Assignment 4

1. a. Write a program to determine whether a number is even or odd.
   b. Write a program to check if a number is a palindrome.

2. a. Write a program to calculate the factorial of a number.
    b. Write a program to compute the sum of the first n natural numbers.

3. a. Write a program to find the greatest common divisor (GCD) of two numbers.
    b. Write a program to determine if a number is a perfect square.

4. a. Write a program to find the nth Fibonacci number.
    b. Write a program to check if a number is a prime number.

5. a. Write a program to calculate the area of a circle given its radius.
    b. Write a program to calculate the volume of a sphere given its radius.

6. a. Write a program to sort an array using the bubble sort algorithm.
    b. Write a program to search for an element in a sorted array using binary search.

7. a. Write a program to encrypt a string using the Caesar cipher.
    b. Write a program to decrypt a string encrypted using the Caesar cipher.

8. a. Write a program to reverse a string.
    b. Write a program to check if two strings are anagrams.

9. a. Write a program to find the maximum and minimum values in an array.
    b. Write a program to sort an array in ascending order using selection sort.

10. a. Write a program to calculate the area of a triangle given its base and height.
    b. Write a program to calculate the volume of a cylinder given its radius and height.