

Assignment 1: Operating Systems

Question 1:

Explain the concept of an operating system and its role in a computer system. Discuss the functions and responsibilities of an operating system. Provide examples of popular operating systems used today.

Question 2:

Discuss the difference between process and thread in the context of an operating system. Explain the concept of multithreading and its advantages. Provide examples of situations where multithreading would be beneficial.

Question 3:

Explain the memory management techniques used by operating systems. Discuss the concepts of virtual memory and paging. Describe how these techniques help in efficient memory allocation and utilization.

Question 4:

Discuss the various scheduling algorithms used by operating systems to manage processes. Explain the characteristics and advantages of popular scheduling algorithms such as Round Robin, Shortest Job Next, and Priority Scheduling. Provide examples of scenarios where each scheduling algorithm would be suitable.

Question 5:

Explain the concept of file systems and their role in an operating system. Discuss the different file system types, such as FAT32, NTFS, and ext4. Compare their features, advantages, and use cases.