MIS 6382
Object Oriented Programming With Python
Fall 2019
Homework One

The following guidelines should be followed and will be used to grade your homework:

- The code for each question should be implemented using Jupiter notebooks.
- All the code should be included in one single notebook (.ipynb file).
- This is an individual homework assignment; no group submissions will be accepted.
- Sample runs shown in the question should be used as a guide for implementation. However extensive testing needs to be done on your code to deal with all test cases that might possibly be executed.
- **Submit a zipped folder containing ONLY one .ipynb file for this assignment. The zip file should be named using your name and the chars "hw1". You will be penalized 15% of the grade if your submission does not follow these requirements.**
- **You will get zero points if your program has syntax errors.**

Q1: Write a program that reads a 4-digit integer and reverses all the digits in the integer. For example, if an integer is 9324, the output should be 4239. If the user enters a non 4-digit value, the program should print a message and exit. A few sample interactions are shown below

```
(base) C:\Users\radha\Dropbox\Teaching\Python\Fall 2019\Code\Homework\Homework One\Python Scripts>python F19HW1Q1.py
Please enter a positive four digit number :-899
You entered an invalid value.
Exiting the program!

(base) C:\Users\radha\Dropbox\Teaching\Python\Fall 2019\Code\Homework\Homework One\Python Scripts>python F19HW1Q1.py
Please enter a positive four digit number :456
You entered an invalid value.
Exiting the program!

(base) C:\Users\radha\Dropbox\Teaching\Python\Fall 2019\Code\Homework\Homework One\Python Scripts>python F19HW1Q1.py
Please enter a positive four digit number :4329
4329 in reverse is 9234
```

Q2: Write a Python program to calculate the sum of three given numbers, if the three number are all the same then return thrice of their sum, otherwise return four times the sum.

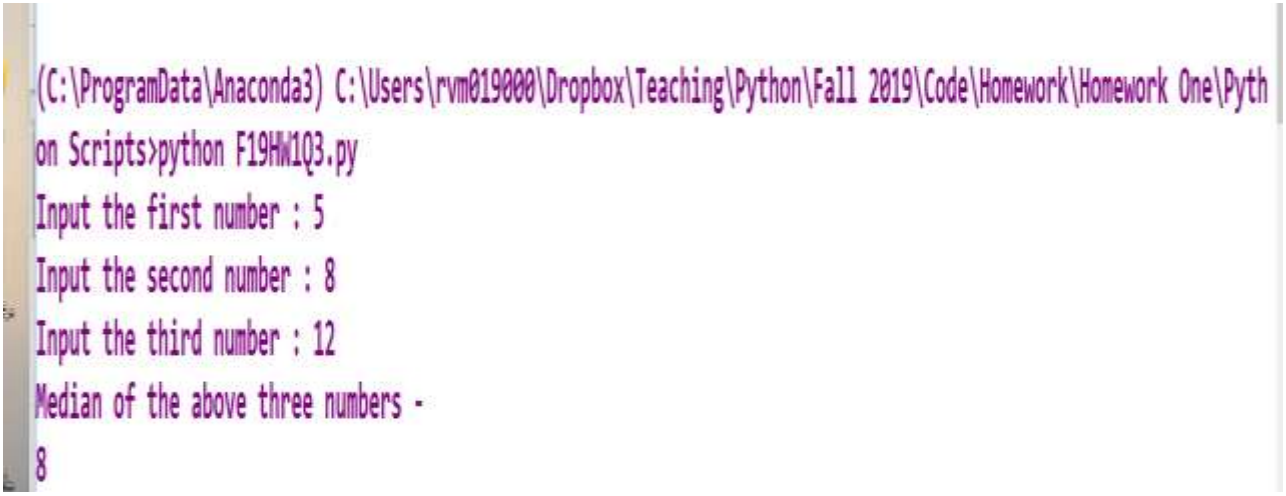
Below is a sample interaction

```
(base) C:\Users\radha\Dropbox\Teaching\Python\Fall 2019\Code\Homework\Homework One\Python Scripts>python F19HW1Q2.py
Enter the first two-digit number: 23
Enter the second two-digit number: 24
Enter the third two-digit number: 25
Four times the sum of 23, 24, and 25 is 288

(base) C:...hon Scripts>python F19HW1Q2.py
Enter the first two-digit number: 23
Enter the second two-digit number: 23
Enter the third two-digit number: 24
Four times the sum of 23, 23, and 24 is 280

(base) C:...hon Scripts>python F19HW1Q2.py
Enter the first two-digit number: 23
Enter the second two-digit number: 24
Enter the third two-digit number: 25
Four times the sum of 23, 24, and 25 is 288
```

Q3: Write a Python program to find the median among three given numbers.
Sample interaction is given below:



Q4: Write a program that takes as input two opposite corners of a rectangle: (x1,y1) and (x2,y2). Finally, the user is prompted for the coordinates of a third point (x,y). The program should print Boolean value True or False based on whether the point (x,y) lies inside the rectangle. If the point lies on the rectangle, the program should print False.

Below is a sample interaction

```
(base) C:\Users\radha\Dropbox\Teaching\Python\Fall 2019\Code\Homework\Homework One\Python Scripts>python F19HWk1Q3.py
Enter x1: 1
Enter y1: 3
Enter x2: 10
Enter y2: 6
Enter x: 4
Enter y: 4
True

(base) C:\Users\radha\Dropbox\Teaching\Python\Fall 2019\Code\Homework\Homework One\Python Scripts>python F19HWk1Q3.py
Enter x1: 1
Enter y1: 3
Enter x2: 10
Enter y2: 6
Enter x: 4
Enter y: 2
False
```