DokuWiki

Interview Test

Assignment

Write a fixed rate loan cash flow generator as a Visual C# Windows Forms, Visual C++ MFC, or Visual C# ASP.NET application as instructed by your interviewer.

Input parameters

The user should have the ability to input any number of loans for calculation. Each loan is defined by three parameters:

- The amount of money loaned in dollars (balance)
- The time over which the loan will be repaid, in months (term)
- The percentage rate at which interest will accrue on the loan (rate)

Each loan can have a different term, rate and balance.

Output

For the n loans inputted, the user should be able to click a button which will present them with n + 1 cash flows: one cash flow for each loan plus one cash flow for the aggregate pool of loans.

A cashflow is a record of monthly payments spanning the entire term of a loan (or pool) broken down into the monetary allocation of interest and principal as well as a record of the remaining balance of said loan (or pool) for that month.

Monthly payments have these details:

- The month (1 corresponding to the 1st month of payment, through the total number of months)
- The interest paid this month (see below)
- The principal paid this month (see below)
- The remaining loan balance at the end of the month (see below)

Ex.:

Loan 1

Month	Interest	Principal	Rem Balance
1	$13.54	$410.50	$4,589.50
2	$12.43	$411.61	$4,177.90
.	.	.	.

Loan 2

Month	Interest	Principal	Rem Balance

1	$12.50	$244.06	$5,755.94
2	$11.99	$244.57	$5,511.37
.	.	.	.

Pool level

Month	Interest	Principal	Rem Balance
1	$26.04	$654.56	$10,345.44
2	$24.42	$656.18	$9,689.26
.	.	.	.

Necessary Formulas

Every month, for the length of the loan, the same amount will be paid towards the mortgage,

- **Total Monthly Payment** = (amount loaned) * (rate/1200) / (1 – (1 + rate/1200)$^{(-\text{Number of Months})}$)

That money will be paid towards interest first, and the remainder will pay off the balance of the loan

- **Remaining Balance** before the very first month equals the amount of the loan.
- **Interest Payment** = Previous Remaining Balance * rate/1200
- **Principal Payment** = Total Monthly Payment - Interest Payment
- At end each month, **Remaining Balance** = Previous Remaining Balance - principal payments

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