CompSci 101 Lab 7 Part B

File Processing

File Processing

Accessing a file means establishing a connection between the file and a program and moving data between the two.

Opening a File

The syntax for opening a file is:

file_object *= open(filename, mode)*

File Access Modes Covered in CompSci101
- "r" Opens a file for reading.
- "w" Opens a file for writing.

Examples:
input_file = open("names.txt", "r")
output_file = open("averages.txt", "w")

Closing a File

The syntax for closing a file is:

file_object.*close()*

Examples:

input_file.close()
output_file.close()

It is important to close the file as soon as you have finished with it to release the resources.

Opening a File in Write Mode

- Before writing to a file, the file needs to be opened in write mode, e.g.

  – output_file = open("information.txt", "w")

- If the file does not already exist then the open() function will create the file.

- If the file does exist already then the open() function will erase the contents of the file.

Writing to a File

The syntax for writing to a file is:

file_object.write(string of text)

Example:

```
output_file = open("information.txt", "w")
output_file.write("Jennifer\n")
output_file.write(str(age) + "\n")
output_file.close()
```

Opening a File in Read Mode

- Before reading from a file, the file needs to be opened in read mode, e.g.

  – input_file = open("data.txt", "r")

- If the file does not exist then an error will occur.

- If the file does exist then the open() function will open the file for reading.

Reading from a File

There are four different ways that text can be read from a file:

- *file_object.*read()
  - returns the entire contents of the file as a string
- *file_object.*read(*integer*)
  - returns the specified number of characters from the file
- *file_object.*readline()
  - returns a string which is the next line in the file
- *file_object.*readlines()
  - returns a **list** of the remaining lines in the file

Reading from a File (Example)

Example:

```
input_file = open("words.txt", "r")
file_contents = input_file.read()
print(file_contents)
input_file.close()
```

Example of Reading and Writing

Example:

Read a file of heights and write out all the heights that are greater than 180

```
input_file = open("heights.txt", "r")
file_contents = input_file.read()
input_file.close()
heights_list = file_contents.split()

output_file = open("Tall_Heights.txt", "w")
for height_string in heights_list:
    height = float(height_string)
    if height > 180:
        output_file.write(str(height) + "\n")
output_file.close()
```

Next Week

That's all for the file processing part of this week's lab.

Next week we will be doing a lab on dictionaries.