Question1

```
import java.util.Scanner;
class LoanAmortization {
private double principal;
private double annualInterestRate;
private int loanTerm;
private double monthlyPayment;
private double totalPayment;
public double getPrincipal() {
return principal;
}
public void setPrincipal(double principal) {
this.principal = principal;
public double getAnnualInterestRate() {
return annualInterestRate;
public void setAnnualInterestRate(double annualInterestRate) {
this.annualInterestRate = annualInterestRate;
public int getLoanTerm() {
return loanTerm;
}
public void setLoanTerm(int loanTerm) {
this.loanTerm = loanTerm;
}
public double getMonthlyPayment() {
return monthlyPayment;
}
public double getTotalPayment() {
return totalPayment;
void acceptRecord() {
Scanner sc = new Scanner(System.in);
System.out.print("Enter the loan amount (Principal): ");
setPrincipal(sc.nextDouble());
System.out.print("Enter the annual interest rate (in %): ");
setAnnualInterestRate(sc.nextDouble());
System.out.print("Enter the loan term (in years): ");
setLoanTerm(sc.nextInt());
}
void calculateMonthlyPayment() {
```

```
double monthlyInterestRate = getAnnualInterestRate() / 12 / 100;
int numberOfMonths = getLoanTerm() * 12;
this.monthlyPayment = getPrincipal() * (monthlyInterestRate * Math.pow((1 +
monthlyInterestRate), numberOfMonths)) /
(Math.pow((1 + monthlyInterestRate), numberOfMonths) - 1);
this.totalPayment = this.monthlyPayment * numberOfMonths;
}
void printRecord() {
System.out.println("Monthly Payment: ₹" + getMonthlyPayment());
System.out.println("Total Payment (over the life of the loan): ₹" +
getTotalPayment());
}
}
public class LoanCalculator {
public static void main(String[] args) {
LoanAmortization loan1 = new LoanAmortization();
LoanAmortization loan2 = new LoanAmortization();
System.out.println("Enter details for Loan 1:");
loan1.acceptRecord();
loan1.calculateMonthlyPayment();
loan1.printRecord();
System.out.println("\nEnter details for Loan 2:");
loan2.acceptRecord();
loan2.calculateMonthlyPayment();
loan2.printRecord();
}
}
                                                         DoanCalculatorjava X D CompoundinterestCalc... D SMijava D Discount this.principal = principal;

this.principal = principal;

blue public double getAnnualInterestRate() {
    return annualInterestRate;

    public void setAnnualInterestRate = annualInterestRate;

    this.annualInterestRate = annualInterestRate;

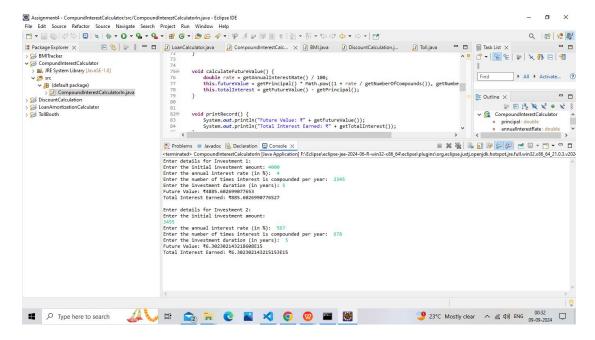
    public int getLoanTerm() {
    return loanTerm;
}

public int getLoanTerm() {
    return loanTerm;
}

public int getLoanTerm() {
    return loanTerm;
}
}
Assignment4 - LoanAmortizationCalculator/src/LoanCalculator.java - Eclipse IDE
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                                                                                                                                                                                                         getLoanTerm(): int
setLoanTerm(int): void
getMonthlyPayment(): double
getTotalPayment(): double
acceptRecord(): void
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                                                            Enter details for Loan 2:
Enter the loan amount (Principal): 12
Enter the house interest rate (in %): 13
Enter the annual interest rate (in %): 13
Enter the loan term (in years): 18
Monthly Payment: ₹3.1421875448198615
Total Payment (over the life of the loan): ₹32.41888802169838
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```

