COSC 1336: Fall 2022

Assignment for Chapter 7

DUE: October 18, 2022, by 1 AM

Penalty for the late submission is 20% per each day

Important Notice:

- Please make sure your code runs on the online book to receive any credit.
- **Submit your own work**. Copying of code from the web or each other is strictly prohibited and will be acted on as a violation of academic honesty policy.

[30 points] Question 1

Your task is to write a function that takes temperature (Fahrenheit), windspeed (miles/hour), and relative humidity (percentage) as parameters. It then determines and prints if it is a good weather day, a bad weather day, or just another day, and returns an appropriate string. The main program will take these values as input, call the function, and then print this weather report.

A day is a good weather day if the temperature is between 65 and 75 (including 65 and 75), humidity is below 50%, and windspeed is less than 10. It is a bad weather day if the temperature is above 85 or below 45, or humidity is above 80%, or wind speed is greater than 20 mph. Otherwise, it is just another day.

Note: For user input of temperature, humidity, and windspeed, the user does not need to enter units like Fahrenheit, percentage, miles/hour, etc. You also do not need to worry about units when passing those as parameters.

Example user sessions:

User session 1:
Program prompt: What is the temperature in Fahrenheit?
User response: 71
Program prompt: What is the humidity in %?
User response: 44
Program prompt: What is the windspeed in miles/hour?
User response: 6
Program prints: It is a good weather day

User session 2:
Program prompt: What is the temperature in Fahrenheit?
User response: 66
Program prompt: What is the humidity in %?
User response: 85

Program prompt: What is the windspeed in miles/hour?
User response: 12
Program prints: It is a bad weather day

User session 3:
Program prompt: What is the temperature in Fahrenheit?
User response: 60
Program prompt: What is the humidity in %?
User response: 40
Program prompt: What is the windspeed in miles/hour?
User response: 16
Program prints: It is just another day

To get you started, you are provided with the following function:

```
def getWeatherMessage(temp,humidity,windspeed):
    weather_message = "Weather not known"
    # You need to enter the code for this function to generate the
appropriate string for weather_message

    return weather_message
```

[30 points] Question 2

A drug loses **`decayRate`** percent of its potency every month. Also, a drug is considered **`expired`** if it loses more than 50% potency.

Your goal is to write a boolean function **`IsExpired(months,decayRate)`** that returns **`True`** if the drug has expired and **`False`** if it has not.

Example 1: **`IsExpired(10,10)`** should return **`True`**.
Explanation: The drug loses 10% potency every month. After 1st month the potency is 90%, after 2nd month its 81%. In this way, after 7th month the potency is 47.83%.

Example 2: **`IsExpired(15,4)`** should return **`False`**.
Explanation: After 15th month the drug still has 54.21% potency.

Also, try **`IsExpired`** with below:

Example 3: **`(1,51)`** should return **`True`**

Example 4: **`(1,50)`** should return **`False`**

[40 points] Question 3

Write a function **NominalGrade(Ascore, Escore)** that takes a student's weighted assignment score **Ascore**, and exams score, **Escore**, as parameters, and returns a grade score based on equal weight to both. The scores are float values out of 100. The score-to-letters-grade policy is similar to that being followed in this class. However, the function returns an integer grade score representing the corresponding nominal grade

Score Range	Grade Score	Letter Grade
86 or higher	4	A
74 to below 86	3	B
62 to below 74	2	C
50 to below 62	1	D
0 to below 50	0	F

Now write a function **TrueGrade(Ascore, Escore)** that additionally takes into account the following rule posted on the class page and returns the actual letter grade.

"The Final grade you receive will not be more than 1 full grade higher than your EXAMS grade"

TrueGrade() should call **NominalGrade()**

Example 1: **NominalGrade(96, 84)** should return 4.
TrueGrade(96, 84) should return 'A'.

Example 2: **NominalGrade(96, 54)** should return 3
TrueGrade (96, 54) should return 'C'.

Also try both **NominalGrade** and **TrueGrade** with below:

Example 3: **(54, 96)** should return 3 and 'B'.
Example 4: **(36, 54)** should return 0 and 'F'.
Example 5: **(100, 49)** should return 3 and 'D'.

[EXTRA CREDIT: 30 points] Question 4

Write a function **NumRepeats(num1,num2,num3)** that takes 3 integers as arguments, and returns the number of items that are repeated.

NumRepeats(5, 9, 4) will return 0
NumRepeats(5, 9, 5) will return 1
NumRepeats(5, 5, 5) will return 2

Does your function work if passed strings instead of integers? Try below:

NumRepeats('5', '9', '4') will return 0
NumRepeats('5', '9', '5') will return 1
NumRepeats('5', '5', '5') will return 2