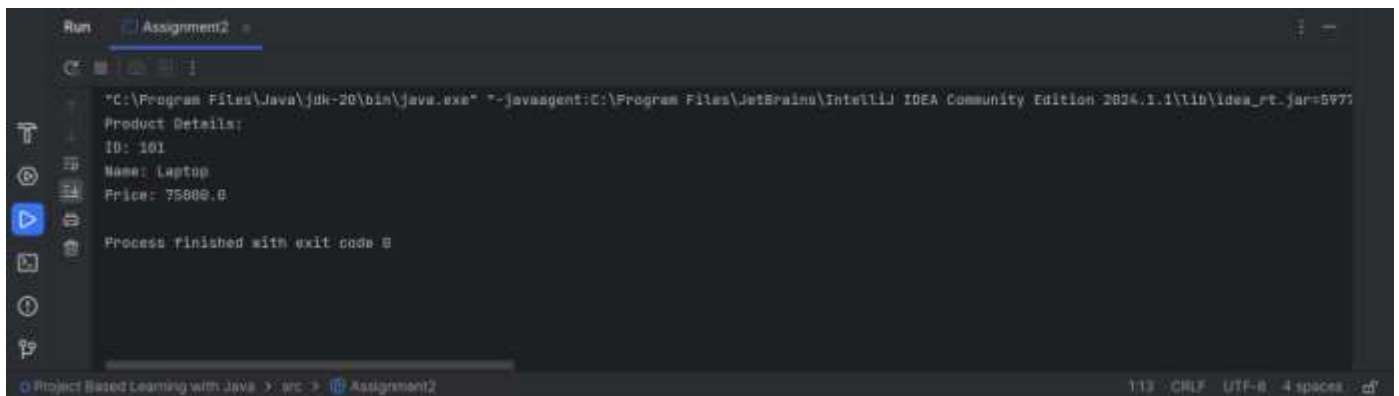


Problem 1: Product Class (Easy Level)

```
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 displayDetails() {  
        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.displayDetails();  
    }  
}
```



The screenshot shows an IDE window titled 'Run' for 'Assignment2'. The command line at the top is: `"C:\Program Files\Java\jdk-20\bin\java.exe" "-javaagent:C:\Program Files\JetBrains\IntelliJ IDEA Community Edition 2024.1.1\lib\idea_rt.jar=5977"`. The output window shows the following text: `Product Details:
ID: 101
Name: Laptop
Price: 75000.0
Process finished with exit code 0`. The status bar at the bottom indicates 'Project Based Learning with Java > src > Assignment2' and '113 · CRLF UTF-8 4 spaces'.

Problem 2: Library Management System (Medium Level)

```
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();
    }
}

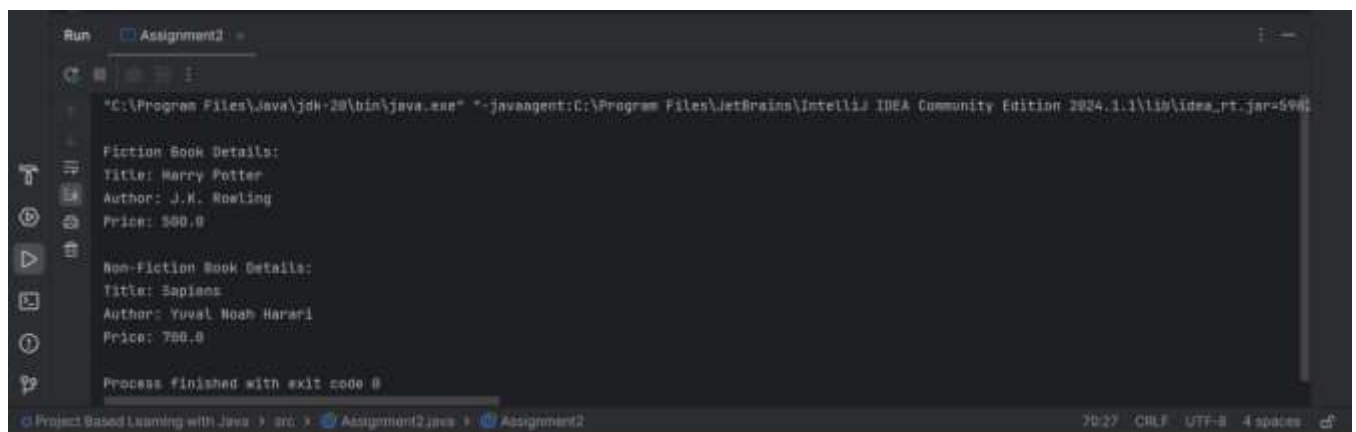
public class LibrarySystem {
    public static void main(String[] args) {
```

```

Fiction fictionBook = new Fiction("Harry Potter", "J.K. Rowling", 500);
NonFiction nonFictionBook = new NonFiction("Sapiens", "Yuval Noah Harari",
700);

fictionBook.displayDetails();
nonFictionBook.displayDetails();
}
}

```



```

Run Assignment2
"C:\Program Files\Java\jdk-20\bin\java.exe" "-javaagent:C:\Program Files\JetBrains\IntelliJ IDEA Community Edition 2024.1.1\lib\idea_rt.jar-5962
Fiction Book Details:
Title: Harry Potter
Author: J.K. Rowling
Price: 500.0

Non-fiction Book Details:
Title: Sapiens
Author: Yuval Noah Harari
Price: 700.0

Process finished with exit code 0

```

Problem 3: Student Information System (Hard Level)

```

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;
    }
}

```

```

@Override
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;
    }

    @Override
    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 StudentInfoSystem {
    public static void main(String[] args) {
        Student student = new Student("Alice", 20, 101);
        Teacher teacher = new Teacher("Mr. Smith", 40, "Mathematics");

        student.displayDetails();
        teacher.displayDetails();
    }
}

```

```
Run Assignment2
C:\Program Files\Java\jdk-20\bin\java.exe" ^-javaagent:C:\Program Files\JetBrains\IntelliJ IDEA Community Edition 2024.1.3\lib\idea_rt.jar=598c
Student Details:
Name: Alice
Age: 20
Roll Number: 101
Teacher Details:
Name: Mr. Smith
Age: 40
Subject: Mathematics
Process finished with exit code 0
```

Project Based Learning with Java > src > Assignment2.java > Assignment2 > main 138 B CRLF UTF-8 4 spaces