# PYTHON FILE HANDLING

Whatever data stored in python collections like List, Set, and Dict etc. is temporary. Once Python Virtual machine shutdown’s all these objects will be destroyed and data will be gone

Sometimes as the part of programming requirement, we have to store our data permanently for the future purpose. To store data permanently the following are various possibilities

1. Files
2. Databases
3. More advanced storage areas like Big Data

Files are very common permanent storage areas to store our data permanently

TYPES OF FILES

There are two types of files

1. Text files
2. Binary files

**Text files**:

Usually we can use text files to store character data/ text data

**Example:** abc.txt, test.py

**Binary files**:

We can use binary files to store binary data like images, video files, audio files etc**.**

**Example:** guido.jpg, bahubali.mp4

OPENING A FILE

Before performing any operation (like read or write) on the file, first we have to open that file. For this we should use Python's inbuilt function **open ()**

But at the time of open, we have to specify mode, which represents the purpose of opening file.

**f = open (filename, mode)**

The allowed modes in Python are:

1. **r → READ :**
   1. f = open(‘abc.txt’,’r’)
   2. Open an existing file for read operation.
   3. The file pointer is positioned at the beginning of the file.
   4. If the specified file does not exist then we will get **FileNotFoundError**.
   5. This is default mode.
2. **w → WRITE :**
   1. f = open(‘abc.txt’,’w’)
   2. Open an existing file for write operation.
   3. If the file already contains some data then it will be overwritten.
   4. If the specified file is not already available then this mode will create that file.
3. **a → APPEND :**
   1. f = open(‘abc.txt’,’a’)
   2. Open an existing file for append operation.
   3. It won't override existing data.
   4. If the specified file is not already available then this mode will create a new file.
4. **r+ → READ & WRITE :**
   1. f = open(‘abc.txt’,’r+’)
   2. To read and write data into the file.
   3. The previous data in the file will not be deleted.
   4. The file pointer is placed at the beginning of the file.
   5. While writing old data will be overwritten
   6. If the specified file does not exist then we will get **FileNotFoundError** and this mode won’t create any new file
5. **w+→ WRITE & READ :**
   1. f = open(‘abc.txt’,’w+’)
   2. To write and read data.
   3. It will override existing data.
   4. If the specified file is not already available then this mode will create that file
6. **a+ →** **APPEND & READ:**
   1. f = open(‘abc.txt’,’a+’)
   2. To append and read data from the file
   3. It won’t override existing data
   4. If the specified file is not already available then this mode will create that file
7. **x → EXCLUSIVE :**
   1. To open a file in exclusive creation mode for write operation.
   2. If the file already exists then we will get **FileExistsError**.

MODES FOR BINARY FILES

All the above modes are applicable for text files.

If the above modes are suffixed with 'b' then these represents for binary files.

**Example**: rb,wb,ab,r+b,w+b,a+b,xb

f = open("abc.txt","w")

We are opening abc.txt file for writing data

**FAQ:**

1. In which modes file should be already there → r, r+
2. In which modes file should not be already there → x
3. In which modes overwriting of existing data will be happened → w, r+, w+
4. In which modes overwriting of existing data won’t be happened → a, a+
5. In which modes new files will be created → w, a, w+, a+, x

CLOSING A FILE

After completing our operations on the file, it is highly recommended to close the file. For this we have to use close () function

**Syntax = f.close ()**