**Assignment # 2**

**Due By: 16 September 2024**

**Answer the following questions. (5 marks each)**

1. What is preemptive multitasking?
2. The Fibonacci sequence is the series of numbers 0, 1, 1, 2, 3, 5, 8, ....

Formally, it can be expressed as:

fib 0 = 0

fibl = 1

jibn = jibn-l + jibn-2

Write a C program using the fork( ) system call that generates the Fibonacci sequence in the child process. The number of the sequence will be provided as an input from user. For example, if 5 is provided, the first five numbers in the Fibonacci sequence will be output by the child. Parent process shall wait for the child process.

1. What is the main advantage of the microkemel approach to system design? How do user programs and system services interact in a microkernel architecture? What are the disadvantages of using the microkernel approach?
2. How could a system be designed to allow a choice of operating systems from which to boot? What would the bootstrap program need to do?
3. When a process creates new process using fork() operation, which of the following are shared between the parent and child process?
   1. Heap
   2. Stack
   3. Shared memory segments
4. What are short, long and medium-term scheduling?

Note: all these topics are covered in lectures, and you can find more details from book, do not copy from online sources. Submit handwritten assignments on or before closing deadline in my office and also submit softcopy on classroom in pdf format.