Question No-1

**package** com.assignment;

**import** java.util.Scanner;

**public** **class** LoanAmortizationCalculator {

**private** **long** loanAmount;

**private** **double** interestRate;

**private** **int** loanTerm;

**private** **double** monthlyPayment;

**private** **double** totalPayment;

**public** LoanAmortizationCalculator() {

}

**public** **long** getLoanAmount() {

**return** loanAmount;

}

**public** **void** setLoanAmount(**long** loanAmount) {

**this**.loanAmount = loanAmount;

}

**public** **double** getInterestRate() {

**return** interestRate;

}

**public** **void** setInterestRate(**double** interestRate) {

**this**.interestRate = interestRate;

}

**public** **int** getLoanTerm() {

**return** loanTerm;

}

**public** **void** setLoanTerm(**int** loanTerm) {

**this**.loanTerm = loanTerm;

}

**public** LoanAmortizationCalculator(**long** loanAmount, **double** interestRate, **int** loanTerm) {

**super**();

**this**.loanAmount = loanAmount;

**this**.interestRate = interestRate;

**this**.loanTerm = loanTerm;

}

@Override

**public** String toString() {

**return** "LoanAmortizationCalculator [loanAmount=" + loanAmount + ", interestRate=" + interestRate + ", loanTerm="

+ loanTerm + "]";

}

**public** **void** calculateMonthlyPayment() {

**double** monthlyInterestRate = interestRate / 12 / 100;

**double** numberOfMonths = loanTerm \* 12;

**this**.monthlyPayment = loanAmount \* (monthlyInterestRate \* Math.*pow*(1 + monthlyInterestRate, numberOfMonths))

/ (Math.*pow*(1 + monthlyInterestRate, numberOfMonths) - 1);

System.***out***.println("Monthly Payment : " + monthlyPayment);

**this**.totalPayment = monthlyPayment \* numberOfMonths;

System.***out***.println("TotalPayment : " + totalPayment);

}

**static** **class** LoanAmortizationCalculatorUtil {

LoanAmortizationCalculator lac = **new** LoanAmortizationCalculator();

**public** **void** acceptRecord() {

Scanner scan = **new** Scanner(System.***in***);

System.***out***.println("Enter the Loan Amount :");

lac.setLoanAmount(scan.nextLong());

System.***out***.println("Enter the Interest Rate :");

lac.setInterestRate(scan.nextDouble());

System.***out***.println("Enter the Loan Term :");

lac.setLoanTerm(scan.nextInt());

}

**public** **void** printRecord() {

LoanAmortizationCalculator lac = **new** LoanAmortizationCalculator();

lac.calculateMonthlyPayment();

System.***out***.println("Loan Amount : " + lac.getLoanAmount());

System.***out***.println("Interest Rate : " + lac.getInterestRate());

System.***out***.println("Loan Term : " + lac.getLoanTerm());

// lac.calculateMonthlyPayment();

}

**public** **static** **int** menuList() {

Scanner scan = **new** Scanner(System.***in***);

System.***out***.print("Enter choice : ");

**int** choice = scan.nextInt();

**return** choice;

}

}

**public** **static** **class** Program {

**public** **static** **void** main(String[] args) {

**int** choice;

LoanAmortizationCalculatorUtil util = **new** LoanAmortizationCalculatorUtil();

**while** ((choice = LoanAmortizationCalculatorUtil.*menuList*()) != 0) {

**switch** (choice) {

**case** 1:

util.acceptRecord();

**break**;

**case** 2:

util.printRecord();

**break**;

}

}

}

}

}

Question No-2

**package** com.assignment;

**import** java.util.Scanner;

**import** com.assignment.LoanAmortizationCalculator.LoanAmortizationCalculatorUtil;

**public** **class** CompoundInterestCalculator {

**private** **double** initialInvestmentAmount;

**private** **double** annualInterestRate;

**private** **int** numberOfCompounds;

**private** **int** investmentDuration;

**private** **double** futureValue;

**private** **double** totalInterest;

**public** CompoundInterestCalculator(**double** initialInvestmentAmount, **double** annualInterestRate, **int** numberOfCompounds,

