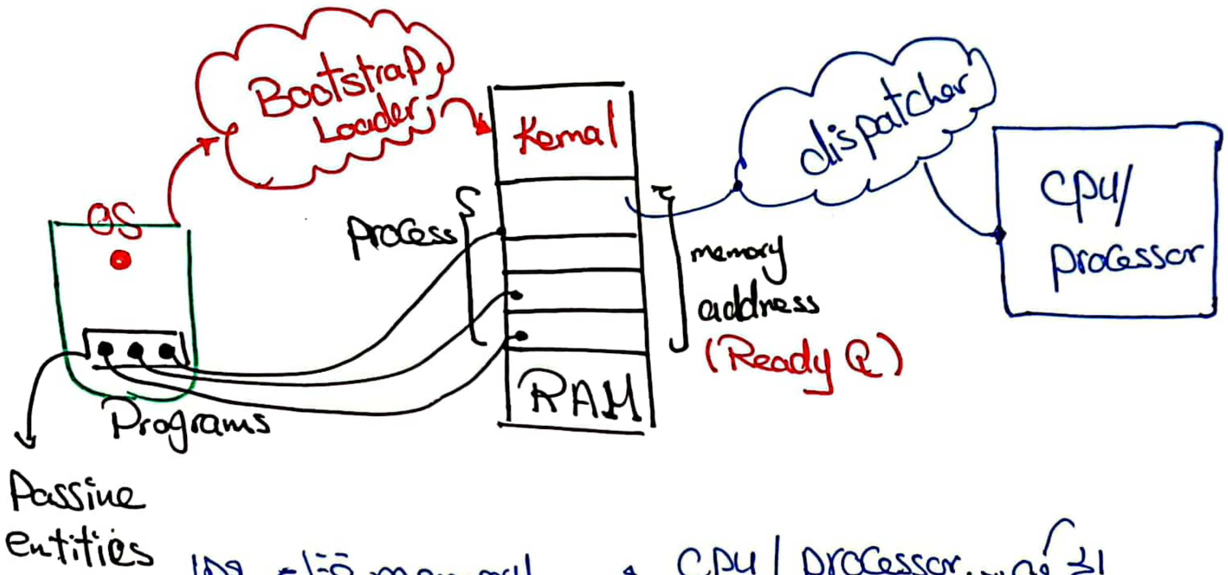
lec 3: Thread and Remote procedure Call (RPC)

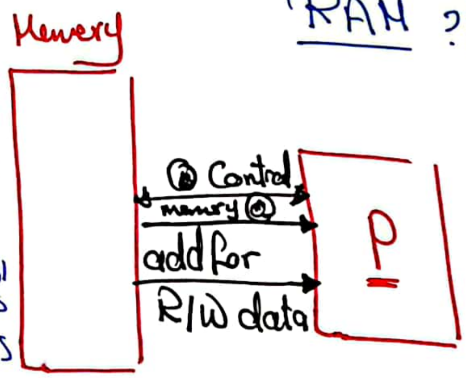


الحركة بين cpu / processor و memory تتم بواسطة RAM ??

(imp) There is no direct access to cpu from main memory.

نقل البيانات من الـ memory الى Processor تحتاج

1. address Bus
2. memory Bus
3. Data Bus



- Imagine all these requests from cpu to memory will done using **Process** ?!

Process includes **Process image**

Process Control Block (PCB)

info. about process

Process ID
memory limit
Priority

فائدة memory تحديد جزء

- overcome interference between processes

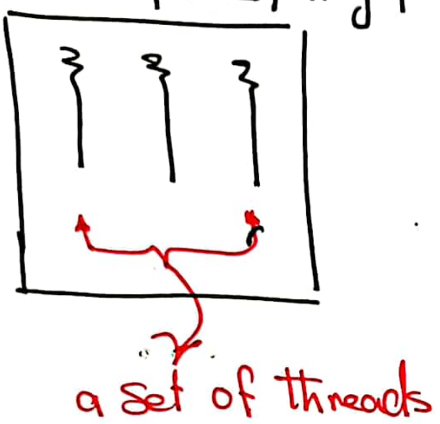
OS يتحكم فيه لأن تسبب مشاكل أهمها

1. increase execution Time
2. affect performance

Lec3. Cont.

O.S uses thread Concept instead of the process → Called Task

Add. space / img process



Process عمـة in O.S

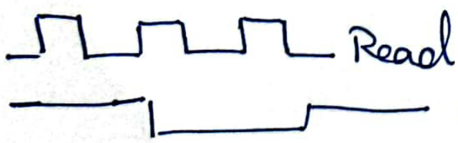
- Resource ownership
- Resource allocation
- Task schaduling → عدد كبير جداً
  - Process state
  - Program Counter

Threads → is a lightweight program.

when one thread is waiting, other threads are Proceed → overlapping issue → حل إستخدام

- synchronisation Techinque

ودة لأن كل Thread بيتكون في single process وبالتالي الـ process هي اللي تقدر تعمل hold memory فتتجنب حدوث overlapping فإستخدام memory لازم يكون في clock



Threads are going to manage Concurrency in programs

Threads ↓ unit of dispatching

Concurrency ↓ Significat feature in Os.

Multithreads Concept means The o.s has the ability to support multiple Concurrent paths of execution within a single process.

← يتم تحقيقه من [illegible] خلال

Function Call / Subroutine

Benefits of threads :

كل هذه الميزات تعتمد على ان ال Communication by thread ما يكون فيه تدخل Kernel.

1. enhance Communication between processes.
2. enhance execution time of process / task.
3. less time to terminate a thread than process

> • most info dealing with execution is maintaind in The Thread level data structure.

Thread type

- user thread (created by App)
- Kernal thread (created by O.S)

- **Thread state**
  - New ( )
  - blocked ( )
  - unblocked ( )
  - Terminated ( )

- **process state**
  - New ( )
  - Runnable ( )
    - Running ( )
    - Ready ( )
  - blocked ( )
    - wating ( )
  - suspended ( )
    - process is swapped to V.memory
  - Terminated ( )

hint

لا يوجد داخل الـ Thread ما يسمى بالـ Suspended state ??

لأنه ومعناه إن هنزل الـ
memory في خاصه بالـ thread
هنـ داخل thread لا يتفاعل
مع memory بشكل منفصل الـ
يتفاعل مع memory و process الـ