Different Types of OS:

Some of the most widely used types of Operating system.

1. Simple Batch System
2. Multiprogramming Batch System
3. Multiprocessor System
4. Distributed Operating System
5. Clustered System
6. Realtime Operating System
7. Handheld System

1. Simple Batch System:

- In this type of system, there is no direct interaction between user and the computer.
- The user has to submit a job written on cards or tape to a computer operator.
- Then computer operator places a batch of several jobs on an input device.
- Jobs are batched together by type of languages and requirement.
- Then a special program, the monitor, manages the execution of each program in the batch.
- The monitor is always in the main memory and available for execution.

2. Multiprogramming Batch System:

- In this the OS picks up and begins to execute one of the jobs from memory.
- Once this job needs an I/O operation OS switches to another job (CPU and OS always busy).
- Jobs in the memory are always less than the number of jobs on disk.
- If several jobs are ready to run at the same time, then the system chooses which one to run using CPU Scheduling.
- In Non-multiprogrammed system, there are moments when CPU sits idle and does not

do any work.

- In Multiprogramming system, CPU will never be idle and keeps on processing.

3. Multiprocessor System:
    - A Multiprocessor system consists of several processors that share a common physical memory.
    - Multiprocessor system provides higher computing power and speed.
    - In multiprocessor system all processors operate under single operating system.

4. Distributed Operating System:
    - In this type of OS multiple systems involved, user at one site can utilize the resources of systems at other sites.

Following are the two types of distributed operating systems used:

1. Client-Server Systems
2. Peer-to-Peer Systems

5. Clustered System:
    - Clustered systems gather together multiple CPUs to accomplish computational work.
    - Clustered computers share storage and are closely linked via LAN networking.
    - Clustering is usually performed to provide high availability.
    - A layer of cluster software runs on the cluster nodes.
    - Each node can monitor one or more of the others.

6. Realtime Operating System:
    - It is defined as an OS known to give maximum time for each of the critical operations that it performs, like OS calls and interrupt handling.
    - The Real-Time Operating system which guarantees the maximum time for critical

operations and complete them on time are referred to as Hard Real-Time Operating Systems.
- While the real-time operating systems that can only guarantee a maximum of the time, i.e. the critical task will get priority over other tasks, but no assurity of completeing it in a defined time. These systems are referred to as Soft Real-Time Operating Systems.

7. Handheld System:
   - Handheld systems include Personal Digital Assistants(PDAs), such as Palm-Pilots or Cellular Telephones with connectivity to a network such as the Internet. They are usually of limited size due to which most handheld devices have a small amount of memory, include slow processors, and feature small display screens.

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65. Discuss advantages and disadvantages of the Buffer cache ?
66. Explain different types of OS with examples of each ?
67. What is an Operating System? Write down its desirable characteristics ?
68. Define a deadlock ? Write down the conditions responsible for deadlock? How can we recover from deadlock ?
69. What are the various services provided by Operating system ?
70. What do you mean by PCB? Where is it used? What are its contents? Explain.
71. What is Binary and Counting semaphores ?
72. What is File? What are the different File attribute and operations?
73. What are System call? Explain briefly about various types of system call provided by an Operating System?
74. Describe necessary conditions for deadlocks situation to arise.
75. What are points to be consider in file system design? Explain linked list allocation in detail?
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