Assignment 1

Variables, Calculations and Branching

Submit a single zip file called **assignment1.zip**.
This assignment has 30 marks.
See the marking rubric that is posted on the course webpage.

Problem 1 (Algorithm Design)

Create an algorithm for playing a guessing game where the user tries to guess a random number *x* between 1-100. You can assume that a variable called x already exists and has been initialized to some random value between 1 and 100. Your algorithm only needs to handle getting guesses, giving hints, and determining whether the game is over or should continue. After each incorrect guess, a hint should be given to the user indicating whether they should guess higher or lower. The game should repeat until the user guesses the correct number.

Do not worry too much about specific terminology – as long as someone with absolutely no knowledge about what the game is can read through your algorithm and play the game correctly, your algorithm is good. Save your algorithm in a text file called **a1q1.txt** and add it to your assignment1.zip file.

Problem 2 (Bill Calculator)

Write a program that computes a total amount to pay for a bill. Your program will prompt the user for the subtotal of the bill and the tip percentage (e.g., 15%) desired. Your program will then calculate and print out the total of the bill (subtotal and tip). Your program should be capable of handling decimal values for the subtotal and integer values for the tip percent. You do not have to worry about formatting the final total number correctly (e.g., it can have additional decimal places). Example output:

```
Enter the bill subtotal: 100.00
Enter the tip percentage: 15
The total bill is $115

Enter the bill subtotal: 63.57
Enter the tip percentage: 20
The total bill is $76.284
```

Test your code to make sure it is working correctly. Save your code in a file called **a1q2.py** and add it to your assignment1.zip file.

Problem 3 (Grade Calculations)

Write a program that computes the final grade for a student. Your program will prompt the user for the following input: assignment grade, midterm grade, tutorial grade, and final exam grade. Each grade is a percentage between 0 and 100 and may contain decimals (e.g., 83.5). The final grade should be calculated using the following weights:

Assignments	50%
Midterm	15%
Tutorials	5%
Final Exam	30%

To pass the course, the student must have a final grade of 60% or higher and have received at least 50% on the final exam. Your program must print out two statements indicating the final grade the student received and whether the student passed the course or not.

Save your Python program in a file called **a1q3.py** and add it to your submission zip file.

Recap

Your zip file should contain your **a1q1.txt**, **a1q2.py**, **a1q3.py** files.
Submit your **assignment1.zip** file to cuLearn.
Make sure you download the zip after submitting and verify the file contents.
