University of Mauritius
Faculty of Engineering
Department of Computer Science & Eng.

CSE 1017Y –Computer Programming
2015/2016- Semester 1
Labsheet 6 – Loops (Part 2)

Question 1
Write a program which **continuously** asks the user to key in a positive number and displays the square root of the number.
The program stops if the user types in a negative number.

Question 2

Write a program that allows the user to continuously input an integer. It calculates the sum of all positive values input so far, it also counts the number of positive values input, and the number of negative values input, except -2. On input of -2, the program simply displays the current sum and exits. Other negative values are counted but they do not participate in the sum.

Question 3
Write a program that uses nested loops to input the marks of 5 students in 3 subjects and calculate their total marks and average.

Question 4

The population of rabbits on a small island in Poole Harbour is being monitored. There are currently 495 rabbits on the island. It is estimated that the population will grow at 20% a year until the population exceeds 1,000, after which the growth rate will be 10% a year. Write a program to calculate how many years (integer value) will elapse before the rabbit population exceeds 1,500. [Please use integral numbers for rabbits – rabbits should not have fractional parts.]

Question 5
Write a program that prints the following menu indefinitely until a **0** (zero) is entered:

```
**********************************
********Counting in Maths*********
**********************************
1.Sum of first n counting numbers
2.Sum of first nth odd numbers
3.Number of division by two
0.Exit
**********************************
Enter your choice (0-3):
```

For the other choices, i.e., from 1 to 3, the following is to be performed after requesting the user

for the appropriate inputs:
Choice 1: Sum of the first n counting numbers: 1 + 2 + 3 + .. + n
Choice 2: Sum of the first n odd numbers: 1 + 3 + 5 + .. + n
Choice 3: The number of times a whole number can be divided by 2 (using integer division) before reaching 1.
You are also required to validate user inputs as necessary.

Question 6

(i) Write a program which displays the following given the input below:

When x=1 Output: * * **	When x=2 Output: * * ** * ** ***	When x=3 Output: * * ** * ** *** * ** *** ****

Hint: determine the pattern before writing the code.