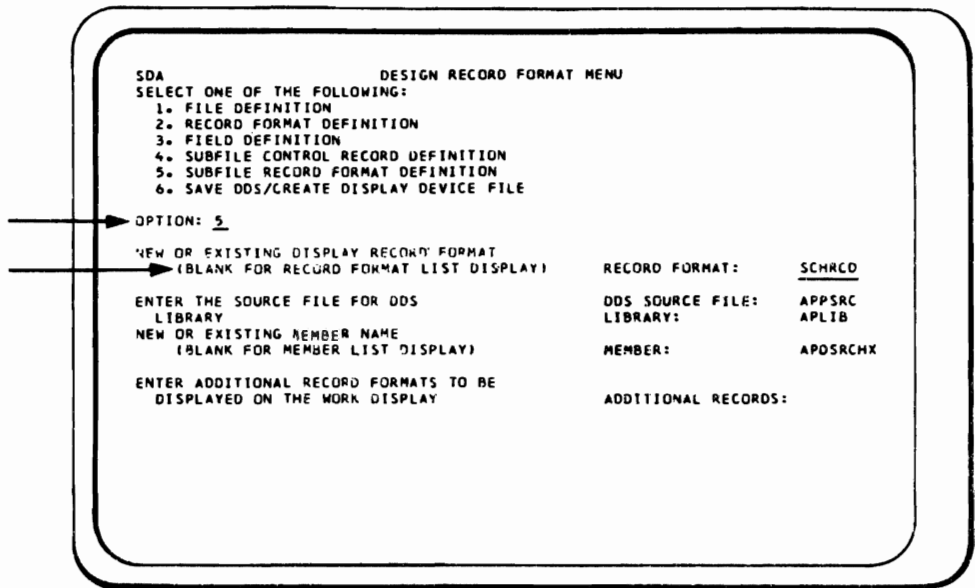
```

→ (ENTER)



→(ENTER)

3. Always begin a subfile by identifying the subfile record's name!



→(ENTER)

```

SDA                                SUBFILE RECORD FORMAT DEFINITION
RECORD: SCHPCD      TEXT:
  1. GENERAL SUBFILE KEYWORDS      3. SUBFILE MESSAGE RECORD
  2. INDICATOR KEYWORDS
OPTION: 2

----- 1. GENERAL SUBFILE KEYWORDS -----

RETURN THIS RECORD ON GET NEXT CHANGED      (Y N) NNN NNN NNN
WRITE THIS RECORD TO THE JOB LOG             SFLNXTCHG
WRITE THIS RECORD TO THE JOB LOG             LOGOUT
                                           LOGTSP

ALLOW BLANKS IN INPUT FIELDS                CHECK(AB) (Y N):

DO NOT DEFAULT UNDERLINE THE INPUT FIELDS IN THIS RECORD
(UNDERLINE CAN BE A DISPLAY ATTRIBUTE)      CHGINPDT (Y N):

KEEP THIS RECORD AND ANY OTHERS ON THE DISPLAY WHEN
CLOSING (THE DEFAULT IS TO ERASE IT)       KEEP      (Y N):

```

→ (CF2)

4. Begin file-level entries into subfile record.

```

SDA                                DESIGN RECORD FORMAT MENU
SELECT ONE OF THE FOLLOWING:
  1. FILE DEFINITION
  2. RECORD FORMAT DEFINITION
  3. FIELD DEFINITION
  4. SUBFILE CONTROL RECORD DEFINITION
  5. SUBFILE RECORD FORMAT DEFINITION
  6. SAVE DDS/CREATE DISPLAY DEVICE FILE

OPTION: 1

NEW OR EXISTING: DISPLAY RECORD FORMAT      RECORD FORMAT:      SCHRCO
(=BLANK FOR RECORD FORMAT LIST DISPLAY)

ENTER THE SOURCE FILE FOR DDS              DDS SOURCE FILE:    APPSRC
LIBRARY                                    LIBRARY:            APLTB

NEW OR EXISTING MEMBER NAME                MEMBER:              APDSRCHX
(=BLANK FOR MEMBER LIST DISPLAY)

ENTER ADDITIONAL RECORD FORMATS TO BE      ADDITIONAL RECORDS:
DISPLAYED ON THE WORK DISPLAY

```

→ (ENTER)

```

SDA                                FILE DEFINITION
1. GENERAL FILE KEYWORDS          3. PRINT KEYWORDS
2. COMMAND KEYS AND INDICATOR TEXT
OPTION: 3
----- 1. GENERAL FILE KEYWORDS -----
DEVICES SUPPORTED WITH THIS FILE      DSPTSZ  SELECT  CONDITION  MSGLOC
(SPECIFY 1 TO SELECT THE PRIMARY DISPLAY 24X80  1      @DS3      24
SIZE. SPECIFY 2 TO SELECT ALTERNATE 12X60  @DS2      12
DISPLAY SIZES.)                       16X64  @DS1      16

DO NOT UNDERLINE INPUT CAPABLE FIELDS  CHG:NPJFT (Y N):
ALLOW BLANKS FOR INPUT FIELDS          CHECK:AB) (Y N):

RETRIEVE FIELD DESCRIPTIONS FROM THE FOLLOWING
DATA BASE FILE                         REF      APPVEND
LIBRARY                                LIBRARY: APLIB
RECORD FURMAT                          RECORD:
RECORD FORMAT WHEN PASSING UNFORMATTED DATA  PASSRCD

```

→ (ENTER)

```

SDA                                FILE DEFINITION
1. GENERAL FILE KEYWORDS          3. PRINT KEYWORDS
2. COMMAND KEYS AND INDICATOR TEXT
OPTION: 1
----- 3. PRINT KEYWORDS -----
PRINT KEY SUPPORTED WITH THIS FILE      PRINT: Y (Y N) NNN NNN NNN OR *
TO HAVE CPF HANDLE PRINTING, USING A PRINTER DEVICE FILE, SPECIFY:
DEVICE FILE                             FILE:
LIBRARY                                  LIBRARY:
LEAVE PRINT FILE OPEN UNTIL DISPLAY FILE CLOSED  OPENPRT (Y N):
-- OR --
TO HAVE YOUR PROGRAM HANDLE PRINTING, SPECIFY:
SET THIS RESPONSE INDICATOR IF PRINT KEY IS PRESSED  IND:
INDICATOR TEXT:

```

→ (CF2)

5. Define the subfile control record format (SCHCTL).

```

SDA                                DESIGN RECORD FORMAT MENU
SELECT ONE OF THE FOLLOWING:
1. FILE DEFINITION
2. RECORD FORMAT DEFINITION
3. FIELD DEFINITION
4. SUBFILE CONTROL RECORD DEFINITION
5. SUBFILE RECORD FORMAT DEFINITION
6. SAVE DDS/CREATE DISPLAY DEVICE FILE

OPTION: 4
NEW OR EXISTING DISPLAY RECORD FORMAT      RECORD FORMAT:  SCHCTL
( BLANK FOR RECORD FORMAT LIST DISPLAY)
ENTER THE SOURCE FILE FOR DDS              DDS SOURCE FILE:  APPSRC
LIBRARY                                     LIBRARY:          APLTB
NEW OR EXISTING MEMBER NAME                MEMBER:           APOSRCHX
( BLANK FOR MEMBER LIST DISPLAY)
ENTER ADDITIONAL RECORD FORMATS TO BE     ADDITIONAL RECORDS:
DISPLAYED ON THE WORK DISPLAY
  
```

→ (ENTER)

```

SDA                                SUBFILE CONTROL RECORD DEFINITION
RECORD: SCHCTL    TEXT:
1. GENERAL CONTROL RECORD KEYWORDS      3. SUBFILE MESSAGES
2. SUBFILE DISPLAY LAYOUT                4. SUBFILE MESSAGE RECORD
OPTION: 2
----- 1. GENERAL CONTROL RECORD KEYWORDS -----
ENTER THE NAME OF THE RELATED SUBFILE RECORD      SFLCTL  R  SCHRCD

ENTER A CA OR CF KEY TO SWITCH FROM FOLDING TO TRUNCATING
RECORDS WHEN THE KEY IS PRESSED                    SFLDROP
IF ENTER/REC ADV IS TO BE USED AS ROLLUP SPECIFY CA OR CF
KEY USED IN PLACE OF ENTER/REC ADV                  SFLENTER

