University of Nebraska Omaha
ISQA 3900 - Web Application Development
Activity 3 - Python Exercise
Conditionals, Loops, Functions, and Value Errors

Objectives

- Demonstrate your ability to create a simple python program that prompts the user for a numeric grade and provides a letter grade based on the grading scale provided below.
- You will need to demonstrate your Python knowledge of:
  - Initializing variables and assigning data
  - Python syntax for print and user input functions
  - Boolean expressions
  - Selection structure - If, Elif and Else
  - Repetition structure (while loop)
  - Using functions
  - Defining functions
  - Recovering from invalid numeric user input errors
  - Simple comments including the following REQUIRED program file header at the top of the Python file:
    - Your name
    - The course name and date
    - A short description of the code in the file (i.e. purpose of the program)
  - Debugging errors found in a simple python program.

Directions

Create a python file called Activity3.py that calculates the Letter grade for a class in a nearby university assuming a scale of 1000 points for the class and uses the following grading scale:

Points	Grade
92- 100%	A
88- 91.99%	B+
82-87.99%	B
78- 81.99%	C+
70- 77.99%	C
60 - 69.99%	D
< 60%	F

For this assignment, define and implement the following 4 Python functions:

def display_title():

Displays the title of the program when called.

def get_totalPoints():

This function prompts the user for and reads the total points earned. If the user enters a value that is less than 0 or greater than 1000, report an error and ask

the user to reenter the value. Continue to read and validate the total points until the user enters an acceptable value. Once an acceptable value is entered, return the value to the main method. Use a repetition structure

def get_letterGrade(averageEarned):

This functions receives the average grade from the main() and returns the letter grade based on the average earned. Use if, elif, else to determine the correct letter grade based on the averageEarned.

def main():

1. The main function first calls the **display_title** function which displays the title.
2. Next, the main function calls the **get_totalPoints** function to get the total points earned.
3. Next, the main function then passes the percentage grade earned (**total_points/1000*100**) to the **get_letterGrade** function which will return the earned letter grade.

4. Next the main function prints the letter grade for the student.

5. Next, the main function asks the user if the program should continue. If yes, repeat steps 2-4 or if no, end the program. Use a repetition structure.

Sample program execution: User inputs are shown in blue.

```
Welcome to the Grade Calculator

Enter the total score (0-1000): -1
You must enter integer values >= 0 and <= 1000. Try again.

Enter the total score (0-1000): 1001
You must enter integer values >= 0 and <= 1000. Try again.

Enter the total score (0-1000): 900
You earned an average of 90.0%. Letter grade earned: B+

Would you like to enter another score (y/n)? y

Enter the total score (0-1000): 888
You earned an average of 88.8%. Letter grade earned: B+

Would you like to enter another score (y/n)? y

Enter the total score (0-1000): 500
You earned an average of 50.0%. Letter grade earned: F

Would you like to enter another score (y/n)? n
```

Submitting your assignment

Before the due date/time, push your files to GitHub and be sure your **GitHub** repository is updated. This file should be in the **Activity3** folder in the repository shared by the instructor for this class.

See grading rubric posted with this assignment on Canvas.