1 Kernel

Also nown as the nucleus. This is is in main memory and includes the most frequently used portions of the software. Run in privileged mode.

2 Multiprogramming

The ability to switch between multiple programs and increases cpu utilization and throughput. minimize response time for time sharing systems.

3 Process

A program execution. Scheduled and controlled by OS. Consists of program code, associated data, and context.

4 Execution Context

internal data buy which the os is able to supervise and control th process.

5 Problems

Suppose we have multiprogrammed computer. Computation time T for a job half the time is spend in IO and other half in processor. Each job runs for a total of N periods. Using round robin scheduling. Only processing cycles cant overlap.

For 1, 2, and 4 simultaneous jobs find:

- turnaround time (actual time to complete the job):
- throughput (average number of jobs completed per time period T)
- Processor utilization (percentage of time the processor is active)

Assume first half of T is for IO and second is for processor.

1 Job: The squence just alternates between IO and PRocessor, turnaround time is NT, throughput is $\frac{1}{N}$. Utilization is 50%

2 Jobs: