CS10 Python Programming Homework 1

1. You must turn in your program listing and output for each program set. Start a new sheet or sheets of paper for each program set. Each program set must have your student name, student ID, and program set number/description. You must submit hardcopies on day of exam 1.

2. You must STAPLE (not stapled assignments will not be graded resulting in a zero score) your programming assignment and collate them accordingly. Example Program set 1 listing and then output, followed by Program Set 2 listing and output and so on.

3. Please format you output properly, for example all dollar amounts should be printed with 2 decimal places. Make sure that your output values are correct (check the calculations).

4. Each student is expected to do their own work. **IF IDENTICAL PROGRAMS ARE SUBMITTED, EACH IDENTICAL PROGRAM WILL RECEIVE A SCORE OF ZERO.**

Program 1

The radius and mass of the Earth are $r = 6378 \times 10^3$ meters and $m1 = 5.9742 \times 10^{24}$ kg, respectively. Mr. Jones has a mass of X kg. Prompt the user to input X and then calculate the gravitational force (F) and acceleration due to gravity (g) caused by gravitational force exerted on him by the Earth.

The formulas:

$F = G(m1)(m)/(r^2)$

$F = mg$

Let the universal gravitational constant $G = 6.67300 \times 10^{-11}$ (in units of $m^3kg^{-1}s^{-2}$ assuming the MKS meter-kilogram-second] system). Check that the resulting value of g is close 9.8 m/s^2.

Your output should look like this
>>>
The resulting value of g is 9.8??? which is close to the earth's gravitational force.
>>>

Program 2

Write a program that calculates the total amount of a meal purchased at a restaurant. The program should ask the user to enter the charge of the food, and then calculate the amount of a 15% tip and a 7.25% sales tax. Display each of these amounts and the total.

Your output should look like this
>>>
Enter the charge for food: $100
Tip: 15.00 percent
Tax: 7.25 percent
Total Bill : $122.25
>>>

Program 3

Stock Transaction Program

Last month Kool Doode purchased some stock from Kaplack, Inc.

Write a program that ask the user to input the followings:

1. Number of shares Kool Doode bought
2. Stock purchase price
3. Stock selling price
4. Broker commission

displays the following paid for the stock.
:

1. The amount of money Kool Doode paid for the stock (number of shares bought * purchase price)
2. The amount of commission Kool Doode paid his broker when he bought the stock. (Amount he paid for stocks * commission in percent)
3. The amount that Kool Doode sold the stock for. (number of shares * selling price)
4. The amount of commission Kool Doode paid his broker when he sold the stock. (Amount he sold shares * commission in percent)
5. Display the amount of money Kool Doode had left when he sold the stock and paid his broker (both times). If this amount is positive, then Kool Doode made a profit. If the amount is negative, then Kool Doode lost money.
   Profit/loss =(amount for sold stocks- commission) - (amount paid to buy stocks + commission)

This is how the display or printout should look like:

```
>>>
Enter Stock name : Kaplack, Inc.
Enter Number of shares : 10000
Enter Purchase price : 33.92
Enter selling price : 35.92
Enter Commission : 0.04


Stock Name:  Kaplack,. Inc.

Amount paid for the stock:          $   339,200.00
Commission paid on the purchase: $    13,568.00
Amount the stock sold for:          $   359,920.00
Commission paid on the sale:        $    14,368.00
Profit (or loss if negative):       $    -7,936.00
>>>
```