DISPLAY SUBFILE RECORDS                             (Y N) NNN NNN NNN OR +
DISPLAY CONTROL RECORD                             SFLDSP  R  Y  75
INITIALIZE SUBFILE FIELDS                          SFLDSPCTL Y  76
DELETE SUBFILE AREA                                SFLINZ
CLEAR SUBFILE OF RECORDS FOR INPUT                  SFLDLT
DISPLAY + FOR MORE RECORDS                         SFLCLR  77
RECORD NOT ACTIVE                                  SFLEND  55
SFLRNA
  
```

→ (ENTER)

```

SDA                                SUBFILE CONTROL RECORD DEFINITION
RECORD: SCHCTL      TEXT:
1. GENERAL CONTROL RECORD KEYWORDS      3. SUBFILE MESSAGES
2. SUBFILE DISPLAY LAYOUT                4. SUBFILE MESSAGE RECORD
OPTION: 3
----- 2. SUBFILE DISPLAY LAYOUT -----
THE FOLLOWING KEYWORDS WILL DETERMINE THE SUBFILE DISPLAY LAYOUT:
                                     DISPLAY SIZE  MORE
NUMBER OF RECORDS IN SUBFILE      SFLSIZ      R   50
NUMBER OF RECORDS PER DISPLAY     SFLPAG      R   10
NUMBER OF SPACES BETWEEN RECORDS  SFLLIN

```

→ (CF2)

6. Add SCHCTL format-level entries.

```

SDA                                DESIGN RECORD FORMAT MENU
SELECT ONE OF THE FOLLOWING:
1. FILE DEFINITION
2. RECORD FORMAT DEFINITION
3. FIELD DEFINITION
4. SUBFILE CONTROL RECORD DEFINITION
5. SUBFILE RECORD FORMAT DEFINITION
6. SAVE DDS/CREATE DISPLAY DEVICE FILE
OPTION: 2
NEW OR EXISTING DISPLAY RECORD FORMAT
(BLANK FOR RECORD FORMAT LIST DISPLAY)      RECORD FORMAT:      SCHCTL
ENTER THE SOURCE FILE FOR DDS                DDS SOURCE FILE:    APPSRC
LIBRARY                                       LIBRARY:            APLIB
NEW OR EXISTING MEMBER NAME                  MEMBER:              APDSRCHX
(BLANK FOR MEMBER LIST DISPLAY)
ENTER ADDITIONAL RECORD FORMATS TO BE
DISPLAYED ON THE WORK DISPLAY                ADDITIONAL RECORDS:

```

→ (ENTER)

```

SDA                                RECORD FORMAT DEFINITION
RECORD: SCHCTL    TEXT:
  1. COMMAND KEYS AND INDICATOR TEXT      4. GENERAL RECORD KEYWORDS
  2. OUTPUT KEYWORDS                      5. OVERLAY KEYWORDS
  3. INPUT KEYWORDS                      6. ROUTING FEEDBACK
OPTION: 5
----- 1. COMMAND KEYS AND INDICATOR TEXT -----
KEY- CONDITIONING ALLOWED: (CF01-24 CA01-24 CLEAR RULLUP ROLLDOWN HELP HOME)
KEY- WITHOUT CONDITIONING: (INDXT VLCHDKEY SETOF/SETOFF CHANGE)
NNN NNN NNN OR + KEY IND TEXT
N55 → CA01 99 END OF JOB
      ROLLUP 30

```

(ROLL FOR MORE)

→ (ENTER)

```

SDA                                RECORD FORMAT DEFINITION
RECORD: SCHCTL    TEXT:
  1. COMMAND KEYS AND INDICATOR TEXT      4. GENERAL RECORD KEYWORDS
  2. OUTPUT KEYWORDS                      5. OVERLAY KEYWORDS
  3. INPUT KEYWORDS                      6. ROUTING FEEDBACK
OPTION: 6
----- 5. OVERLAY KEYWORDS -----
USE THE FOLLOWING KEYWORDS FOR OVERLAYING RECORDS: (Y N) NNN NNN NNN OR +
OVERLAY WITHOUT ERASING ENTIRE DISPLAY      OVERLAY  Y
IF RECORD IS ON THE DISPLAY DO NOT ERASE    PUTRETAIN
PROTECT INPUT FIELDS CURRENTLY DISPLAYED    PROTECT
ACTIVATE OVRDTA AND OVRATR FIELD KEYWORDS   PUTOVR

RESET ALL MODIFIED DATA TAGS                MDOFF
ERASE ALL INPUT FIELDS                       *UNPR/*ALL: MORE:
ERASE ALL RECORDS SPECIFIED                  *MDTON/*ALL: MORE:
ERASE RECORDS:                              ERASE
                                           (ROLL FOR MORE ERASE KEYWORDS) MORE ERASE RECORDS:

```

→ (CF2)

7. Add SCHCTL fields and constants.

```
SOA                                DESIGN RECORD FORMAT MENU
SELECT ONE OF THE FOLLOWING:
1. FILE DEFINITION
2. RECORD FORMAT DEFINITION
3. FIELD DEFINITION
4. SUBFILE CONTROL RECORD DEFINITION
5. SUBFILE RECORD FORMAT DEFINITION
6. SAVE DDS/CREATE DISPLAY DEVICE FILE

OPTION: 3

NEW OR EXISTING DISPLAY RECORD FORMAT
(BLANK FOR RECORD FORMAT LIST DISPLAY)      RECORD FORMAT:    SCHCTL

ENTER THE SOURCE FILE FOR DDS
LIBRARY                                     DDS SOURCE FILE:  APPSRC
NEW OR EXISTING MEMBER NAME
(BLANK FOR MEMBER LIST DISPLAY)           MEMBER:           APDSRCHX

ENTER ADDITIONAL RECORD FORMATS TO BE
DISPLAYED ON THE WORK DISPLAY             ADDITIONAL RECORDS:
```

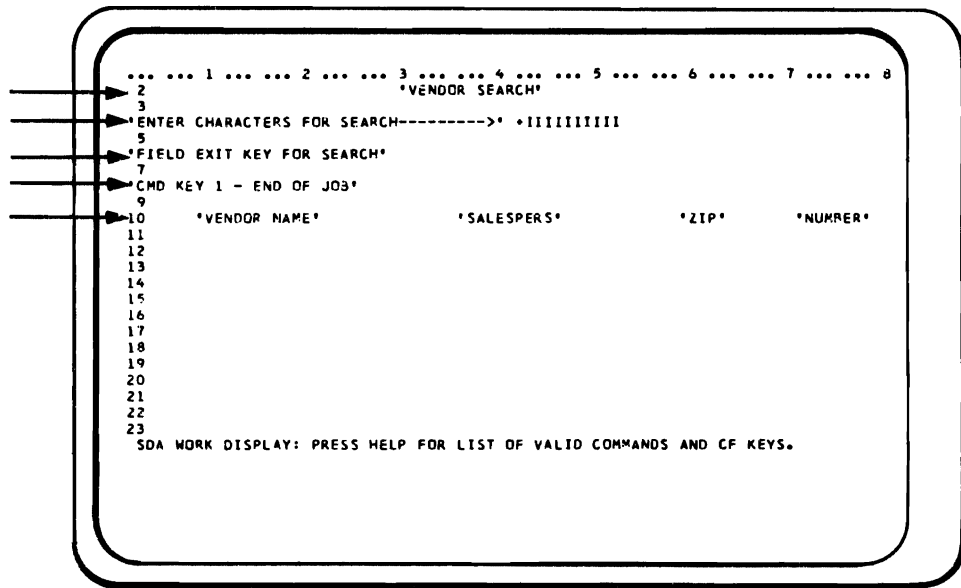
→ (ENTER)

7A. Add a ruler to work display.

