CSC 1109 Lab 3

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Question 1

Listing 1: Question 1 Source Code.

```
1  import java.util.*;
2
3  public class loan {
4      private double annualInterestRate;
5      private int numberOfYears;
6      private double loanAmount;
7      private java.util.Date loanDate;
8
9      public loan(){
10         this.annualInterestRate = 2.5;
11         this.numberOfYears = 1;
12         this.loanAmount = 1000;
13         loanDate = new java.util.Date();
14     }
15     public loan(double annualInterestRate, int numberOfYears, double ↩
           loanAmount){
16         this.annualInterestRate = annualInterestRate;
17         this.numberOfYears = numberOfYears;
18         this.loanAmount = loanAmount;
19         loanDate = new java.util.Date();
20     }
21
22     public double getAnnualInterestRate(){
23         return this.annualInterestRate;
24     }
25
26     public int getNumberOfYears(){
27         return this.numberOfYears;
28     }
29
30     public double getLoanAmount(){
31         return this.loanAmount;
32     }
33
34     public java.util.Date getLoanDate(){
```

```
35          return this.loanDate;
36      }
37
38      public void setAnnualInterestRate(double annualInterestRate){
39          this.annualInterestRate = annualInterestRate;
40      }
41
42      public void setNumberOfYears(int numberOfYears){
43          this.numberOfYears = numberOfYears;
44      }
45
46      public void setLoadAmount(double loanAmount){
47          this.loanAmount = loanAmount;
48      }
49
50      public double getMonthlyPayment(){
51          double monthlyInterestRate = annualInterestRate / 1200;
52          double monthlyPayment = loanAmount * monthlyInterestRate / (1 - (1↩
                / Math.pow(1 + monthlyInterestRate, numberOfYears * 12)));
53          return monthlyPayment;
54      }
55      public double getTotalPayment(){
56          double totalPayment = getMonthlyPayment() * numberOfYears * 12;
57          return totalPayment;
58      }
59
60      public static void main(String[] args){
61          Scanner sc = new Scanner(System.in);
62
63          // Annual Interest
64          System.out.print("Enter annual interest rate, for example, 8.25: "↩
                );
65          double annualInterestRate = sc.nextDouble();
66
67          // Number of years
68          System.out.print("Enter number of years as an integer: ");
69          int numberOfYears = sc.nextInt();
70
71          // Loan Amount
72          System.out.print("Enter loan amount, for example, 120000.95: ");
73          double loanAmount = sc.nextDouble();
74
75          // Create a Loan object
76          loan loan1 = new loan(annualInterestRate, numberOfYears, ↩
                loanAmount);
77
78          // Date
```

```
79          java.util.Date loanDate = loan1.getLoanDate();
80          System.out.println("The loan was created on " + loanDate);
81
82          // Monthly payment
83          double monthlyPayment = loan1.getMonthlyPayment();
84          System.out.printf("The monthly payment is %.2f\n", monthlyPayment)↩
                ;
85
86          // Total Payment
87          double totalPayment = loan1.getTotalPayment();
88          System.out.printf("The total payment is %.2f", totalPayment);
89
90      }
91  }
```

Listing 2: Question 1 Output.

```
1  Enter annual interest rate, for example, 8.25: 2.5
2  Enter number of years as an integer: 5
3  Enter loan amount, for example, 120000.95: 1000
4  The loan was created on Mon Jan 09 15:31:09 SGT 2023
5  The monthly payment is 17.75
6  The total payment is 1064.84
```