PA1 Prompt

Loan Account Class:

Create class LoanAccount. Use a static variable annualInterestRate to store the annual interest rate for all account holders. Each object of the class contains a private instance variable principal indicating the amount the person is borrowing. Provide method: public double calculateMonthlyPayment(int numberOfPayments) to calculate the monthly payment by using the following formula:

double monthlyPayment = principal * (monthlyInterest / (1 - Math.pow(1 + monthlyInterest, -numberOfPayments)));

where

monthly interest = annualInterestRate/12. Remember, annualInterestRate must be converted to a percentage before using.

Provide a static method setAnnualInterestRate that sets the annualInterestRate to a new value. Set the initial loan amount (Principal) for a new loan through the constructor.

Write a program to test class LoanAccount. Instantiate two LoanAccount objects, loan1 and loan2, with principal loan amounts of $5000.00 and $31000.00, respectively. Set annualInterestRate to 1%, then calculate the monthly payment for each loan for 36 months, 60 months, and 72 months and print the monthly payment amounts for both loans. Next, set the annualInterestRate to 5%, and output the same information again. Make sure your dollar amounts are displayed to two decimal places.

 Put the code to test the class in the main method of the LoanAccount Class. The output of your program should look like the following:

```
Monthly payments for loan1 of $5000.00 and loan2 $31000.00 for 3, 5, and 6 year loans at 1% interest.
Loan    3 years 5 years 6 years
Loan1   141.04  85.47   71.58
Loan2   874.45  529.91  443.78

Monthly payments for loan1 of $5000.00 and loan2 $31000.00 for 3, 5, and 6 year loans at 5% interest.
Loan    3 years 5 years 6 years
Loan1   149.85  94.36   80.52
Loan2   929.10  585.01  499.25
```

Zip the entire project folder and submit Programming Assignment 1 zip file.