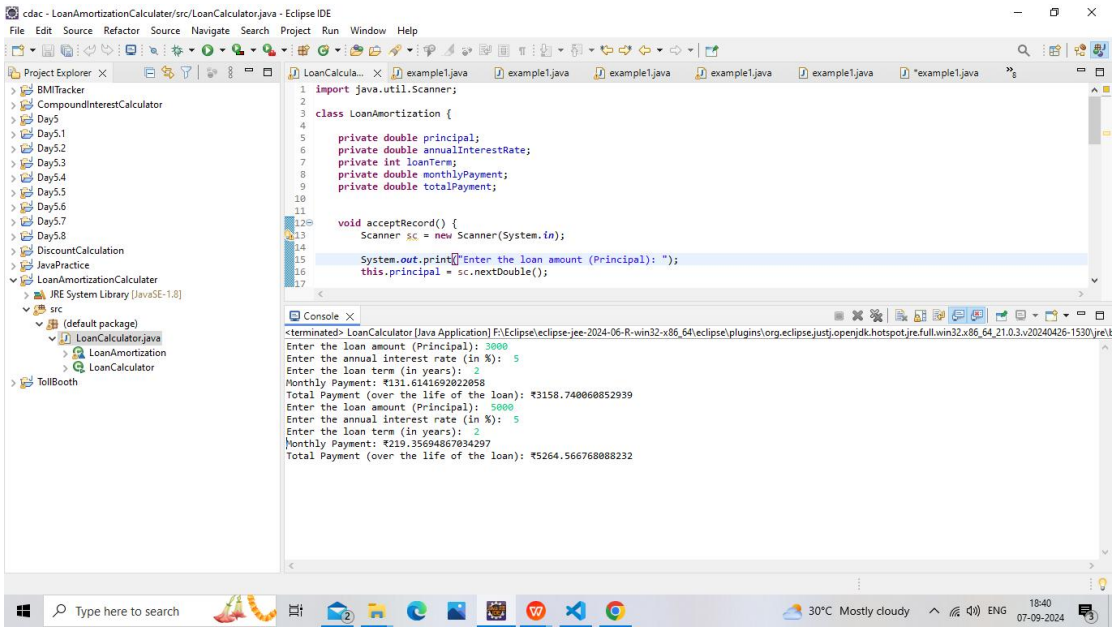
Question1

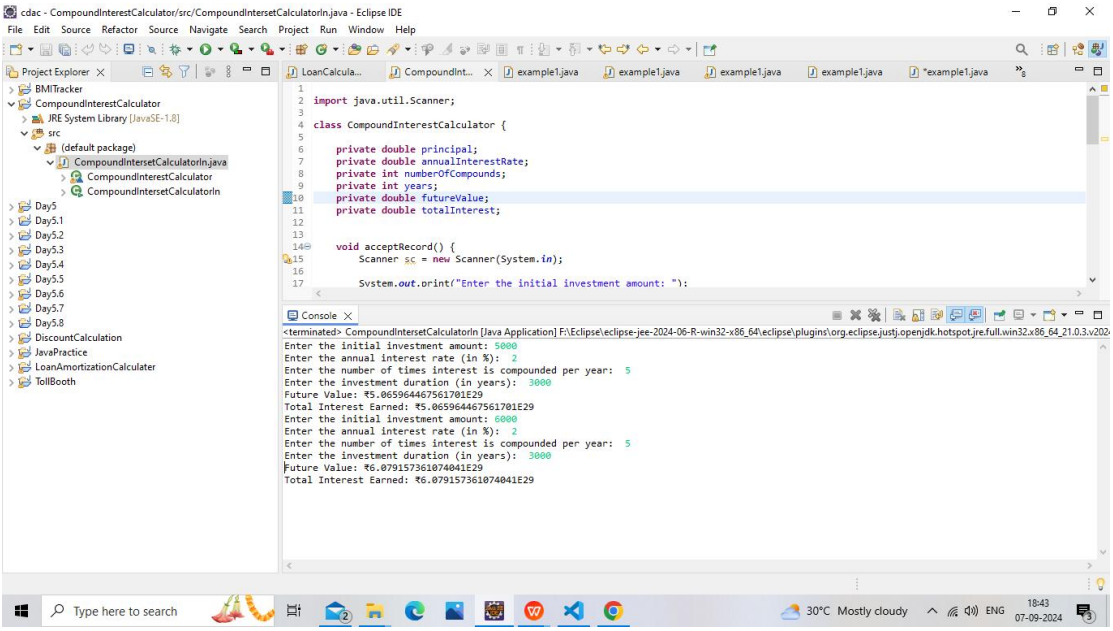
```
import java.util.Scanner;

class LoanAmortization {
private double principal;
private double annualInterestRate;
private int loanTerm;
private double monthlyPayment;
private double totalPayment;

void acceptRecord() {
Scanner sc = new Scanner(System.in);

System.out.print("Enter the loan amount (Principal): ");
this.principal = sc.nextDouble();

System.out.print("Enter the annual interest rate (in %): ");
this.annualInterestRate = sc.nextDouble();

System.out.print("Enter the loan term (in years): ");
this.loanTerm = sc.nextInt();
}

void calculateMonthlyPayment() {
double monthlyInterestRate = annualInterestRate / 12 / 100;
int numberOfMonths = loanTerm * 12;

this.monthlyPayment = principal * (monthlyInterestRate * Math.pow((1 +
monthlyInterestRate), numberOfMonths)) /
(Math.pow((1 + monthlyInterestRate), numberOfMonths) - 1);

this.totalPayment = this.monthlyPayment * loanTerm * 12;
}

void printRecord() {
System.out.println("Monthly Payment: ₹" + this.monthlyPayment);
System.out.println("Total Payment (over the life of the loan): ₹" +
this.totalPayment);
}
}

public class LoanCalculator {
public static void main(String[] args) {
LoanAmortization loan1 = new LoanAmortization();
LoanAmortization loan2 = new LoanAmortization();

loan1.acceptRecord();
loan1.calculateMonthlyPayment();
loan1.printRecord();

loan2.acceptRecord();
loan2.calculateMonthlyPayment();
loan2.printRecord();
}
}
```



Question2

```
import java.util.Scanner;

class CompoundInterestCalculator {
private double principal;
private double annualInterestRate;
private int numberOfCompounds;
private int years;
private double futureValue;
private double totalInterest;

void acceptRecord() {
Scanner sc = new Scanner(System.in);

System.out.print("Enter the initial investment amount: ");
this.principal = sc.nextDouble();

System.out.print("Enter the annual interest rate (in %): ");
this.annualInterestRate = sc.nextDouble();

System.out.print("Enter the number of times interest is compounded per year:
");
this.numberOfCompounds = sc.nextInt();

System.out.print("Enter the investment duration (in years): ");
this.years = sc.nextInt();
}

void calculateFutureValue() {
double rate = annualInterestRate / 100;
this.futureValue = principal * Math.pow((1 + rate / numberOfCompounds),
numberOfCompounds * years);
this.totalInterest = futureValue - principal;
```

