Intro to operating system…
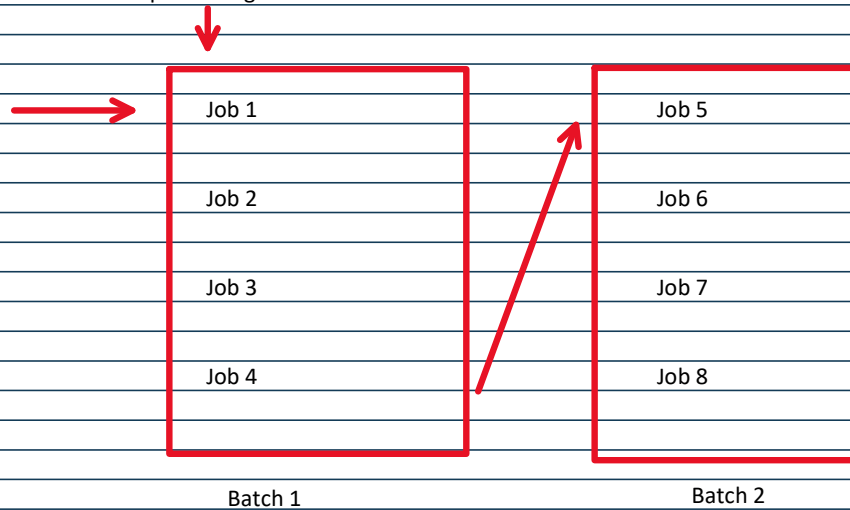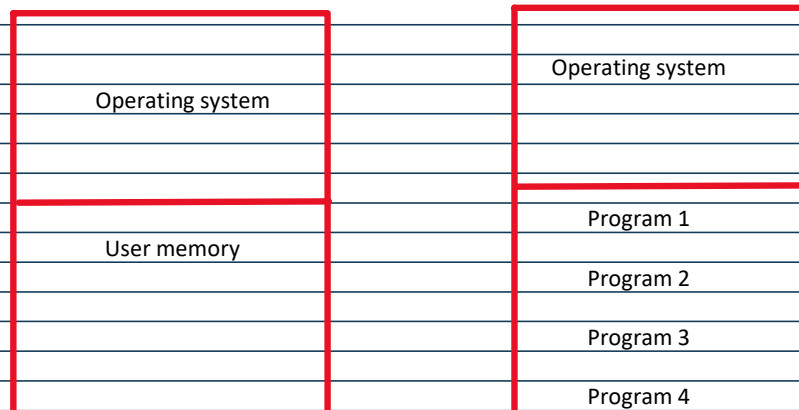
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- What is operating system : an operating system is a program which acts as interface between use of the computer and the computer hardware so , operating system is collection of software that manages computer hardware resources and provide common services for computer program

- Types of operating system :
  - Batch processing

Batch 1	Batch 2
Job 1	Job 5
Job 2	Job 6
Job 3	Job 7
Job 4	Job 8

When the CPU is not performing any important functions it executes similar jobs which are kept collectively as batches all the jobs that a batch contain has similar work to perform and when one batch jobs get executed the CPU jumps to the next batch and start working on its jobs

  - Multiprogramming

Operating system	Operating system
User memory	Program 1
	Program 2
	Program 3
	Program 4

Multiprogramming is the technique that allows multiple program to reside inside the main memory at the same time and share the CPU for execution

The main problem occurs in multiprogramming is if a high calculation program is placed above a low calculation program the CPU will take its own time and after completing the high calculation program

then only the CPU will move on to the next program so efficiency cannot be maintained in multiprogramming

- Differentiate between multiprogramming multitasking and time sharing
    - Multiprogramming :
        - Focus : efficiently utilize the CPU by keeping multiple program in memory and switching between them when one waits for I/O (input , output) operations
        - User perspective : no direct involvement , user experience improved responsiveness as the system juggles multiple tasks in background
        - Key benefits : increases CPU utilization , better system throughput , foundation for multitasking
    - Multitasking :
        - Focus : create the illusion of simultaneous execution for multiple user facing application
        - User perspective : user can actively interact with multiple program at once , switching between them readily
        - Key benefits : improved user experience , increased productivity , faster response time for interactive task
    - Time sharing :
        - Focus : enable multiple user to share a single computer simultaneously , each getting allocated time slice of the CPU
        - User perspective : each user works with their own dedicated virtual environment , feeling like they have exclusive access to the system
        - Key benefits : efficient resource utilization for multiple users , improved interactivity , cost effective sharing of computing resources