Python Programming

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Chapter 7

File IO

Topics Covering

- Creating file
- File reading
- File writing
- File modes
- Line by line file reading
- Writing multiple lines
- seek()
- tell()
- os.getcwd()
- os.mkdir()
- os.chdir()
- os.remove()
- os.rmdir()
- Use Case - CSV file reading and writing

Files is generally anything that generally is saved on permenent storage devices with a name. Content of file can be simple text, binary data(image, audio, video) etc. Only text files are dicussed in this chapter.

open(): This is the function in python to open a file.

```
Syntax:
file_handle = open(<filename>, <mode>)
```

In[]
```
f = open('abc.txt', 'r')
```

```
---------------------------------------------------------------------
---------
IOError                                   Traceback (most recent c
all last)
<ipython-input-2-ebba3eaa51a0> in <module>()
----> 1 f = open('abc.txt', 'r')

IOError: [Errno 2] No such file or directory: 'abc.txt'
```

Open function opens a file and returns a file object, through which we perform all operations on a file.

Note: In the above statement abct.txt is not exisiting, so IOError

Modes:

Text Modes

```
r or rt - read mode, if file not exists throws IOError
w or wt - write mode, if file not exists creats new  one
a or at - append mode is write mode but starts writing, from the end of
the file

r+ or rt+ - read write
w+ or wt+ - write read
a+ or at+ - append read
```

Binary Modes

```
rb - Binray read
wb - Binary write
ab - append
rb+ - read and write in binary
wb+ - read and write in binary
ab+ - read and append in  binary
```

File creation and writing

In[]
```
f = open('abc.txt', 'w')

f.write("Once upon a time in India, there was a king called  Tippu."
)
f.close()
```

f is the file object, which holds a buffer in RAM, which will be synced to hard disk later. *close()* function ensures the sync between content written to a file and memory buffer. It flushes all the content to a file on hard disk.

Let's check the content of the file, we can run OS commands from jupyter notebook. just prefix with the command with '!'.

In[]
```
!cat abc.txt # On windows run : !type abc.txt
```

```
Once upon a time in India, there was a king called Tippu.
```

Do you want to check, which folder your are in? This getcwd() funcion gives you current working directory.

```
import os
print os.getcwd()
```

Reading an existing file

read() function reads entire file content as a string.

In[]
```
f = open('abc.txt', 'r')
s = f.read()
print s
f.close()
```

```
Once upon a time in India, there was a king called Tippu.
```

Reading n charcters, read(n)

In[]
```
f = open('abc.txt', 'r')
s = f.read(5)
print s
f.close()
```

```
Once
```

Writing Multiline text

In[]
```
f = open('abc.txt', 'w')
f.write("""Once upon a time in India, there was a king called  Tippu
.
Tippu was soo tall and handsom and brave. He was looking for a brav
e and beatiful
bride and sent the messgae to all of his citizens.""")
f.close()
```

Check the file content

In[]
```
!cat abc.txt
```

```
Once upon a time in India, there was a king called  Tippu.
Tippu was soo tall and handsom and brave. He was looking for a bra
ve and beatiful
bride and sent the messgae to all of his citizens.
```

Reading text into a list of strings

In[]
```
f = open('abc.txt', 'r')
l = f.readlines()
print l
f.close()
```

```
['Once upon a time in India, there was a king called Tippu.\n', 'T
ippu was soo tall and handsom and brave. He was looking for a brav
e an
```