

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD

Protected by PDF Anti-Copy Free

(Upgrade to Pro Version to Remove the Watermark)

Lecture-3 By Vivek Dubey

PDF

COMPUTER SCIENCE AND ENGINEERING

CS403PC

COMPUTER SCIENCE AND ENGINEERING (ARTIFICIAL INTELLIGENCE AND MACHINE LEARNING)

CS403PC

BHARAT INSTITUTE OF ENGINEERING AND TECHNOLOGY

Scheme of Operating System

Protected by PDF Anti-Copy Free
(Upgrade to Pro Version to Remove the Watermark)



S. No.	Course Code	Course Title	L	T	P	Credits
3	CS403PC	Operating Systems	3	0	0	3
6	CS406PC	Operating Systems Lab	0	0	3	1.5

UNIT-1: *Operating System - Introduction*



- **Structures –**
 - Simple Batch, Multi-programmed, Time-shared,
- **Systems –**
 - Personal Computer, Parallel, Distributed Systems, Real-Time Systems
- **System components**
- **Operating System Services**
- **System Calls**

Types of Operating System

Protected by PDF Anti-Copy Free
(Upgrade to Pro Version to Remove the Watermark)



Batch Operating System

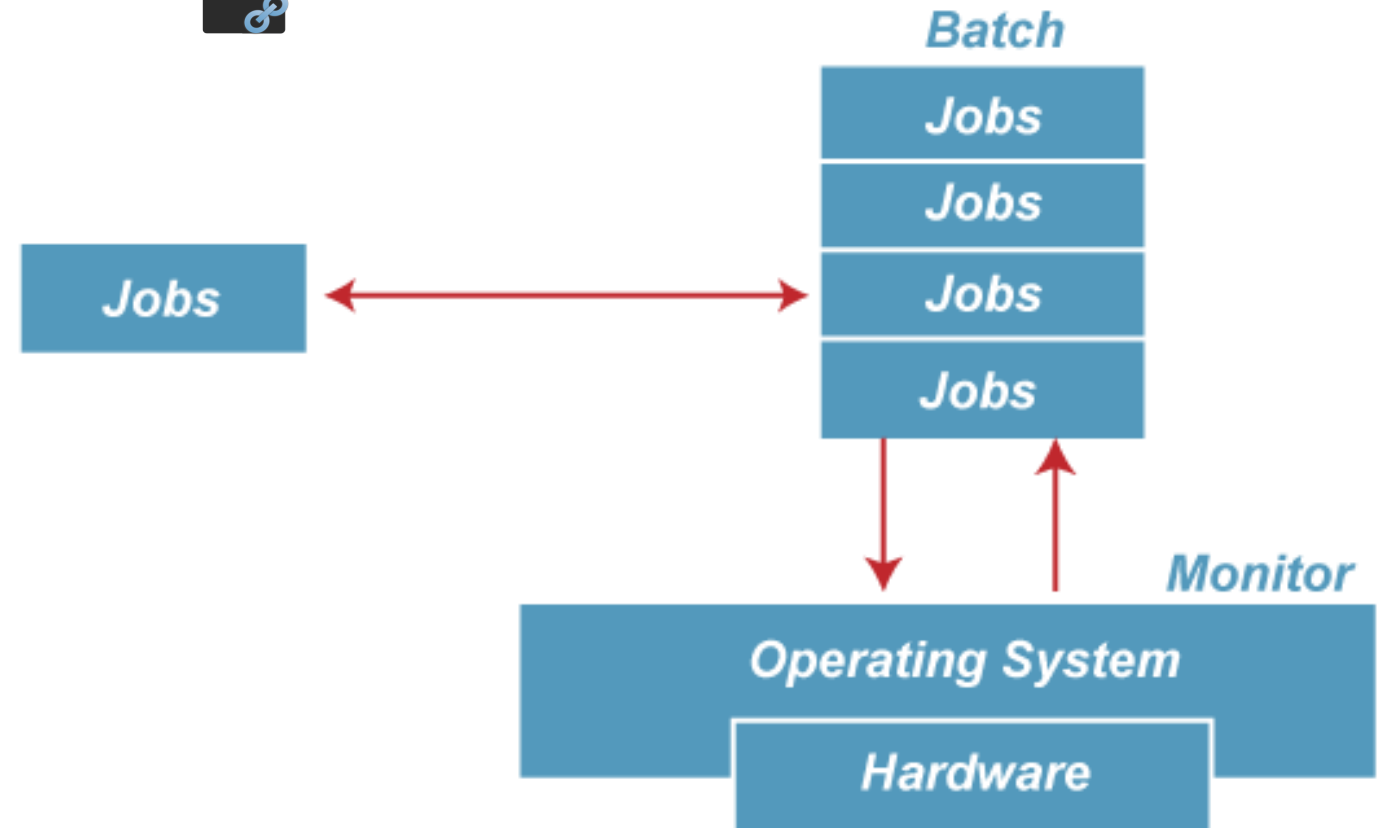
Protected by PDF Anti-Copy Free
(Upgrade to Pro Version to Remove the Watermark)



