

## File Handling

File handling in Python allows you to **create, read, write, update, and delete** files. It helps us store data permanently instead of losing it when the program ends.

Python uses the built-in function **open()** to work with files.

### File Handling Function:

1. **open()**: Used to open a file in a specified mode (read, write, append, etc.).
2. **write()**: Writes text or data into a file.
3. **read()**: Reads the entire content of a file as a single string.
4. **close()**: Closes the file and releases system resources.
5. **seek()**: Moves the file cursor to a specific position in the file.
6. **tell()**: Returns the current position of the file cursor.

### File Modes in Python:

1. **x** : Create a new file and write.
2. **w** : Opens a file for writing. Creates a new file or **overwrites** an existing file.
3. **r** : Opens a file for reading. The file must already exist.
4. **a** : Opens a file to add new data at the **end** without deleting existing content.
5. **w+** : Creates a new file or overwrites an existing one, and allows reading also.
6. **r+** : Opens a file for both reading and writing. File must exist.
7. **a+** : Opens a file for reading and appending. Content is added only at the end.

### Example:

**"x" – Create a new file and write**

Creates a new file; gives error if file already exists.

```
open("newfile.txt", "x")
```

### **"w" – Write mode**

Creates a new file OR overwrites an existing file.

#### **Example:**

```
open("data.txt", "w")
```

### **"r" – Read mode**

Opens an existing file for reading.

```
open("data.txt", "r")
```

### **"a" – Append mode**

Opens a file and adds new data at the **end**.

```
open("data.txt", "a")
```

### **"w+" – Write + Read**

Creates a new file or overwrites existing one, and allows reading.

```
open("data.txt", "w+")
```

### **"r+" – Read + Write**

Opens an existing file for both reading and writing.

```
open("data.txt", "r+")
```

### **"a+" – Append + Read**

Opens a file for reading and appending; content is added only at the end.

```
open("data.txt", "a+")
```