**int** investmentDuration) {

**super**();

**this**.initialInvestmentAmount = initialInvestmentAmount;

**this**.annualInterestRate = annualInterestRate;

**this**.numberOfCompounds = numberOfCompounds;

**this**.investmentDuration = investmentDuration;

}

**public** **double** getInitialInvestmentAmount() {

**return** initialInvestmentAmount;

}

**public** **void** setInitialInvestmentAmount(**double** initialInvestmentAmount) {

**this**.initialInvestmentAmount = initialInvestmentAmount;

}

**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** getInvestmentDuration() {

**return** investmentDuration;

}

**public** **void** setInvestmentDuration(**int** investmentDuration) {

**this**.investmentDuration = investmentDuration;

}

@Override

**public** String toString() {

**return** "CompoundInterestCalculator [initialInvestmentAmount=" + initialInvestmentAmount

+ ", annualInterestRate=" + annualInterestRate + ", numberOfCompounds=" + numberOfCompounds

+ ", investmentDuration=" + investmentDuration + "]";

}

**public** **void** calculateFutureValue() {

// Future Value Calculation

**this**.futureValue = initialInvestmentAmount

\* Math.*pow*((1 + annualInterestRate / numberOfCompounds), numberOfCompounds \* investmentDuration);

System.***out***.println("Future Value :"+futureValue);

// Total Interest Earned

**this**.totalInterest = futureValue - initialInvestmentAmount;

System.***out***.println("Total Interest : "+totalInterest);

}

**public** CompoundInterestCalculator() {

}

}

**class** CompoundInterestCalculatorUtil {

CompoundInterestCalculator cic = **new** CompoundInterestCalculator();

**public** **void** acceptRecord() {

Scanner scan = **new** Scanner(System.***in***);

System.***out***.println("Enter the Initial Investment Amount :");

System.***out***.println("Enter the Annual Interest Rate :");

cic.setInitialInvestmentAmount(scan.nextDouble());

System.***out***.println("Enter the Number of times interest is compounded :");

cic.setAnnualInterestRate(scan.nextDouble());

System.***out***.println("Enter the Investment Duration :");

cic.setInvestmentDuration(scan.nextInt());

}

**public** **void** printRecord() {

System.***out***.println("Initial Investment : " + cic.getInitialInvestmentAmount());

System.***out***.println("InteresetRate : " + cic.getAnnualInterestRate());

System.***out***.println("Investment Duration : " + cic.getInvestmentDuration());

CompoundInterestCalculator cic=**new** CompoundInterestCalculator();

cic.calculateFutureValue();

}

**public** **int** menuList() {

Scanner scan = **new** Scanner(System.***in***);

System.***out***.print("Enter choice : ");

**int** choice = scan.nextInt();

**return** choice;

}

}

**package** com.assignment;

**import** java.util.Scanner;

**public** **class** Program {

**public** **static** **void** main(String[] args) {

Scanner scan=**new** Scanner(System.***in***);

CompoundInterestCalculatorUtil cicu=**new** CompoundInterestCalculatorUtil();

**int** choice;

**while** ( ( choice = cicu.menuList() ) != 0 ) {

**switch**( choice ) {

**case** 1:

cicu.acceptRecord();

**break**;

**case** 2:

cicu.printRecord();

**break**;

}

}

}

}

Question No-3

**package** com.assignment;

**public** **class** BMITracker {

**private** **double** weight;

**private** **double** height;

**private** **double** bmi;

**public** BMITracker() {

}

**public** BMITracker(**double** weight, **double** height) {

**super**();

**this**.weight = weight;

**this**.height = height;

}

**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;

}

@Override

**public** String toString() {

**return** "BMITracker [weight=" + weight + ", height=" + height + "]";

}

**public** **void** calculateBmi() {

bmi = weight / (height \* height);

System.***out***.println(bmi);

}

**public** **void** classifyBmi(**double** bmi) {

**if**(bmi<18.5) {

System.***out***.println("Underweight");

}**else** **if**(bmi>=18.5 && bmi<24.9) {

System.***out***.println("Normal Weight");

}**else** **if**(bmi>=25 && bmi<29.9) {

System.***out***.println("Overweight");

