

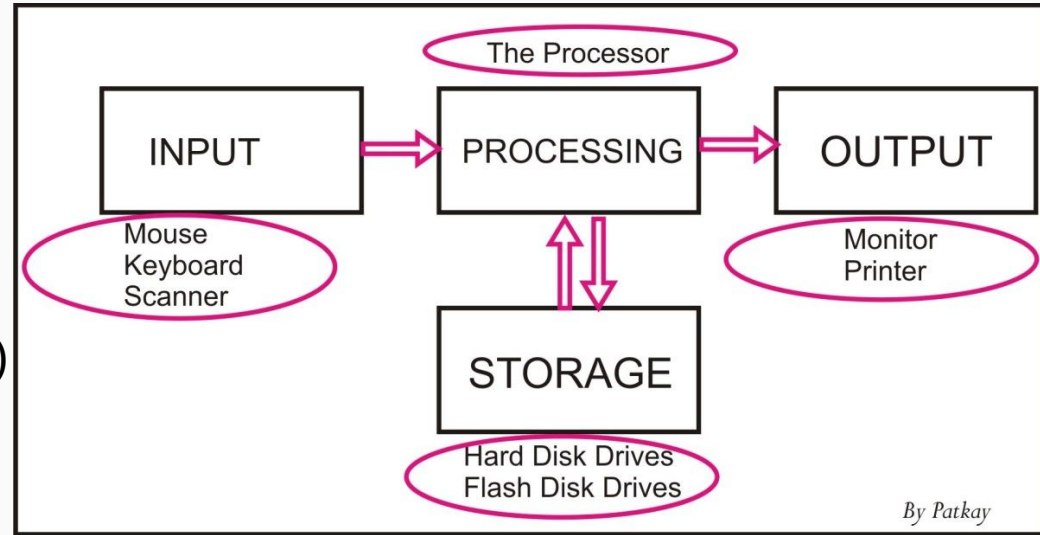
Cmpe 150 Lab 3: File I/O

Up to Now

- We wrote various programs; however, when the execution is completed, we cannot access the information we have obtained.
- The reason is that we have yet to use one of the building blocks of our computer. Remember

Main Components of a Computer

- Input Device
- Memory
 - RAM
 - Disk
- Central Processing Unit (CPU)
- Output Device



Using Files

- We can use files to store information permanently on our computers. Our program could write some information (number/text) to a file and read it back.
- Example: Store the name and several information related to students

Prerequisite: Opening Files

- `f = open('path_to_file', 'MODE')`
- Different modes:
 - `'r'`: Read
 - `'w'`: Write
 - `'a'`: Append

Path Types: Absolute

- An Example in Linux/Mac

`/home/user/documents/file.txt`

- An Example in Windows

`C:\Users\User\Documents\file.txt`

Path Types: Relative

- Relative to the current location
 - `./documents/file.txt`
- You can use `..` to refer to the upper directory as well.

Closing a File

- Just like opening a file, we have to close it after the necessary processing.
- `f.close()`

An Alternative Way

- with open('PATH', 'MODE') as f:

 # Code

- This time, the file is automatically closed when the execution of that block is over.

How to Write

- `f.write("My first line for the file\n")`
- `f.write("My second line for the file\n")`
- `f.write("My third line for the file\n")`
- `f.write("My fourth line for the file\n")`

How to Write (Cont.)

- When opening the file, be careful about which option to choose, writing(w) or append (a).
- The writing option starts from scratch.

How to Read

- Necessary condition: The file to be read must be existing.
- Try the otherwise option.

Reading Everything

- `all_content = f.read()`
- It gives you the whole file as a single string

Reading a Single Line

- `new_line = f.readline()`
- Of course, we can call it multiple times. Each time, it will continue from where it has left.

Reading All Lines

- `all_lines = f.readlines()`
- `for line in f.readlines():`
 `print(line)`

Bonus Content: max and min Functions

- `max_val = max(num1, num2)`
- `min_val = min(num1, num2)`

Thanks

Any questions?

References

1. <https://www.programiz.com/python-programming/file-operation>