**CS 1301 Lab 4**

**70 Points**

This lab should be done by every student. You can ask questions of the instructor or your TA. Do not ask other students.

Due date:

* Submit the program .py with corrections and additions, by 09/16/2022 (11:59PM)

Educational goals of this lab - verify that every student can

* Use the Python IDE to work with a program in Python (pnumb.py)
* Document the errors in the program and fix them
* Submit a program file to be graded using the Canvas submit link

**Submit your file (screenshot of the result and .py file) to the I-college.**

**Saving Files:** On your computer you can save a file where you wish, but it is a good idea to make at least one folder for your CS 1301 work, to make it easy to find.

**INSTRUCTIONS:**

* (70 points) **Problem: Documenting errors; Getting a program to run**
  + On your machine, run your choice of Python IDE (IDLE or Wing or other).
  + Copy and paste the Python program below into a NEW FILE in the IDE editor of your choice. The program is everything between the two horizontal lines on the page.
  + Save the program file as CaffeineLevels.py.

# Prolog

# Author: YOUR NAME

# Email: YOUR EMAIL @student.gsu.edu

# Section: YOUR SECTION(036 or 066)

'''

Purpose:

1. familiar with the functions

2. calculate the Caffeine levels

Pre-conditions (input):

(Enter the caffeine level now)

Post-conditions (output):

get the cafferine level after 6, 12, 24,30 hours

We need totally 3 function in our lab today

1. PrintHello()

2. PrintGoodbye()

3. CaffeineLevels()

"""

# fuction 1

def PrintHello()

print("Hello!")

# fuction 2

def CaffeineLevels():

caffeine\_mg = float(input("what's the level of the caffeine now? "))

print(f'Your coffeine leavel is :{caffeine\_mg:.2f} \n')

print("Ok, here is your caffeine levels: \n")

print(f'After 6 hours: {caffeine\_mg / 2:.2f} mg\n')

# missed “After 12 hours”  please do it by yourself

print(f'After 24 hours: {caffeine\_mg / 8:.2f} mg\n')

# missed “After 30 hours”  please do it by yourself

# fuction3

def PrintGoodbye():

print("Thanks, goodbye")

def main():

PrintHello()

CaffeineLevels()

PrintGoodbye()

main()

# end of program file

* (10 points) **Update the prolog**

Notice the personal information in the comments (#) at the top of the program. This is called the program prolog. You are required to provide a prolog like this for program assignments. Change this prolog to match **your** information.

* (25 points) **Find the syntax error and document it and fix it**
  + Try executing it with the Run button. It crashes! You must fix the syntax error before you can run the program. You don't need to add any statements to the ones already in the program to fix the error. Fix the error in the simplest way.
  + To document the error and how you fixed it, put a multi-line comment at the bottom of the program file, after the "main()" call. That means the comment starts and ends with three single quotes.
  + Answer these questions in this comment. Please number each answer.
    - 1. State what the syntax error was, for example, "it was missing a semicolon".
    - 2. Copy and paste into the comment the error message you got for the error. The error message is in the Shell window. The last line of the error message is the most important; make sure you get that one. The other info starting at "Traceback" can be useful. Copy those also.
    - 3. Describe how you fixed the syntax error.
    - 4. If you do not find any error, mention that as well.
  + Hint for IDLE:  
    IDLE's editor does tell you what line number the cursor is in, just look in the lower right corner of the edit window.  
    You may get a box that says, "Syntax Error" and an OK button. This is normal for IDLE. Look for a highlighted word in the edit window; that's where IDLE thinks the error is.
  + (25 points) (25 points) **Find the semantics error and document it and fix it(** one semantic error **)**
    - Run the program now that the syntax error is fixed. You can use any numbers you like if you know what the right answer is. You can use the numbers in the test cases if you like. Does the program give the right answer? No. Find out why.
  + Run the program now that the semantics error is fixed. You can use any numbers you like if you know what the right answer is. You can use the numbers in the test cases if you like. Does the program give the right answer? No. Find out why.
  + Answer these questions in the same multi-line comment at the bottom of the file. Please number the answers.
    - 4. What is the semantics (logic) error? NOT just that "the answer is wrong". Why is the answer wrong? Be specific.
    - 5. State what line the semantics error was on in the program.
    - 6. State how you fixed the semantics (logic) error.
    - **7. Add required lines of code based on the requirements in the question and have your output match that of the test cases mentioned below. (add the lines required in the code which will get caffeine level after 12hours and 30 hours )**
* (10 points) **Demonstrating the Test Cases**
  + After you fix the two bugs, it should run without errors and produce the correct output given in the test cases.
  + Here are three test cases for the program (after it is corrected). Your program, after you fix it, MUST produce the output of these cases correctly. NOTE: we will use these test cases to test your program when grading. When you have the program running correctly, **make sure your TA or sees that you can run at least one of them**.  
    The *italicized* **bold** text is what the user types in while the program is running.
  + Test Case 1: (user inputs are in italic and bold)

