# File Handling

# Python Functions for FILE HANDLING

- Creating Files
- Reading Files
- Updating Files
- Deleting Files
- Closing Files

# FILE OPERATIONS

1. **OPEN( )** the file.
2. **READ ( )** from the file or **WRITE( )** to the file.
3. **CLOSE( )** the file.

# Steps to Reading from or Writing to Files

- **TIP:** When a file is opened, don't forget to close it.
- **TIP**: Immediately after opening a file, write the close statement.

myFile = **open**("filename", "access mode")

.....

myFile.**close**()

# **Access Mode** – specifies what you will do with the file after you open it.

| **Access mode** | | Action |
|---|---|---|
| **r** | read | If file exists, opens the file for reading. If file doesn't exist, error message displayed. |
| **w** | write | Creates file if it doesn't exist. Otherwise, **erases contents of existing file** and pointer is positioned at the beginning of the file. |
| **a** | append | Creates file if it doesn't exist. Otherwise, pointer positions to end of file and **data is appended** to the existing file content. |
| **r+** | | Open for reading and writing. |
| **w+** | | Open for reading and writing. |
| **a+** | | Open for reading and writing. |

# open( ) a file so data can be read from a file

**myFile = open(“demofile.txt”, “r”)**

IF the file DOES NOT exist:

**Error Message**

FILE EXISTS:

1. File is **open** ONLY to read data from.
2. **Cannot** write or modify the file in any way.

# open( ) a file so data can be written to the file

**myFile = open(“demofile.txt”, “w”)**

FILE DOES NOT EXIST:
demofile.txt file will be **created**.

FILE EXISTS:

1) demofile.txt file is **opened**
2) any information in the existing file will be **erased**.

# open( ) a file so data can be appended to the file

**myFile = open(“demofile.txt”, “a”)**

FILE DOES NOT EXIST:
demofile.txt file will be **created**.

FILE EXISTS:

1) demofile.txt file is **opened**
2) any **new** information will be **added** to end of existing file.

# demofile.txt

Hello! Welcome to demofile.txt
This file is for testing purposes.
Good Luck!

# read() - function to read data from a file

```
myFile = open("demofile.txt", "r")
print(myFile.read( ))
```

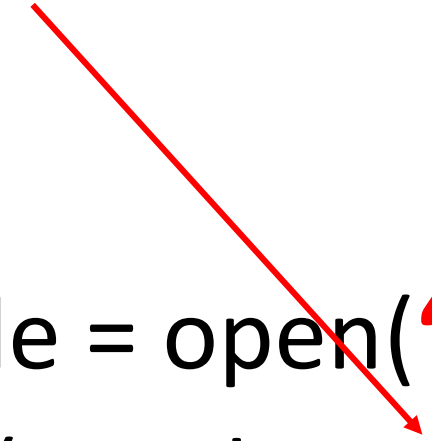
Open the file for reading.

**read()** will read the **entire contents** of the file.

OUTPUT:

Outputs the contents of the file.

# read(#) - function to read characters from a file



```
myFile = open("demofile.txt", "r")
print(myFile.read(5))
```

Open the file for reading.

**read(5)** reads **first 5 characters** of the file.

OUTPUT:

Hello

# readline() - function to read line by line from a file

```
myFile = open("demofile.txt", "r")
print(myFile.readline())
```

Open the file for reading.

**readline()** reads **one line** of the file.

OUTPUT:

Hello! Welcome to demofile.txt

# readline() - function to read data from a file

```
myFile = open("demofile.txt", "r")
print(myFile.readline())
print(myFile.readline())
```

Open the file for reading.

Each **readline()** reads **one line** of the file.

OUTPUT:

```
Hello! Welcome to demofile.txt
This file is for testing purposes.
```

# For Loop Iteration to read data from a file

```
myFile = open("demofile.txt", "r")

for line in myFile:
        print(line)
```

Open the file for reading.

Use a **For Loop** to loop through the file line by line.

OUTPUT:

```
Hello! Welcome to demofile.txt
This file is for testing purposes.
Good Luck!
```

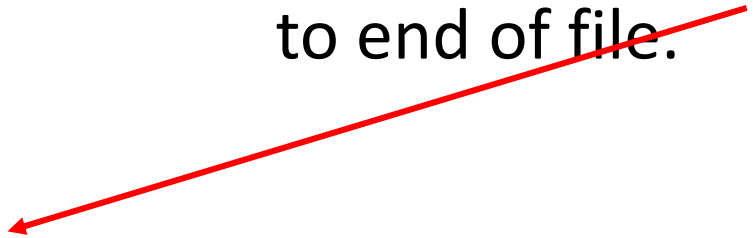
close( ) the File after use

**myFile.close()**

# **write()** - data written to file

File is opened.

New data is appended to end of file.



```
myFile = open("demofile.txt","a")
myFile.write("Now the file has one more line")
```

# write() - write data using newline character \n

```
myFile = open("demofile.txt","a")
myFile.write('Hi there!\n")
myFile.write('How are you?')
```

OUTPUT:

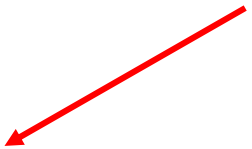
Hi there!

How are you?

# **write()** - data written to file

myFile = open(“demofile.txt”,**”w”**)

myFile.**write**(“New data”)



File is opened.

**CAUTION: Existing data is erased**.

New data is written to the file.

# Tips for File Handling

myFile = open(“demofile.txt”,**”r”**)

myFile.**close( )**

**REMINDER:** When a file is opened, make sure to close it.

# Safe way for File Handling – Exception Handling

```
try:
        myFile = open("demofile.txt","r")

finally:
        myFile.close( )
```

1. **finally** is executed no matter what.

# Another safe way File Handling – with Statement

```
with open("demofile.txt", "r") as myFile:
    #block of code
    #block of code
```

**myFile.close() will be done automatically when the block inside with is exited.**

# Best Way for File Handling – with Statement

```
with open("demofile.txt", "w") as myFile:
    myFile.write("my first file\n")
    myFile.write("This file\n\n")
    myFile.write("contains three lines\n")
```

1. If file does not exist, file is created.
2. If file exists, file is erased.