

# CSC369 Week 2 Notes

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## 1 System Calls

- Bootstrapping
  - Bootstrapping



- \* executes **Bootstrap Program**
    - is the first code that runs when the computer system is started
  - \* Entire operating system depends on the bootstrap program to work correctly
  - \* Locates and loads kernel (code of operating system) onto RAM
    - kernel = code of the operating system
    - kernel is in HDD
  - \* Bootstrap program is in ROM
- ROM
- \* is called **read-only-memory**
  - \* Is also called **BIOS chip** (Basic Input/Output System)

- \* is non-volatile
- \* is stored in motherboard



- Operating System Startup



- Initializes OS

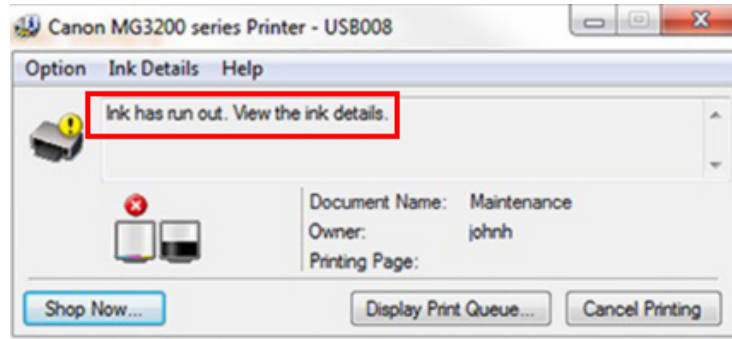
- \* Initialize internal data structures
- \* Create first process
- \* Switch mode to user and start running first process
- \* Wait for something to happen

- Requesting OS Services

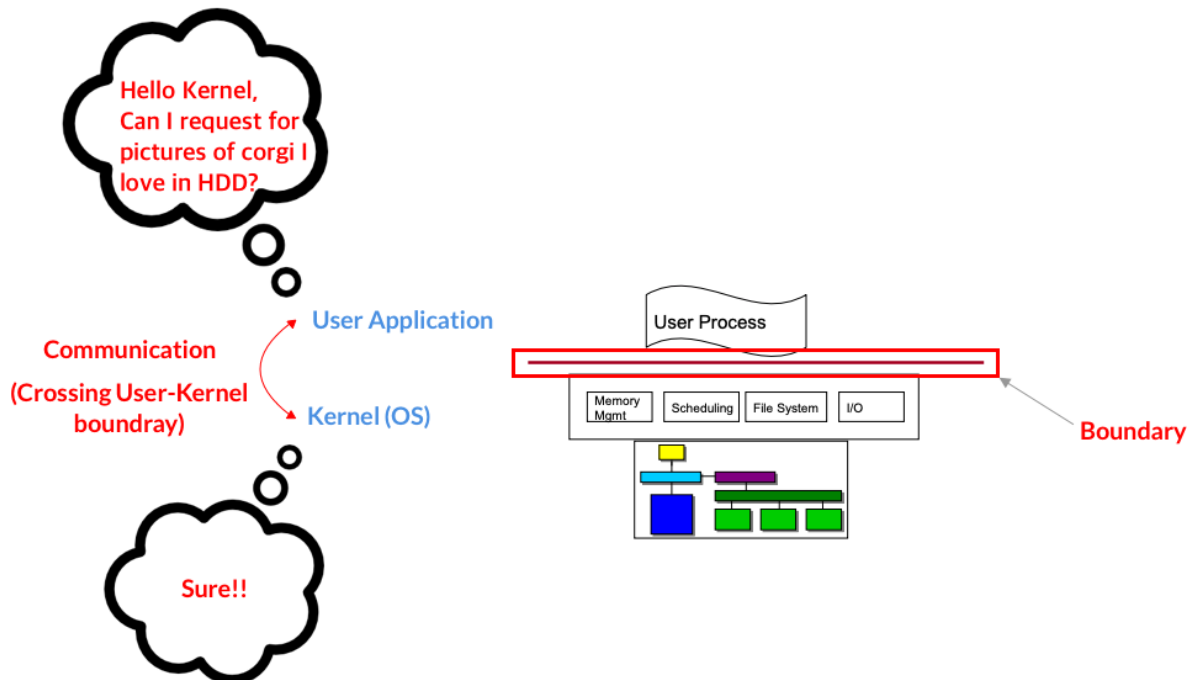
- Some services offered by OS are:

- \* Program execution
  - Loading program to memory and executing program

- \* I/O operations
  - Keyboard, mouse, speaker
- \* File system manipulation
  - Reading and writing files and directories
- \* Error Detection
  - Error that pops when printer ink is empty



- Operating system and user programs are isolated
- How do they communicate?
- Boundary Crossings



- Boundary
  - \* Is the line between user applications and kernel

- \* Data is difficult to move back and forth between this line
  - Boundary Crossings
    - \* Is the communication that occurs between a program and kernel
    - \* Communication occurs by sending data from one program into kernel, and then back
  - More can be found here
- System Calls for Process Management
  - System Calls for File Management