C-Programming Lab Sheet
I Year / I Part
Faculty: Computer/Electrical

<u>Labsheet#3.2</u>

Objectives:
- *To familiarize with different types of looping statement such as for, while, do…while, nesting loop.*

1. WAP to read integers **n1 and n2 (such that n1 < n2)** and display all **even numbers** between those two numbers.

2. WAP that reads an integer value for **n** then **sums the integers** from **n to 2n** if **n** is **non-negative**, or from **2n** to **n** if n is **negative**. Display the **sum**.

3. WAP that will generate every third integer beginning with **i=2** and continuing for all integers that are **less than 100**. Calculate the **sum** of these numbers that are exactly **divisible by 7**.

4. Write a computer program to display a **table of numbers**, its **square value** and its **cube values** from **1 to n-1**, where n is any number typed by user at the terminal.

5. WAP to find the sum of the following series,
$y = \sum \frac{1}{n^2}$ up to n term. **[5]**
$$e^x = 1 + \frac{x^1}{1!} + \frac{x^2}{2!} + \frac{x^3}{3!} \dots \frac{x^n}{n!}$$

6. WAP to compute the **sine series.**
 (hint: $x - \frac{x^3}{3!} + \frac{x^5}{5!} - \frac{x^7}{7!} + \dots \frac{x^n}{n!}$) up to n terms.

7. WAP to compute the **cosine series.**
 (hint: $1 - \frac{x^2}{2!} + \frac{x^4}{4!} - \frac{x^6}{6!} + \dots \frac{x^n}{n!}$) up to n terms.

8. WAP to enter a number and print its reverse.
9. WAP to calculate **sum of digits** of an integer number.
10.   WAP to check whether a given number is palindrome or not.
11.   WAP to find sum of **last digit** and **first digit** of a given number.
12.   WAP to check whether a given number is **Armstrong number or not.**
13.   WAP to find **binary equivalent** of a decimal integer number.
14.   WAP to read integer numbers from the users and find their sum until the user types ctrl+Z keys on the keyboard. Display the sum.

Patterns

Nested for loop

```
5 4 3 2 1      5          Programming          k
5 4 3 2        5 4        rogrammin          wk
5 4 3          5 4 3      ogrammi           owk
5 4            5 4 3 2    gramm            howk
5              5 4 3 2 1  ram            chowk
                          a            lchowk
                                      ulchowk
                                    pulchowk
```

```
P              P              P
PU             PU             Pu
PUL            PuL            PuL
PULC           PULC           PULC
PULCH          PuLcH          PuLcH
PULCHO         PULCHO         PULCHO
PULCHOW        PuLcHoW        puLcHoW
PULCHOWK       PULCHOWK       PULCHOWK
```

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

```
        *              *              N          * * *
      * * *          * * *          e e e        * * * *
    * * * * *      *   *   *      p p p p p      * * * * *
  * * * * * * *  *     *     *  a a a a a a a
* * * * * * * * * *    *      *  L L L L L L L L L  |
  * * * * * *                                      |
    * * * * *                                      |
      * * *                                        |
        *                                          |
                                                   |
```