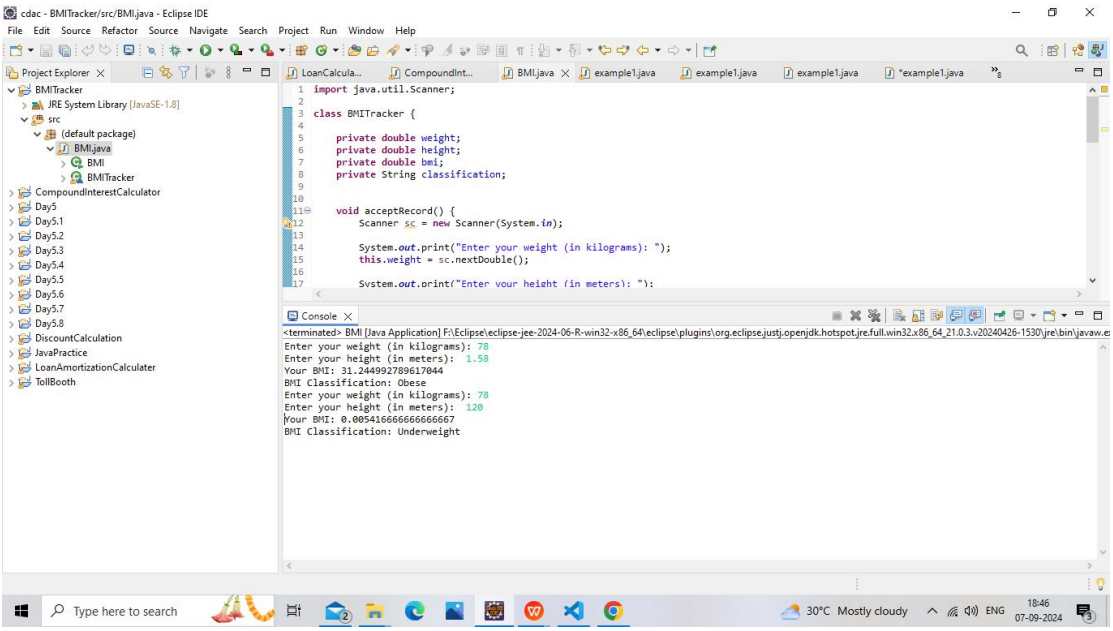
```
}

void printRecord() {
System.out.println("Future Value: ₹" + this.futureValue);
System.out.println("Total Interest Earned: ₹" + this.totalInterest);
}
}

public class CompoundIntersetCalculatorIn {
public static void main(String[] args) {
CompoundInterestCalculator investment1 = new CompoundInterestCalculator();
CompoundInterestCalculator investment2 = new CompoundInterestCalculator();

investment1.acceptRecord();
investment1.calculateFutureValue();
investment1.printRecord();

investment2.acceptRecord();
investment2.calculateFutureValue();
investment2.printRecord();
}
}
```



Question3

```
import java.util.Scanner;

class BMITracker {
private double weight;
private double height;
private double bmi;
private String classification;

void acceptRecord() {
Scanner sc = new Scanner(System.in);
```

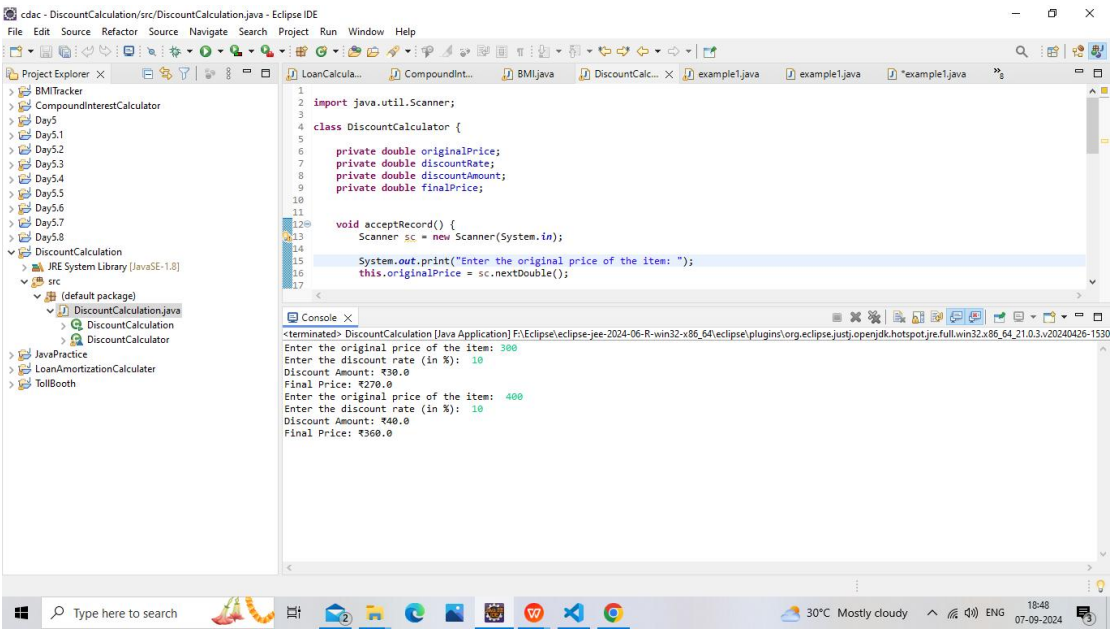
```
System.out.print("Enter your weight (in kilograms): ");
this.weight = sc.nextDouble();

System.out.print("Enter your height (in meters): ");
this.height = sc.nextDouble();
}

void calculateBMI() {
this.bmi = weight / (height * height);
}

void classifyBMI() {
if (bmi < 18.5) {
this.classification = "Underweight";
} else if (bmi >= 18.5 && bmi < 24.9) {
this.classification = "Normal weight";
} else if (bmi >= 25 && bmi < 29.9) {
this.classification = "Overweight";
} else if (bmi >= 30) {
this.classification = "Obese";
}
}

void printRecord() {
System.out.println("Your BMI: " + this.bmi);
System.out.println("BMI Classification: " + this.classification);
}
}

public class BMI {
public static void main(String[] args) {
BMITracker person1 = new BMITracker();
BMITracker person2 = new BMITracker();

person1.acceptRecord();
person1.calculateBMI();
person1.classifyBMI();
person1.printRecord();

person2.acceptRecord();
person2.calculateBMI();
person2.classifyBMI();
person2.printRecord();
}
}
```