```
SOA WORK DISPLAY: PRESS HELP FOR LIST OF VALID COMMANDS AND CF KEYS.
```

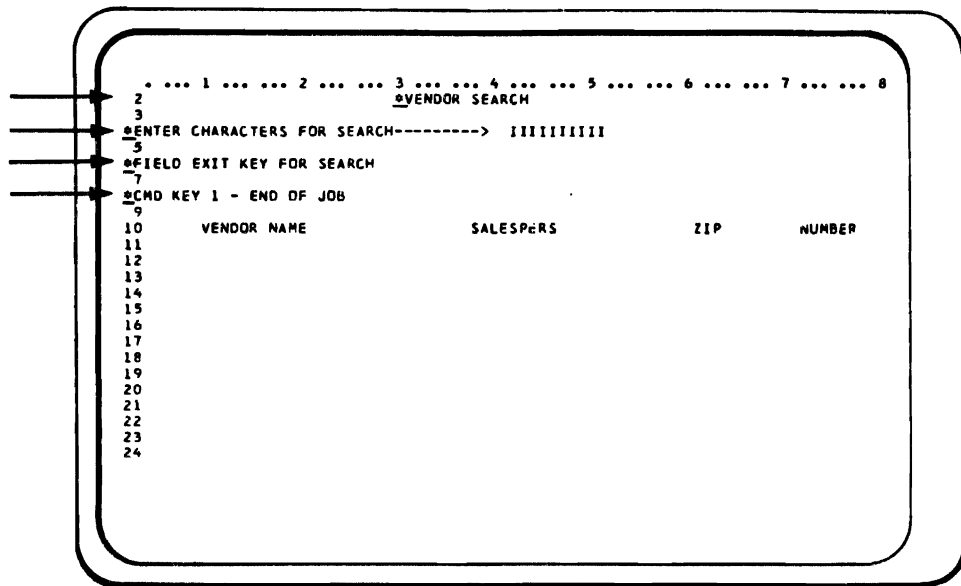
→ (CF8)

7B. Key in displayed constants and input field.



→ (ENTER)

7C. Add display attributes.



→ (ENTER)

✓

SDA EXTENDED FIELD DEFINITION
 CONSTANT: VENDOR SEARCH LINE: 02 POS: 31 LENGTH: 13
 1. DISPLAY ATTRIBUTES 7. GENERAL KEYWORDS

OPTION: 7

----- 1. DISPLAY ATTRIBUTES -----
 THE FOLLOWING DISPLAY ATTRIBUTES CAN BE SELECTED OR CONDITIONED.

	DSPATR (Y N) NNN NNN NNN DR *
FIELD CONDITIONING	
HIGH INTENSITY	HI
REVERSE IMAGE	RI <u>Y</u>
COLUMN SEPARATORS	CS
BLINK	BL
NONDISPLAY	ND
UNDERLINE	UL
POSITION CURSOR	PC

→ (CF2)

✓

SDA EXTENDED FIELD DEFINITION
 CONSTANT: ENTER CHARACTER LINE: 04 POS: 02 LENGTH: 27
 1. DISPLAY ATTRIBUTES 7. GENERAL KEYWORDS

OPTION: 7

----- 1. DISPLAY ATTRIBUTES -----
 THE FOLLOWING DISPLAY ATTRIBUTES CAN BE SELECTED OR CONDITIONED.

	DSPATR (Y N) NNN NNN NNN DR *
FIELD CONDITIONING	
HIGH INTENSITY	HI <u>Y</u>
REVERSE IMAGE	RI
COLUMN SEPARATORS	CS
BLINK	BL
NONDISPLAY	ND
UNDERLINE	UL
POSITION CURSOR	PC

→ (CF2)

```

✓
SDA                               EXTENDED FIELD DEFINITION
CONSTANT: FIELD EXIT KEY          LINE: 06  POS: 02  LENGTH: 24
  1. DISPLAY ATTRIBUTES                               7. GENERAL KEYWORDS

OPTION: 7

----- 1. DISPLAY ATTRIBUTES -----
THE FOLLOWING DISPLAY ATTRIBUTES CAN BE SELECTED OR CONDITIONED.

FIELD CONDITIONING                DSPATR (Y N) NNN NNN NNN OR +
HIGH INTENSITY                    HI      Y
REVERSE IMAGE                      RI
COLUMN SEPARATORS                 CS
BLINK                              BL
NONDISPLAY                         ND
UNDERLINE                          UL
POSITION CURSOR                    PC

```

→(CF2)

```

✓
SDA                               EXTENDED FIELD DEFINITION
CONSTANT: CMD KEY 1 - END         LINE: 08  POS: 02  LENGTH: 22
  1. DISPLAY ATTRIBUTES                               7. GENERAL KEYWORDS

OPTION: 7

----- 1. DISPLAY ATTRIBUTES -----
THE FOLLOWING DISPLAY ATTRIBUTES CAN BE SELECTED OR CONDITIONED.

FIELD CONDITIONING                DSPATR (Y N) NNN NNN NNN OR +
HIGH INTENSITY                    HI      Y
REVERSE IMAGE                      RI
COLUMN SEPARATORS                 CS
BLINK                              BL
NONDISPLAY                         ND
UNDERLINE                          UL
POSITION CURSOR                    PC

```

→(CF2)

7D. Place the SFLPAG field.

→

```
+33 ... 1 ... 2 ... 3 ... 4 ... 5 ... 6 ... 7 ... 8
2
3          VENDOR SEARCH
4
5 ENTER CHARACTERS FOR SEARCH-----> I I I I I I I I I I
6
7 FIELD EXIT KEY FOR SEARCH
8
9 CMD KEY 1 - END OF JOB
10
11 VENDOR NAME          SALESPERS          ZIP          NUMBER
12
13
14
15
16
17
18
19
20
21
22
23
24
```

→ (ENTER)

✓

```
33- .. 1 ... 2 ... 3 ... 4 ... 5 ... 6 ... 7 ... 8
2
3          VENDOR SEARCH
4
5 ENTER CHARACTERS FOR SEARCH-----> I I I I I I I I I I
6
7 FIELD EXIT KEY FOR SEARCH
8
9 CMD KEY 1 - END OF JOB
10
11 VENDOR NAME          SALESPERS          ZIP          NUMBER
12
13
14
15
16
17
18
19
20
21
22
23
24
```

→ (CF 10)

7E. Correct the field names, attributes and add RRN field.

SDA
RECORD: SCHCTL

FIELD LIST

CONTROL	ORDER	NAME	TYPE	LENGTH	LINE	POS	REF	CONDITION	OVERLAP
	10	VENDOR SEA	C	13	02	31			
	20	ENTER CHAR	C	37	04	03			
	30	FLD001	I	10	04	43			
	40	FIELD EXIT	C	25	06	03			
	50	CMD KEY 1	C	22	08	03			
	60	VENDOR NAM	C	11	10	10			
	70	SALESPFKS	C	9	10	37			
	80	ZIP	C	3	10	60			
	90	NUMBER	C	6	10	72			
	100	FLD002	I	2+0	01	03			

CONTROL D - DELETE A FIELD * - EXTENDED FIELD DEFINITION
 ADD A HIDDEN FIELD NAME: ORDER: LENGTH:
 ADD A MESSAGE FIELD NAME: ORDER: LENGTH:

SDA
RECORD: SCHCTL

FIELD LIST

CONTROL	ORDER	NAME	TYPE	LENGTH	LINE	POS	REF	CONDITION	OVERLAP
	10	VENDOR SEA	C	13	02	31			
	20	ENTER CHAR	C	37	04	03			
*	30	CODE1	I	10	04	43			
	40	FIELD EXIT	C	25	06	03			
	50	CMD KEY 1	C	22	08	03			
	60	VENDOR NAM	C	11	10	10			
	70	SALESPERS	C	9	10	37			
	80	ZIP	C	3	10	60			
	90	NUMBER	C	6	10	72			
*	100	SELPAQ	I	2+0	01	03			

CONTROL D - DELETE A FIELD * - EXTENDED FIELD DEFINITION
 ADD A HIDDEN FIELD NAME: RRN ORDER: 110 LENGTH: 2+0
 ADD A MESSAGE FIELD NAME: ORDER: LENGTH:

→ (ENTER)



