

Outline & PROCESS

i Difference b/w Process and Program

Program

✗ (A set of instructions given to the computer to solve a particular problem. is called)

Program

(-) A program is an executable file which contains a certain set of instructions written to complete the specific job or operation on your computer.

(-) Program is passive entity

(-) A single program can be related to multiple processes

Process

(-) A program in the execution is called process.

(-) Process is active entity

(-) A single process cannot be related to multiple programs

ii Context Switching

is the process of storing the state of a process or threads. so that it can be restored and resume execution at a later point.

iii Ready Queue

The ready queue is a queue of all processes that are waiting to be scheduled on a CPU.

iv Device / Waiting Queue

Device / waiting queue contains the processes which are waiting for the completion of I/O request.

Each device has its own device queue.

v Job Queue

A job queue contains an ordered list of jobs waiting to be processed by a subsystem.

(i) A set of all processes in a system.

⇒ Parts of Process

i- Text Section

number of lines in a program that will be executed is called text section.

ii- Program Counter

The current activity or current line that is executing is called program counter.

It also includes registers.

(iii) Stack

Consist of temporary data.
Such as function parameters,
return address and local variables.

(iv) Data section

Consist of global variables.

(v) Heap

Consist of memory, that dynamically
allocated during run time.

⇒ Process Control Block (PCB)

A process control block (PCB) is a data structure used by computer operating system to store all the information about a process.

It is also known as a process descriptor. When a process is created, the operating system creates a corresponding process control block.

→ Diagram →

Process state
Process number
Program counter
Registers
memory limits
list of open files
...

⇒ Threads

- (1) sub part of process
- (1) process has atleast one thread of execution
- (1) if program exists then thread exists
- (1) When a program exit / terminates then thread automatically exit / terminates.