QMB 6358: Software Tools for Business Analytics
Executive Development Center
College of Business
University of Central Florida
Fall 2020

Assignment 5

Due Wednesday, October 14, 2020 at 11:59 PM
in your GitHub repo.

Instructions:

Complete this assignment within the space on your GitHub repo in a folder called `assignment_05`. In this folder, save a copy of the sample file called `A5_functions.py` that will contain all your Python code for Questions 1 and 2 in this assignment. Use the sample script `my_R_functions.py` in the `demo_11_python_intro` folder within the code repository QMB6358F20.

When you are finished, submit your code by pushing your changes to your GitHub repo, following the instructions in Question 3. You are free to discuss your approach to each question with your classmates but you must `git push` your own work.

Question 1:

Write functions that perform the following operations. Enter your function definitions in your script `A5_functions.py` above the `main()` function.

Example 1 Write a Python function `letter_grade` that returns a string letter grade from a numeric grade from 0 to 100. Follow the grading scale on the course syllabus.

Example 2 Write a Python function `path_to_data_file` that outputs a path to a filename with four agruments: the string `path`, the filename `prefix` (such as `"iris"`, the file number `file_num` and the file `extension`). For example, the filename at the end of the path should take the form `iris_X.txt`, as in the files used in Assignment 3.

Example 3 Write a Python function `cyl_vol` that calculates the volume of a cylinder from the variables `height` and `radius`. Note that you have to import the `math` module for the variable `pi`.

Example 4 Write a Python function `number_of_vowels` that calculates the number of vowels in a particular string called `string_in`. Be careful to include both upper-case and lower-case letters.

Question 2:

As you create the functions in Question 1, you should think of some examples to test whether the functions operate correctly. Enter 4 examples per function into the `main()` function of the script `A5_functions.py`. Test your library of functions by running the entire script from beginning to end. The following workflow can guide you through the process of designing and refining your functions.

1. Enter the function definitions in the top portion of the script called `A5_functions.py`.
2. Define the functions one-by-one, by running the blocks of code in `A5_functions.py` that define, for example, the function `letter_grade`.
3. Test the functions one-by-one, by running the blocks of code in the `main()` function of the script `A5_functions.py`.
4. Check whether the results are correct. If there are any errors or incorrect calculations, repeat the process, making adjustments to the top part of `A5_functions.py` and run the tests in the `main()` function again.

Question 3:

Push your completed files to your GitHub repository following these steps. See the `README.md` and the `GitHub_Quick_Reference.md` in the folder `demo_04_version_control` in the QMB6358F20 course repository for more instructions.

1. Open GitBash and navigate to the folder inside your local copy of your git repo containing your assignments. Any easy way to do this is to right-click and open GitBash within the folder in Explorer. A better way is to navigate with UNIX commands.
2. Enter `git add .` to stage all of your files to commit to your repo. You can enter `git add my_filename.ext` to add files one at a time, such as `my_filename.ext`. in this example.
3. Enter `git commit -m "Describe your changes here"`, with an appropriate description, to commit the changes. This packages all the `add`ed changes into a single unit and stages them to `push` to your online repo.
4. Enter `git push origin master` to push the changes to the online repository. After this step, the changes should be visible on a browser, after refreshing the page.