```

SDA          EXTENDED FIELD DEFINITION
FIELD: CODE1  USAGE: I  LINE: 04  POS: 42  LENGTH: 10
 1. DISPLAY ATTRIBUTES          7. GENERAL KEYWORDS
 2. KEYING OPTIONS              5. VALIDITY/CHECK
 3. FIELD REFERENCE            6. MESSAGES
OPTION: 2

```

----- 1. DISPLAY ATTRIBUTES -----
 THE FOLLOWING DISPLAY ATTRIBUTES CAN BE SELECTED OR CONDITIONED.

	DSPATR (Y N) NNN NNN NNN OR *
FIELD CONDITIONING	
HIGH INTENSITY	HI
REVERSE IMAGE	RI
COLUMN SEPARATORS	CS
BLINK	BL
NONDISPLAY	ND
UNDERLINE	UL
POSITION CURSOR	PC
SET MODIFIED DATA TAG	MDT
PROTECT FIELD	PR
OPERATOR ID MAGNETIC CARD	OID
SELECT BY LIGHT PEN	SP

→ (ENTER)



```

SDA          EXTENDED FIELD DEFINITION
FIELD: CODE1  USAGE: I  LINE: 04  POS: 42  LENGTH: 10
 1. DISPLAY ATTRIBUTES          7. GENERAL KEYWORDS
 2. KEYING OPTIONS              5. VALIDITY/CHECK
 3. FIELD REFERENCE            6. MESSAGES
OPTION: 7

```

----- 2. KEYING OPTIONS -----

	CHECK (Y N) NNN NNN NNN OR *	KEYWORD
AUTOMATIC RECORD ADVANCE	EX <u>Y</u>	SYNONYM
FIELD EXIT KEY REQUIRED	FE <u>Y</u>	AUTO(IRA)
LOWERCASE ENTRY ALLOWED	LC	LOWEX
MANDATORY ENTRY	ME	
MANDATORY FILL	MF	
RIGHT ADJUST BLANK FILL	RF	AUTO(IRA)
RIGHT ADJUST ZERO FILL	RZ	AUTO(IRA)

THE KEYBOARD SHIFT ATTRIBUTE CAN LIMIT WHAT CAN BE KEYED INTO THIS FIELD.
 CHARACTER FIELDS (N A X W I) NUMERIC FIELDS (S N Y I)
 SELECT A KEYBOARD SHIFT CHARACTER FROM THE LIST ABOVE:

→ (ENTER)

✓

```

SDA EXTENDED FIELD DEFINITION
FIELD: CODE1 USAGE: I LINE: 04 POS: 42 LENGTH: 10
 1. DISPLAY ATTRIBUTES 7. GENERAL KEYWORDS
 2. KEYING OPTIONS 5. VALIDITY/CHECK
 3. FIELD REFERENCE 6. MESSAGES
OPTION: 1
----- 7. GENERAL KEYWORDS -----
TEXT (FIELD LEVEL):
BLANKS IND: TEXT:
CHANGE IND: TEXT:
INDTXT IND: TEXT:
DEFAULT VALUE DFT:
(Y N) NNN NNN NNN OR +
DO NOT UNDERLINE THIS FIELD CHGINPDT
RETAIN FIELD ON DISPLAY (REQUIRES OVERLAY) PUTRETAIN Y
OVERRIDE DATA (REQUIRES PUTOVR) OVRDTA
OVERRIDE ATTRIBUTES (REQUIRES PUTOVR) OVRATR
USER PROGRAM WILL HANDLE DUPLICATE DUP
DUP IND: TEXT:
ROUTING FIELD POSITION IN FEEDBACK AREA RTGFLD POSITION:

```

→ (CF2)

✓

```

SDA EXTENDED FIELD DEFINITION
FIELD: SFLPAG USAGE: I LINE: 01 POS: 03 LENGTH: 2,0
 1. DISPLAY ATTRIBUTES 7. GENERAL KEYWORDS
 2. KEYING OPTIONS 5. VALIDITY/CHECK 8. SUBFILE KEYWORDS
 3. FIELD REFERENCE 6. MESSAGES
OPTION: 7
----- 1. DISPLAY ATTRIBUTES -----
THE FOLLOWING DISPLAY ATTRIBUTES CAN BE SELECTED OR CONDITIONED.
FIELD CONDITIONING DSPATR (Y N) NNN NNN NNN OR +
HIGH INTENSITY HI
REVERSE IMAGE RI
COLUMN SEPARATORS CS
BLINK BL
NONDISPLAY ND Y
UNDERLINE UL
POSITION CURSOR PC
SET MODIFIED DATA TAG MDT
PROTECT FIELD PR Y
OPERATOR ID MAGNETIC CARD OID
SELECT BY LIGHT PEN SP

```

→ (ENTER)

```

SDA                               EXTENDED FIELD DEFINITION
FIELD: SFLPAG      USAGE: I      LINE: 01  POS: 03  LENGTH: 2+0
  1. DISPLAY ATTRIBUTES          7. GENERAL KEYWORDS
  2. KEYING OPTIONS              8. SUBFILE KEYWORDS
  3. FIELD REFERENCE            5. VALIDITY/CHECK
  4. OPTION: 8                  6. MESSAGES
----- 7. GENERAL KEYWORDS -----
                                                                MORE
TEXT (FIELD LEVEL):
BLANKS  IND:   TEXT:
CHANGE IND:   TEXT:
INDTXT  IND:   TEXT:
DEFAULT VALUE DFT: '10'

                                                                (Y N) NNN NNN NNN OR +
DO NOT UNDERLINE THIS FIELD          CHGINPDT
RETAIN FIELD ON DISPLAY (REQUIRES OVERLAY) PUTRETAIN
OVERRIDE DATA (REQUIRES PUTOVR)      OVRDTA
OVERRIDE ATTRIBUTES (REQUIRES PUTOVR) OVRATR
USER PROGRAM WILL HANDLE DUPLICATE    OUP
DUP   IND:   TEXT:
ROUTING FIELD POSITION IN FEEDBACK AREA RTGFLD POSITION:

```

→ (CF2)

```

SDA                               FIELD LIST
RECORD: SCHCTL

CONTROL  ORDER  NAME          TYPE  LENGTH  LINE  POS  REF  CONDITON  OVERLAP
10  VENDOR SEA  C          13     02    31
20  ENTER CHAR  C          37     04    03
30  CODE1       I          10     04    43
40  FIELD EXIT  C          25     06    03
50  CMD KEY 1   C          22     08    03
60  VENDOR NAM  C          11     10    10
70  SALESPERS  C           9     10    37
80  ZIP         C           3     10    60
90  NUMBER     C           6     10    72
100 SFLPAG     I          2+0    01    03
110 RKN       H          2+0

```

CONTROL D - DELETE A FIELD * - EXTENDED FIELD DEFINITION
ADD A HIDDEN FIELD NAME: ORDER: LENGTH:
ADD A MESSAGE FIELD NAME: ORDER: LENGTH:

→ (ENTER)

SDA	EXTENDED FIELD DEFINITION			LENGTH: 2+0
FIELD: RRN	USAGE: H	LINE:	POS:	7. GENERAL KEYWORDS
				8. SUBFILE KEYWORDS
OPTION: 8				
----- 7. GENERAL KEYWORDS -----				
TEXT (FIELD LEVEL):				MORE
INDTXT	IND:	TEXT:		

→ (ENTER)

SDA	EXTENDED FIELD DEFINITION			LENGTH: 2+0
FIELD: RRN	USAGE: H	LINE:	POS:	7. GENERAL KEYWORDS
				8. SUBFILE KEYWORDS
OPTION: 7				
----- 8. SUBFILE KEYWORDS -----				
IF THIS FIELD IS PART OF A SUBFILE CONTROL RECORD, IT CAN BE ONE OF THE FOLLOWING GROUPS:				
DESCRIPTION				(Y N)
OPERATOR CAN ENTER THE RECORD NUMBER TO BE DISPLAYED IN THE SUBFILE PAGE				SFLRCDNBR <u>Y</u>
PUT CURSOR AT THE FIRST INPUT FIELD				CURSOR

→ (CF2)

8. Now add the subfile record fields to the work display.

