**Assignment 1: Flow of Control**

1. Write a Java program to generate the Fibonacci series up to a specified number

of terms. The program should prompt the user to enter the number of terms in

the series and then display the Fibonacci series accordingly.

2. Develop a Java program to solve a quadratic equation of the form *ax*2+*bx*+*c* = 0.

The program should prompt the user to enter the coefficients (a, b, c) of the

quadratic equation and then compute and display the roots of the equation.

3. Create a menu-driven Java program that offers various options to the user. The program should display a menu with options such as performing arithmetic operations, calculating area and perimeter of geometric shapes, solving equations, etc. The user can choose an option from the menu, provide necessary inputs, and the program should execute the selected operation accordingly.

4. Sum of Digits: Write a program to find the sum of digits of a number using a do-while loop.

5. Simple Game: Develop a Java program for a simple game where the user guesses a number between 1 and 10. The program should generate a random number and compare it with the user’s guess. Provide feedback using switch-case statements to indicate if the guess was too high, too low, or correct.

6. Write a program to find the maximum and minimum elements in an array using a for loop.

7. Check Leap Year: Write a program to check whether a given year is a leap year or not using a while loop.

8. WAP that calculates the price of a movie ticket based on the age of the

customer and the time of the show. The ticket prices are as follows:

Children (age <= 12): Rs. 5 before 6 PM, Rs. 8 after 6 PM

Adults (age > 12 and age <= 65): Rs. 10 before 6 PM, Rs. 12 after 6 PM

Seniors (age > 65): Rs. 8 for all show times.

9. Create a program that takes three sides of a triangle as input and determines whether the triangle is equilateral, isosceles, or scalene. Here are the definitions:

Equilateral triangle: All three sides are equal in length.

Isosceles triangle: Two sides are equal in length.

Scalene triangle: All three sides have different lengths.

10. Check Prime Palindrome: Write a program to check whether a given number is both prime and a palindrome using a while loop.