Homework 1: Intro and process life cycle

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Due date: noon of Thursday Feb 10, 2022

[Question 1]  In your own words, define the following terms:

* Operating System:
* Kernel:

An operating system is a system program that acts as the “intermediary” between the hardware and software of the computer. It contains many of the important operations for running a computer that come with its kernel (which we will define later), as well as sometimes having more features that provide the user with better ease of use such as a GUI and/or counsel. Operating systems also can come as time-sharing operating systems which schedule tasks for efficient use of the system. There are also real time operating systems which have constraints of running extremely quick (all processes occurring in less than 1ms)

A kernel is the program at the core of any operating system which runs all the time and generally has complete control over the system. As mentioned before the kernel provides the operating system the most of its hardware management (what connects the OS to the hardware) and can have many low-level services such as deice drivers, process management, memory management, and system calls.

[Question 2] What is the difference between a process and a program?

A program is a passive set of instructions designed for a computer to complete a certain task while a process is an instance of a program running and requires resources to complete its task (the program running) such as CPU, I/O, memory, files, ect…

[Question 3] Regarding process life cycle, replace the numbers with the correct process state in the figure below:

Diagram

Description automatically generated

1: New

2: Ready

3: Blocked

4: Running

5: Cycle