```
import java.util.Scanner;
class CompoundInterestCalculator {
private double principal;
private double annualInterestRate;
private int numberOfCompounds;
private int years;
private double futureValue;
private double totalInterest;
public double getPrincipal() {
return principal;
}
public void setPrincipal(double principal) {
this.principal = principal;
}
public double getAnnualInterestRate() {
return annualInterestRate;
}
public void setAnnualInterestRate(double annualInterestRate) {
this.annualInterestRate = annualInterestRate;
public int getNumberOfCompounds() {
return numberOfCompounds;
public void setNumberOfCompounds(int numberOfCompounds) {
this.numberOfCompounds = numberOfCompounds;
}
public int getYears() {
return years;
}
public void setYears(int years) {
this.years = years;
}
public double getFutureValue() {
return futureValue;
public double getTotalInterest() {
return totalInterest;
void acceptRecord() {
Scanner <u>sc</u> = new Scanner(System.in);
System.out.print("Enter the initial investment amount: ");
setPrincipal(sc.nextDouble());
System.out.print("Enter the annual interest rate (in %): ");
```

```
setAnnualInterestRate(sc.nextDouble());
System.out.print("Enter the number of times interest is compounded per year:
");
setNumberOfCompounds(sc.nextInt());
System.out.print("Enter the investment duration (in years): ");
setYears(sc.nextInt());
}
void calculateFutureValue() {
double rate = getAnnualInterestRate() / 100;
this.futureValue = getPrincipal() * Math.pow((1 + rate /
getNumberOfCompounds()), getNumberOfCompounds() * getYears());
this.totalInterest = getFutureValue() - getPrincipal();
}
void printRecord() {
System.out.println("Future Value: ₹" + getFutureValue());
System.out.println("Total Interest Earned: ₹" + getTotalInterest());
}
}
public class CompoundInterestCalculatorIn {
public static void main(String[] args) {
CompoundInterestCalculator investment1 = new CompoundInterestCalculator();
CompoundInterestCalculator investment2 = new CompoundInterestCalculator();
System.out.println("Enter details for Investment 1:");
investment1.acceptRecord();
investment1.calculateFutureValue();
investment1.printRecord();
System.out.println("\nEnter details for Investment 2:");
investment2.acceptRecord();
investment2.calculateFutureValue();
investment2.printRecord();
}
}
```



Question3

```
import java.util.Scanner;
class DiscountCalculator {
private double originalPrice;
private double discountRate;
private double discountAmount;
private double finalPrice;
public double getOriginalPrice() {
return originalPrice;
public void setOriginalPrice(double originalPrice) {
this.originalPrice = originalPrice;
}
public double getDiscountRate() {
return discountRate;
}
public void setDiscountRate(double discountRate) {
this.discountRate = discountRate;
}
public double getDiscountAmount() {
return discountAmount;
public double getFinalPrice() {
return finalPrice;
}
void calculateDiscount() {
this.discountAmount = getOriginalPrice() * (getDiscountRate() / 100);
this.finalPrice = getOriginalPrice() - getDiscountAmount();
```

```
}
void printRecord() {
System.out.println("Discount Amount: ₹" + getDiscountAmount());
System.out.println("Final Price: ₹" + getFinalPrice());
}
}
public class DiscountCalculation {
public static void main(String[] args) {
Scanner <u>sc</u> = new Scanner(System.in);
DiscountCalculator item1 = new DiscountCalculator();
DiscountCalculator item2 = new DiscountCalculator();
System.out.println("Enter details for Item 1:");
System.out.print("Enter the original price of the item: ");
item1.setOriginalPrice(sc.nextDouble());
System.out.print("Enter the discount rate (in %): ");
item1.setDiscountRate(sc.nextDouble());
item1.calculateDiscount();
item1.printRecord();
System.out.println("\nEnter details for Item 2:");
System.out.print("Enter the original price of the item: ");
item2.setOriginalPrice(sc.nextDouble());
System.out.print("Enter the discount rate (in %): ");
item2.setDiscountRate(sc.nextDouble());
item2.calculateDiscount();
item2.printRecord();
}
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19e public double getDiscountRate() {
20 return discountRate;
21 }
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22
23 public void setDiscountRate(double di
4 this.discountRate = discountRate;
5 }
26
27
28 public double getDiscountAmount() {
9 return discountAmount;
50 }
51
32
338 public double setFinalPrice() {
                                                                    B Outline ×
```

Question4

