Please either download the Visual Studio solution from Github location at https://github.com/CardWebCoder/CWS.SimpleBank and open the solution in Visual Studio 2019. (or clone directly from Visual Studio 2019)

Database is host in Azure service. The connection string is

data source=cwinterview101.database.windows.net;initial catalog=Interview101;user id=CardWebCoder;password=Coder@1234;MultipleActiveResultSets=True

Solution description

Simple Bank provides the following financial products to customers;

Certificate of Deposit
Loan
Credit Card

Each customer can have many of these products or none. Please see the edmx diagram (in CWS.SimpleBank.Data project) to see the database structure.

Task 1:

In customer's account list screen, list the accounts by product type (ie, Deposit, Loan and Credit). Based on product type, each row needs to display data elements associated with product.

The change should be done in Views/Customer/Accounts.chtml

Testing by go to home page, click Customers on the top navigation to list customers. Click Accounts next to each customer to see the list of accounts by product type.

Task 2:

Implement IAccountProcessor.CalculateInterest in various Processor classes. See CWS.SimplBank\Models.

The presentValue would be account's current balance. The following are how interest amount to be calculated by product type.

Deposit Account
Deposit interest is compound interest; calculate daily rate based on 365 a year. Interest Amount is

presentValue * (1 + dailyRate) ** days - presentValue

Loan Account
loan interest is simple interest; calculate daily rate based on 365 days a year, interest amount would be

presentValue * dailyRate * days

Credit Card Account

Credit Card interest is simple interest based on average balance; average balance would not change for this exercise, therefore, the presentValue is the current balance. Calculate daily rate based on 365 days a year, interest amount would be

presentValue * dailyRate * days

Default Calculation

Default interest is simple interest; calculate daily rate based 360 days/year; and days will need to converted to months then convert to 30 days/month. Interest amount is

presentValue * dailyRate * calculatedDays

Update AccountController.CalculateInterest(customerNumber, accountNumber, days) to

1. Get account object of LoanAccount, CertificateDeposit or CreditCardAccount
2. Return the interest amount by the appropriate processor. Develop additional implementation to apply proper pattern if necessary.

To test and verify, use browser with the following uri http://localhost:{portnumber}/account/calculateinterest/customerNumber=1&accountNumber=10. Change the customerNumber and accountNumber to test other product types

Task 3:

Complete Calculator view in Views/Account/Calculator.cshtml.

When user clicks a button, this screen should make a call to AccountController.CalculateInterest and display the result in #interest-amount.

Test by using uri http://localhost:{portnumber}/account/calculator?customerNumber=1&accountNumber=10&days=30. Use other query string value to see various product types.

Task 4:

Update Views/Customer/Accounts.chtml to add an Interest link next to each account. When user clicks Interest link, display Calculator in a modal dialog box.