Python File Handling

Unit 2 Lab 3

Files are objects

- No need to import a module
- Use appropriate methods

3 Basic Steps

1. Create a new file object - open()
2. Process the file object - read/write
3. Discard the file object - close()

Step 1 - Creating a file object

- Use built-in open() function
- Similar to creating a variable or a turtle object

```
input_file = open("sample.txt","r") #read only mode - default
output_file = open("output.txt","w") # write only mode
my_file = open("sample.txt","a") # append mode
fh1 = open("sample.txt","r+") # both read and write mode
fh2 = open("sample.txt","w+") # both write and read mode
```

Step 3 - Close a file object

- Use built-in close() method
- Clears memory buffer, closes file so can be accessed from OS

```
input_file.close()
output_file.close()
my_file.close()
fh1.close()
fh2.close()
```


Step 2 - Read from a file object

- Use built-in methods - read(), readline(), or readlines()

Method	Description
read(*num*)	Reads the specified number of characters from the file and returns them as a string. If argument *num* is omitted, it reads the entire file.
readline()	Reads a single line from the file and returns it as a string.
readlines()	Reads the contents of a file line by line and returns them as a list of strings.


```
>>>data = file.read(1)
```

A-123456789
B-123456789
Dog Fog
Cat Hat
Pig Whig


```
>>>data1 = file.read(10)
```

A-123456789
B-123456789
Dog Fog
Cat Hat
Pig Whig

```
>>>data2 = file.readline()
```

A-123456789
B-123456789
Dog Fog
Cat Hat
Pig Whig


```
>>>data3 = file.readlines()
```

A-123456789
B-123456789
Dog Fog
Cat Hat
Pig Whig

Step 2 - Write to a file object

- Use built-in methods - write() or writelines()

Method	Description
write(*str*)	Writes the string argument to the file and returns the number of characters that were written.
writelines(list)	Writes each string found in a list of strings to the file. It has no return value.


```
print("Hello")
print("Goodbye")
```

Hello
Goodbye

```
file.write("Hello")
file.write("Goodbye")
```

HelloGoodbye

```
print("Hello")
print("Goodbye")
```
Hello
Goodbye

```
file.write("Hello")
file.write("Goodbye")
```
HelloGoodbye

```
file.write("Hello\n")
file.write("Goodbye\n")
```
Hello
Goodbye


```
my_list = ["Hello","Goodbye"]
file.writelines(my_list)
```
HelloGoodbye

```
my_list = ["Hello\n","Goodbye\n"]
file.writelines(my_list)
```
Hello
Goodbye

Alternative to 3 Basic Steps - Read

Use the following pattern:

```
with open('data.txt', 'r') as file:
    data = file.read()
```


Alternative to 3 Basic Steps - Write

Use the following pattern:

```
with open('output.txt', 'w') as file:
    data = "some data to write to the file"
    file.write(data)
```