

Assignment = 2

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Problem1: Product Class (Easy Level)

```
import java.util.*;

class Product {

    private int id;

    private String name;

    private double price;

    public Product(int id, String name, double price) {

        this.id = id;

        this.name = name;

        this.price = price;

    }

    public void displayProductDetails() {

        System.out.println("Product Details:");

        System.out.println("ID: " + id);

        System.out.println("Name: " + name);

        System.out.println("Price: " + price);

    }

    public static void main(String[] args) {

        Product product = new Product(101, "Laptop", 75000);

        product.displayProductDetails();

    }

}
```

Problem 2: Library Management System (Medium Level)

```
import java.util.*;

class Book {
    protected String title;
    protected String author;
    protected double price;
    public Book(String title, String author, double price) {
        this.title = title;
        this.author = author;
        this.price = price;
    }
    public void displayDetails() {
        System.out.println("Title: " + title);
        System.out.println("Author: " + author);
        System.out.println("Price: " + price);
    }
}

class Fiction extends Book {
    public Fiction(String title, String author, double price) {
        super(title, author, price);
    }
    public void displayDetails() {
        System.out.println("\nFiction Book Details:");
        super.displayDetails();
    }
}

class NonFiction extends Book {
    public NonFiction(String title, String author, double price) {
        super(title, author, price);
    }
    public void displayDetails() {
```

```
        System.out.println("\nNon-Fiction Book Details:");
        super.displayDetails();
    }
}

public class LibraryManagement {
    public static void main(String[] args) {
        Fiction fictionBook = new Fiction("Harry Potter", "J.K. Rowling", 500);
        NonFiction nonFictionBook = new NonFiction("Sapiens", "Yuval Noah Harari", 700);
        fictionBook.displayDetails();
        nonFictionBook.displayDetails();
    }
}
```

Problem3: Student Information System (Hard Level)

```
import java.util.Scanner;

abstract class Person {
    protected String name;
    protected int age;

    public Person(String name, int age) {
        this.name = name;
        this.age = age;
    }

    public abstract void displayDetails();
}

class Student extends Person {
    private int rollNumber;

    public Student(String name, int age, int rollNumber) {
```

```
    super(name, age);
    this.rollNumber = rollNumber;
}
```

```
public void displayDetails() {
    System.out.println("\nStudent Details:");
    System.out.println("Name: " + name);
    System.out.println("Age: " + age);
    System.out.println("Roll Number: " + rollNumber);
}
}
```

```
class Teacher extends Person {
    private String subject;

    public Teacher(String name, int age, String subject) {
        super(name, age);
        this.subject = subject;
    }
}
```

```
public void displayDetails() {
    System.out.println("\nTeacher Details:");
    System.out.println("Name: " + name);
    System.out.println("Age: " + age);
    System.out.println("Subject: " + subject);
}
}
```

```
public class StudentInformationSystem {
    public static void main(String[] args) {
        Scanner scanner = new Scanner(System.in);
    }
}
```

```
// Student details
System.out.println("Add Student:");
System.out.print("Name: ");
String studentName = scanner.nextLine();
System.out.print("Age: ");
int studentAge = scanner.nextInt();
System.out.print("Roll Number: ");
int rollNumber = scanner.nextInt();
scanner.nextLine(); // Consume newline
Student student = new Student(studentName, studentAge, rollNumber);

// Teacher details
System.out.println("\nAdd Teacher:");
System.out.print("Name: ");
String teacherName = scanner.nextLine();
System.out.print("Age: ");
int teacherAge = scanner.nextInt();
scanner.nextLine(); // Consume newline
System.out.print("Subject: ");
String subject = scanner.nextLine();
Teacher teacher = new Teacher(teacherName, teacherAge, subject);
scanner.close();

// Display details
student.displayDetails();
teacher.displayDetails();
}
}
```