Ch1.

What is an Operating System?

* A program that acts as an intermediary between a user of a computer and the computer hardware.

What is the OS goals?

* Execute user programs and make solving user problems easier.
* Make the computer system convenient to use and the use of the hardware in an efficient manner.

Which four components does the computer system can be divided?

* Hardware (provides basic computing resources): CPU, memory, disk, I/O devices.
* Operating System: controls the hardware among various applications and users.
* Application programs: word processors, compilers, web browsers, database systems, video game.
* Users

OS is a RESOURCE ALLOCATOR

* Manages all resources
* Decides between conflicting requests for efficient and fair resource use.

OS is a CONTROL PROGRAM

* Controls execution of programs to prevent errors and improper use of the computer protection.

OS definition

* The KERNEL is the program running at all times on the computer.
* Everything else is either:
  + A system program
  + An application program.

What is bootstrap program?

* Is loaded at power-up or reboot.
* Initializes all aspects of system
* Loads OS kernel and starts execution.

OS is interrupt driven

1. I/O Completion: request from the kernel
2. Time interrupt (time slice quantum): Timer to prevent infinite loop / process hogging resources.
3. Exceptions: Software error (division by zero, invalid memory access).
4. System calls: request for operating system service.