Question4

```
import java.util.Scanner;

class DiscountCalculator {
private double originalPrice;
private double discountRate;
private double discountAmount;
private double finalPrice;

void acceptRecord() {
Scanner sc = new Scanner(System.in);

System.out.print("Enter the original price of the item: ");
this.originalPrice = sc.nextDouble();

System.out.print("Enter the discount rate (in %): ");
this.discountRate = sc.nextDouble();
}

void calculateDiscount() {
this.discountAmount = originalPrice * (discountRate / 100);
this.finalPrice = originalPrice - discountAmount;
}

void printRecord() {
System.out.println("Discount Amount: ₹" + this.discountAmount);
System.out.println("Final Price: ₹" + this.finalPrice);
}
}


public class DiscountCalculation {
public static void main(String[] args) {
DiscountCalculator item1 = new DiscountCalculator();
```

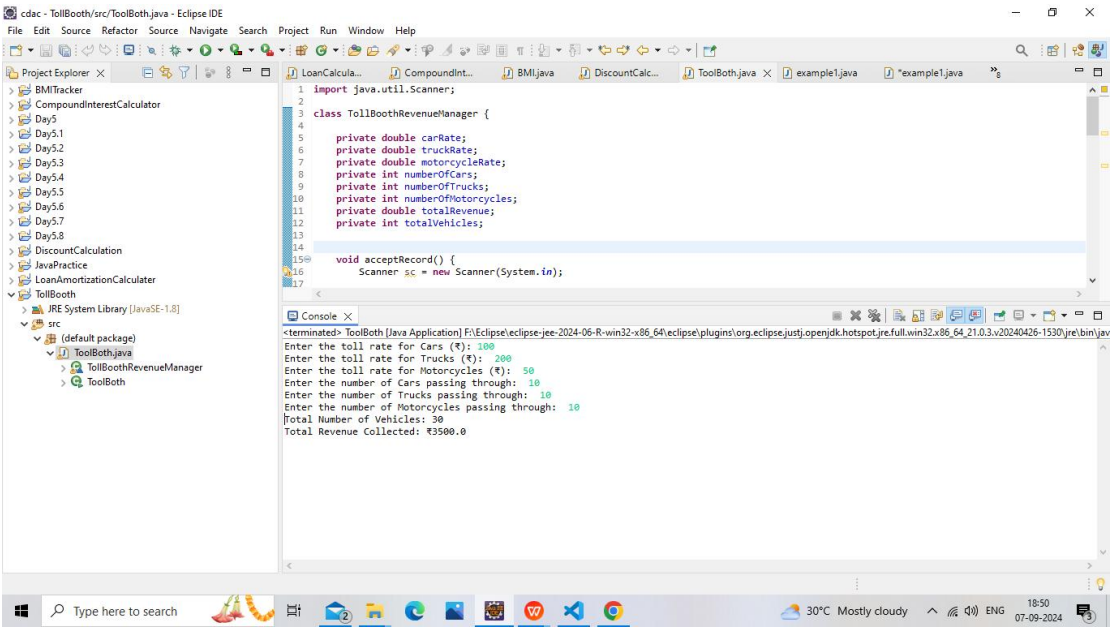
```
DiscountCalculator item2 = new DiscountCalculator();

item1.acceptRecord();
item1.calculateDiscount();
item1.printRecord();

item2.acceptRecord();
item2.calculateDiscount();
item2.printRecord();
}
}
```



