CSE 114 (Lab Report Questions)

☐ Conditional Statement (If, if else, if else if ladder, nested if-else, switch)

- **Leap Year Check using if...else in C**
- **Grade Calculation Using Only if...else (No Loop)**
- **Find the Largest of Three Numbers**
- **Find the Smallest of Three Numbers**
- **Even or Odd Using if...else**
- **swapping without extra variable**
- **vowel check.**
- **Calculator using switch.**

☐ Loop Control Statement (For, Nested For, While, Do-While)

- **Prime number check**
- **Count the Digits of a Number**
- **Find the Sum of Digits**
- **Reverse the Number**
- **Factorial Using Loop**
- **Print First N Natural Numbers**
- **Print Squares of First N Natural Numbers**
- **Fibonacci Series**
- **Write a C program to print the series like below using for loop**
  2 3 6 18 108 1944… … … … …

- **Rectangle Pattern (3 rows, 5 columns)**
  Output:
  ****
  ****
  ****

- **Right-Angled Triangle (Ascending)**
  Output:
  *****
  ******
  ****
  ****
  ****
- **Right-Angled Triangle (Descending)**
  Output:
  ****
  ****
  ****
  ******
  *****
- **Pascal's Triangle**
  Output:
  1
  1 1
  1 2 1
  1 3 3 1
  1 4 6 4 1

- **Alphabet Triangle**
  A
  AB
  ABC
  ABCD
  ABCDE

- **Sum of Squares: $1^2 + 2^2 + 3^2 + ... + n^2$**

- **Diamond pattern (For + While + Do-While)**
  *****
  ****
  ****
  ****
  *****

- **Hart Shape pattern**

```
  **   **
 **** ****
 *********
  ********
   ******
    ****
     **
```

☐ Array

- **Find the Largest Element in an Array**
- **Find the Smallest Element in an Array**
- **Calculate Sum and Average of Array Elements**
- **Reverse the Array**
- **Check if a Number is Palindrome**
- **Check if a Number is Armstrong Number ($153 = 1^3 + 5^3 + 3^3$)**
- **Matrix Addition, Subtraction, and Multiplication in C**
- **Calculate CGPA and Grade Using Array**

☐ Function

- **Write a function to check if a number is prime**
- **Write a function to find the GCD of two numbers**
- **What is Transpose?**
  The transpose of a matrix is obtained by swapping rows and columns.
  If original matrix is A of size m x n, transpose A^T will be size n x m where A^T[i][j] = A[j][i].