## The need for abstraction for accessing resources

How to write a user program like the *Bash* shell that reads keyboard inputs from the user?

- → Read input data from the I/O device directly? But which one?
  - The one connected to the PS2 port?
  - The one connected to the USB?
  - The one connected to the bluetooth?
  - The remote one connected to the network?

How do you synchronize access with other programs using the keyboard as well?

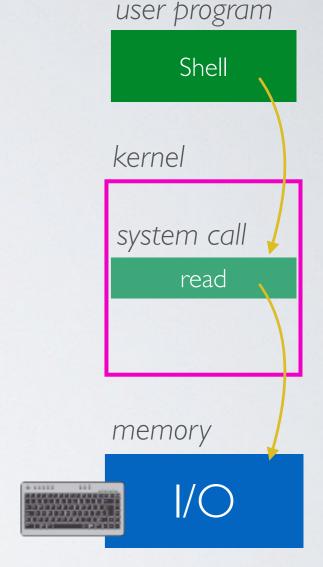
- User programs do not operate I/O devices directly
- √ The OS abstracts those functionalities and manage access through system calls

## System Calls

→ Provide user programs with an API to use the services of operating system

There are 5 categories of system calls

- Process control
- File management
- Device management
- Information/maintenance (system configuration)
- Communication (IPC)
- Protection



✓ There are 393 system calls on Linux 3.7

http://www.cheat-sheets.org/saved-copy/Linux\_Syscall\_quickref.pdf