

# Operating System (OS) - Early OS

## Unit-1

Virtual University Of Kumar  
Dept. Of Computing  
BCA – 2<sup>nd</sup> Year



# Objective – Operating System

- Introduction to OS
  - *Early OS*
  - *Buffering*
  - *SPOOLING*
  - *Different kinds of operating systems (OS)*
- Process Management
- CPU Scheduling concepts



## Early OS

- Efficiency consideration is more important than convenience
- Different Phases / Generations in the past 40 years ( In decade interval)
- 1940's, earliest digital computers has NO OS
- Machine language on PUNCHED CARD was used
  - Later ASSEMBLY LANGUAGE was developed to increase speed of programming.



# Early OS

- 1<sup>st</sup> OS by 1950's for IBM701 by **GM RESEARCH Laboratories**
  - *One job at a time*
  - *Smoothed the transition between jobs to increase the UTILIZATION of computer system*
- Program's and Data's were submitted in groups or batches
  - *Called "Single stream batch processing system"*



# The 1960`s

- *Batch processing systems*
  - Contains
    - Card reader
    - Card punches
    - Printers
    - Tape drives & Disk Drives
- *Development of multiprogramming*
  - Several programs are in memory at once
  - Processor switch from job to job as needed, and keeps the peripheral devices in use



# The 1960`s

- *Advanced OS developed to service multiple “Interactive users” at once*
  - Interactive users communicate to the computer via TERMINALS which are **online** (Directly connected) to computer.
- *Timesharing systems were developed to multi program large numbers of simultaneous users*
  - Mostly multimode systems
    - Support batch processing & real-time
  - Real-time = Supplies immediate response



# The 1970`s

- Mostly Multi-mode Time-sharing systems
  - *Support*
    - Batch processing
    - Time sharing
    - Real-time applications
  - *TCP/IP communication standard of dept.of.defence (USA) widely used*
  - *LAN was made practical & Economical by Ethernet standard.*
    - Encryption more famous
      - To encode proprietary & private data



# The 1980's

- Era of Personal computers (PC) and workstations.
- Developments in microprocessor technology:
  - Desk-top computers are developed and are powerful as Mainframe computers of the 1970's
- Computer software application package revolutionized the PC development and usage
  - Spread sheet
  - Word processor
  - Database application
  - Graphic applications
- E mail, file transfer and remote database access applications proliferated
- Client server model widespread
  - Client – Network users that needs various services to be performed
  - Servers – Network hardware / software components that performs the services as requested by clients