Python Project #1 Fall 2022

Our first programming project will consist of a couple of smaller python exercises. I want you to work on following the specifications. Take a close look at the program grading sheet before handing this project in. Here is a list of items that you should keep in mind:

* Comments – must explain what your program does at the top of your file, must explain interesting parts of your program, and your name must be in the file
* Use descriptive variable names
* Name your file what I ask and place in proper directory
* Do your program in the way that I specify (just because it works doesn’t make it correct)
* During the run – The user must be given directions on what they are to do and what is happening. Never start the program with a request for input. More information about what is happening should be given. Never expect input without directions.
* Don’t look for the easy way out – I want you to show me you can program, not that you found an existing module in a library or on the internet that does it easily for you.
* Read my description for each program.
* Test your program with many inputs before turning it in.
* All outputs should be neat and understandable.

**Program #1: Time Evaluator**

Notes: There are 60 seconds in a minute. There are 3,600 seconds in an hour. There are 86,400 seconds in a day. You should have these three values as constant variables.

Write a program that asks a user to enter a time value in seconds and then works as follows:

* If the user inputs more than a days’ worth of seconds, then output the number of days, hours, minutes, and seconds. (i.e. 86,500 seconds would report 1 day, 0 hours, 1 minute, 40 seconds)
* If the user inputs less than a days’ worth of seconds but more than an hour’s, then output the number of hours, minutes, and seconds. (i.e. 7,250 seconds would report 2 hours, 0 minute, 50 seconds)
* If the user inputs less than a hours’ worth of seconds but more than an minute’s, then output the number of minutes, and seconds. (i.e. 680 seconds would report 11 minute, 20 seconds)
* Otherwise it just outputs the number of seconds back.

Start and stop this program with friendly messages explaining what the program in attempting to do and letting the user know that it is finished.

**Program #2: Population Increase**

Ask the user to give the starting population, a percent yearly increase, and the number of years to display. Then display in a neat table the results. (Note: A percentage value for each year will often not yield a whole number, so we must round to the nearest whole value) You must use a loop of some sort to output the table. Again start and end your programs with friendly messages.

**Submission Details:**

I will expect that you spent some time designing your project before you started typing code. So as part of this assignment I would like you to create a flowchart that shows each of the programs flow. This is to be handed in with the assignment.

You are handing in **two** files for coding; they should be named **seconds.py** and **population.py**. (The .py is added automatically when you save a python file) If you do not name these files correctly, you will lose points. I also wish you to hand in a file that contains a flow chart or your psuedocode for one of the two programs above. You can use word, pdf, or a scanned image of your plan.

Hand in electronically using Brightspace – (NOT E-mail!!!)

Steps:

1. Place the three files into a zip folder called **projectone\_lastname.zip**
   1. Note: please do not use .7z or .rar folders (If you need help figuring out this step, I can show you on our lab computers)
   2. Note2: your own lastname should be in the name of the folder
2. Open Brightspace and click on this course.
3. Click on **Assessments** Tab and choose **Assignments**.
4. Click on correct Project to submit.
5. Scroll down to **Submit Assignment** and choose **Add a File.**
6. Click on **My Computer**.
7. Either click on Upload, or drag the zipped folder and drop in box.
8. When the folder is listed, click **Add** at bottom.
9. You may write a note if you wish, but then click **Submit.**
10. Wait until you see that the submission was successful.
11. You should also get a confirmation e-mail.
12. You may submit as often as you want, I will only grade the last submission that happens before the due date/time.