

1.1.2 Operating System Processing Methods

Various types of OS processing methods are:

- (a) Serial Processing
- (b) Batch Processing
- (c) Multiprogramming

Serial Processing

In the serial processing, programs are executed one by one, in the order in which they are supplied to the computer. That is, the different computer jobs are executed one after the other.

Batch Processing

In Batch Processing systems, a number of jobs are put together and executed as a group. Many user's jobs are placed together into a *batch*. Such systems perform *automatic* transition from execution of one job to the execution of the next job in the batch. The objective of batch processing is to increase system resource utilization and programmer's productivity by reducing set-up time.

Multiprogramming

Batch processing essentially dedicates resources of the computer system to a single program at one time. Serial execution of a program causes either the processor or I/O devices to be idle at some time. To increase resource utilization, multiprogramming technique of processing was developed. [In multiprogramming, the CPU runs several programs at the 'same time'. The phrase 'same time' is incorrect to use in case of single processor computers, but multiprogramming is implemented in such a way that it appears as if many programs are being executed *concurrently*.]

[Multiprogramming keeps CPU busy, switching its attention from one program to another. For example, while one program is waiting for some input or output operation, another program can use the processor because of the high speed of processor.] This is shown in Figure 1.2. In Figure 1.2, the CPU's idle time is utilized by the slow input and output devices. Moreover, each program takes necessary share of CPU's time, thus making the system very efficient.

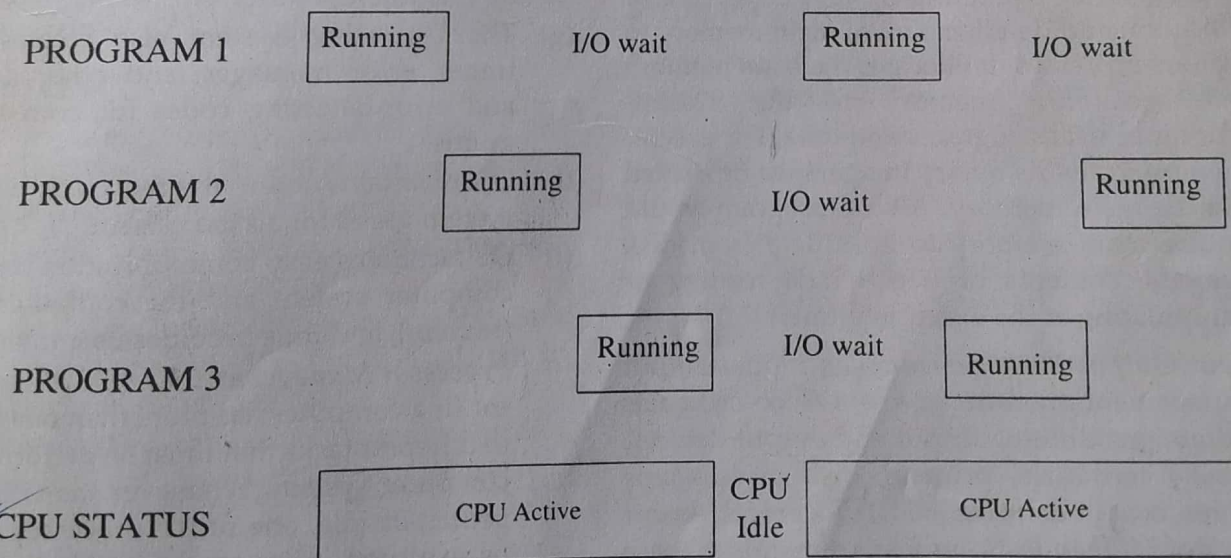


Figure 1.2 Concept of multiprogramming