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

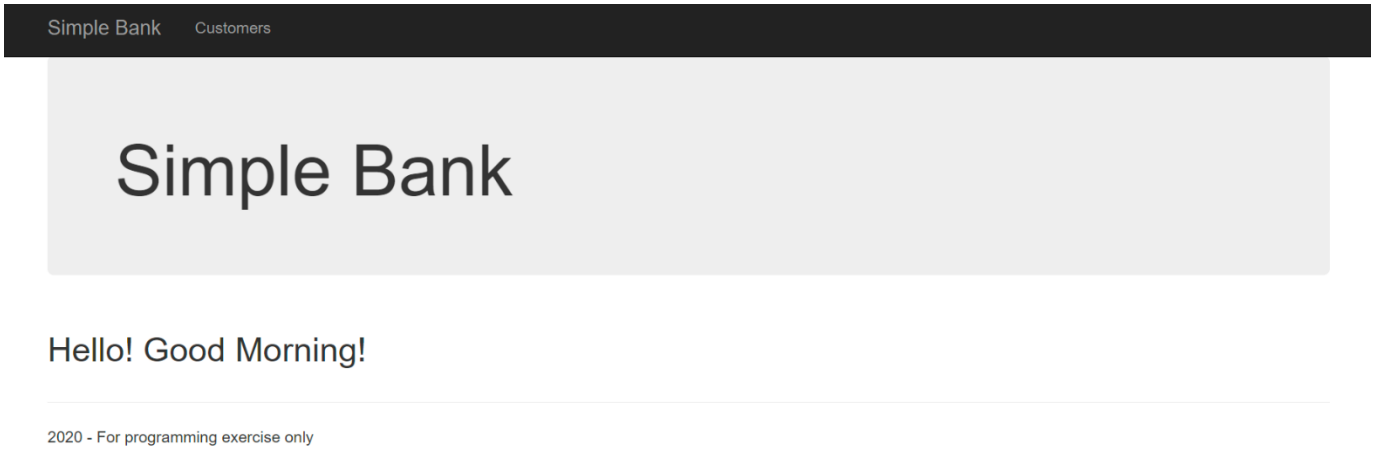
Simple Bank provides the following financial products to customers;

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.

Please run the project after it is loaded, part of the website is already completed. You will see a list of customers by clicking the top menu option **"Customers"**. There are 2 customers in the database for this exercise.

There is a "Accounts" link on the right side of each customer. It should take user to see a list of accounts this customer has. Here is the view of the page when running the project.



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 relevant to the product.

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

The view has the table heading for each product section completed, please write the necessary code to display the account data. The following is a sample screen

Accounts

Customer

CustomerNumber 1
FirstName John
LastName Smith

Loan Accounts

Account Number	Current Balance	Term	APR
9	20000.00	24	9.990
10	15400.00	60	9.990

Credit Cards

Account Number	Current Balance	Purchase APR	Cash APR
8	0.00	12.990	16.990

Certificate of Deposit

Account Number	Current Balance	Principal	Term	APY
11	2000.00	2000.00	12	3.990
12	6500.00	6500.00	18	3.990
13	1500.00	1500.00	24	3.990

<u>Additional Information</u>

The Model in this view is a **Customer** object, which contains an **Accounts** objects. Accounts is a list of **Account** that is a base class for various sub classes; they are **CertificateDeposit**, **CreditCardAccount** and **LoanAccount**.

Task 2:

Implement IAccountProcessor.CalculateInterest in **DepositProcessor** classes. See CWS.SimplBank\Models.

This formula is to calculate the amount of interest an account will earn in number of "days", which is one of the input parameters.

Deposit account interest is calculated by compounding interest. The presentValue is account's current balance. calculate daily rate using account's APY divided by 365.

Interest Amount is

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

Additional Information
DepositProcessor.cs is located in folder Models under CWS.SimpleBank project

Task 3:

Complete the needed action to calculate interest.

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

Note: find the portnumber in the browser's url address input box when running the solution.

Additional Information

1. BankService.GetCustomer(int) returns a Customer object that contains customer's accounts. Use this to get necessary account object
2. Determine the best approach to instantiate the appropriate implementation of AccountProcessor to calculate the interest amount.

Task 4:

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 5:

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.