

# 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 the 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](http://www.cheat-sheets.org/saved-copy/Linux_Syscall_quickref.pdf)