```
import java.util.Scanner;
class BMITracker {
private double weight;
private double height;
private double bmi;
private String classification;
public double getWeight() {
return weight;
public void setWeight(double weight) {
this.weight = weight;
public double getHeight() {
return height;
}
public void setHeight(double height) {
this.height = height;
}
public double getBMI() {
return bmi;
public String getClassification() {
return classification;
}
void calculateBMI() {
this.bmi = getWeight() / (getHeight() * getHeight());
}
void classifyBMI() {
if (getBMI() < 18.5) {</pre>
this.classification = "Underweight";
} else if (getBMI() >= 18.5 && getBMI() < 24.9) {</pre>
this.classification = "Normal weight";
} else if (getBMI() >= 25 && getBMI() < 29.9) {</pre>
this.classification = "Overweight";
this.classification = "Obese";
}
}
void printRecord() {
System.out.println("Your BMI: " + getBMI());
System.out.println("BMI Classification: " + getClassification());
}
}
public class BMI {
```

```
public static void main(String[] args) {
Scanner <u>sc</u> = new Scanner(System.in);
BMITracker person1 = new BMITracker();
BMITracker person2 = new BMITracker();
System.out.println("Enter details for Person 1:");
System.out.print("Enter your weight (in kilograms): ");
person1.setWeight(sc.nextDouble());
System.out.print("Enter your height (in meters): ");
person1.setHeight(sc.nextDouble());
person1.calculateBMI();
person1.classifyBMI();
person1.printRecord();
System.out.println("\nEnter details for Person 2:");
System.out.print("Enter your weight (in kilograms): ");
person2.setWeight(sc.nextDouble());
System.out.print("Enter your height (in meters): ");
person2.setHeight(sc.nextDouble());
person2.calculateBMI();
person2.classifyBMI();
person2.printRecord();
}
}
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3 class BNLTracker (
4 private double weight;
5 private double height;
6 private double height;
7 private String classification;
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                                                                                      Enter details for Person 2:
Enter your weight (in kilograms): 456
Enter your height (in meters): 34
Your BMI: 0.3944636678200692
BMI Classification: Underweight
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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;
public double getCarRate() {
return carRate;
public void setCarRate(double carRate) {
this.carRate = carRate;
public double getTruckRate() {
return truckRate;
}
public void setTruckRate(double truckRate) {
this.truckRate = truckRate;
}
public double getMotorcycleRate() {
return motorcycleRate;
}
public void setMotorcycleRate(double motorcycleRate) {
this.motorcycleRate = motorcycleRate;
}
public int getNumberOfCars() {
return numberOfCars;
public void setNumberOfCars(int numberOfCars) {
this.numberOfCars = numberOfCars;
public int getNumberOfTrucks() {
return numberOfTrucks;
}
public void setNumberOfTrucks(int numberOfTrucks) {
this.numberOfTrucks = numberOfTrucks;
}
public int getNumberOfMotorcycles() {
return numberOfMotorcycles;
}
public void setNumberOfMotorcycles(int numberOfMotorcycles) {
this.numberOfMotorcycles = numberOfMotorcycles;
public double getTotalRevenue() {
return totalRevenue;
```

```
}
public int getTotalVehicles() {
return totalVehicles;
void acceptRecord() {
Scanner <u>sc</u> = new Scanner(System.in);
System.out.print("Enter the number of Cars passing through: ");
setNumberOfCars(sc.nextInt());
System.out.print("Enter the number of Trucks passing through: ");
setNumberOfTrucks(sc.nextInt());
System.out.print("Enter the number of Motorcycles passing through: ");
setNumberOfMotorcycles(sc.nextInt());
}
void setTollRates() {
Scanner <u>sc</u> = new Scanner(System.in);
System.out.print("Enter the toll rate for Cars (₹): ");
setCarRate(sc.nextDouble());
System.out.print("Enter the toll rate for Trucks (₹): ");
setTruckRate(sc.nextDouble());
System.out.print("Enter the toll rate for Motorcycles (₹): ");
setMotorcycleRate(sc.nextDouble());
}
void calculateRevenue() {
this.totalRevenue = (getNumberOfCars() * getCarRate()) +
(getNumberOfTrucks() * getTruckRate()) +
(getNumberOfMotorcycles() * getMotorcycleRate());
this.totalVehicles = getNumberOfCars() + getNumberOfTrucks() +
getNumberOfMotorcycles();
void printRecord() {
System.out.println("Total Number of Vehicles: " + getTotalVehicles());
System.out.println("Total Revenue Collected: ₹" + getTotalRevenue());
}
public class Toll {
public static void main(String[] args) {
TollBoothRevenueManager tollBooth = new TollBoothRevenueManager();
tollBooth.setTollRates();
tollBooth.acceptRecord();
tollBooth.calculateRevenue();
```

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