

Assignment1

Part 1

Distributed Version Control Setup:

Carefully go through the following steps: <http://www.qcitr.com/usefullinks.htm#lesson3b>

Part 2

Development Installation:

1. [Anaconda Individual](#) – FREE version (includes Python and R): ***BE SURE*** to get Python 3+ version.

Note: Don't need to register, if you don't want to.

- a. **Windows:** <https://docs.anaconda.com/anaconda/install/windows/>
- b. **Mac:** <https://docs.anaconda.com/anaconda/install/mac-os/>
- c. **Verify installation:** <https://docs.anaconda.com/anaconda/install/verify-install/>

Note: Use the Command-Line Interface (CLI), *not* Anaconda Navigator (GUI).

2. R Studio Desktop: <https://www.rstudio.com/products/RStudio/#Desktop>
3. Visual Studio Code: <https://code.visualstudio.com/>
 - a. Python in Visual Studio Code: <https://code.visualstudio.com/docs/languages/python>
 - b. Getting Started with Python in VS Code: <https://code.visualstudio.com/docs/python/python-tutorial>
4. ***Be Sure*** to carefully review (**How to Write Python**): <https://realpython.com/lessons/what-pep-8-and-why-you-need-it/>

Windows Users:

On Windows, the PATH environment variable is no longer changed by default, as this can cause trouble with other software. The recommended approach is to instead use **Anaconda Command Prompt** (located in the Start Menu under "Anaconda").

(Note: recent Win 10 does not assume you have privileges to install or update. If the command fails, right-click on the **Anaconda Command Prompt**, choose "More", choose "Run as administrator")

README.md file should include the following items:

1. Screenshot of **a1 tip calculator** application running using **IDLE** (see below);
2. Screenshot of **a1 tip calculator** application running using **Visual Studio Code** (see below);
3. Upload A1 **.ipynb** file and create link in README.md;

Note: ***Before*** uploading **.ipynb** file, ***be sure*** to do the following actions from **Kernal** menu:

 - a. **Restart & Clear Output**
 - b. **Restart & Run All**
4. git commands w/short descriptions ("Lesson 3b - Version Control Systems: Course Configuration");
5. Bitbucket repo links:
 - a. This assignment, and
 - b. The completed tutorial repo above (**bitbucketstationlocations**).
(See link in screenshot below.)

Deliverables:

1. Provide **Bitbucket** read-only access to **lis4369** repo, include links to the repo (**BitbucketStationLocations**) you created in the above tutorial in **README.md**, using Markdown syntax, (**README.md** must also include screenshots per above.)
2. **FSU's Learning Management System:** include lis4369 **Bitbucket** repo link

Helper Video: http://qcitr.com/vids/lis4369_A1.mp4

Note: ***Always*** run the **.py** files ***before*** trying to create a Jupyter notebook using the code from the .py files. If the .py files won't run, neither will the notebook!

README.md

"NOTE: A README.md file should be placed at the **root of each of your repos directories.** "

LIS4369 - Extensible Enterprise Solutions (Python)

Mark K. Jowett, Ph.D.

LIS4369 Requirements:

Course Work Links:

1. [A1 README.md](#)
 - Install Python
 - Install R
 - Install R Studio
 - Install Visual Studio Code
 - Create *a1_tip_calculator* application
 - Create *a1 tip calculator* Jupyter Notebook
 - Provide screenshots of installations
 - Create Bitbucket repo
 - Complete Bitbucket tutorial (bitbucketstationlocations)
 - Provide git command descriptions
2. [A2 README.md](#)
 - TBD
3. [A3 README.md](#)
 - TBD
4. [A4 README.md](#)
 - TBD
5. [A5 README.md](#)
 - TBD
6. [P1 README.md](#)
 - TBD
7. [P2 README.md](#)
 - TBD

A1 README.md

"NOTE: This README.md file should be placed at the root of each of your repos directories.
Also, this file must use Markdown syntax, and provide project documentation as per below--otherwise, points will be deducted."

