CL-1002
Programming Fundamentals
Lab # 5

Objectives:

- Introduction to sentinel control loops.
- Exhibit the understanding of pseudocode and flow chart.

Note: Carefully read the following instructions (*Each instruction contains a weightage*)

1. Use proper **font family** and **font size** of **heading**, **sub heading** and **normal text**.
2. First think about statement problem then write/draw your logic on copy.
3. Write pseudocode of every task on **Microsoft Word**.
4. File tittle should in proper format (**22F-1001-Lab2**)
5. Draw flowcharts on your paper and submit in hard form.
6. Do not copy from any source otherwise you will be penalized with negative marks.

Problem: Write pseudocode and flow chart of decision-based and iterative problems.

1. Write pseudocode that take starting and ending numbers from user and display all natural number between them (start = 15, end=20, output: 15,16,17,18,19,20)
2. Write a program that take starting and ending number from user and calculate sum and average between them (start = 15, end=20, output: sum = 105, avg=17)
3. Write a program in C++ to find the number and sum of all integer between 100 and 200 which are divisible by 9.
4. Write pseudocode that take two numbers from user and find LCM (least common multiple) . LCM of 3 and 4 is 12.
5. Write a C++ program to check three given integers (small, medium and large) and return the difference, if the difference between small and medium and the difference between medium and large is same, otherwise display 0.
   4,5,6 Difference is 1
   5,7,9 Difference is 2
   4,5,8 Difference is 0
6. Write a program that perform multiplication of two numbers without using * operator. (Hint: you can use + or – operator)
7. Write pseudocode that a number and check whether it is perfect or not (perfect number is a positive integer that is equal to the sum of its proper divisors, for example 6, 3+2+1 = 6)
8. Write a program that take any number and display it in reverse order. (num = 587, output= 785)

9. Write a program that take any number and break it into pieces (number = 754 → 7 , 5, 4 and 1486 → 1, 4, 8, 6)
10. Write a program in C++ to display the first n terms of Fibonacci series. Fibonacci series: 0,1,1,2,3,5,8

Note: Draw the flowcharts of all above problems.

Best of Luck ☺