

CS103 Project #3 Dr. Yao

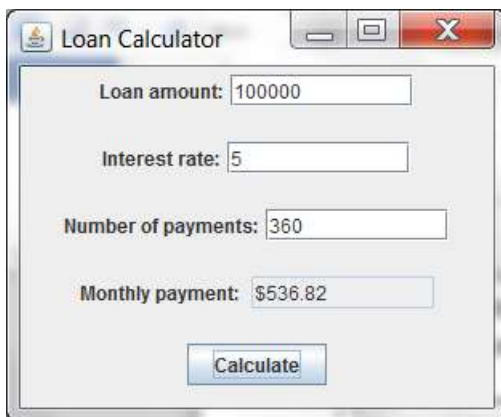
Develop a **Loan Calculator** (as a **GUI application**) to calculate and display the monthly payment for a loan. The user will be asked to enter the **loan amount**, the **interest rate**, and the **number of payments**. The formula used for such a calculation is:

$$\text{Payment} = L \left(\frac{\text{APR}}{1200.0} \right) \frac{(1.0 + \text{APR}/1200.0)^N}{((1.0 + \text{APR}/1200.0)^N - 1.0)}$$

where "L" is the loan amount, "APR" is the annual percentage rate of the interest, and "N" is the number of payments. For example, for a loan amount of \$225,000 with the APR 10% and 360 payments, the monthly payment is:

$$1974.54 = 225000.0 \times \left(\frac{10.0}{1200.0} \right) \times \frac{(1.0 + 10.0/1200.0)^{360}}{((1.0 + 10.0/1200.0)^{360} - 1.0)}$$

- Create a Frame class.
- Create a Panel class which implements the ActionListener. Add labels, text fields, subpanels and buttons to the panel.
- Use the ActionListener to listen for buttons. When the button is clicked, the program will calculate the monthly loan payment and display it in a text field.
- Validate numerical values. If a value is 0 or less than 0, display an error message using a dialog box.
- The monthly payment field should be disabled for editing.



Sample error messages:

Loan Calculat...

Loan amount:

Interest rate:

Number of payments:

Monthly payment:

Calculate

Message

 Loan amount must be > 0.0

OK

Loan Calculat...

Loan amount:


Interest rate:

Number of payments:

Monthly payment:

Calculate

Message

 Interest rate must be > 0.0

OK

Loan Calculat...

Loan amount:


Interest rate:

Number of payments:

Monthly payment:

Calculate

Message

 # of payments must be >= 1

OK