PROCESS AND PROCESS MANAGEMENT

AGENDA

1) What is process.

2) What is multi processing. How many types.

3) What is Process Management.

4) Foreground and background process in terminal.

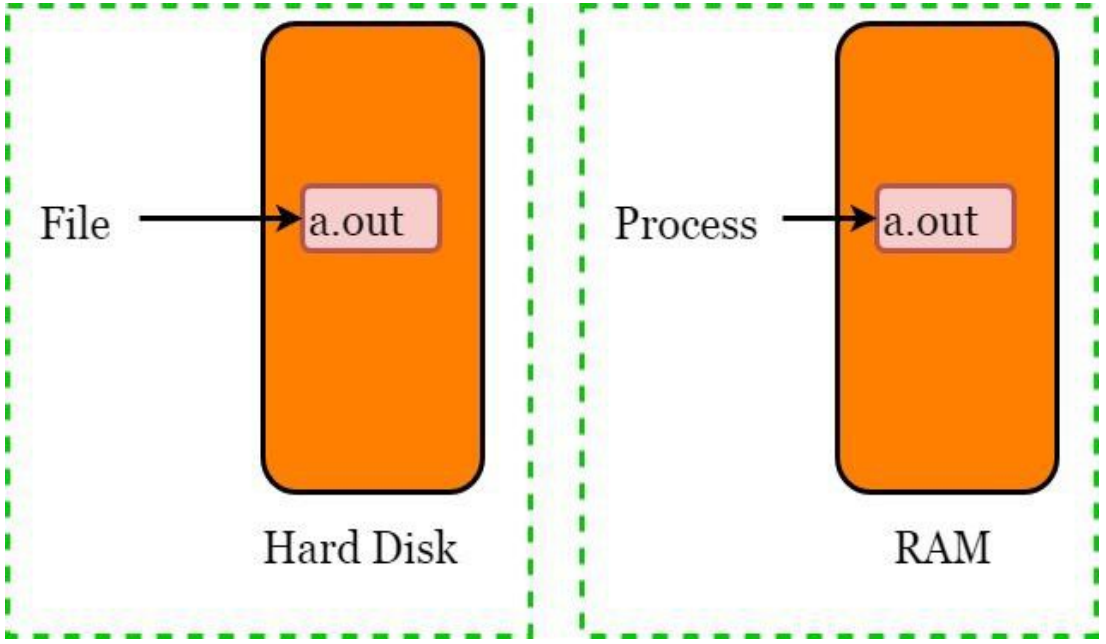
5) Basic commands in process management.

6) Memory layout of process.

7) What is shell.

What is a process

- A process is a program in execution.
- Process is instance of program in execution. Whatever data present in hard disk is technically called as file. If that file has capability of getting executed, then it is called as program. Copy of program present in the RAM is called as Process.



Process (Contd...)

- A program is a *passive entity*, such as a file containing list of instructions stored in disk.
  Where as process is *active entity*.
- A program becomes a process when an executable file is loaded into memory.
- Size of executable file is less when it is in hard disk than the same executable loaded into RAM, i.e. its process is created.
- Life of that file in Hard disk is permanent while life of process is till it completes its execution.

Process (Contd...)

Ex:p1.c

To create the executable file we will use

$ cc p1.c

Then compiler creates a.out file.

Now that executable file is present in Hard disk.
To create process of a.out what we need to do is

$./a.out
(after we need to press enter button)

```
#include <stdio.h>
main()
 {
printf("Vector India\n");
while(1);
 }
```

What is multiprocessing

- Multiple applications running simultaneously or concurrently are called as multiprocessing.
- Benefit of multiprocessing is execution of one application is not dependent on other application execution.

