1. OS basic

1.1. Concepts

- OS:

+ What is OS: ▫ manage computer hardware

▫ provide basis for application program

▫ act as an intermediary between computer user and computer hardware

+ Goals: ▫ Execute user programs and make solving user problems easier

▫ Make the computer system convenient to use

▫ Use the computer hardware in an efficient manner

- Computer System architecture: hardware, OS, applications, user

- Computer start-up: **bootstrap program** is loaded in starting and shutdown

- OS structure:

+ Multiprogramming: utilize CPU by keeping awaiting processes in **job pool**, loading some into memory an executing them interchangeably (by the time executing process is busy due to IO task, CPU loads another process and execute it → reduce **waiting time**)

+   
- I/O:

+ Blocking: the main task will be suspended until IO task has finished  
 + Non-blocking: the main task run concurrently IO task

- Process:

-Thread:

1.2. Kernel mode and User mode

a. Kernel mode

- OS executes system calls => OS in **kernel mode**

- OS executes user-defined codes => OS in **user-mode**

Some called **privileged instructions** (I/O control, timer management, and

interrupt management,...)are only executed in **kernel mode** => prevent from errant users