

CS 1408 (Intro. to Computer Science with VB .NET) FALL SEMESTER 2006
Project #2 Due: October 11, 2006

The objective of this project is to learn how to implement arithmetic expressions in VB.

Bayou Savings and Loan decides to provide their customers with a loan related calculator, so they can use the calculator to determine the monthly payment, loan amount, and monthly payment table. Your task is to create a VB application called *Mortgage Calculator* to provide customers for these calculations: find monthly payment and loan amount. Your VB application should have all the controls as shown in Figure 1.

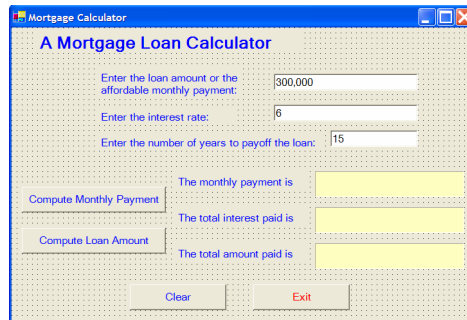


Figure 1: Mortgage Calculator at Design Time

There are three pale yellow background **Labels** used to display the monthly payment or the loan amount, the total interest paid, and the total amount paid. Three **TextBoxes** are used for inputting the loan amount or the affordable monthly payment, interest rate, and number of years. There are four **Buttons** as Follows

1. **Compute Monthly Payment**: Retrieve the loan amount, interest rate, and number of years then displays the monthly payment, the total interest paid, and the total amount paid. See Figure 3.
2. **Compute Loan Amount**: Retrieve the affordable monthly payment, interest rate, and number of years then displays the loan amount, the total interest paid, and the total amount paid. It also changes the text **The monthly payment is** label to **The loan amount is** See Figure 4.
3. **Clear**: Clear the display labels and the list box as shown in Figure 2.
4. **Exit**: Close the application.

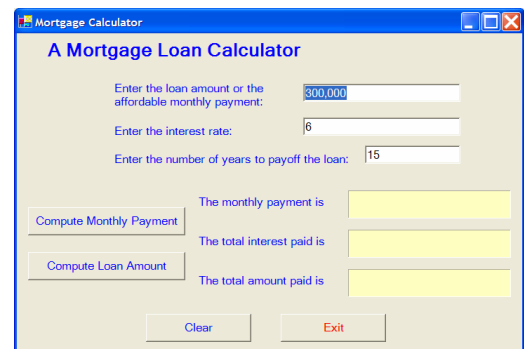


Figure 2: Mortgage Calculator at Initial Runtime and after Clear button is clicked.

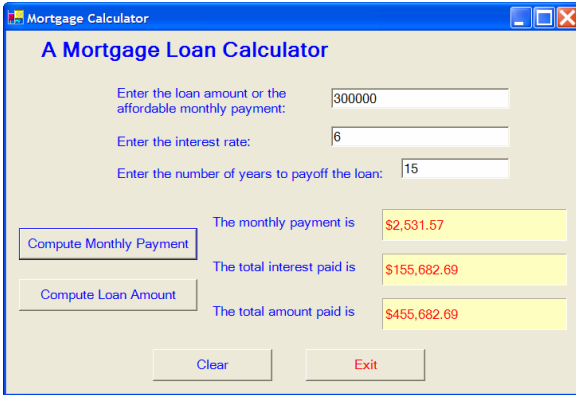


Figure 3: Compute Monthly Payment

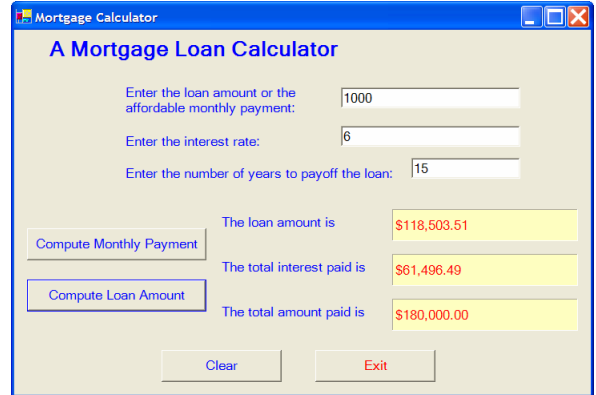


Figure 4: Compute Loan Amount

Use the following formula to compute the monthly payment from the input values of loan amount, interest rate (%), and number of years to payoff the loan:

$$\text{Payment} = \text{Loan amount} \left(\frac{i}{1 - (1 + i)^{-n}} \right)$$

Where i is **monthly** interest rate and n is number of months to payoff the loan.

To compute the loan amount from the input values of the affordable monthly payment, interest rate (%), and number of years to payoff the loan, we will use the following:

$$\text{Loan amount} = \text{Monthly payment} \left(\frac{1 - (1 + i)^{-n}}{i} \right)$$

Where i is **monthly** interest rate and n is number of months to payoff the loan.

Turn in your project in a diskette with a hard copy of the source code at the beginning of the class. Your source file should have a comment header as follows:

```

REM *****
REM Application Name: Project2
REM Author: Your Name
REM Class: CS 1408 Section #
REM Due Date: Wednesday October 11, 2006
REM Description: Mortgage Calculator
REM
*****

```

One point will be taken off missing the comment header and 2 points/day for late submission. The maximum point for each project is 20.