Algorithm Development and Programming Fundamentals
MCA SEM-1

Loops-II, String and Arrays

1. Write a program to check whether the given number is binary or not.

2. Write a program to find the largest digit from the given number.

3. Write a C program to print Fibonacci series up to n terms using loop.
   Fibonacci series:
   0, 1, 1, 2, 3, 5, 8, 13, 21, 34

4. Write a program in C to display the pattern like a right angle triangle using an asterisk.
   E.g. for N=4
   ```
   *
   **
   ***
   ****
   ```

5. Write a C program to input a number and calculate its factorial using a for loop. The factorial of an integer n is the product of consecutive integers from 1 to n. That is, factorial n = n! = n x (n-1) x (n-2) x (n-3) x ... x 3 x 2 x 1.
   For example factorial of 5 = 5 * 4 * 3 * 2 * 1 = 120

6. Write a C program to input two numbers from the user and find the GCD using a for loop.GCD (Greatest Common Divisor) is the greatest number that divides the two numbers.

7. Write a menu driven program to demonstrate following string functions: [Take necessary required inputs]
   - STRING LENGTH
   - STRING COPY
   - STRING COMPARE

- STRING CONCAT
- UPPER CASE
- LOWER CASE

8. Write a C program to find Largest and Smallest Element in an Array. Collect an array of integers from the user.

9. Write a C program to collect an array of integers from the user. Then remove duplicate elements from that Array if any. Also show the count of duplicate elements.

   Example:
   Original array is: 11 12 13 14 11 12 13 15
   New array is: 11 12 13 14 15

10. Write a C program to collect 2 square matrices from the user. Do the following operation on the matrices.
    - Transpose of both matrices.
    - Addition operation between matrices.
    - Subtraction operation between matrices.

11. Write a C Program to remove all non alphabetic characters in a String. Collect String from the user.

12. Write a C program to find the total number of alphabets, digits or special characters in a string. Also count the total number of vowels and consonants. Collect String from the user.