Nepal Engineering College

Programming Technology (Java)
Semester IV (BE Computer)

Lab sheet 1: Basic Java Programming

Objective: The main objective of this lab sheet is to make understanding of basic Java programming.

List of Problems

1) WAP in Java to display “Hello World”.
2) WAP in Java to display “Nepal Engineering College” 10 times.
3) WAP in Java to calculate the area of rectangle and triangle. You should take parameters as input from user (Make necessary assumptions if needed.) [Hint: Use two classes for rectangle and triangle and one main class]
4) WAP to find the smallest and largest element and sum of all the elements of an array.
5) WAP to illustrate use of constructors in Java.
6) WAP in java to Illustrate use of Overloading and Overriding.
7) Design a class called "Student" with attributes such as name, roll number, and marks in different subjects. Implement methods to calculate the total marks and average marks of a student.
8) Create a class called "TemperatureConverter" with methods to convert temperature from Celsius to Fahrenheit and vice versa. (Celsius to Fahrenheit : **°C * 9/5 + 32 and** Fahrenheit to Celsius: **°F - 32 * 5/9.)**
9) Create a class called "Person" with attributes like name, age, and gender. Implement a parameterized constructor to initialize these attributes and display the details of a person.
10) Illustration of Interface: Create a superclass called Animal with a method makeSound(). Implement subclasses such as Dog, Cat, and Cow that inherit from Animal and override the makeSound() method with specific sound implementations. Write a program that creates an array of Animal objects and calls the makeSound() method for each object to demonstrate polymorphic behavior.
11) Design a class called ShapeCalculator with overloaded methods for calculating the area of shapes. Implement methods such as calculateArea(int sideLength) for calculating the area of a square, calculateArea(int length, int width) for calculating the area of a rectangle, and calculateArea(double radius) for calculating the area of a circle. Write a program that demonstrates the usage of these overloaded methods by calculating the areas of different shapes.