50 commonly asked operating system interview questions|| Topic Wise Arranged

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A popular topic in LeetCode interview preparation discussions is the suggestions made by people. When preparing for #interviews, it's helpful to consider the suggestions made by fellow coders. #codingtips #interviewprep #careergoals

Operating System Basics:

1. What is an operating system?
2. Explain the main functions of an operating system.
3. Describe the difference between a process and a thread
4. What are the differences between multiprogramming, multitasking, and multiprocessing?
5. Explain the concept of a context switch.
6. What are the differences between a monolithic kernel and a microkernel?
7. Describe the process of process creation and termination.
8. What is the difference between preemptive and non-preemptive scheduling?
9. What are system calls, and how are they different from normal function calls?
10. Explain the concept of kernel mode and user mode.

Process Management:

1. Describe the process of process scheduling.
2. What are the different scheduling algorithms used in operating systems?
3. Explain the differences between preemptive and non-preemptive scheduling.
4. What is a context switch, and how does it affect the performance of a system?
5. Describe the process of process synchronization using semaphores.
6. Explain the dining philosophers' problem and how it can be solved.
7. What is a critical section, and how is it protected in concurrent programming?
8. Explain the reader-writer problem and how it can be solved.
9. Describe the process of process communication using inter-process communication (IPC).
10. What are the different IPC mechanisms available in operating systems?

Memory Management:

1. What is virtual memory, and how does it work?
2. Explain the concept of paging and its advantages.

3. What is a page fault, and how is it handled by the operating system?
4. Describe the process of memory allocation and deallocation.
5. Explain the concepts of thrashing and working set model.
6. Describe the different page replacement algorithms, such as LRU, FIFO, and Optimal.
7. What is the purpose of a page table, and how is it used in virtual memory management?
8. Explain the concept of demand paging and its advantages.
9. What is a segmentation fault, and how is it handled by the operating system?
10. Describe the process of process swapping.

File Systems:

1. What is a file system, and what are its components?
2. Explain the different types of file systems, such as FAT, NTFS, and ext4.
3. Describe the process of file allocation and deallocation.
4. What is a file control block (FCB) or an inode, and how is it used in file systems?
5. Explain the concepts of file descriptors and file descriptor tables.
6. What is a file allocation table (FAT), and how does it work?
7. Describe the differences between sequential, direct, and indexed file allocation methods.
8. Explain the concept of file buffering and its advantages.
9. What is a symbolic link, and how does it work in file systems?
10. Describe the process of file permission management in operating systems.

Device Management:

1. What is a device driver, and what is its role in an operating system?
2. Explain the process of device allocation and deallocation.
3. What are the different types of device scheduling algorithms used in operating systems?
4. Describe the process of device interrupt handling.
5. What is a device control block (DCB), and how is it used in device management?
6. Explain the concept of spooling and its benefits.
7. What is a device register, and how does it relate to device management?
8. Describe the differences between polling and interrupt-driven I/O.
9. What is a device queue, and how is it used in device management?
10. Explain the concept of device management.

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