Python Mini Project

Due date: 30 November 2020

Instructions:

1. Please provide a daily report to your lecturer on your accomplishments and challenges.
2. The lecturer will not provide you with answers but may give you hints or links to resources.
3. You must produce an original program. Copying and plagiarism is not accepted.
4. You are encouraged to consult your lecturers if there are instructions which are not clear. As a programmer, requirements analysis is a crucial state.
5. Also read the rubric to assist you in understanding the assessment of your code
6. When done add your name, surname and class as a comment to your source code. Zip the project and submit the assignment to LMS. To zip the folder on a linux machine, right click on the folder and select compress. By default the zip option should be selected, then just click on “Create”. Submit the file you just created on LMS.
7. Due date is not negotiable. **30 November 2020, 4h30pm.** You will not be able to submit after 30 November 2020, 4h30pm.
8. You are expected to push all your work to **github** on a daily basis.
9. Please do not forget to package your program so that non developers(Placement Team) can test your application and give you feedback.

Lottery Numbers Challenge

You have been hired by the Ithuba National Lottery of South Africa to write a program using python which will be used in determining the lotto numbers and compare them with those that a player chooses.

In this challenge you will write a Python program that automatically generates six random numbers (between 1 and 49) and display them on the screen, sorted in ascending order. The program will need to make sure that each number is unique; the same number cannot come twice in the selection of six selected numbers. The prizes for predictions are shown in Table 1 below.

Table 1: Lotto prizes

Prediction	**Prize (R)**
6 correct numbers	10, 000 000.00
5 correct numbers	8,584.00
4 correct numbers	2,384.00
3 correct numbers	100.50
2 correct numbers	20.00

1 correct number(s)	0
0 correct number(s)	0

Requirements for the code:

The player must enter his/her age first. Only players who are above 18 years are allowed to play lotto. Your program should take care of the validation(Exceptions/Error Handling). The program should also automatically write the results to a text file including the current date. The text file should reflect the total amount which the Ithuba lottery has to pay to the winners and show winners in each category.

In doing this project, you are expected to implement the following concepts:

Start by identifying the software development methodology which you are going to use. Write a report why you have selected that approach. Also write a report on the following to indicate your understanding of the requirements:

- Design understanding or design techniques. You have to implement at least one of the following => **Flowcharts**, **algorithms**, **pseudocodes** or **input processing output tables**.
- GUI using tkinter(Python) or PyQt.
- Appropriate variable/classes naming conventions. See the link for more information or try googling python **pep8**.
- Use of list or stacks or arrays or dictionaries or queues. You can use more than one type of collection also.
- **Loops** and **functions**.
- Manipulate text files.
- Object oriented Programming (use classes, objects, constructors, inheritance and methods) (not mandatory though. You are free to implement the solution

using procedural programming, but it will be good that you make use of some classes in your program so as to gauge your understanding).

- Software testing - doctest and or unittest is highly recommended.
- Implementation of user defined and built-in modules is highly recommended.
- Implement exception handling. Handle the exception that you can easily reproduce.
- Implement acceptable documentation in-order for other developers to understand your code.
- Add some UnitTesting to your program. It's always a good idea to add tests for your program.

Please note, as programmers you will notice that you are going to have completely different solutions to the program. You are encouraged to do a proper research for each concept you intend to implement. ***If your solution is exactly similar to another one, it will not be marked.*** The challenge tests all concepts studied during the Python Sessions. Nonetheless, you can also implement your own concepts to show the extent of going an extra mile.

Reminder: Add your name, surname and class as a comment in line one of your project.

Zip the project together with the executable file. Include the executable file in the zipped folder. When submitting, please submit through LMS. Do not forget to click submit, after the upload is done.

Good Luck :)