Lab Week 8 Grading Rubric and Instructions

This lab is assigned for Week 8 of COM S 127: Introduction to Programming.

This lab is due by the end of the lab period seven (7) days after the one it is assigned in. See the syllabus for details.

Lab Objective

The purpose of this lab is to give students practice with using/ creating/ modifying files and working with more complicated data structures in a more complicated problem.

Instructions/ Deliverables

NOTE: These tasks can be completed in any order you like. See the **Grading Items** section below for the point distribution.

CITATION: Many of the exercises found here could possibly be seen as adaptations of exercises found in the online textbook "How to Think Like a Computer Scientist: Interactive Edition" By Jeffrey Elkner, Peter Wentworth, Allen B. Downey, Chris Meyers, and Dario Mitchell.

- Available: https://runestone.academy/ns/books/published/thinkcspy/index.html?mode=browsing
- Accessed: 3-18-2023
- The abbreviation 'thinkcspy' and the chapter/ section number will be used to indicate where similar exercises can be found. This citation will be placed next to the exercise title.
    - ex: [thinkcspy 2.13] indicates a similar exercise can be found in chapter 2, section 13.

Reading:

- Read Runestone chapter 11, and show the TA the notes you took in your Engineering Notebook for this chapter once you are done.
    - NOTE: You do not need to complete any of the exercises at the end of the chapter. However, it would be helpful to you in the long term if you were to do so.

`scoreCheck.py` [thinkcspy 11.10]

- The point of this exercise is to load a file called `studentData.txt` and parse each line of data.
    - This file starts with a student name, and several of different student scores, all on the same line.
- Take in integer input to determine a 'threshold value.'
    - Your goal is to calculate how many scores a student has that are greater than or equal to the threshold value, and how many scores are strictly less than the threshold value.
    - Your script should print out the name of the student, followed by a statement of how many scores are greater than or equal to the threshold, and how many scores are less than the threshold.
        - Ex: If the threshold value is 5, the line `bob 7 2 3 8 5 4` produces output: `bob: 3 scores >= 5, 3 scores < 5`
- Use a `main()` function in the way demonstrated in class.

    - Ex: `if __name__ == "__main__":` etc.
- Other than using a `main()` function, you can code your answer any way you like.
- Save your code, including your name, code creation date, lab number, and brief description of what your code does, to a file called `scoreCheck.py`.

`filesExercise.py`

- You have been provided with a file called `labWeek8FilesProblem.pptx` which will outline what your code needs to calculate.
- You have also been provided with files called `scores.txt` and `students.txt`, which will be used in the calculation. Another file, called `grades_example.txt` will demonstrate what your output should look like when you save it to a file called `grades.txt`
- Follow the instructions in `labWeek10FilesProblem.pptx` and make a Python script which makes all necessary calculations to produce the `grades.txt` file.
- Use a `main()` function in the way demonstrated in class.
    - Ex: `if __name__ == "__main__":` etc.
- Other than using a `main()` function, you can code your answer any way you like.
- Save your code, including your name, code creation date, lab number, and brief description of what your code does, to a file called `filesExercise.py`.

Optional Readings

NOTE: These readings are not required. However, they may provide a bit of interest/ insight into the broader world of Computer Science. Please complete the rest of your lab tasks before doing these readings. You do not need to take notes on these in your Engineering Notebook.

Database Developer: What It Is, What They Do, & Salary - by: Celso Crivelaro

- Available: https://www.revelo.com/blog/database-developer

50 Computer Programming Interview Questions (With Answers) - by: Indeed Editorial Team - December 12, 2022

- Available: https://www.indeed.com/career-advice/interviewing/computer-programming-interview-questions

45 Common Coding Interview Questions - by: Zoe Kaplan ed: Emily Courtney - April 27, 2023

- Available: https://www.theforage.com/blog/interview-questions/coding-interview-questions

Dark side of working in the video game industry: 100-hour weeks and on-the-spot sackings - by: Sam Forsdick - November 16, 2018

- Available: https://www.ns-businesshub.com/business/working-conditions-in-the-video-game-industry/

Files Provided

`studentData.txt`

`labWeek8FilesProblem.pptx`

`scores.txt`

`students.txt`

`grades_example.txt`

Example Script

exampleScript.py

```
# Matthew Holman               3-18-2023
# Lab Week 8 - An example script layout

def main():
    # NOTE: This week, other than requiring a main() function,
    #       you can program your work however you like!
    pass

if __name__ == "__main__":
    main()
```

Example Output

Running: `python .\scoreCheck.py`

```
What is the threshold value?: 5
alice: 5 scores >= 5, 0 scores < 5
bob: 8 scores >= 5, 0 scores < 5
cathy: 7 scores >= 5, 2 scores < 5
darth: 8 scores >= 5, 0 scores < 5
eggerton: 6 scores >= 5, 0 scores < 5
francis: 4 scores >= 5, 3 scores < 5
```

Running: `python .\filesExercise.py`

SEE `grades_example.txt` FOR EXAMPLE OUTPUT.

Grading Items

- (**Attendance**) Did the student attend the lab meeting, or make arrangements to attend virtually via WebEx?: _____ / 1
- (**Reading**) Has the student read chapter 11 of the Runestone textbook and shown their notes in their Engineering Notebook to the TA?: _____ / 3
- (**`scoreCheck.py`**) Has the student completed the task above, and saved their work to a file called `scoreCheck.py`?: _____ / 2
- (**`filesExercise.py`**) Has the student completed the task above, and saved their work to a file called `filesExercise.py`?: _____ / 4

TOTAL _____ / 10