LAB SET - 2

Assignment-1.

- Write a Java program named Car
- The Car class should have the following attributes: make (String), model (String), year (short), and price(int) .
- The car class should have a constructor that takes all the attributes.
- Add a main method to instantiate car objects.
- The program should allow the user to create and display objects of each Car Class.

Source code

Car.java

```java
package anudip.java.lab;

//Car.java
public class Car {
 // Attributes
 private String make;
 private String model;
 private short year;
 private int price;

 // Constructor
public Car(String make, String model, short year, int price) {
    this.make = make;
    this.model = model;
    this.year = year;
    this.price = price;
}

 // Method to display car details
public void displayCar() {
    System.out.println("Make: " + make);
    System.out.println("Model: " + model);
    System.out.println("Year: " + year);
    System.out.println("Price: " + price);
}

 // Main method
public static void main(String[] args) {
    // Create an array of 5 cars
    Car[] cars = new Car[5];

    cars[0] = new Car("Toyota", "Camry", (short)2023, 2500000);
    cars[1] = new Car("Honda", "Civic", (short)2022, 2000000);
    cars[2] = new Car("Hyundai", "Verna", (short)2021, 1800000);
    cars[3] = new Car("Maruti", "Swift", (short)2021, 800000);
    cars[4] = new Car("Ford", "EcoSport", (short)2020, 950000);

    // Display details for all cars
    for (int i = 0; i < cars.length; i++) {
        System.out.println("\nCar " + (i + 1) + " Details:");
        cars[i].displayCar();
    }
 }
}
```

Output

```
Car 1 Details:
Make: Toyota
Model: Camry
Year: 2023
Price: 2500000

Car 2 Details:
Make: Honda
Model: Civic
Year: 2022
Price: 2000000

Car 3 Details:
Make: Hyundai
Model: Verna
Year: 2021
Price: 1800000

Car 4 Details:
Make: Maruti
Model: Swift
Year: 2021
Price: 800000

Car 5 Details:
Make: Ford
Model: EcoSport
Year: 2020
Price: 950000
```

Assignment-2.

● Write a Java program that demonstrates method overloading by creating a class called Calculator.

● Add three methods called add().

● The first add() method should take two int variables as arguments and return their sum as int.

● The second add() method should take three int variables as arguments and return their sum as int.

● The third add() method should take two doubles as arguments and return their sum as double.

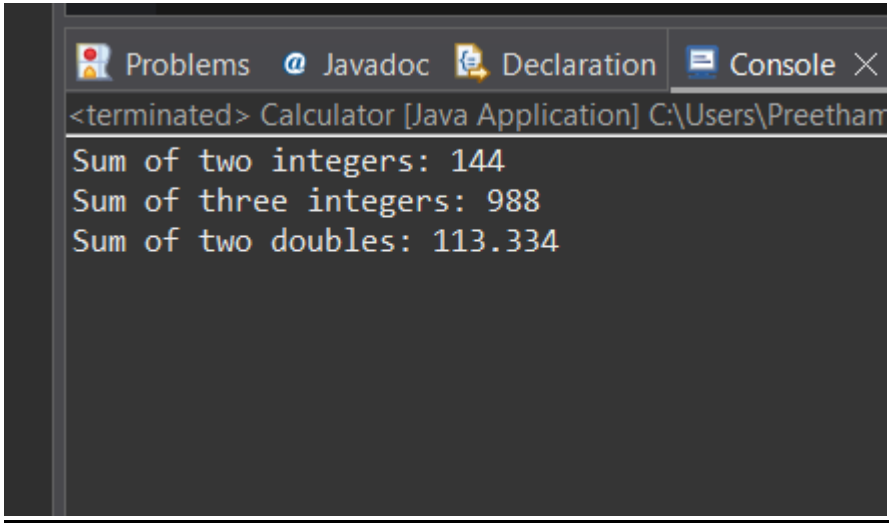
● The program should allow the user to display the results of each method.

Source code

Car.java | Calculator.java

```java
package anudip.java.lab;

//Calculator.java
public class Calculator {
 // add() method with two int arguments
public int add(int a, int b) {
    return a + b;
}

// add() method with three int arguments
public int add(int a, int b, int c) {
    return a + b + c;
}

// add() method with two double arguments
public double add(double a, double b) {
    return a + b;
}

// Main method
public static void main(String[] args) {
    Calculator calc = new Calculator();

    int sum1 = calc.add(46, 98);
    int sum2 = calc.add(154, 450, 384);
    double sum3 = calc.add(27.545, 85.789);

    System.out.println("Sum of two integers: " + sum1);
    System.out.println("Sum of three integers: " + sum2);
    System.out.println("Sum of two doubles: " + sum3);
}
}

```

Output


Problems
Javadoc
Declaration
Console
<terminated> Calculator [Java Application] C:\Users\Preetham
Sum of two integers: 144
Sum of three integers: 988
Sum of two doubles: 113.334

Assignment-3.

