



Loan Management System - Project Documentation



Problem Statement

Create SQL Schema from the **Customer** and **Loan** class, use the class attributes for table column names.

1. Define a **Customer** class with the following confidential attributes:

- a. Customer ID
- b. Name
- c. Email Address
- d. Phone Number
- e. Address
- f. Credit Score

2. Define a base class **Loan** with the following attributes:

- a. Loan ID
- b. Customer (reference of customer class)
- c. Principal Amount
- d. Interest Rate
- e. Loan Term (Loan Tenure in months)
- f. Loan Type (**CarLoan**, **HomeLoan**)
- g. Loan Status (**Pending**, **Approved**)

```

-- Create Database
CREATE DATABASE LoanDB;
GO

-- Use the database
USE LoanDB;
GO

-- Create Customer Table
CREATE TABLE Customer (
    CustomerId INT PRIMARY KEY,
    Name VARCHAR(100),
    EmailAddress VARCHAR(100),
    PhoneNumber VARCHAR(15),
    Address VARCHAR(200),
    CreditScore INT
);
GO

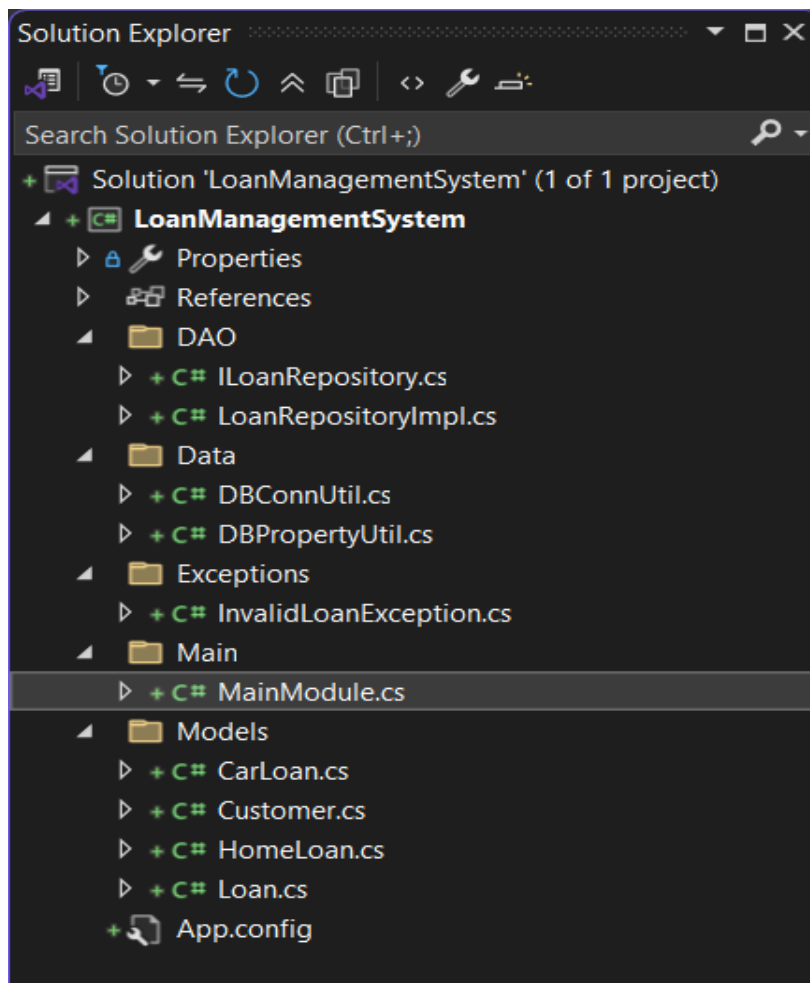
-- Create Base Loan Table
CREATE TABLE Loan (
    LoanId INT PRIMARY KEY,
    CustomerId INT NOT NULL,
    PrincipalAmount DECIMAL(18,2),
    InterestRate DECIMAL(5,2),
    LoanTerm INT, -- in months
    LoanType VARCHAR(20), -- 'CarLoan' or 'HomeLoan'
    LoanStatus VARCHAR(20), -- 'Pending', 'Approved', 'Rejected'
    FOREIGN KEY (CustomerId) REFERENCES Customer(CustomerId)
);
GO

-- Create CarLoan Details Table (inherits LoanId)
CREATE TABLE CarLoanDetails (
    LoanId INT PRIMARY KEY,
    CarModel VARCHAR(100),
    CarValue DECIMAL(18,2),
    FOREIGN KEY (LoanId) REFERENCES Loan(LoanId) ON DELETE CASCADE
);
GO

```

```
-- Create HomeLoan Details Table (inherits LoanId)
CREATE TABLE HomeLoanDetails (
    LoanId INT PRIMARY KEY,
    PropertyAddress VARCHAR(200),
    PropertyValue DECIMAL(18,2),
    FOREIGN KEY (LoanId) REFERENCES Loan(LoanId) ON DELETE CASCADE
);
GO
```