LIS4369 - Extensible Enterprise Solutions

Mark K. Jowett, Ph.D.

Assignment 1 Requirements:

Four Parts:

1. Distributed Version Control with Git and Bitbucket
2. Development Installations
3. Questions
4. Bitbucket repo links:
 - a) this assignment and
 - b) the completed tutorial (bitbucketstationlocations).

README.md file should include the following items:

- Screenshot of a1_tip_calculator application running
- Link to A1 .ipynb file: [tip_calculator.ipynb](#)
- git commands w/short descriptions

"This is a blockquote.

This is the second paragraph in the blockquote.

Git commands w/short descriptions:"

1. git init - definition goes here...
2. git status
3. git add
4. git commit
5. git push
6. git pull
7. One additional git command

Assignment Screenshots:

Screenshot of a1_tip_calculator application running (IDLE):

```
Tip Calculator

Program Requirements:
1. Must use float data type for user input (except, "Party Number").
2. Must round calculations to two decimal places.
3. Must format currency with dollar sign, and two decimal places.

User Input:
Cost of meal: 1000.00
Tax percent: 10.0
Tip percent: 10.0
Party number: 4

Program Output:
Subtotal:      $1,000.00
Tax:           $100.00
Amount Due:    $1,100.00
Gratuity:      $110.00
Total:         $1,210.00
Split (4):     $302.50
>>> |
```

Screenshot of a1_tip_calculator application running (Visual Studio Code):

```
PROBLEMS  OUTPUT  DEBUG CONSOLE  TERMINAL

Tip Calculator

Program Requirements:
1. Must use float data type for user input (except, "Party Number").
2. Must round calculations to two decimal places.
3. Must format currency with dollar sign, and two decimal places.

User Input:
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Program Output:
Subtotal:      $1,000.00
Tax:           $100.00
Amount Due:    $1,100.00
Gratuity:      $110.00
Total:         $1,210.00
Split (4):     $302.50

C:\webdev\python\a1_tip_calculator>|
```

A1 README.md Con't

(***Be sure*** to include **your** name as "Developer"!!)

A1 Jupyter Notebook:

Tip Calculator

Developer: Mark Jowett

Course: LIS4369

Semester: Fall 2020

Program Requirements:

1. Must use float data type for user input except, "Party Number."
2. Must round calculations to two decimal places.
3. Must format currency with dollar sign, and two decimal places.

```
In [1]: print("\nUser Input:")
meal_cost = float(input("Cost of meal: "))
tax_percent = float(input("Tax percent: "))
tip_percent = float(input("Tip percent: "))
people_num = int(input("Party number: "))
```

```
User Input:
Cost of meal: 1000
Tax percent: 10
Tip percent: 10
Party number: 10
```

```
In [2]: # calculate tax, tip and total amount
tax_amount = round(meal_cost * (tax_percent / 100), 2) # convert to percentage
due_amount = round(meal_cost + tax_amount, 2)
tip_amount = round((due_amount * (tip_percent / 100),
2) # percentage of cost + tax
total = round(meal_cost + tax_amount + tip_amount, 2)
split = round(total / people_num, 2)
```

```
In [3]: # display results
# Formatting:
# NEW!: https://realpython.com/python-f-strings/
# https://docs.python.org/3/library/string.html#format-specification-mini-language
# https://docs.python.org/3/library/string.html#format-examples
# https://mkaz.blog/code/python-string-format-cookbook/
# Old style: https://docs.python.org/3/library/stdtypes.html#string-formatting
print("\nProgram Output:")
print("Subtotal:\t", "${0:,.2f}".format(meal_cost)) # subtotal
print("Tax:\t\t", "${0:,.2f}".format(tax_amount))
print("Amount Due:\t", "${0:,.2f}".format(due_amount))
print("Gratuity:\t", "${0:,.2f}".format(tip_amount))
print("Total:\t\t", "${0:,.2f}".format(total))
print("Split " + "(" + str(people_num) + "):\t", "${0:,.2f}".format(split))
```

```
Program Output:
Subtotal:      $1,000.00
Tax:           $100.00
Amount Due:    $1,100.00
Gratuity:      $110.00
Total:         $1,210.00
Split (10):    $121.00
```

```
In [ ]:
```

