

## File Manipulation

- Opening and Closing File
- File Modes
- Handling closing of files
- Reading files with the for loop

## Files

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- File is a way of data persistence.
- File is simply a named location on non-volatile/permanent storage that holds some information.
- File Processing:
  1. Open File
  2. Process File Data (Fetch/Store)
  3. Close the File

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## Opening and Closing File

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- Syntax:

```
fileObject = open(<name of file>, <modes>)
```

```
fileObject.close()
```

- Open method opens the file specified as a string and returns a **File** Object, which can be used to access the file
- The name of file can contain relative or absolute path.

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## File modes

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Mode	Operation	File Pointer
r	Read in text mode	Beginning
rb	Read in binary mode	Beginning
r+, rb+	Read and write text mode	Beginning
w	Write, truncate if exist	Beginning
w+, wb+	Write and read, truncate	Beginning
a	Append	End
ab	Append binary	End
a+, ab+	Append and reading	End

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## Reading files with the for loop

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- for <lineObject> in <fileObject>:  
    ...
- Reads line by line till reaches end
- Reduces the complexity given by while loops (checking empty return value)
- Optimized in comparison to using readlines(), which reads all lines in a list.

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## Question

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- WAP to dump everything in a file to the screen.
- Time to update our vowel counting skills.  
Writing a method to count vowels from a file.

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## Reading, Writing and Moving in files

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- Read from file
  - read**([no of bytes])
  - readline**()
  - readlines**() # return empty string when reaches end
- Write to file
  - write**()
  - flush**()
- Roam around in file
  - seek(offset, pos)** # pos = 0:beginning; 1: current; 2:end
  - tell**()

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## Automatic closing of files

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- Syntax:
    - with open(<name of file>, <modes>) as <fileObject>:
    - ...
- Handles automatic closing of file object.

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## Printing to File Directly

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- Syntax:

```
fileObject = open(<name of file>, <modes>)  
fileObject.close()
```

- Methods:

```
read([no of bytes]), readline()  
write()  
flush()  
seek(offset, pos) # pos = 0:beginning; 1: current; 2:end  
tell()
```

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