Opertaing System (OS)

An Operating System (OS) is a software program that manages and controls the resources and services of a computer system. It provides an interface between the hardware and the software, allowing users and applications to interact with the computer system.

Desirable Characteristics of an Operating System:

1. Responsiveness
2. Reliability
3. Security
4. Portability
5. Scalability
6. Compatibility
7. Flexibility

1. Responsiveness:

An operating system should be responsive and provide fast response times to user requests and system events. It should be able to handle multiple requests simultaneously and prioritize them based on their importance.

2. Reliability:

An operating system should be reliable and provide a stable environment for running applications. It should be able to recover from errors and handle hardware failures gracefully.

3. Security:

An operating system should be secure and protect the system and its resources from unauthorized access, malware, and other security threats. It should provide authentication, authorization, and encryption mechanisms to ensure data privacy and integrity.

4. Portability:

An operating system should be portable and able to run on different hardware platforms and architectures. It should be able to support different devices, file systems, and network protocols.

5. Scalability:

An operating system should be scalable and able to handle a growing number of users and applications. It should be able to manage system resources efficiently and allocate them dynamically based on demand.

6. Compatibility:

An operating system should be compatible with existing software and hardware systems. It should be able to run legacy applications and support a wide range of devices and peripherals.

7. Flexibility:

An operating system should be flexible and customizable to meet the specific needs of different users and applications. It should allow users to configure and customize the system

to their liking and support different programming languages and development tools.

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61. What is Process Scheduling, CPU Scheduling, Disk Scheduling? Explain Short, Medium and Long term Scheduler?
62. Explain concept of a process with its components ?
63. Explain the following in brief Contiguous and Linked list allocation for implementing file system?
64. Explain various Disk scheduling algorithms with Illustrations ?
65. Define process and thread. What is PCB ? Explain its various entries with their usefulness ?
66. Discuss advantages and disadvantages of the Buffer cache ?
67. Explain different types of OS with examples of each ?
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?
76. Write a Semaphore solution for dining Philosopher’s problem?
77. Consider the following page reference string:1,2,3,4,5,3,4,1,2,7,8,7,8,9,7,8,9,5,4,5. How many page faults would occur for the following replacement algorithm, assuming four frames:a) FIFOb) LRU
78. Explain CPU schedulers in operating system?
79. Write the different state of a process with the help of Process state deagram?
80. What is Mutex in operating system?
81. Explain Network operating system?
82. What do you mean by paging in operating system ?