- In the 1970s, **Batch processing was very popular.** In this technique, similar types of jobs were batched together and executed in time. **People were used to having a single computer which was called a mainframe.**
- In Batch operating system, **access is given to more than one person; they submit their respective jobs to the system for the execution.**
- The system put all of the **jobs in a queue on the basis of first come first serve** and then **executes the jobs one by one.** The users collect their respective output when all the jobs get executed.



Structure of Batch OS



Purpose of Batch OS

Protected by PDF Anti-Copy Free
(Upgrade to Pro Version to Remove the Watermark)

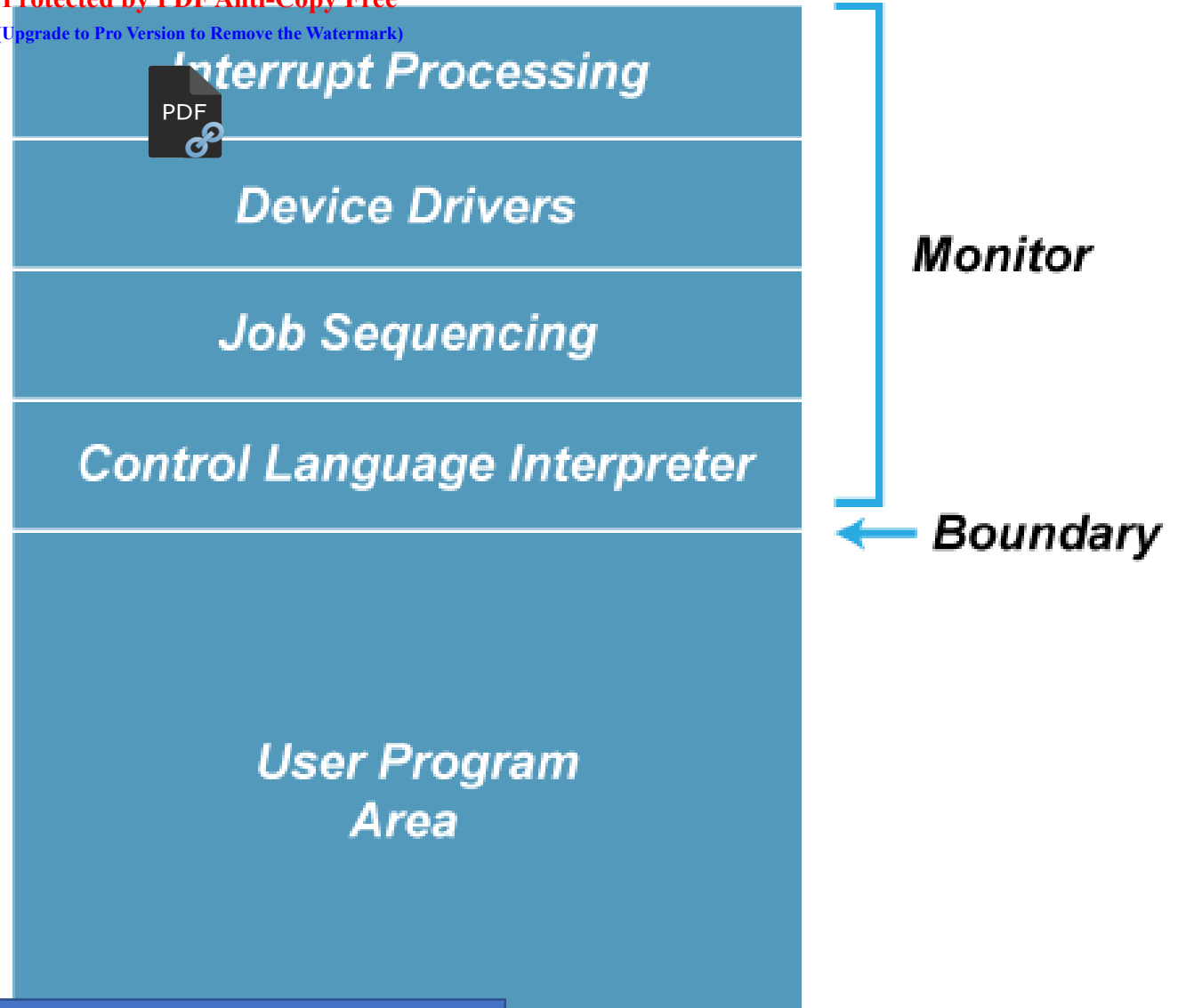


- ✓ Mainly to **transfer control from one job to another** as soon as the job was completed.
- ✓ It contained a **small set of programs** called the resident monitor.
- ✓ **Resident monitor always resided** in one part of the main memory.
