Assignment # 3

This homework assignment covers python functions and strings. It includes 2 mandatory questions and one bonus question.

Q1. Write a health record program. Your program should read the following values from the user:

- Name
- Date of birth in dd/mm/yyyy format
- Height (in meter)
- Weight (in Kg)

Your code should have the following functions:

- *computeAge* : calculate and return the user's age in years. To compute the age, use the date python module to find the current year (from datetime import date)
- *computeMHR*: calculate and return the maximum heart rate. According to the American Heart Association (AHA), the formula for calculating your *maximum heart rate* in beats per minute is 220 minus your age in years
- *computeBMI*: calculate and return the user's body mass index (BMI). The formula for calculating BMI is
  - $BMI = \frac{weightInKilograms}{(heightInMet \quad x\ heightInMeters)}$

After reading the values from the users,

- Calculate and print the user's maximum heart rate
- Calculate and print the user's BMI
- Print the BMI category according to the following rule:

BMI VALUES
Underweight: less than 18.5
Normal: between 18.5 and 24.9
Overweight: between 25 and 29.9
Obese: 30 or greater

The program can read as many inputs as the user wishes. You program should terminate if the user entered "." for any of the inputs.

Sample output (green color represents user's input):

```
Enter your name: May
Enter your date of birth (dd/mm/yyyy): 1/12/2001
Enter your height in meter: 1.47
Enter your weight in kg: 57

May's age is 20
Your maximum heart rate is 200
Your BMI is 26.38 --> Overweight

Enter your name: Sara
Enter your date of birth (dd/mm/yyyy): 3/3/2009
Enter your height in meter: .

Thanks for using the program!
```

Q2: A "Caesar Cipher" is a simple way of encrypting a message by replacing each letter with a letter a certain number of spaces up the alphabet. For example, if shifting the message by 13 an A would become an N, while an S would wrap around to the start of the alphabet to become an F.
Write a program that asks the user for a message (a string) and a shift amount (an integer). The values should be passed to a function that accepts a string and an integer as arguments and returns a string representing the original string encrypted by shifting the letters by the integer.

Sample Output:

```
Enter message to encrypt: BEWARE THE IDES OF MARCH
Enter amount to shift by: 13
ORJNER GUR VQRF BS ZNEPU

Process finished with exit code 0
```

Q3 [BONUS – no partial credits]:
Write a program that lets the user play the game of Rock, Paper, Scissors against the computer. Th program should work as follows:

1. When the program begins, a random number in the range of 1 through 3 is generated. If the number is 1, then the computer has chosen rock. If the number is 2, then the computer has chosen paper. If the number is 3, then the computer has chosen scissors. (Don't display the computer's choice yet)
2. The user enters his or her choice of "rock", "paper", "scissors" at the keyboard.
3. The computer's choice is displayed.
4. A winner is selected according to the following rules:
    a. If one player chooses rock and the other player chooses scissors, then rock wins.
    b. If one player chooses scissors and the other player chooses paper, then scissors wins.
    c. If one player chooses paper and the other player chooses rock, then paper wins.
    d. If both players make the same choice, the game must be played again to determine the winner.

Sample output:

```
Enter 1 for rock, 2 for paper, 3 for scissors: 3
Computer chose scissors
You chose scissors
You made the same choice as the computer. Starting
over
Enter 1 for rock, 2 for paper, 3 for scissors: 1
Computer chose scissors
You chose rock
You win the game

Process finished with exit code 0
```

Submission instructions:

- You are required to submit your source code (.py) for each question unless specified otherwise.
- At the beginning of each code add a comment specifying your name, assignment #, and question # following the below format:

```
‘’’
Your name [First last]
ID
Homework x
Question x
‘’’
```

- At the end of your code add as a comment your answer for each question (if any) along with your code sample output.
- Compress the source code file(s) (using zip or tar) and submit the compressed file through Moodle.