Test 1 Python – Instructions

CMPG111 – SU 1 to SU3

- Add your name, surname, and student number as a comment line at the top of your program.
- Please follow the instructions and read each question carefully.
- Write Python code to solve the problems presented by the two (2) questions.
- Remember to follow the exact naming convention as provided.
- Upload and submit your Python scripts (*.py) via the provided CodeGrade links. Be sure that you submit your files successfully before the set deadline. If not, you will receive zero (0) for this section of the test.
- Remember to save regularly!

Question 1 [5]

Scientists measure an object's mass in kilograms and its weight in newtons. The formula to calculate weight in newtons is:

$$W = m \times g$$

W is the weight of the object in newtons (N).
m is the mass of the object in kilograms (kg).
g is the acceleration due to gravity, usually taken as approximately 9.81 m/s^2.

Write a Python program that asks the user to enter an object's mass, calculates its weight, and displays the results.

Submit your Python script (*.py) on CodeGrade named: *Question1.py*

Example run:

```
Enter the mass of an object (kilograms): 67
The object's weight is 657.27 newtons (N)
```

Mark allocations of CodeGrade auto-tests:

- Input/Output tests [3]
- Code structure test [1]
- Code quality test [1]

Question 2 [10]

Write a Python program that asks the user to enter the mass of an object and then allows the user to choose a conversion option:

1. Kilograms to Pounds
2. Pounds to Kilograms
3. Grams to Ounces
4. Ounces to Grams

Perform the selected conversion and print the result formatted to display two (2) decimals. Use the following unit equivalents to calculate the various conversions:

Unit equivalents
$1 \text{ kilogram} = 2.20462 \text{ pounds}$
$1 \text{ gram} = 0.035274 \text{ ounces}$

Submit your Python script (*.py) on CodeGrade named: *Question2.py*

Example runs:

```
Enter the mass of the object: 100

Select a conversion option:
1. Kilograms to Pounds
2. Pounds to Kilograms
3. Grams to Ounces
4. Ounces to Grams

Enter your choice (1/2/3/4): 1

100.0 kilograms is equivalent to 220.46 pounds.
```

```
Enter the mass of the object: 250

Select a conversion option:
1. Kilograms to Pounds
2. Pounds to Kilograms
3. Grams to Ounces
4. Ounces to Grams

Enter your choice (1/2/3/4): 5

Invalid option. Please choose between 1, 2, 3, or 4.
```

Mark allocations of CodeGrade auto-tests:

- Input/Output tests [6]
- Code structure test [3]
- Code quality test [1]