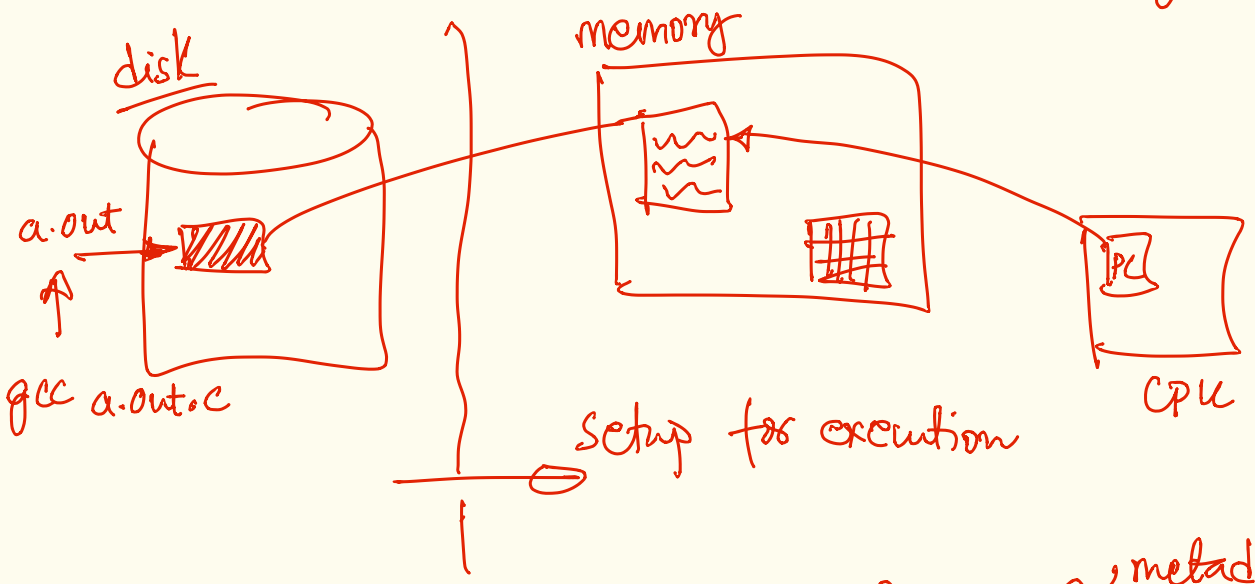
Lecture 5 CS 333/347. Autumn 2022.

Processes — abstraction for executing programs.



PCB — process control block ~ metadata of process. into used by OS for managing

- PID, PPID, CPU regs., priority, state
- memory info
- files info.
- signals

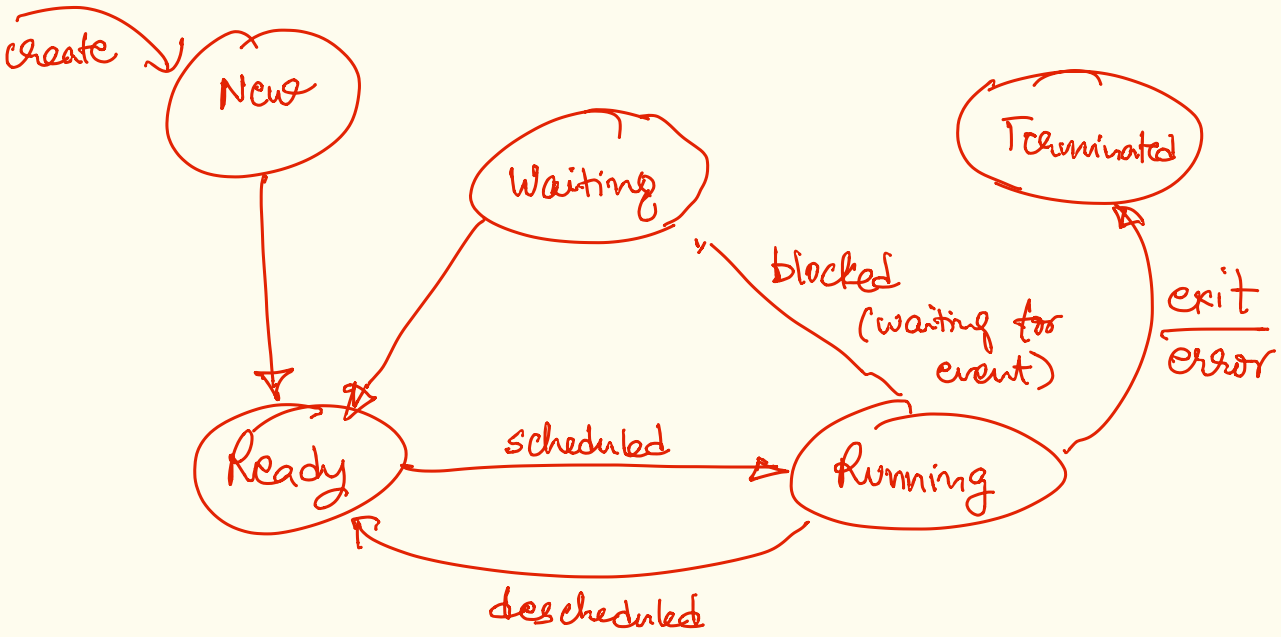
Q

* when a process is created/setup does it always execute? (consume the CPU non-stop).

— NO!

- interrupts.
- descheduled
- sleep / voluntary give up of CPU
- wait for IO to complete event.

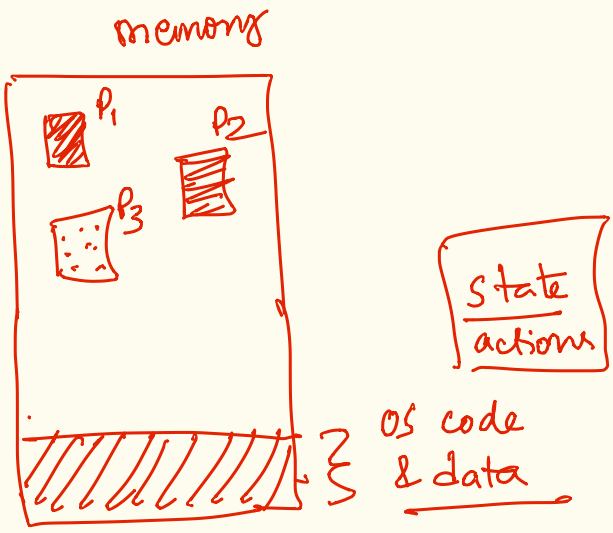
(*) state diagram of process lifetime.



(*) the game-plan of the OS.

— load itself in memory (code & data)
(bootup process)

— "handicrafts" a user process, jumps to user address of first instruction.
returns



init process

(*) signals

└ slow OS-assisted mechanism for events to processes.

— signal state in PCB

└ SIGINT | SIGSEGV
SIGKILL

fork — duplicate a process
+
exec
└ replaces a process

Shell