```
SDA                                DESIGN RECORD FORMAT MENU
SELECT ONE OF THE FOLLOWING:
1. FILE DEFINITION
2. RECORD FORMAT DEFINITION
3. FIELD DEFINITION
4. SUBFILE CONTROL RECORD DEFINITION
5. SUBFILE RECORD FORMAT DEFINITION
6. SAVE DDS/CREATE DISPLAY DEVICE FILE

OPTION: 3

NEW OR EXISTING DISPLAY RECORD FORMAT          RECORD FORMAT:  SCHRCO
(BLANK FOR RECORD FORMAT LIST DISPLAY)

ENTER THE SOURCE FILE FOR DDS                  DDS SOURCE FILE:  APPSRC
LIBRARY                                         LIBRARY:          APLIB
NEW OR EXISTING MEMBER NAME                   MEMBER:           APDSRCHX
(BLANK FOR MEMBER LIST DISPLAY)

ENTER ADDITIONAL RECORD FORMATS TO BE        ADDITIONAL RECORDS: SCHCTL
DISPLAYED ON THE WORK DISPLAY
```

→(ENTER)

```
.. 1 ... 2 ... 3 ... 4 ... 5 ... 6 ... 7 ... 8
VENDOR SEARCH
2
3
ENTER CHARACTERS FOR SEARCH-----> I I I I I I I I I I
5
FIELD EXIT KEY FOR SEARCH
7
CMD KEY 1 - END OF JOB
9
10      VENDOR NAME          SALESPERS          ZIP          NUMBER
11
12
13
14
15
16
17
18
19
20
21
22
23
SDA WORK DISPLAY: PRESS HELP FOR LIST OF VALID COMMANDS AND CF KEYS.
```

→(CF11)

```

SDA                                DATA BASE FILE DISPLAY
ENTER DATA BASE FILE NAMES FROM WHICH FIELDS ARE TO BE DISPLAYED.
FOR X-I-O-B: ENTER AN X TO DISPLAY DATA BASE FIELD DISPLAY
ENTER USAGE ATTRIBUTE: I TO ASSIGN FIELD AS INPUT FIELD
                        O TO ASSIGN FIELD AS OUTPUT FIELD
                        B TO ASSIGN FIELD AS BOTH FIELD

X-I-O-B  DATA BASE FILE  LIRRARY  RECORD FORMAT
  X      APPVEND          APLIB
                          *LIBL
                          *LIBL
                          *LIBL

```

→ (ENTER)

```

SDA                                DATA BASE FORMAT LIST
DATA BASE FILE:  APPVEND  LIBRARY:  APLIB

RECORD FORMAT LIST:
 1 VENDOR

1 - SELECT RECORD FORMAT TO USE WITH DATA BASE FILE DISPLAY

```

→ (ENTER)

SDA DATA BASE FIELD DISPLAY

RECORD: VENOMAST ROLL: 15
 TO SCROLL THE FILE ENTER THE NUMBER OF FIELDS TO ROLL FIELD:
 TO SEARCH THE FILE FOR A FIELD ENTER THE FIELD NAME

FOR X-I-O-B ENTER X FOR THE EXTENDED DATA BASE FIELD DISPLAY.
 ENTER I, O, OR B FOR USAGE AND SELECTION OF THE FIELD.

X-I-O-B	FIELD	LENGTH	TYPE	COLUMN HEADING
0	VNDNBR	5.0	P	VENDOR NUMBER
0	VNDNAM	25	C	VENDOR NAME
	VNDAD1	25	C	ADDRESS LINE 1
	VNDAD2	25	C	ADDRESS LINE 2
	VNDAD3	25	C	ADDRESS LINE 3
0	VNDZIP	5.0	P	ZIP CODE
	VNDACD	3.0	P	AREA CODE
	VNDPHN	7.0	P	PHONE
	VTRMPC	3.3	P	TERMS %
	VTRMDA	2.0	P	TERMS DAYS
	VNDCLS	2.0	P	CLASS
	ACTCD	1	C	ACTIVE RECORD CODE
0	VNDSLS	25	C	SALESPERSON
	DCTMTD	7.2	P	DISCOUNT TAKEN MTD
	DCTYTD	9.2	P	DISCOUNT TAKEN YTD

→(CF2)

SDA DATA BASE FILE DISPLAY

ENTER DATA BASE FILE NAMES FROM WHICH FIELDS ARE TO BE DISPLAYED.
 FOR X-I-O-B: ENTER AN X TO DISPLAY DATA BASE FIELD DISPLAY
 ENTER USAGE ATTRIBUTE: I TO ASSIGN FIELD AS INPUT FIELD
 O TO ASSIGN FIELD AS OUTPUT FIELD
 B TO ASSIGN FIELD AS BOTH FIELD

X-I-O-B	DATA BASE FILE	LIBRARY	RECORD FORMAT
	APPVEND	APLIB	VENOMAST
		*LIBL	
		*LIBL	
		*LIBL	

→(CF2)

```

  .. 1 ... 2 ... 3 ... 4 ... 5 ... 6 ... 7 ... 8
  2          VENDOR SEARCH
  3
  4 ENTER CHARACTERS FOR SEARCH----->  I I I I I I I I I I
  5
  6 FIELD EXIT KEY FOR SEARCH
  7
  8 CMD KEY 1 - END OF JOB
  9
 10          VENDOR NAME                SALESPERS                ZIP                NUMBER
 11
 12          162                        64                        63                61
 13
 14
 15
 16
 17
 18
 19
 20
 21
 22
 23
 24 1:VNDNBR 2:VNDNAM 3:VNDZIP 4:VNDLSL

```

→ (ENTER)

```

  .. 1 ... 2 ... 3 ... 4 ... 5 ... 6 ... 7 ... 8
  2          VENDOR SEARCH
  3
  4 ENTER CHARACTERS FOR SEARCH----->  I I I I I I I I I I
  5
  6 FIELD EXIT KEY FOR SEARCH
  7
  8 CMD KEY 1 - END OF JOB
  9
 10          VENDOR NAME                SALESPERS                ZIP                NUMBER
 11
 12          000000000000000000000000  0000000000000000000000  66666        66666
 13          000000000000000000000000  0000000000000000000000  66666        66666
 14          000000000000000000000000  0000000000000000000000  66666        66666
 15          000000000000000000000000  0000000000000000000000  66666        66666
 16          000000000000000000000000  0000000000000000000000  66666        66666
 17          000000000000000000000000  0000000000000000000000  66666        66666
 18          000000000000000000000000  0000000000000000000000  66666        66666
 19          000000000000000000000000  0000000000000000000000  66666        66666
 20          000000000000000000000000  0000000000000000000000  66666        66666
 21          000000000000000000000000  0000000000000000000000  66666        66666
 22
 23
 24

```

9. Print the finished work display.

→ (CF6)

```

      .. 1 ... 2 ... 3 ... 4 ... 5 ... 6 ... 7 ... 8
2
3      VENDOR SEARCH
4
5      ENTER CHARACTERS FOR SEARCH -----> I I I I I I I I I I
6
7      FIELD EXIT KEY TO SEARCH
8
9      CMD KEY 1 - END OF JOB
10
11      VENDOR NAME                SALESPERS                ZIP                NUMBER
12      000000000000000000000000  0000000000000000000000  66666             66666
13      000000000000000000000000  0000000000000000000000  66666             66666
14      000000000000000000000000  0000000000000000000000  66666             66666
15      000000000000000000000000  0000000000000000000000  66666             66666
16      000000000000000000000000  0000000000000000000000  66666             66666
17      000000000000000000000000  0000000000000000000000  66666             66666
18      000000000000000000000000  0000000000000000000000  66666             66666
19      000000000000000000000000  0000000000000000000000  66666             66666
20      000000000000000000000000  0000000000000000000000  66666             66666
21      000000000000000000000000  0000000000000000000000  66666             66666
22
23      WORK DISPLAY PRINT COMPLETE.

```

→ (CF2)

10. Save DDS-source and create a new display file.

