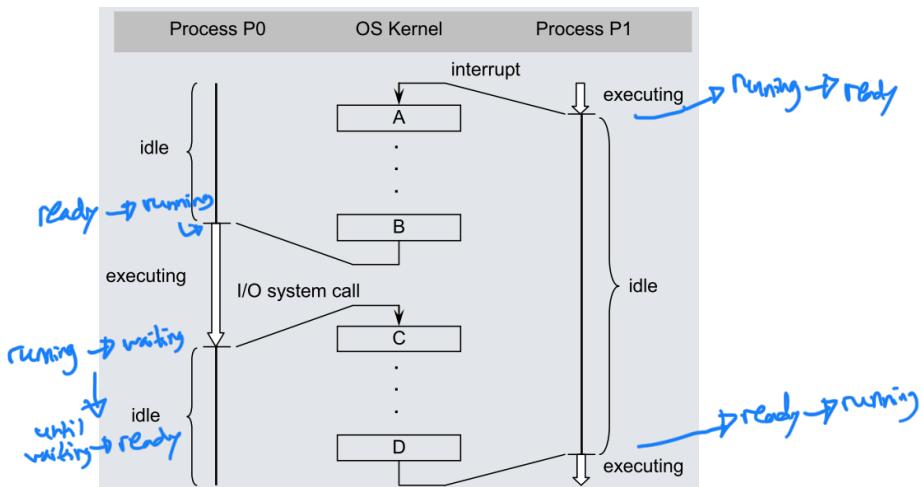


TUTORIAL TWO**Processes and Threads**

1. Indicate whether the following statements are true or false. Justify your answers.
 - a) A ready process waiting to get access to the CPU is in the "waiting" state. **F**
 - b) A ready queue is a queue of Process Control Blocks (PCBs) of all processes in the "ready" state. **T**
 - c) The "wait()" system call is generally used by a child process to wait for instructions from a parent process. **F** *Fork() [parent] → (wait()) → (join())*
 - d) Message passing based Inter-Process Communication (IPC) consumes less memory than shared memory based IPC. **F**, *Message passing need allocate memory space in kernel, while shared memory h/w Shared memory*
2. What are two main differences between the data and stack regions of a process memory?
3. Explain the difference between a single-threaded and a multi-threaded process.
4. The figure below shows the execution of processes P0 and P1 in a multiprogramming system.
 - a) Identify state transitions of each process.
 - b) Describe operations A, B, C and D performed by the operating system kernel.



A = Save P1 state to PCB,

B = Load P2 state from PCB

C = Save P0 state to PCB

D : Load P1 state from PCB,

2) - they hold different ~~data~~ thing
= stack memory is more dynamic

Memory of a C program is divided into 4 parts, data segment, stack segment, text segment and heap segment.

The data segment is where global and static variables you declare in your program are stored.

The stack segment is where where automatic variables (variables local to a function) are stored and information about functions are stored. When a function is called, a part of the stack is allocated to store information about the function (its local variables, the return address etc.) This part is called a stack frame. Every function has its own stack frame in the stack segment and thus a stack segment can have multiple stack frames depending on the number of function calls in your program.