}**else** {

System.***out***.println("Obese");

}

}

}

**package** com.assignment;

**import** java.util.Scanner;

**public** **class** BMITrackerUtil {

**public** **void** acceptRecord() {

BMITracker bmt = **new** BMITracker();

Scanner scan = **new** Scanner(System.***in***);

System.***out***.println("Enter the Weight :");

bmt.setWeight(scan.nextDouble());

System.***out***.println("Enter the height :");

bmt.setHeight(scan.nextDouble());

}

**public** **void** printRecord() {

BMITracker bmt = **new** BMITracker();

bmt.calculateBmi();

bmt.calculateBmi();

}

**public** **void** classifyBmi(**double** bmi) {

**if** (bmi < 18.5) {

System.***out***.println("Underweight");

} **else** **if** (bmi >= 18.5 && bmi < 24.9) {

System.***out***.println("Normal Weight");

} **else** **if** (bmi >= 25 && bmi < 29.9) {

System.***out***.println("Overweight");

} **else** {

System.***out***.println("Obese");

}

}

}

**package** com.assignment;

**import** java.util.Scanner;

**public** **class** Program {

**public** **static** **void** main(String[] args) {

BMITrackerUtil bmtu=**new** BMITrackerUtil();

bmtu.acceptRecord();

bmtu.printRecord();

}

}

Question No-4

**package** com.assignment;

**public** **class** DiscountCalculator {

**private** **double** original\_price;

**private** **double** discount\_percentage;

**private** **double** discountAmount;

**private** **double** finalPrice;

**public** **double** getOriginal\_price() {

**return** original\_price;

}

**public** **void** setOriginal\_price(**double** original\_price) {

**this**.original\_price = original\_price;

}

**public** **double** getDiscount\_percentage() {

**return** discount\_percentage;

}

**public** **void** setDiscount\_percentage(**double** discount\_percentage) {

**this**.discount\_percentage = discount\_percentage;

}

**public** DiscountCalculator(**double** original\_price, **double** discount\_percentage) {

**super**();

**this**.original\_price = original\_price;

**this**.discount\_percentage = discount\_percentage;

}

@Override

**public** String toString() {

**return** "DiscountCalculator [original\_price=" + original\_price + ", discount\_percentage=" + discount\_percentage

+ "]";

}

**public** DiscountCalculator() {

}

**public** **void** DiscountAmountCalculation() {

**double** discountAmount = original\_price \* (discount\_percentage / 100);

System.***out***.println("Discount Amount Calculation : "+discountAmount);

}

**public** **void** finalPriceCalculation() {

**double** finalPrice = original\_price - discountAmount;

System.***out***.println("Final Price Calculation : "+finalPrice);

}

}

**package** com.assignment;

**import** java.util.Scanner;

**public** **class** DiscountCalculatorUtil {

**public** **void** acceptRecord() {

Scanner scan = **new** Scanner(System.***in***);

DiscountCalculator dc = **new** DiscountCalculator();

System.***out***.println("Enter the Original Price :");

dc.setOriginal\_price(scan.nextDouble());

System.***out***.println("Enter the Discount Percentage :");

dc.setDiscount\_percentage(scan.nextDouble());

}

**public** **void** printRecord() {

DiscountCalculator dc = **new** DiscountCalculator();

System.***out***.println("Original Price : " + dc.getOriginal\_price());

System.***out***.println("Discount Percentage : " + dc.getDiscount\_percentage());

dc.DiscountAmountCalculation();

dc.finalPriceCalculation();

}

**public** **int** menuList() {

Scanner scan=**new** Scanner(System.***in***);

System.***out***.println("Enter the Choice :");

**int** choice=scan.nextInt();

**return** choice;

}

}

**package** com.assignment;

**import** java.util.Scanner;

**public** **class** Program {

**public** **static** **void** main(String[] args) {

DiscountCalculatorUtil dcu=**new** DiscountCalculatorUtil();

Scanner scan=**new** Scanner(System.***in***);

**int** choice;

**while**((choice=dcu.menuList())!=0) {

**switch**(choice) {

**case** 1:

dcu.acceptRecord();

case2:

dcu.printRecord();

}

}

}

}