CSE 4256

Due Sunday Apr 17 11:59 PM EST

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Spring Term 2022

Homework 11

Assignment

This assignment should be completed as a collection of several Python source (`.py`) files in several directories, uploaded to Carmen as a `.zip` file. You may only use modules and packages from the standard library that we have covered in class, or that you have written yourself in prior homework assignments.

In this assignment, you will modify solutions to prior homework assignments to be as Pythonic as possible. Before starting, choose five (5) of your previous homework submissions to update. Copy each of those submissions into their own subdirectory in your folder for homework 11.

(1) Install pylint via PIP: `pip install pylint`

(2) In each of the previous-assignment subdirectories, run pylint on each of your submitted python files, redirecting the output of each to a file called `before_modname.txt`. For example, to run pylint on the file `graph.py`, I would execute the command `pylint graph.py > before_graph.txt`. After completing this step, you should have several text files in each of your subdirectories—one per submitted python file.

(3) Review the output of pylint, and modify your code to meet the following minimum requirements:

- Achieve a pylint score of 8 or higher on every `.py` file in each of the five (5) subdirectories, or
- Achieve at least four (4) subdirectories in which every `.py` file has a pylint score of 9 or higher, or
- Achieve at least two (2) subdirectories in which every `.py` file has a pylint score of 10.00. **Note**: Achieving a score of 10.00 is sometimes futile and requires making the code *worse* than it was before. Do not sacrifice code quality in pursuit of a perfect pylint score. Remember: you are smarter than the computer!

(4) Take a close look at your code and ensure that it conforms to the Python style guide beyond what pylint detects, keeping in mind the "Zen of Python":

```
The Zen of Python, by Tim Peters

Beautiful is better than ugly.
Explicit is better than implicit.
Simple is better than complex.
Complex is better than complicated.
Flat is better than nested.
Sparse is better than dense.
Readability counts.
Special cases aren't special enough to break the rules.
Although practicality beats purity.
Errors should never pass silently.
Unless explicitly silenced.
In the face of ambiguity, refuse the temptation to guess.
There should be one-- and preferably only one --obvious way to do it.
Although that way may not be obvious at first unless you're Dutch.
Now is better than never.
Although never is often better than *right* now.
If the implementation is hard to explain, it's a bad idea.
If the implementation is easy to explain, it may be a good idea.
Namespaces are one honking great idea -- let's do more of those!
```

(5) For each of the directories you have modified, run pylint again on each of your modified files, redirecting the output to a file called `after_modname.txt`.

Challenge Activities

Some homeworks (such as this one) will have additional challenge activities. These activities **do not contribute to your grade**, but they are problems that I find interesting or challenging.

(6) Run pylint on more of your previous assignment submissions, aiming for as high a score as possible.

Submission

To submit this assignment, upload a `.zip` file named "lastnamefirstname.zip" (obviously replacing lastname with your own last name and firstname with your own first name) containing 5 subdirectories with your Python and pylint output files to the "Homework 11" assignment on Carmen. As always, be sure to note all group members who contributed to the assignment and what those contributions were.