```

SDA                DESIGN RECORD FORMAT MENU
SELECT ONE OF THE FOLLOWING:
  1. FILE DEFINITION
  2. RECORD FORMAT DEFINITION
  3. FIELD DEFINITION
  4. SUBFILE CONTROL RECORD DEFINITION
  5. SUBFILE RECORD FORMAT DEFINITION
  6. SAVE DDS/CREATE DISPLAY DEVICE FILE
OPTION: 6
NEW OR EXISTING DISPLAY RECORD FORMAT
(BLANK FOR RECORD FORMAT LIST DISPLAY)      RECORD FORMAT:      SCHRCO
ENTER THE SOURCE FILE FOR DDS                DDS SOURCE FILE:    APPSRC
LIBRARY                                        LIBRARY:            APLIB
NEW OR EXISTING MEMBER NAME                  MEMBER:              APDSRCHX
(BLANK FOR MEMBER LIST DISPLAY)
ENTER ADDITIONAL RECORD FORMATS TO BE
DISPLAYED ON THE WORK DISPLAY                ADDITIONAL RECORDS: SCHCTL

```

→ (ENTER)

```
SDA                SAVE DDS/CREATE DISPLAY DEVICE FILE

SAVE THE GENERATED DDS SOURCE          (Y N): Y
SOURCE FILE WHERE DDS IS TO BE SAVED:  R APPSRC
LIBRARY:                                APLIB
MEMBER:                                  APDSRCHX
      (BLANK FOR MEMBER LIST DISPLAY)

CREATE A DISPLAY DEVICE FILE FROM THE DDS (Y N): Y
DISPLAY DEVICE FILE:                    R APDSRCHX
LIBRARY:                                APLIB
IF CREATE FAILS, DISPLAY SPOOLED LISTING (Y N): Y
REPLACE EXISTING FILE                   (Y N): Y
PROMPT FOR ADDITIONAL CRTDSPF PARAMETERS (Y N): Y

SUBMIT DISPLAY DEVICE FILE CREATION IN BATCH (Y N): Y
JOB DESCRIPTION:                        APWJOB0
LIBRARY:                                  *LIBL

◦ MEMBER APDSRCHX AND FILE APDSRCHX EXIST. CF11 TO REPLACE.
```

→ (CF11)

```
SDA                SAVE DDS/CREATE DISPLAY DEVICE FILE

SAVE THE GENERATED DDS SOURCE          (Y N): Y
SOURCE FILE WHERE DDS IS TO BE SAVED:  R APPSRC
LIBRARY:                                APLIB
MEMBER:                                  APDSRCHX
      (BLANK FOR MEMBER LIST DISPLAY)

CREATE A DISPLAY DEVICE FILE FROM THE DDS (Y N): Y
DISPLAY DEVICE FILE:                    R APDSRCHX
LIBRARY:                                APLIB
IF CREATE FAILS, DISPLAY SPOOLED LISTING (Y N): Y
REPLACE EXISTING FILE                   (Y N): Y
PROMPT FOR ADDITIONAL CRTDSPF PARAMETERS (Y N): Y

SUBMIT DISPLAY DEVICE FILE CREATION IN BATCH (Y N): Y
JOB DESCRIPTION:                        APWJOB0
LIBRARY:                                  *LIBL

◦ MBR APDSRCHX SAVED; BATCH CREATE SUBMITTED. PRESS ENTER.
```

→ (ENTER)


```

SDA                                DESIGN RECORD FORMAT MENU
SELECT ONE OF THE FOLLOWING:
1. FILE DEFINITION
2. RECORD FORMAT DEFINITION
3. FIELD DEFINITION
4. SUBFILE CONTROL RECORD DEFINITION
5. SUBFILE RECORD FORMAT DEFINITION
6. SAVE DDS/CREATE DISPLAY DEVICE FILE

OPTION:

NEW OR EXISTING DISPLAY RECORD FORMAT          RECORD FORMAT:      SCHRCO
(BLANK FOR RECORD FORMAT LIST DISPLAY)

ENTER THE SOURCE FILE FOR DDS                  DDS SOURCE FILE:    APPSRC
LIBRARY                                        LIBRARY:            APLIB
NEW OR EXISTING MEMBER NAME                   MEMBER:             APDSRCHX
(BLANK FOR MEMBER LIST DISPLAY)

ENTER ADDITIONAL RECORD FORMATS TO BE         ADDITIONAL RECORDS: SCHCTL
DISPLAYED ON THE WORK DISPLAY

```

→ (CF2)

```

SDA                                OPTION MENU
SELECT ONE OF THE FOLLOWING:
1. DESIGN DISPLAY RECORD FORMATS
2. DESIGN A MENU
3. TEST AN EXISTING DISPLAY RECORD FORMAT

OPTION:

-----

WITHIN SDA:
PRESS HELP KEY TO DISPLAY HELP TEXT FOR THE CURRENT DISPLAY.
PRESS CF1 KEY TO EXIT ANY OPTION AND ALLOW SAVING THE CHANGES.
PRESS CF2 KEY TO BACK UP TO THE PREVIOUS DISPLAY IN A SERIES.
PRESS ENTER/REC ADV TO ADVANCE TO THE NEXT DISPLAY.

```

→ (CF2)

```

                                PROGRAMMER MENU
Select one of the following:
1. Design/execute DFU app      (app), ,(options)
2. Design/execute query app   (app), ,(options)
3. Create object              object name, type, pgm for CMD, (text)
4. Call program               program name
5. Execute command            command
6. Submit job                 (job name), (command)
7. Display submitted jobs
8. Edit source                (srcmbr), (type), (text)
9. Design display format      (srcmbr)
90. Sign off                  (*NOLIST *LIST)

Types: BSCF, CBL, CL, CLP, CMD, CMNF, DSPF, LF, PF, PRTF, RPG, TXT

Option:  Parm: APDSRCHX  Type:      Parm 2:
Command:

Text:
Src file: APPSRC      Src lib: APLIB      Obj lib: APLIB      Job: APWJOB
CF3 - Command entrx  CF4 - Prompt (3 & 5 only)  CF6 - DSPMSG
Log requests: *YES

```

✓ (AWAIT JOB-COMPLETE-ALARM)

→ (CF6)

```

                                MESSAGE QUEUE - MS05
                                Delivery: *NOTIFY  Msgq sev 00
Job APWJOB.APWTEAMX.002739 completed normally on 10/16/81 at 16:41:00.

CF6 - Remove a message      CF7 - Display all      CF8 - Remove all

```

→ (CF8)

11. Start a test of your new display file.

```

                                PROGRAMMER MENU
Select one of the following:
1. Design/execute DFU app      (app), ,(options)
2. Design/execute query app   (app), ,(options)
3. Create object              object name, type, pgm for CMD, (text)
4. Call program               program name
5. Execute command            command
6. Submit job                 (job name), (command)
7. Display submitted jobs
8. Edit source                (srcmbr), (type), (text)
9. Design display format      (srcmbr)
90. Sign off                  (*NOLIST *LIST)

Types: BSCF, CBL, CL, CLP, CMD, CMNF, DSPF, LF, PF, PRTF, RPG, TXT

Option: 9  Parm: APDSRCHX  Type:      Parm 2:
Command:

Text:
Src file: APPSRC      Src lib: APLIB      Obj lib: APLIB      Log requests: *YES
          CF3 - Command entry  CF4 - Prompt (3 & 5 only)  CF6 - DSPMSG

```

→ (ENTER)

```

                                SDA              OPTION MENU
SELECT ONE OF THE FOLLOWING:
1. DESIGN DISPLAY RECORD FORMATS
2. DESIGN A MENU
3. TEST AN EXISTING DISPLAY RECORD FORMAT

OPTION: 3

-----

WITHIN SDA:
PRESS HELP KEY TO DISPLAY HELP TEXT FOR THE CURRENT DISPLAY.
PRESS CF1 KEY TO EXIT ANY OPTION AND ALLOW SAVING THE CHANGES.
PRESS CF2 KEY TO BACK UP TO THE PREVIOUS DISPLAY IN A SERIES.
PRESS ENTER/REC ADV TO ADVANCE TO THE NEXT DISPLAY.

```

→ (ENTER)

```
SDA                                RECORD FORMAT TEST
DISPLAY DEVICE FILE:                R APDSRCHX
LIBRARY:                            APLIB
RECORD FORMAT:                       SCHCTL
(BLANK FOR RECORD FORMAT LIST DISPLAY)

ADDITIONAL DISPLAY RECORD FORMATS
RECORD FORMATS:
```

→ (ENTER)

12. Set the indicators to display both control and subfile records.
Reduce RRN to a value < 10.