Hello!

what's the level of the caffeine now? 345

Your coffeine leavel is :345.00

Ok, here is your caffeine levels:

After 6 hours: 172.50 mg

After 12 hours: 86.25 mg

After 24 hours: 21.56 mg

After 30 hours: 10.78 mg

Thanks, goodbye

Test Case 2: (user inputs are in italic and bold)

Hello!

what's the level of the caffeine now? 100

Your coffeine leavel is :100.00

Ok, here is your caffeine levels:

After 6 hours: 50.00 mg

After 12 hours: 25.00 mg

After 24 hours: 6.25 mg

After 30 hours: 3.12 mg

Thanks, goodbye

Test Case 3: (user inputs are in italic and bold)

Hello!

what's the level of the caffeine now? 223.6

Your coffeine leavel is :223.60

Ok, here is your caffeine levels:

After 6 hours: 111.80 mg

After 12 hours: 55.90 mg

After 24 hours: 13.97 mg

Thanks, goodbye

* **Submit the program (**CaffeineLevels.py**) as a submission in I-college drop box. Also upload the screenshots of syntax error , semantic error, as well as one or more of the test cases mentioned above.**

This must be done by **DUE** period. If you have submitted and still had errors, fix them, and submit again. You can submit as many times as you want. We grade the last one we receive.

Rubric for grading

**Lab 3**

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| --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  |  | Lab 3 | | | |  | |  |
| **Criteria** |  | **Ratings** | | | |  | | **Pts** |
| This criterion is linked to a Learning OutcomeTest cases run for TA/Lecturer  (demo) the program ran correctly for the test cases given in the assignment page |  |  | | | |  | | 10 pts |
| **10 pts**  **Full Marks** | **0 pts No Marks** | | | |  | |
| This criterion is linked  to a Learning OutcomeInfo in prolog correct Name, email address, section  3 points for name, 3 points for section, 4 points for email |  |  | | | |  | | 10 pts |
| **10 pts All**  **information there** | **7 pts**  **Name OR**  **section missing** | **6 pts**  **Only Email missing** | | **4 pts**  **Name AND**  **section missing** | **0 pts**  **All info missing** | |
|  |  | | | |  | |
| This criterion is linked to a Learning  OutcomeSyntax error  fixed and documented in comment at bottom |  |  | | | |  | | 25 pts |
| **25 pts**  **Description, location, fix, correct type of error** |  | **20 pts One piece of info wrong or missing** | **15 pts**  **Two**  **pieces missing** | **7.5 pts Three pieces missing** |  | **0 pts**  **No**  **Marks** |
|  |  | | | |  | |
| This criterion is linked to a Learning  OutcomeSemantics error fixed and documented in comment at bottom |  |  | | | |  | | 25 pts |
| **25 pts**  **Description, location, fix, correct type of error** |  | **20 pts One piece of info wrong or missing** | **15 pts**  **Two**  **pieces missing** | **7.5 pts Three pieces missing** |  | **0 pts**  **No**  **Marks** |
|  |  | | | |  | |
| Total Points: 70 |  |  | | | |  | |  |