

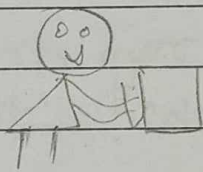
# File I/O

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The random access memory is Volatile & all its contents are lost once a program terminates. In order to persist the data forever, we use files.

A file is a data store in a storage device. A python program can talk to the file by reading content from it & writing content to it.



Computer programs  
written in python

write

file

Read

RAM  $\rightarrow$  Volatile

HDD  $\rightarrow$  Non Volatile.

## Types of files.

There are two types of files.

1] Text files (.txt, .c, etc)

2] Binary files (.jpg, data, etc)

python has a lot of functions for reading, updating & deleting files.



## Opening a file

python has an `open()` function for opening files. It takes 2 parameters: filename & mode.

`open("this.txt", "r")`  
 ↓                      ↓  
                     mode of opening (read mode)  
                     filename

`open` is built in function.

## Reading a file in python

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

We can also specify the number of characters, in `read()` function: `f.read(2)`  
 ↓  
 Reads file 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

- 1] `r` → open for reading
- 2] `w` → open for writing
- 3] `a` → open for appending
- 4] `t` → open for updating.

- ~~Imp.~~ A] `'rb'` for open for read in binary mode.  
B] `'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("Hello Tejas") → Can be called  
f.close()                multiple times.
```

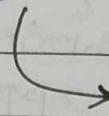


## With Statement

The best way to open & 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.

# Practice Set

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1. Write a program to read the text from a given file 'poem.txt' & find out whether it contains the word 'twinkle'.
2. The game() function in a program lets a user play a game & returns the score as an integer. you need to read a file 'history.txt', which is either blank or contains the previous hi-score you need to write a program to update the hi-score() whether game() breaks the hi-score().
3. Write a program to generate multiplication table from 2 to 20 & write it to the different files. place these file 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 mirror a log file & find out whether it contains 'python'.
7. Write a program to find out the line number whether python is present from Ques 6.
8. Write a program to make a copy of a text file "text.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 file python.
11. Write a python program to generate a file to generate-by-tytus.txt.