Day 2

- ## Single Processor & Multi Processors

Single processors and multiprocessors contain single and multiple processors for running any process on the same system respectively. The throughput of the single processor is less compared to the multiprocessor system because every task is performed on the same CPU. Single processor systems are easy to design but less reliable and a single processor failure can cause the whole system to fail.

- ## Process Scheduling at Processor - Fundamentals

It is also called a **job scheduler**. A long-term scheduler determines which programs are admitted to the system for processing. It selects processes from the queue and loads them into memory for execution. Process loads into the memory for CPU scheduling.

It is also called as **CPU scheduler**. Its main objective is to increase system performance in accordance with the chosen set of criteria. It is the change of ready state to running state of the process. CPU scheduler selects a process among the processes that are ready to execute and allocates CPU to one of them.

A running process may become suspended if it makes an I/O request. A suspended processes cannot make any progress towards completion. In this condition, to remove the process from memory and make space for other processes, the suspended process is moved to the secondary storage. This process is called **swapping**, and the process is said to be swapped out or rolled out. Swapping may be necessary to improve the process mix.

Scheduling Algorithms

- First-Come, First-Served (FCFS) Scheduling
- Shortest-Job-Next (SJN) Scheduling
- Priority Scheduling
- Shortest Remaining Time : The processor is allocated to the job closest to completion but it can be preempted by a newer ready job with shorter time to completion.
- Round Robin(RR) Scheduling : • Each process is provided a fix time to execute, it is called a **quantum**.
- Multiple-Level Queues Scheduling

- **True Parallel Processing - support in JAVA**

Parallel processing is an approach that can denote a huge class of methods that can give simultaneous data-processing functions to improve the computational speed of a computer system.

Processing multiple instructions at the same time automatically improves the throughput of the system and reliability.

It can be said as , A function is divided into smaller chunks of programs and process simultaneously and combined later to create a result.

Parallel processing was introduced in Java 8, stream interface.