Tutorial Links:

Bitbucket Tutorial - Station Locations: [A1 Bitbucket Station Locations Tutorial Link](#)

Part 3

Questions (Python: Chs. 1, 2):

1. A console application runs
 - a. through a browser
 - b. via a command prompt
 - c. with a GUI
 - d. through another application
2. A runtime error is also known as:
 - a. a syntax error
 - b. a logical error
 - c. a violation
 - d. an exception
3. A web application runs
 - a. through a browser
 - b. via a command prompt
 - c. with a GUI
 - d. through another application
4. Python is considered a good first language to learn because:
 - a. it has a simple syntax
 - b. it has most of the features of traditional programming languages
 - c. it is open source
 - d. all of the above
5. The data in _____ is lost when an application ends.
 - a. the application software
 - b. disk storage
 - c. main memory
 - d. the CPU
6. The data in _____ is persistent so it is not lost when an application ends.
 - a. the application software
 - b. disk storage
 - c. main memory
 - d. the CPU
7. The following is an example of _____.

```
print("Hello out there!")  
# get input  
name = input("Who are you?")  
print("Goodbye, " , name)
```

- a. Java code
 - b. bytecode
 - c. source code
 - d. shebang line
8. The following is an example of _____.

```
#!/usr/bin/env python 3
```

- a. Java code
 - b. bytecode
 - c. source code
 - d. a shebang line

9. The goal of _____ is to fix all the errors in a program.
- a. editing
 - b. testing
 - c. debugging
 - d. interpreting
10. The goal of _____ is to find all the errors in a program.
- a. editing
 - b. testing
 - c. debugging
 - d. interpreting
11. The _____ software for a computer provides the software that's needed for running applications.
- a. application
 - b. systems
 - c. operation
 - d. GUI
12. To create a Python program, you use:
- a. IDLE's editor
 - b. IDLE's interactive shell
 - c. the F5 key
 - d. the command line
13. To run a Python program from IDLE, you use:
- a. IDLE's editor
 - b. IDLE's interactive shell
 - c. the F5 key
 - d. the command line
14. To test a Python statement, you use:
- a. IDLE's editor
 - b. IDLE's interactive shell
 - c. the F5 key
 - d. the command line
15. When an exception occurs while a program is running,
- a. the program crashes
 - b. an error message is displayed on the console
 - c. the program crashes and an error message is displayed
 - d. an error message is displayed but the program continues
16. Which of the following translates bytecode into instructions for the computer?
- a. the IDE
 - b. the Python interpreter
 - c. the Python virtual machine
 - d. the computer's operating system
17. Which type of errors must be fixed before the program can be compiled?
- a. syntax errors
 - b. logical errors
 - c. violations
 - d. exceptions

18. Given that $\pi = 3.1415926535$, which of the following `print()` functions displays:

`pi = 3.14`

- a. `print("pi= ", round(pi, 2))`
- b. `print("pi = " + round(pi, 2))`
- c. `print("pi = ", float(pi, 2))`
- d. `print("pi = ", round(pi))`

19. Given: $x = 23$, $y = 15$

What is the value of `new_num` after the following statement executes?

`new_num = x % y`

- a. 1
- b. 1.533333
- c. 0.533333
- d. 8

20. Given: $x = 23$, $y = 15$

What is the value of `new_num` after the following statement executes?

`new_num = x // y`

- a. 1
- b. 1.533333
- c. 0.533333
- d. 8

21. Given: $x = 7$, $y = 2$, $z = 1.5$

What is the value of `new_num` after the following statement executes?