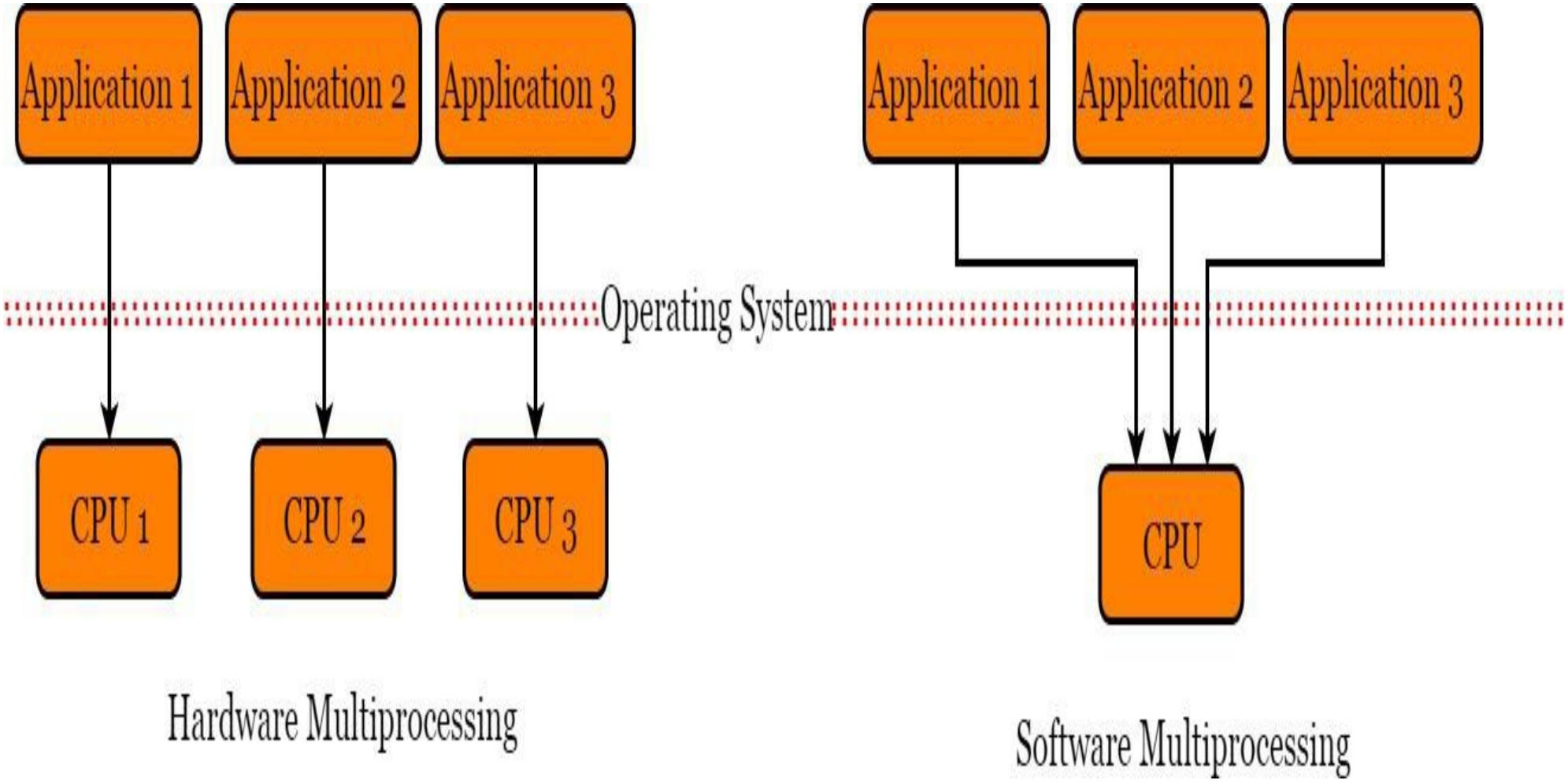
Ex:Linux and windows are multiprocessing operating systems whereas DOS is single processing system.

- Multiprocessing can be achieved in two ways:

1) Hardware multiprocessing: simply known as multiprocessing

2) Software multiprocessing: simply known as multiprogramming

Multiprocessing (Contd...)



What is Process Management

- Process Management is one of the service in kernel(OS).
  It's responsibility is to manage all the running processes of the system.
- Comparing to Hardware multiprocessing, in software multi processing process manager's role is very important .
  Because One CPU need to be shared to multiple processes.

Foreground and Background processes

- When we write ./a.out in the command prompt the process is created in fore ground. Till that process completes its execution we can't give any command in that terminal.
- But there is an option to run the process in Background.
  Use & symbol while executing the command.

  Ex: ./a.out &
  (In this case process runs in background).

Basic commands in process management

ps It will display list of processes in current terminal.

