Lecture 17: Introduction to Computer Programming Course - CS1010

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Goals for today

- Reading and Writing Text files
- Parsing

Create a .txt file and read it in Python

- First find the working directory and save your file there :

- Type pwd to check the working directory and save your file there

- Alternatively, to grab files from any location on your computer, simply pass in the entire file path.

- For Windows you need to use double \ so python doesn't treat the second \ as an escape character, a file path is in the form:

- myfile = open("C:\\Users\\YourUserName\\Home\\Folder\\myfile.txt")

- For MacOS and Linux you use slashes in the opposite direction:

- myfile = open("/Users/YouUserName/Folder/myfile.txt")

Open a file

- To open a file in Python, we first need some way to associate the file on disk with a some variable in Python.

- This process is called *opening* a file.

- We begin by telling Python where the file is.

- The location of your file is often referred to as the file *path*. In order for Python to open your file, it requires the path.

Open file continued

- The open() function requires as its first argument the file path.
- The function also allows for many other parameters.
- However, most important is the optional mode parameter.
- Mode is an optional string that specifies the mode in which the file is opened.
- The mode you choose will depend on what you wish to do with the file.

Mode Options

- Some of the mode options:
- 'r' : use for reading
- 'w' : use for writing
- 'x' : use for creating and writing to a new file
- 'a' : use for appending to a file
- 'r+' : use for reading and writing to the same file
- Syntax:
  - open(path/file ,'r')

Read a file

- We can read an existing file using the following command:
  - Filename.read()
- Before reading we need to open it:
  - open(path/file ,'r')
- Since our file has been opened, we can now manipulate it (i.e. read from it) through the variable we assigned to it.
- Python provides three related operations for reading information from a file. (read,readline,readlines)

Write a file

- We can write text into a file using:
  - The 'w' mode
- A new file can be created or an existing file can be over-written.

Closing a file

- Closing a file makes sure that the connection between the file on disk and the file variable is finished.

- Closing files also ensures that other programs are able to access them and keeps your data safe.

- So, always make sure to close your files.

Parsing a file

- The pseudo code is
  - **for each line of the file**
    - **split using the separator**

Next Class

- Some problems on loops and reading files