National University of Computer and Emerging Sciences Islamabad

Programming Fundamentals Lab FALL 2019

Lab Manual 09

Repetitions-III (Nested Loops)

Lab Tasks

Problem 01

Write a program to compute **sin(x)** for given x. The user should be able to input value of **x** and a positive integer **n**. We compute the sine of x using the series and the computation should use all terms in the series up through the term involving x

sin x = x - $x^3/3! + x^5/5! - x^7/7! + x^9/9!$..... :

Problem 02

Write a program that takes value of **N** as input and displays Table of all the numbers between 2 and **N**

Enter value of N: 3

```
*** Table of 2 ***

1 * 2 = 2
2 * 2 = 4
3 * 2 = 6
4 * 2 = 8
5 * 2 = 10
6 * 2 = 12
7 * 2 = 14
8 * 2 = 16
9 * 2 = 18
10*2 = 20

*** Table of 3 ***

1 * 3 = 3
2 * 3 = 6
3 * 3 = 9
4 * 3 = 12
5 * 3 = 15
6 * 3 = 18
7 * 3 = 21
8 * 3 = 24
9 * 3 = 27
10*3 = 30
```

Problem 03

A Palindromic prime is a prime number that is also a palindromic number. Write a program that displays all the palindromic prime numbers between 100 and 999.

For example: These are 14 palindromic prime numbers smaller than 500. 2,3,5,7,11,101,131,151,181,191,313,353,373,383 :

Problem 04

Write a program that displays the following output
Enter number of rows: 9

```
      0
     210
    43210
   6543210
 876543210
   6543210
    43210
     210
      0
```

Problem 05

Write a program using nested loops that can produce the output below.
Enter number of rows: 5

```
5 4 3 2 1 0
4 5 4 3 2 1
3 4 5 4 3 2
2 3 4 5 4 3
1 2 3 4 5 4
0 1 2 3 4 5
```

Submission Instructions:

1. Save all **.cpp** files with your roll no and task number
   e.g. i19XXXX_Task01.cpp
2. Now create a new folder with name *ROLLNO_LAB09* **e.g. i19XXXX_LAB09**
3. Move all of your .cpp files to this newly created directory and compress it into **.zip file**.
4. Now you have to submit this zipped file on Slate.

THE END