```
SDA                                OUTPUT DATA FOR TEST
RECORD: SCHCTL                      ENTER PROGRAM OUTPUT DATA AND INDICATOR SETTINGS:
FIELD NAME                          FIELD VALUE      FIELD NAME      FIELD VALUE
*IN55 : 0:                          *IN75 : 1:
*IN76 : 1:                          *IN77 : 0:
RRN : 01:
```

→ (ENTER)

14. Test EOF condition.

```

SDA
RECORD: SCHCTL
FIELD NAME      FIELD VALUE      OUTPUT DATA FOR TEST
*IN55           : 1:              ENTER PROGRAM OUTPUT DATA AND INDICATOR SETTINGS:
*IN76           : 1:              FIELD NAME      FIELD VALUE
RRN             : 01:              *IN75           : 1:
                                           *IN77           : 0:
    
```

→ (ENTER)

```

                                VENDOR SEARCH
ENTER CHARACTERS FOR SEARCH----->
FIELD EXIT KEY FOR SEARCH
CMD KEY 1 - END OF JOB

      VENDOR NAME                SALESPERS                ZIP                NUMBER
00000000000000000000000000000000  00000000000000000000000000000000
00000000000000000000000000000000  00000000000000000000000000000000
00000000000000000000000000000000  00000000000000000000000000000000
00000000000000000000000000000000  00000000000000000000000000000000
00000000000000000000000000000000  00000000000000000000000000000000
00000000000000000000000000000000  00000000000000000000000000000000
00000000000000000000000000000000  00000000000000000000000000000000
00000000000000000000000000000000  00000000000000000000000000000000
00000000000000000000000000000000  00000000000000000000000000000000
00000000000000000000000000000000  00000000000000000000000000000000
00000000000000000000000000000000  00000000000000000000000000000000
    
```

→ (ROLL UP UNTIL "+" GOES OUT)

✓ (RESET REQUIRED)

15. Check CMD key 1 input.

```
VENDOR SEARCH
ENTER CHARACTERS FOR SEARCH----->
FIELD EXIT KEY FOR SEARCH
CMD KEY 1 - END OF JOB
VENDOR NAME          SALESPERS          ZIP          NUMBER
00000000000000000000000000000000  00000000000000000000000000000000
00000000000000000000000000000000  00000000000000000000000000000000
00000000000000000000000000000000  00000000000000000000000000000000
00000000000000000000000000000000  00000000000000000000000000000000
00000000000000000000000000000000  00000000000000000000000000000000
00000000000000000000000000000000  00000000000000000000000000000000
00000000000000000000000000000000  00000000000000000000000000000000
00000000000000000000000000000000  00000000000000000000000000000000
00000000000000000000000000000000  00000000000000000000000000000000
00000000000000000000000000000000  00000000000000000000000000000000
00000000000000000000000000000000  00000000000000000000000000000000
00000000000000000000000000000000  00000000000000000000000000000000
00000000000000000000000000000000  00000000000000000000000000000000
```

→ (CF1)

```
SDA
RECORD: SCHCTL
FIELD NAME      FIELD VALUE      FIELD NAME      FIELD VALUE
*IN99          : 1:                *IN30          : 0:
CODE1          :                  SFLPAG         : 10:
RRN            : 01:
DISPLAY INPUT BUFFER: (Y/N)
```

→ (ENTER)

16. Check code1 data entry.

```
SDA                                OUTPUT DATA FOR TEST
RECORD: SCHCTL                     ENTER PROGRAM OUTPUT DATA AND INDICATOR SETTINGS:
FIELD NAME                          FIELD VALUE      FIELD NAME      FIELD VALUE
*IN55      : 1:                    *IN75      : 1:
*IN76      : 1:                    *IN77      : 0:
RRN        : 01:
```

→ (ENTER)

```
VENDOR SEARCH
ENTER CHARACTERS FOR SEARCH----->  SMITH
FIELD EXIT KEY FOR SEARCH
CMD KEY 1 - END OF JOB

VENDOR NAME      SALESPERS      ZIP      NUMBER
00000000000000000000000000000000  00000000000000000000000000000000
00000000000000000000000000000000  00000000000000000000000000000000
00000000000000000000000000000000  00000000000000000000000000000000
00000000000000000000000000000000  00000000000000000000000000000000
00000000000000000000000000000000  00000000000000000000000000000000
00000000000000000000000000000000  00000000000000000000000000000000
00000000000000000000000000000000  00000000000000000000000000000000
00000000000000000000000000000000  00000000000000000000000000000000
00000000000000000000000000000000  00000000000000000000000000000000
00000000000000000000000000000000  00000000000000000000000000000000
00000000000000000000000000000000  00000000000000000000000000000000
00000000000000000000000000000000  00000000000000000000000000000000
```

→ (FIELD EXIT)

✓

SDA INPUT DATA FOR TEST			
RECORD: SCHCTL			
FIELD NAME	FIELD VALUE	FIELD NAME	FIELD VALUE
*IN99	: 0:	*IN30	: 0:
CODE1	: SMITH :	SFLPAG	: 10:
RRN	: 01:		

DISPLAY INPUT BUFFER: (Y/N)

→ (CF1)

SDA OPTION MENU	
SELECT ONE OF THE FOLLOWING:	
1. DESIGN DISPLAY RECORD FORMATS	
2. DESIGN A MENU	
3. TEST AN EXISTING DISPLAY RECORD FORMAT	
OPTION:	

WITHIN SOA:	
PRESS HELP KEY TO DISPLAY HELP TEXT FOR THE CURRENT DISPLAY.	
PRESS CF1 KEY TO EXIT ANY OPTION AND ALLOW SAVING THE CHANGES.	
PRESS CF2 KEY TO BACK UP TO THE PREVIOUS DISPLAY IN A SERIES.	
PRESS ENTER/REC ADV TO ADVANCE TO THE NEXT DISPLAY.	

→ (CF2)

```
                                PROGRAMMER MENU
SELECT ONE OF THE FOLLOWING:
1. DESIGN/EXECUTE DFU APP      (APP), ,(OPTIONS)
2. DESIGN/EXECUTE QUERY APP   (APP), ,(OPTIONS)
3. CREATE OBJECT              OBJECT NAME, TYPE, PGM FOR CMD, (TEXT)
4. CALL PROGRAM               PROGRAM NAME
5. EXECUTE COMMAND            COMMAND
6. SUBMIT JOB                  (JOB NAME), (COMMAND)
7. DISPLAY SUBMITTED JOBS
8. EDIT SOURCE                 (SRCMBR), (TYPE), (TEXT)
9. DESIGN DISPLAY FORMAT      (SRCMBR)
90. SIGN OFF                   (*NOLIST *LIST)

TYPES: BSCF, CBL, CL, CLP, CMD, CMNF, DSPF, LF, PF, PRTF, RPG, TXT

OPTION:  PARM: APDSRCHX  TYPE: DSPF PARM 2:
COMMAND:

