```java
import java.util.Random;

/*Loan class serves as a part of Bank class to maintain loan information and to calculate monthly installments and total paid amount*/
public class Loan
{
    private double annualInterestRate;
    private int numberOfYears;
    private double loanAmount;
    private java.util.Date loanDate;

    /* Default constructor */
    public Loan()
    {
        Random ranValue = new Random();
        this.annualInterestRate = ranValue.nextInt(1,1000)/100.0;
        loanDate = new java.util.Date();

    }

    /* Construct a loan with specified annual interest rate,number of years, and loan amount */
    public Loan(double annualInterestRate, int numberOfYears,double loanAmount)
    {
        this.annualInterestRate = annualInterestRate;
        this.numberOfYears = numberOfYears;
        this.loanAmount = loanAmount;
        loanDate = new java.util.Date();
    }

    /* Return annualInterestRate */
    public double getAnnualInterestRate()
    {
        return annualInterestRate;
    }

    /* Set a new annualInterestRate */
    public void setAnnualInterestRate(double annualInterestRate)
    {
        this.annualInterestRate = annualInterestRate;
    }

    /* Return numberOfYears */
    public int getNumberOfYears() {
        return numberOfYears;
    }

    /* Set a new numberOfYears */
    public void setNumberOfYears(int numberOfYears) {
        this.numberOfYears = numberOfYears;
    }

    /* Return loanAmount */
    public double getLoanAmount() {
```

```
53          return loanAmount;
54      }
55
56      /* Set a new loanAmount */
57      public void setLoanAmount(double loanAmount) {
58              this.loanAmount = loanAmount;
59      }
60
61      /* Find monthly payment */
62      public double getMonthlyPayment() {
63          double monthlyInterestRate = annualInterestRate / 1200;
64          double monthlyPayment = loanAmount * monthlyInterestRate / (1 -(1 /
  Math.pow(1 + monthlyInterestRate, numberOfYears * 12)));
65          return monthlyPayment;
66      }
67
68
69      /* Find total payment */
70      public double getTotalPayment() {
71          double totalPayment = getMonthlyPayment() * numberOfYears * 12;
72          return totalPayment;
73      }
74
75      /* Return loan date */
76      public java.util.Date getLoanDate() {
77          return loanDate;
78      }
79
80      /* Set a new loan date */
81      public void setLoanDate(java.util.Date loanDate) {
82          this.loanDate = loanDate;
83      }
84
85  }
```