`new_num = x / y + z`

- a. 2
- b. 4.5
- c. 5.0
- d. 3

22. Python comments

- a. are ignored by the compiler
- b. can be used to document what a program or portion of code does
- c. can be used so certain lines of code are not executed during testing
- d. all of the above

23. Python relies on correct _____ to determine the meaning of a statement.

- a. continuation
- b. punctuation
- c. indentation
- d. comments

24. What, if anything, is wrong with this code?

```
my_age = input("Enter your age: ")
myNewAge = int(my_age) + 5
print("In 5 years you will be", myNewAge, ".")
```

- a. cannot mix camel case notation with underscore notation
- b. cannot change my_age to an int
- c. commas are used in the print() function that should be +
- d. nothing is wrong with this code

25. What, if anything, is wrong with this code?

```
rating = input("Enter the rating for this product: ")
rating = rating + 2
print("The adjusted rating is " + rating + ".")
```

- a. nothing is wrong with this code
- b. a string variable is used in an arithmetic expression
- c. the coding in the print() function contains illegal plus signs
- d. the input() function should be an int() function

26. What, if anything, is wrong with this code?

```
student_score = int(input("Enter this student's score: "))
score = student_score + 5
print("With the 5-point curve, the student's score is ", scores, ".")
```

- a. nothing is wrong with this code
- b. a string variable is used in an arithmetic expression
- c. an undeclared variable name is used in the print() function
- d. the input() function is chained with the int() function

27. What is the argument of the print() function in the following Python statement?

```
print("My student ID is " + str(123456))
```

- a. 123456
- b. str(123456)
- c. "My student ID is "
- d. "My student ID is " + str(123456)

28. What is the value of my_num after the following statement executes?

```
my_num = (50 + 2 * 10 - 4) / 2
```

- a. 258
- b. 33
- c. 156
- d. 29

29. What is the value of number after the following statement executes?

```
number = (5 ** 2) * ((10 - 4) / 2)
```

- a. 30
- b. 75
- c. 200
- d. 3

30. What is the value of my_num after the following statements execute?

```
y_num = 5  
y_num += 20  
y_num -= 12  
y_num *= 0.5
```

- a. 0.5
- b. 6.5
- c. 6
- d. 12.5

31. What will be the result of the following code if the user enters 81 at the prompt?

```
score_curve = 7  
score = input("Enter your score on the exam: ")  
score_curve += score  
print(score_curve)
```

- a. 88 will be displayed on the console
- b. 81 will be displayed on the console
- c. error: you cannot use the += operator to add a string variable to an int value
- d. error: you cannot print a numeric variable

32. What will display after the following print() function is executed?

```
print("Welcome!\nNow that you have learned about",  
      "input\nand output, you may be wondering,\nWhat\nis next?\n")
```

- a. Welcome!
Now that you have learned about
input
and output, you may be wondering,
"What
is next?"
- b. Welcome! Now that you have learned about
input and output, you may be wondering, "What is
next?"
- c. Welcome!\nNow that you have learned about",
"input\nand output, you may be wondering,\nWhat\nis next?"
- d. Welcome!
Now that you have learned about input
and output, you may be wondering, "What
is next?"

33. What will the following print() function display?

```
print("lions", "tigers", "bears", sep = ' & ', end = ' oh, my!!')
```

- a. lions & tigers & bears oh, my!!
- b. lions&tigers&bearsoh, my!!
- c. lions & tigers & bears & oh, my!!
- d. lions, & tigers, & bears, oh, my!!

34. Which of the following data types would you use to store the number 25.62?

- a. str
- b. int
- c. num
- d. float

35. Which of the following doesn't follow the best naming practices for variables?

- a. first_name
- b. firstName
- c. pay_rate
- d. pRate

36. Which of the following variable names uses camel case?

- a. first_name
- b. firstName
- c. pay_rate
- d. prate

37. Which of the following will get a floating-point number from the user?

- a. my_number = input(float("Enter a number:"))
- b. my_number = float(input "Enter a number:")
- c. my_number = float(input("Enter a number:"))
- d. my_number = input("Enter a number:")

```
float_num = my_number
```