**Practical 01**

**Aim: Write a Python program to implement various file operations.**

**Files:**

* A file is a sequence of bytes stored on a secondary memory device, such as a disk drive.
* There are two types of files:

1. Text file
2. Binary file

**Binary files in Python**

* Most of the files that we see in our computer system are called binary files.

**Example:**

1. **Document files:** .pdf, .doc, .xls etc.
2. **Image files:** .png, .jpg, .gif, .bmp etc.
3. **Video files:** .mp4, .3gp, .mkv, .avi etc.
4. **Audio files:** .mp3, .wav, .mka, .aac etc.
5. **Database files:** .mdb, .accde, .frm, .sqlite etc.
6. **Archive files:** .zip, .rar, .iso, .7z etc.
7. **Executable files:** .exe, .dll, .class etc.

**Text files in Python**

* Text files don’t have any specific encoding and it can be opened in normal text editor itself.

**Example:**

1. **Web standards:**html, XML, CSS, JSON etc.
2. **Source code:**c, app, js, py, java etc.
3. **Documents:**txt, tex, RTF etc.
4. **Tabular data:**csv, tsv etc.
5. **Configuration:**ini, cfg, reg etc.

**Python File Handling Operations**

**Most importantly there are 4 types of operations that can be handled by Python on files:**

* Open
* Read
* Write
* Close

**Other operations include:**

* Rename
* Delete
* Append
* Seek
* Tell

**Python Create and Open a File**

* Python has an in-built function called open() to open a file.

**Syntax:**

file\_object = open(file\_name, mode, encoding)

**Python Read From File**

* In order to read a file in python, we must open the file in read mode.

**There are three ways in which we can read the files in python.**

* read([n])
* readline([n])
* readlines()

**Python Write to File**

* In order to write data into a file, we must open the file in write mode.

**We have two methods for writing data into a file as shown below.**

* write(string)
* writelines(list)

**Python Append to File**

* To append data into a file we must open the file in ‘a+’ mode so that we will have access to both the append as well as read/write modes.

**Example 1:**

|  |  |
| --- | --- |
| my\_file = open(“C:/Documents/Python/test.txt”, “a+”)  **seek() method:**   * This method is used to move file pointer from one position to another position from beginning of the file. Position starts from 0 and has to be positive integer.   **Syntax:**  file\_object.seek(position)  **tell() method:**   * This method is used to find current position of file pointer from beginning of the file. Position starts at 0.   **Syntax:**  file\_object.tell()  **Python Close File**   * In order to close a file, we must first open the file. In python, we have an in-built method called close() to close the file which is opened.   **Python Rename or Delete File**   * Python provides us with an “os” module which has some in-built methods that would help us in performing the file operations such as renaming and deleting the file.   **rename() method:**  This rename() method accepts two arguments i.e. the current file name and the new file name.  **Syntax:**  os.rename(current\_file\_name, new\_file\_name)  **remove() method:**  We use the remove() method to delete the file by supplying the file name or the file location that you want to delete.  **Syntax:**  os.remove(file\_name)  **Encoding in Files**  File encoding represents converting characters into a specific format which only a machine can understand.  **Example:**   |  | | --- | | my\_file = open(“C:/Documents/Python/test.txt”, “a+”)  print(“What is the file name? ”, my\_file.name)  print(“What is the file mode? ”, my\_file.mode)  print(“What is the encoding format? ”, my\_file.encoding)  print(“Is File closed? ”, my\_file.closed)  my\_file.close()  print(“Is File closed? ”, my\_file.closed) | |