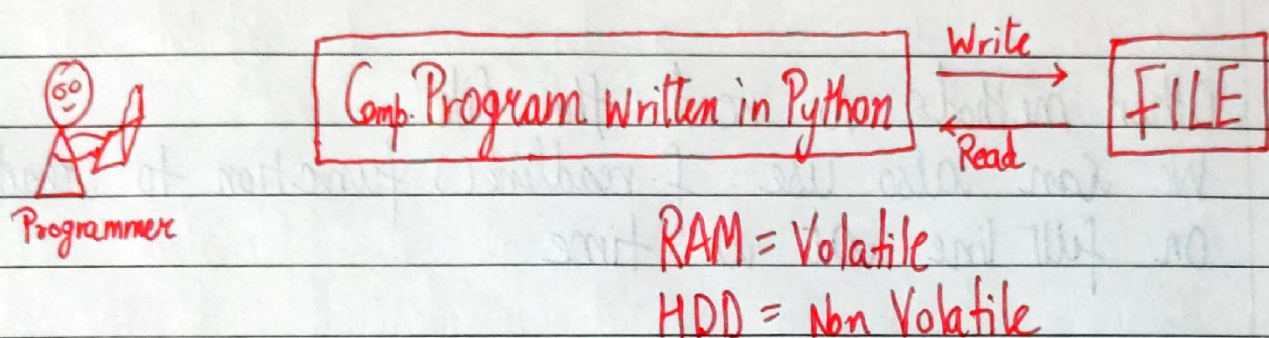


Chapter 9 - File I/O

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.



Types of files

There are 2 types of files:

1. Text files (.txt, .c etc)
2. Binary files (.jpg, .dat, etc)

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

Opening a file

Python has an `open()` function for opening files. It takes 2 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") → open 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)`
↳ Reads first 2 characters

Other methods to read the file

We can also use `f.readline()` function to read on full line at a time

`f.readline()` → Reads one line from the file

Modes of opening a file

r → open for reading
w → open for writing
a → open for appending
+ → 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

- 1 Write a program to read the text from a given file 'poems.txt' and find out whether it contains the word 'twinkle'.
- 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.
- 3 Write a program to generate multiplication tables from 2 to 20 and write it to the different files. Place these files in a folder for a 13-year old.
- 4 A file contains a word "Donkey" multiple times. You need to write a program which replaces this word with ##### by updating the same file.
- 5 Repeat program 4 for a list of such words to be censored.
- 6 Write a program to mine a log file and find out whether it contains 'python'.
- 7 Write a program to find out the line number where python is present from Ques 6

- 8 Write a program to make a copy of a text file "this.txt"
- 9 Write a program to find out whether a file is identical & matches the content of another file.
- 10 Write a program to wipe out the contents of a file using python
- 11 Write a python program to rename a file to "renamed-by-python.txt"