TEXT:
SRC FILE: APPSRC      SRC LIB: APLIB      OBJ LIB: APLIB      LOG REQUESTS: *YES
CF3 - COMMAND ENTRY  CF4 - PROMPT (3 & 5 ONLY)  CF6 - DSPMSG
```

- ✓ IF YOU HAVE TIME, REPEAT LAB STEPS 40 AND 41 TO USE THIS DISPLAY FILE VIA YOUR PROGRAM.
- ✓ SDA OPTIONAL LAB EX. 2 COMPLETE

SEU Familiarization Exercise for RPG III Programmers

Goal: Obtain source printout like the one on the next page. For this exercise substitute your assigned team letter for "?".

- * Sign on according to initial instructions in your workbook
- * Use CF3 (CMD + 3) to obtain Command Entry screen
- * You have a copy of APR300 in this workbook

Ref.
page

1. Create a new source member with the name TEST?
EDTSRC APPSRC TEST? *RPG
2. Copy the entire source member named APR300 (statements 1–78) into TEST? (Hint: Use CF5)
3. Change statement 9 to:
BTEMP MULT 100.00 B 42
4. Position statement 12 at the top of your display (unpaid tag).
5. Move statements 12 and 13 to the end of the program.
6. Move statement 11 to the beginning of C specs. (Note 12 and 13 are now missing.)
7. Scan for PCHMTD and substitute MPURCH. (Check to see that statements 3, 4, 15 and 59 are changed.)
8. Delete statement 20. (Important!—if done in error, how would you regain the record?)
9. Add a new calculation. Insert it so that it is the first calc. spec. (You may have to choose the appropriate format.)
C ADD 1 COUNT 30
10. Roll up 40 statements without using the roll up key. Roll back to 1.
11. Request a prompting line to add a comment (*) after statement 1 with the message:
A2004 TEAM?
12. Roll through your program.
13. Update your new source member and return to editing.
14. Change your window view to position 28. Notice the op codes.
15. Exit and print your source member. Compare your printout to that shown on the following pages (note that check marks have been added to help you locate changes, etc.).

*** SEU – EXERCISE (RPG III) COMPLETE ***

SEU Familiarization Exercise for COBOL Programmers

Goal: To obtain a source listing like the one attached

- ** For this exercise substitute your assigned team letter for “?”
- ** Sign on according to initial instructions in your student workbook
- ** Use CF3 (CMD + 3) to obtain Command Entry screen
- ** You have a copy of APC300 in appendices of this workbook

Ref.
page

1. Create a new source member with the name TEST?
EDTSRC APPSRC TEST? *CBL
2. Copy the entire source member named APC300 (statements 1–64) into TEST? (Hint: Use CF5)
3. Change statement 60 to:
COMPUTE YPC1 = YPCTEMP * 99.
4. Position statement 55 at the top of your display.
5. Move statements 55 and 56 to the end of the program.
6. Copy statement 51 to the beginning of the PROCEDURE DIVISION.
7. Search for ATEMP and substitute TEMPA (check that statements 31, 45, 46 were changed).
8. Delete statement 49. If done in error, how would you regain the statement?
9. Add a new statement. Insert it so that it is the first procedural division statement. (How do you select the appropriate format?) ADD 1 TO BB.
10. Position statement 1 at top of the screen. Roll up 40 statements without using the roll up key. Roll back to 1.
11. Request a prompting line to add a comment after statement 1 with the message: A2004 – TEAM?
12. Roll through your program.
13. Update your new source program and return to editing. (Ignore syntax error messages.)
14. Change your window view to position 7. Notice the beginning of each statement. Change it back to position 1.
15. Exit SEU. Renumber the member starting at 100 with increments of 5 *and* print a listing. (Compare yours to those following. *Note*: Comments help you find changes, etc.)

*** SEU FAMILIARIZATION EXERCISE COMPLETE ***

SOURCE FILE: APPSRC.APLIB K MEMBER: TESTXX

SEQNBR... 1 ... 2 ... 3 ... 4 ... 5 ... 6 ... 7 ... 8 ... 9 ... 0

```

10000 IDENTIFICATION DIVISION.
10500 * A2004 TEAM? (INSERTED)
11000 PROGRAM-ID. APC300.
11500 ENVIRONMENT DIVISION.
12000 CONFIGURATION SECTION.
12500 SOURCE-COMPUTER. IBM-538.
13000 OBJECT-COMPUTER. IBM-538.
13500 SPECIAL-NAMES. I-O-FEEDBACK IS PI.
14000 INPUT-OUTPUT SECTION.
14500 FILE-CONTROL.
15000 SELECT APLVANL ASSIGN TO DATABASE-
15500
16000 SELECT PRINTOUT ASSIGN TO FORMATFILE-APC30PRT.
16500 DATA DIVISION.
17000 FILE SECTION.
17500 FD APLVANL LABEL RECORD IS STANDARD.
18000 01 D. COPY DDS-ALL-FORMATS OF REPLACING ==CHECK== BY
18500 0.
19000 FD PRINTOUT LABEL RECORD IS STANDARD.
19500 01 PR. COPY DDS-ALL-FORMATS OF APC30PRT.
20000 WORKING-STORAGE SECTION.
20500 01 CC PIC 9(9)V9(2) COMP-3 VALUE IS 0.
21000 01 TPM1 PIC 9(11)V9(2) COMP-3 VALUE IS 0.
21500 01 TDM1 PIC 9(9)V9(2) COMP-3 VALUE IS 0.
22000 01 TPY1 PIC 9(12)V9(2) COMP-3 VALUE IS 0.
22500 01 TTY1 PIC 9(10)V9(2) COMP-3 VALUE IS 0.
23000 01 TPUL PIC 9(11)V9(2) COMP-3 VALUE IS 0.
23500 01 MPCTMP PIC 9(4)V9(4) COMP-3 VALUE IS 0.
24000 01 MPC1 PIC 9(4)V9(2) COMP-3 VALUE IS 0.
24500 01 YPCTMP PIC 9(4)V9(4) COMP-3 VALUE IS 0.
25000 01 YPC1 PIC 9(4)V9(2) COMP-3 VALUE IS 0.
25500 01 TEMPA PIC 9(4)V9(4) COMP-3 VALUE IS 0. (SUBSTITUTED)
26000 01 AA PIC 9(4)V9(2) COMP-3 VALUE IS 0.
26500 01 BTEMP PIC 9(4)V9(4) COMP-3 VALUE IS 0.
27000 01 BB PIC 9(4)V9(2) COMP-3 VALUE IS 0.
27500 01 D1.
28000 05 FILLER PIC X(144).
28500 05 LND PIC 599 USAGE COMP-4.
29000 77 OVFL-LINE PIC 599 USAGE COMP-4 VALUE IS 60.
29500 PROCEDURE DIVISION.
30000 ADD 1 TO BB. (INSERTED)
30500 ADD PCHYTD OF D TO TPY1. ADD DCTYTD OF D TO TDY1. (COPIED)
31000 BEGIN. OPEN INPUT APLVANL OUTPUT PRINTOUT.
31500 HEADINGS. WRITE PR FORMAT "HEADING1" WRITE PR FORMAT "HEADING2"
32000 WRITE PR FORMAT "HEADING3" WRITE PR FORMAT "HEADING4".
32500 LP. READ APLVANL END GO QUIT. IF DB-FORMAT-NAME = "PAYBLE" GO
33000 JNP. MOVE CORR VENUMAST TO WORKREC-D. IF PCHMTD OF D = 0
33500 GO NEXT1. COMPUTE TEMPA ROUNDED = DCTMTD OF D / PCHMTD,
34000 OF D. COMPUTE AA = TEMPA * 100.
34500 NEXT1. IF PCHYTD OF D = 0 THEN GO TO OUT.
35000 COMPUTE BTEMP ROUNDED = DCTYTD OF D / PCHYTD OF D. (DELETED)
35500 OUT. ADD PCHMTD OF D TO TPM1. ADD DCTMTD OF D TO TDM1.
36000 ADD PCHYTD OF D TO TPY1. ADD DCTYTD OF D TO TDY1.
36500 MOVE AA TO A. MOVE BB TO B. MOVE CC TO C. WRITE PR FORMAT
37000 "WORKREC". MOVE 0 TO CC. ACCEPT D1 FROM PI FOR PRINTOUT.
37500 IF LND > 59 PERFORM HEADINGS. GO LP.
38000 NEXT2. MOVE TPM1 TO TPM OF LR1-D. MOVE TPY1 TO TPY OF LR1-D.
38500 MOVE TPUL TO TPU OF LR1-D. WRITE PR FORMAT "LR1".
39000 IF TPY1 = 0 GO ENDIT. COMPUTE YPCTMP ROUNDED = TDY1 / TPY1.
39500 COMPUTE YPC1 = YPCTMP * 99. (CHANGED)
40000 ENDIT. MOVE TDM1 TO TDM OF LR2-D. MOVE MPC1 TO MPC OF LR2-D.
40500 MOVE TDY1 TO TDY OF LR2-D. MOVE YPC1 TO YPC OF LR2-D.
41000 WRITE PR FORMAT "LR2". CLOSE APLVANL PRINTOUT. STOP RUN.
41500 UNP. ADD MERCH TO CC TPUL. GO LP.
42000 QUIT. IF TPM1 = 0 GO NEXT2. COMPUTE MPCTMP ROUNDED = TDM1 / TPM1 (MOVED)
42500 COMPUTE MPC1 = MPCTMP * 100. (MOVED)

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***** END OF SOURCE *****

[15-(seq. no. by 5's)

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