- ✓ The **remaining part** *is used for servicing jobs.*

Memory Layout of the resident Monitor

Protected by PDF Anti-Copy Free

(Upgrade to Pro Version to Remove the Watermark)



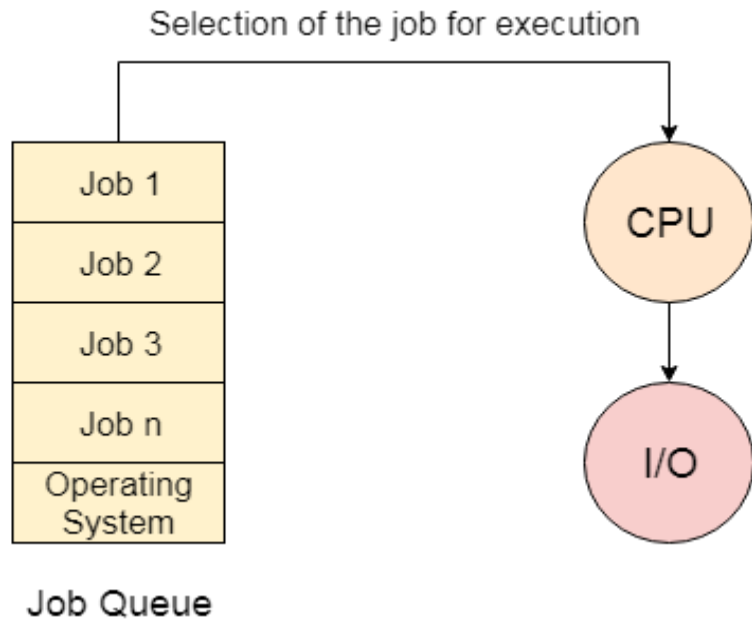
Advantages of Batch OS



- The use of a resident monitor
 - improves computer efficiency
 - as it eliminates CPU time between two jobs.

Disadvantages of Batch OS - 1. Starvation

Batch processing suffers from starvation.



- There are five jobs J1, J2, J3, J4, and J5, present in the batch.
- If the execution time of J1 is very high, then the other four jobs will never be executed, or they will have to wait for a very long time.
- Hence the other processes get starved.

Disadvantages of Batch OS - 2. Not Interactive



- Batch Processing is not suitable for jobs that are dependent on the user's input.
- If a job requires the input of two numbers from the console, then it will never get it in the batch processing scenario since the user is not present at the time of execution.