- Create a Java Bean Class Student.
- Add three attributes
    - private String name;
    - private int age;
    - private String department;
- Add a constructor that takes all three attributes as parameters.
- Add setter and getter methods
- Compile the program.

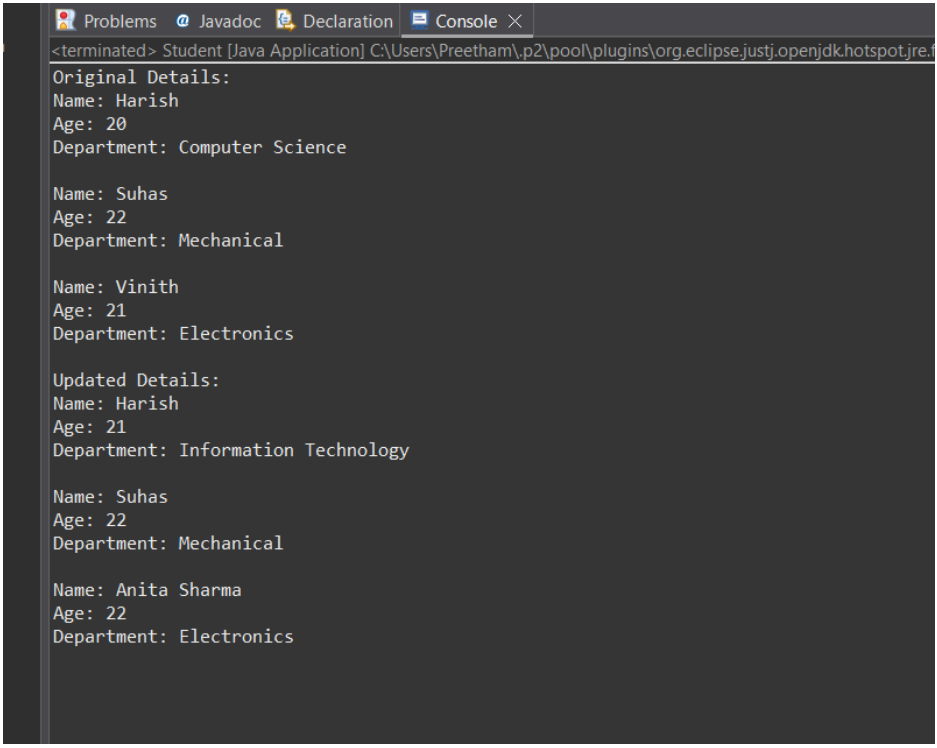
Source code

Car.java CalculatorJava StudentJava

```java
package anudip.java.lab;

// Student.java
public class Student {
    // Attributes
    private String name;
    private int age;
    private String department;

    // Constructor
    public Student(String name, int age, String department) {
        this.name = name;
        this.age = age;
        this.department = department;
    }

    // Getter and Setter for name
    public String getName() {
        return name;
    }
    public void setName(String name) {
        this.name = name;
    }

    // Getter and Setter for age
    public int getAge() {
        return age;
    }
    public void setAge(int age) {
        this.age = age;
    }

    // Getter and Setter for department
    public String getDepartment() {
        return department;
    }
    public void setDepartment(String department) {
        this.department = department;
    }
```

```java
    // Method to display student details
    public void displayStudent() {
        System.out.println("Name: " + name);
        System.out.println("Age: " + age);
        System.out.println("Department: " + department);
    }

    // Main method (for demonstration)
    public static void main(String[] args) {
        // Create 3 Student objects
        Student s1 = new Student("Harish", 20, "Computer Science");
        Student s2 = new Student("Suhas", 22, "Mechanical");
        Student s3 = new Student("Vinith", 21, "Electronics");

        System.out.println("Original Details:");
        s1.displayStudent();
        System.out.println();
        s2.displayStudent();
        System.out.println();
        s3.displayStudent();

        // Modify details of 2 students
        s1.setAge(21);
        s1.setDepartment("Information Technology");

        s3.setName("Anita Sharma");
        s3.setAge(22);

        System.out.println("\nUpdated Details:");
        s1.displayStudent();
        System.out.println();
        s2.displayStudent();  // s2 details remain unchanged
        System.out.println();
        s3.displayStudent();
    }
}
```

Output


Problems
Javadoc
Declaration
Console
<terminated> Student [Java Application] C:\Users\Preetham\.p2\pool\plugins\org.eclipse.justj.openjdk.hotspot.jre.f
Original Details:
Name: Harish
Age: 20
Department: Computer Science
Name: Suhas
Age: 22
Department: Mechanical
Name: Vinith
Age: 21
Department: Electronics
Updated Details:
Name: Harish
Age: 21
Department: Information Technology
Name: Suhas
Age: 22
Department: Mechanical
Name: Anita Sharma
Age: 22
Department: Electronics