OPERATING SYSTEM

- What is an operating system and its role in computer systems?
- Explain the difference between a process and a thread.
- What are the main functions of an operating system?
- How does virtual memory work in an operating system?
- Describe the concept of process synchronization and its importance.
- What are the different scheduling algorithms used in operating systems?
- What is the role of the file system in an operating system?
- How does an operating system handle memory management?
- Explain the concept of deadlock and how it can be avoided.
- What is a device driver and what is its purpose?
- Describe the differences between a monolithic kernel and a microkernel.
- How does an operating system handle I/O operations?
- What is the role of the interrupt handler in an operating system?
- Explain the concept of demand paging in virtual memory management.
- What is the difference between preemptive and non-preemptive schedule
- How does a process communicate with another process in an operating system?
- What is the purpose of a system call in an operating system?
- Describe the concept of mutual exclusion and its importance in operating systems.
- How does an operating system handle file permissions and security?
- Explain the concept of multithreading and its advantages.
- What is a semaphore and how is it used in process synchronization?

- Describe the role of the process scheduler in an operating system.
- How does an operating system handle input and output devices?
- Explain the concept of virtualization and its benefits.
- What is a context switch and when does it occur?
- Describe the role of the cache in an operating system.
- How does an operating system handle page faults?
- What is the purpose of a command interpreter or shell in an operating system?
- Explain the concept of I/O buffering and its advantages.
- What is the role of the memory manager in an operating system?
- How does an operating system handle inter-process communication?
- Describe the concept of process creation and termination.
- What is a race condition and how can it be avoided in operating systems?
- How does an operating system handle interrupts?
- Explain the concept of spooling in an operating system.
- What is the difference between a real-time operating system and a general-purpose operating system?
- Describe the role of the page table in virtual memory management.
- How does an operating system handle file system fragmentation?
- Explain the concept of thrashing and its impact on system performance.
- What is the purpose of a bootloader in an operating system?