Question5

```
import java.util.Scanner;

class TollBoothRevenueManager {
private double carRate;
private double truckRate;
private double motorcycleRate;
private int numberOfCars;
private int numberOfTrucks;
private int numberOfMotorcycles;
private double totalRevenue;
private int totalVehicles;

void acceptRecord() {
Scanner sc = new Scanner(System.in);

System.out.print("Enter the number of Cars passing through: ");
this.numberOfCars = sc.nextInt();

System.out.print("Enter the number of Trucks passing through: ");
this.numberOfTrucks = sc.nextInt();
```

```
System.out.print("Enter the number of Motorcycles passing through: ");
this.numberOfMotorcycles = sc.nextInt();
}

void setTollRates() {
Scanner sc = new Scanner(System.in);

System.out.print("Enter the toll rate for Cars (₹): ");
this.carRate = sc.nextDouble();

System.out.print("Enter the toll rate for Trucks (₹): ");
this.truckRate = sc.nextDouble();

System.out.print("Enter the toll rate for Motorcycles (₹): ");
this.motorcycleRate = sc.nextDouble();
}

void calculateRevenue() {
this.totalRevenue = (numberOfCars * carRate) +
(numberOfTrucks * truckRate) +
(numberOfMotorcycles * motorcycleRate);

this.totalVehicles = numberOfCars + numberOfTrucks + numberOfMotorcycles;
}

void printRecord() {
System.out.println("Total Number of Vehicles: " + this.totalVehicles);
System.out.println("Total Revenue Collected: ₹" + this.totalRevenue);
}
}

public class ToolBoth {
public static void main(String[] args) {
TollBoothRevenueManager tollBooth = new TollBoothRevenueManager();

tollBooth.setTollRates();

tollBooth.acceptRecord();

tollBooth.calculateRevenue();

tollBooth.printRecord();
}
}
```


cdac - TollBooth/src/ToolBoth.java - Eclipse IDE
File Edit Source Refactor Source Navigate Search Project Run Window Help
Project Explorer
BMITracker
CompoundInterestCalculator
Day5
Day5.1
Day5.2
Day5.3
Day5.4
Day5.5
Day5.6
Day5.7
Day5.8
DiscountCalculation
JavaPractice
LoanAmortizationCalculater
TollBooth
JRE System Library [JavaSE-1.8]
src
(default package)
ToolBoth.java
TollBoothRevenueManager
ToolBoth
LoanCalcula...
CompoundInt...
BMI.java
DiscountCalc...
ToolBoth.java
example1.java
*example1.java
1 import java.util.Scanner;
2
3 class TollBoothRevenueManager {
4
5 private double carRate;
6 private double truckRate;
7 private double motorcycleRate;
8 private int numberOfCars;
9 private int numberOfTrucks;
10 private int numberOfMotorcycles;
11 private double totalRevenue;
12 private int totalVehicles;
13
14
15 void acceptRecord() {
16 Scanner sc = new Scanner(System.in);
17
Console
<terminated> ToolBoth [Java Application] F:\Eclipse\eclipse-jee-2024-06-R-win32-x86_64\eclipse\plugins\org.eclipse.justj.openjdk.hotspot.jre.full.win32.x86_64_21.0.3.v20240426-1530\jre\bin\jav
Enter the toll rate for Cars (₹): 100
Enter the toll rate for Trucks (₹): 200
Enter the toll rate for Motorcycles (₹): 50
Enter the number of Cars passing through: 10
Enter the number of Trucks passing through: 10
Enter the number of Motorcycles passing through: 10
Total Number of Vehicles: 30
Total Revenue Collected: ₹3500.0
Type here to search
30°C Mostly cloudy
ENG
18:50
07-09-2024