

DISCOVER IT

Developer Assessment

ASP.NET DEVELOPER ASSESSMENT - MORTGAGE APPROVAL APPLICATION

Assessor

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Exercise Summary

The requirement is to develop a simple mortgage approval application form that accepts input loan data and calculates the monthly repayment. Once the repayment amount has been calculated and displayed, the client can submit the mortgage for approval. The submitted form, including the calculated monthly repayment, should then be stored in a database table.

The client has the ability to enter the value of the house, the loan amount, the term of the loan and the interest charged on the loan.

The form will include the following fields:

Mortgage Approval Application

<Message Label>

Value of Home	<TextBox>
Loan Amount	<TextBox>
Term of Loan	<TextBox>
Interest on Loan	<DropDownList>

Monthly Repayment <ReadOnly Value>

Calculate (always enabled) Submit for Approval (enabled only after repayment is shown)

The client first will click Calculate to generate the Monthly Repayment, providing the input values are all valid. Otherwise, an appropriate message should appear in the Message Label.

Once the client is happy with the Monthly Repayment, the client will click Submit for Approval. The Monthly Repayment should be recalculated and if it has changed, due to changes made to one or more of the input values, a message should be displayed drawing attention to this and inviting the Submit for Approval to be clicked again.

When a valid submission is made, the Value of Home, Loan Amount, Term of Loan, Interest on Loan and Monthly Repayment are stored in the database table. The page redisplay and the Message Label reads: Quote No <Unique Quote No>. The Unique Quote No. is returned by the procedure that writes the record to the database.

Validation

- The value of the home must be numeric only and can have a maximum value of £500,000.
- The loan amount is numeric only and cannot be less than 60% of the value of the home or more than 80% of the value of the home.
- The term of the loan must be an integer value in the range from 10 – 25 years.
- The interest on the loan is a dropdown list and can be one of 3 values: 1.5%, 3.5%, 6%.

If a validation error is detected, the validation must indicate the field where the problem is and a summary of the problem must appear in the Message Label.

Formula

The formula for working out Monthly Repayment:

$$\text{Monthly Repayment} = \frac{P \times i}{1 - (1+i)^{-n}}$$

Where

- P = Loan Amount
- i = Annual Interest Rate /(100 x 12)
- n = Number of monthly payments (e.g. 25 years x 12 = 300 months)

Pre- Requisites

- Ideally, this should be implemented using .Net Framework 4.0 or above, and coded with C#.
- Any client-side framework, if used, will be acceptable
- Either Web Forms, MVC or ASP.NET Core will be acceptable.
- The database must be SQL Server or SQL Express edition.
- You should zip up your solution together with the database file and email it to: adam.judd@discoverit.co.uk.
- Or alternatively, host somewhere and provide source code.
- Extra points will be awarded for a well-thought-through, intuitive, and well-presented UX.

Next Step

- Discover IT will review the approach taken and call the candidate to discuss.
- The candidate should be prepared to answer questions with respect to code design choices made.