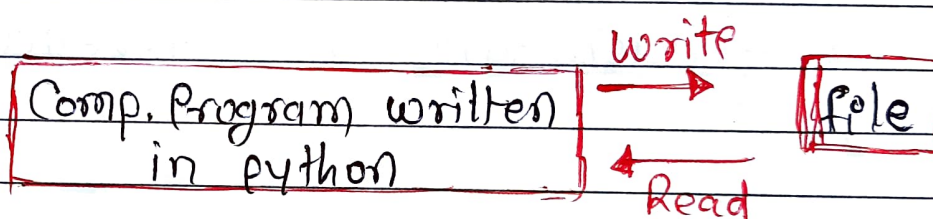# Chapter - 9
File I/O

The random access memory is volatile and all its contents are lost once a program terminates.

In order to persist the data forever, we use files.

A file is data stored in a storage device. A Python program can talk to the file by reading content from it and writing content to it.

Programmer

RAM = Volatile
HDD = Non-Volatile
SSD = Non-Volatile

Types of Files
There are two types of files
1. Text files (.txt, .c etc)
2. Binary files (.jpg, .dat etc)

Python has a lot of functions for reding, updating and deleting files.

Opening a File
Python has an open() function for opening files. It takes two parameters : filename and mode.

open("this.txt", "r")

↳ Mode of opening (read mode)

filename

Open is a built-in function

Reading a file in python

f = open("this.txt", "r") → opent the file in r mode
text = f.read() → read its contents
print (text) → print its contents
f.close() → close the file

We can also specify the number of characters in read() function : f.read(2)

↓
Read first 2 char

Other methods to read the file
We can also use f.readline() function to read on full line at a time.

f.readline() → read one line from the file.

Mode of opening a file

r → open for reading
w → open for writing
a → open for appending
t → open for updating.

'rb' will open for read in binary mode
'rt' will open for read in text mode

Writing files in Python

In order to write to a file, we first open it in write or append mode after, which, we use the python's f.write() method to write to the file!

```
f = open("this.txt", "w")
f.write("This is nice")   → can be called multiple
                                        times
f.close()
```

with statement

The best way to open and close the file automatically is the with statement.

```
with open("this.txt") as f:
        f.read()
```
↳ don't need to write f.close()
  as it is done automatically

Chapter - 9
Practice Set

Que1. Write a program to read the text from a given file 'poems.txt' and find out whether it contains the word 'twinkle'.

Que.2. The game() function in a program lets a user play a game and returns the score as an integer. You need to read a file 'hiscore.txt' which is either blank or contains the previous hi-score. You need to write a program to update the hi-score whenever game() breaks the hi-score.

Que3. Write a program to generate multiplication table from 2 to 20 and write it to the different file. Place these files in a folder for a 13-year old.

Que4. A file contains a word "Donkey" multiple times. You need to write a program which replaces this word with ###### by updating the same file.

Que5. Repeat program 4 for a list of such words to be censored.

Que6. Write a program to prime a log file and find out whether it contains 'python'.

Que7. Writ a program to find out the line number where python is present from Ques 6.

Que 8. Write a program to make a copy of a text file "this.txt".

Que 9. Write a program to find out whether a file is identical & matches the content of another file.

Que.10 Write a program to wipe out the contents of a file using python.

Que.11 Write a python program to rename a file to "renamed_by-python.txt".