Programming-I (COMP 102 Section A)

Assignment 1

Note:

- The deadline for submission of assignment is **Monday, March 23, 2020, 5:00pm**
- Submission **must** only be done via Turnitin. No email submissions will be accepted and will result in **zero** marks.
- Do not copy the code from the internet or from a friend. In case of plagiarism, you will get **zero** marks.
- Late assignments will **not** be accepted.
- Make a Python file and code all the below programs in one file. The file should be named after your name and roll number. For example, **Sameer_231459615.py**
- In python file, after each question print (----------) as an indication of an end to that particular question.
- The sample input and output for each question has been provided for clarification purposes.

Question # 1:

Create a function named **convertOctal** that should take a decimal number input from user and convert it into octal.

Note: No output formatting should be used.

Input:

372

Output:

Number in Octal: 564

Question # 2:

Take an input from a user that consists of numbers, letters (both upper case and lower case letters), and symbols (@,#,$,^,&,*,%, etc.).

Create a function **checkString()** that counts the number of upper case letters, lower case letter, symbols and numbers and prints them accordingly.

Input:

@#bfjHDKA56^#@!0

Output:

Number of symbols: 6

Number of digits: 3

Number of Upper case letters: 4

Number of Lower case letters: 3

Question # 3:

Write a python program that takes a number from a user and prints all odds numbers less than the input number. The printing for odd number should take place in a function named **oddNumbers**.

Input:

31

Output:

Odd Numbers:1 3 5 7 9 11 13 15 17 19 21 23 25 27 29

Question # 4:

Write a python program that takes two positive integers from a user and calculates the Least Common Multiple (LCM) of those two integers. The calculation should take place in a function named **checkLcm**.

Input:

6

4

Output:

Least Common Multiple: 12

Question # 5:

Write a Python program takes two integers (*a* and *b*) and calculates the following:

- $(a + b)^2 = a^2 + b^2 + 2ab$.
- $(a - b)^2 = a^2 + b^2 - 2ab$.
- $a^2 - b^2 = (a - b)(a + b)$

For each formula, make a separate function and each function should be invoked after the input has been taken from the user.

Input:

6

-6

Output:

```
The value of (a + b) ^ 2 is:     0
The value of (a - b) ^ 2 is:     144
The value of a ^ 2 - b ^ 2 is:   0
```