Czech Technical University in Prague
Faculty of Nuclear Sciences and Physical Engineering

presentation given by

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Outline

- Locating Czech Technical University in Prague
- Motivation for cooperation with CA and IBM
- Education related to mainframe technology
- Guiding student individual projects on mainframe
- Outlook

Locating CTU in Prague

- **Czech Technical University in Prague**

  the oldest (>300y) and largest (>24k) state technical university in Czech Republic

  Prague has several other large state universities in other domains (Charles University, University of Economics, University of Agriculture, Institute of Chemical Technology etc.)

- **Research and Education**

  research university:

  educational activities together with research activities

  education:

  bachelor, master and doctoral degrees

- **Cooperation**

  unique facilities:

  nuclear reactor

  tokamak

  industrial cooperation:

  Toyota, Bosch, Siemens, Honeywell, GE, Rockwell, ABB, Skoda, .., CA and IBM.

Faculty of Nuclear Sciences and Physical Engineering

Interdisciplinary character of education (Applications in Natural Sciences):

Mathematical Engineering, Engineering Informatics, Physical Engineering, Nuclear Engineering, Nuclear Chemistry

Interdisciplinary character of research:

Mathematical Physics
Mathematical Modeling of Processes in High Tech and Environment
Experimental Nuclear Physics
Physics and Technology of Nuclear Fusion
Nuclear Reactor Physics
Material and Solid State Physics

Computer Science and interdisciplinary research:

scientific computing
high-performance computing
parallel computational algorithms

- requirements for highly reliable computational resources -> interest in MF

Motivation for cooperation with CA and IBM

- Enriching **Engineering Informatics** study program
- Challenge of **inventing** so far unknown technology into curriculum
- Finding new optional **employers** for people graduated from CTU
- Inventing **new topics** for bachelor, diploma and doctoral theses

Education related to mainframe technology

- **Aim of education is** to explain concepts and fundamental ideas of z/OS.
- **Preparation** for detailed company training, e.g. at CA
- **Motivation** of students for further study of z/OS.
- Classes are organized with the **initial help** of CA and IBM experts.
- **Visits and presentations** by CA and IBM for students to show more advanced features of mainframes.
- We have established **internships** for students at CA.

Education related to mainframe technology

Courses offered to students

- **Introduction to the Mainframe**
  - What is a mainframe and its role on IT today
  - Differences between mainframe and Unix or Windows
  - Adress spaces, data sets, ISPF, JCL, programming C/C++, REXX
  - Hardware of zSerie, parallel sysplex, GDPS - with CA
- **Administration of the Mainframe**
  - History of mainframe
  - Databases
  - Virtualisation (z/VM)
  - Transactions (CICS)
  - + some other topics
- **Assembler for Mainframe**
  - Programming in assembler under MF

Guiding student individual projects on MF

Students of Computer Science at CTU in Prague, Faculty of Nuclear Sciences and Physical Engineering work on the following **individual projects**:

- bachelor project
- research project (master study)
- diploma project (master study)

Guiding student individual projects on MF

Understanding assembler code

- Most of the subsystems and applications on mainframe are written in assembler
- It is much more difficult to understand in comparison with C/C++, Java or C#
- We use mathematical theory of graphs for visualization, better understanding and partitioning assembler code into independent modules

Guiding student individual projects on MF

zEclipse Server

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------------------------  ISPF/PDF PRIMARY OPTION MENU  -------------------------
OPTION  ===>

                                                          USERID    - VLARA80
   0  ISPF PARMS  - Specify terminal and user parameters   TIME      - 21:01
   1  BROWSE      - Display source data or output listings TERMINAL  - 3278
   2  EDIT        - Create or change source data           PF KEYS   - 12
   3  UTILITIES   - Perform utility functions              SYSID     - XE44
   4  FOREGROUND  - Invoke language processors in foreground
   5  BATCH       - Submit job for language processing
   6  COMMAND     - Enter TSO command or CLIST
   7  DIALOG TEST - Perform dialog testing
   9  IBM PRODUCTS- Additional IBM program development pro
   I  IPCS        - Interactive Problem Control System
   O  SDSF        - SDSF
   Z  z/XDC       - Interactive Debugging with z/XDC 1.8
   X  EXIT        - Terminate ISPF Using log and list defa
Enter END command to terminate ISPF.

 F1=HELP      F2=START     F3=END       F4=RETURN    F5=RF
 F7=UP        F8=DOWN      F9=SWAP      F10=LEFT     F11=RI
48                                                    A44X
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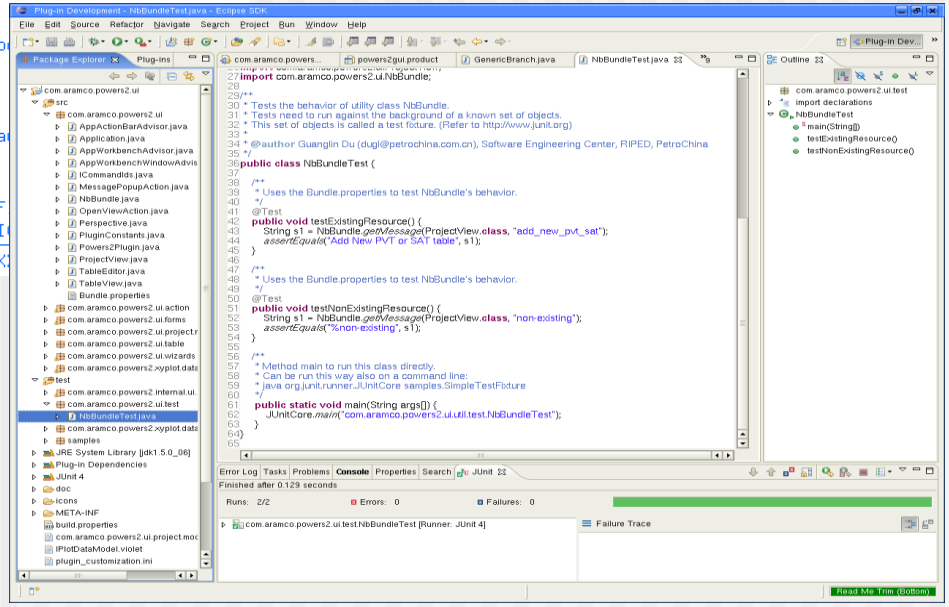

Outlook

- increasing # of students in MF
- better cooperation with other faculties of CTU
- continuing in bachelor and diploma projects in MF
- continuing in established internships at CA
- establish internships in IBM
- cooperation with other universities in Europe

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