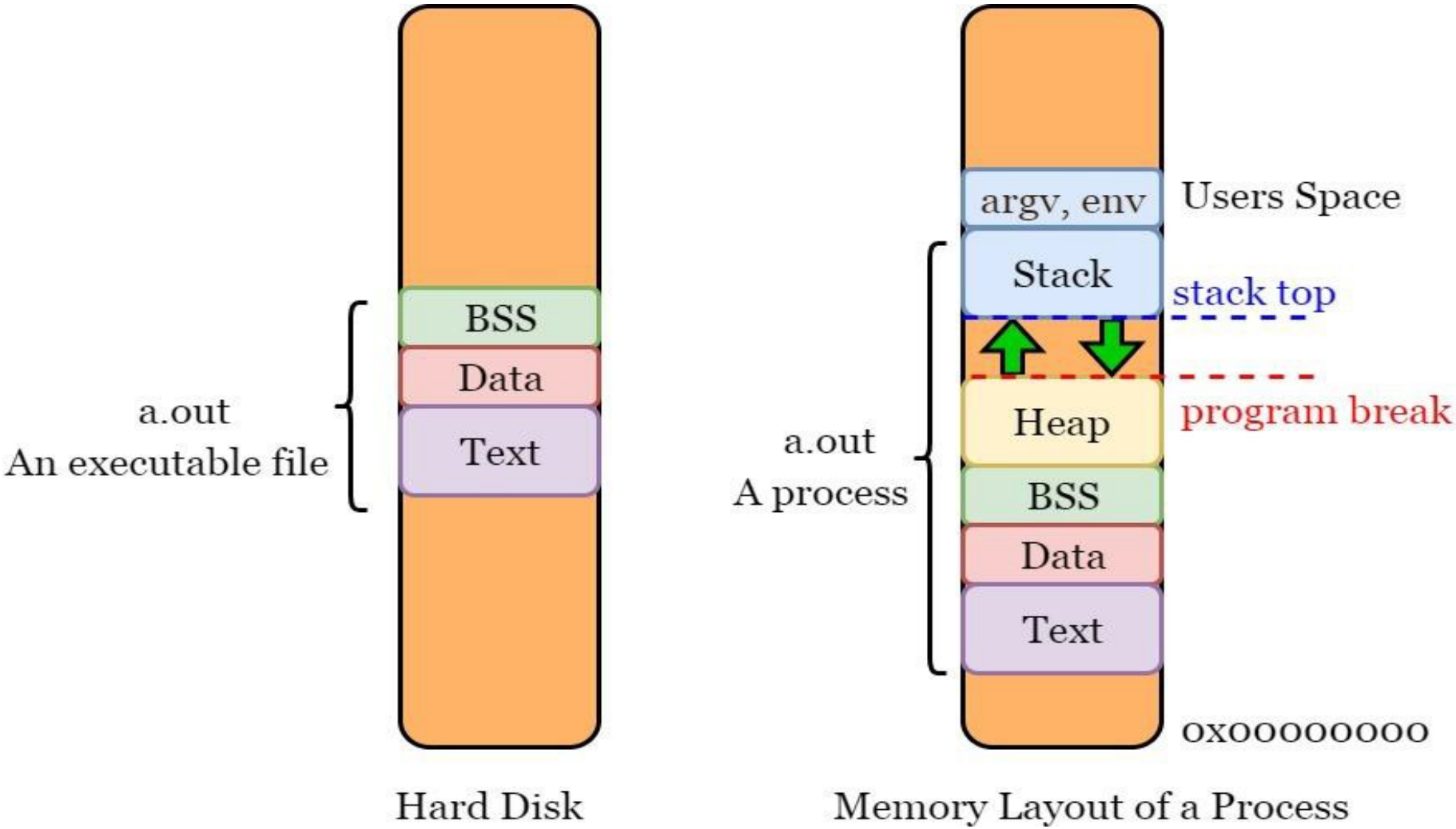
ps -e list of processes in system.

ps -l long list of processes in the current terminal.

fg to move the background process to foreground.

size this command display size of object file or executable file

Memory layout of a process



What is SHELL

- Shell is a user program which is used to interact with OS.
- Shell is a command language interpreter that executes commands read from standard input device or file.
- Shell is not a part of kernel(service). It is an application.

  Ex shells : sh, bash, ksh
- If we want to know how many shells present in system we need to use *cat etc/shells* command.

What is SHELL