Project Structure:



1. Main menu displayed in the console

```
C:\Users\singh\source\repos\ x + v

===== Loan Management Menu =====
1. Apply Loan
2. View All Loans
3. Get Loan by ID
4. Loan Status Update
5. Calculate EMI
6. Repay Loan
7. Exit
Choose option: |
```

2. Successful loan application confirmation

```
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===== Loan Management Menu =====
1. Apply Loan
2. View All Loans
3. Get Loan by ID
4. Loan Status Update
5. Calculate EMI
6. Repay Loan
7. Exit
Choose option: 1
Enter Customer ID: 101
Enter Name: Gaurav Singh
Enter Email Address: 2116181@saec.ac.in
Enter Phone Number: +91 7617354123
Enter Address: My Address
Enter Credit Score: 800
Enter Loan ID: 1011
Enter Principal Amount: 10000
Enter Interest Rate: 2.5
Enter Loan Term (months): 6
Enter Loan Type (CarLoan/HomeLoan): HomeLoan
Enter Property Address: My Property Address
Enter Property Value: 100000
Confirm apply loan? (Yes/No): Yes
Loan applied successfully.

===== Loan Management Menu =====
1. Apply Loan
2. View All Loans
3. Get Loan by ID
```

3. View All Loans

```
C:\Users\singh\source\repos\ x + v

===== Loan Management Menu =====
1. Apply Loan
2. View All Loans
3. Get Loan by ID
4. Loan Status Update
5. Calculate EMI
6. Repay Loan
7. Exit
Choose option: 2
LoanId: 101, Type: CarLoan, Status: Approved, Principal: 500000, InterestRate: 9.5, Term: 60 months, Car Model: , Car Value: 0
LoanId: 122, Type: HomeLoan, Status: Pending, Principal: 1222, InterestRate: 2, Term: 6 months, Car Model: , Car Value: 0
LoanId: 1011, Type: HomeLoan, Status: Pending, Principal: 10000, InterestRate: 2.5, Term: 6 months, Car Model: , Car Value: 0

===== Loan Management Menu =====
1. Apply Loan
2. View All Loans
3. Get Loan by ID
4. Loan Status Update
5. Calculate EMI
6. Repay Loan
7. Exit
Choose option: |
```

4. Get Loan by ID

```
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Choose option: 2
LoanId: 101, Type: CarLoan, Status: Approved, Principal: 500000, InterestRate: 9.5, Term: 60 months, Car Model: , Car Value: 0
LoanId: 122, Type: HomeLoan, Status: Pending, Principal: 1222, InterestRate: 2, Term: 6 months, Car Model: , Car Value: 0
LoanId: 1011, Type: HomeLoan, Status: Pending, Principal: 10000, InterestRate: 2.5, Term: 6 months, Car Model: , Car Value: 0

===== Loan Management Menu =====
1. Apply Loan
2. View All Loans
3. Get Loan by ID
4. Loan Status Update
5. Calculate EMI
6. Repay Loan
7. Exit
Choose option: 3
Enter Loan ID: 101
LoanId: 101, Type: CarLoan, Status: Approved, Principal: 500000, InterestRate: 9.5, Term: 60 months, Car Model: , Car Value: 0

===== Loan Management Menu =====
1. Apply Loan
2. View All Loans
3. Get Loan by ID
4. Loan Status Update
5. Calculate EMI
6. Repay Loan
7. Exit
Choose option: |
```

5. Loan Status Update

```
===== Loan Management Menu =====
1. Apply Loan
2. View All Loans
3. Get Loan by ID
4. Loan Status Update
5. Calculate EMI
6. Repay Loan
7. Exit
Choose option: 4
Enter Loan ID to check status: 101
Loan status updated to: Approved
```

6. Calculate EMI

```
===== Loan Management Menu =====
1. Apply Loan
2. View All Loans
3. Get Loan by ID
4. Loan Status Update
5. Calculate EMI
6. Repay Loan
7. Exit
Choose option: 5
Enter Loan ID to calculate EMI: 101
EMI: 10500.93
```

7. Repay Loan

```
===== Loan Management Menu =====
1. Apply Loan
2. View All Loans
3. Get Loan by ID
4. Loan Status Update
5. Calculate EMI
6. Repay Loan
7. Exit
Choose option: 6
Enter Loan ID: 101
Enter amount to repay: 12000
Payment accepted. You can pay 1 EMI(s) of amount 10500.93 each.
```

Project Source Code

The complete source code for this project, including all implementation files, database utilities, and configuration, is available on GitHub.

GitHub Repository:

<https://github.com/gauravsinghoff/loan-management-system>

Please refer to the repository for the full coding implementation, including project structure, business logic, and database interaction.