Coding Challenge - Loan Management System

Schema Design:

Loan Table:

	loan_id	customer_id	principal_amount	interest_rate	loan_term	loan_type	loan_status
1	1	7	500000.00	8	36	CarLoan	Approved
2	2	2	1000000.00	7	60	HomeLoan	Pending
3	3	6	300000.00	9	24	CarLoan	Approved
4	4	4	800000.00	6	48	HomeLoan	Approved
5	5	5	700000.00	8	36	CarLoan	Approved
6	6	1	1200000.00	7	60	HomeLoan	Pending
7	7	2	400000.00	9	24	CarLoan	Approved
8	8	8	900000.00	6	48	HomeLoan	Pending
9	9	9	600000.00	8	36	CarLoan	Pending
10	10	10	1100000.00	7	60	HomeLoan	Approved
11	11	3	350000.00	9	24	CarLoan	Approved
12	12	4	750000.00	6	48	CarLoan	Approved

Customer Table:

	customer_id	name	email_address	phone_number	address	credit_score
1	1	John Doe	johndoe@gmail.com	123-456-7890	123 Maple Street, New York, NY	750
2	2	Jane Smith	janesmith@yahoo.com	234-567-8901	456 Oak Avenue, Los Angeles, CA	680
3	3	Michael Brown	michael.b@gmail.com	345-678-9012	789 Pine Drive, Chicago, IL	720
4	4	Emily Davis	emily.davis@hotmail.com	456-789-0123	101 Birch Lane, Houston, TX	800
5	5	Chris Johnson	cjohnson@outlook.com	567-890-1234	202 Cedar Street, Miami, FL	690
6	6	Anna Wilson	anna.w@gmail.com	678-901-2345	303 Spruce Avenue, Seattle, WA	710
7	7	David Clark	davidc@yahoo.com	789-012-3456	404 Willow Road, Denver, CO	765
8	8	Sophia Martinez	sophia.martinez@gmail.com	890-123-4567	505 Fir Court, Boston, MA	780
9	9	James Lee	jameslee@hotmail.com	901-234-5678	606 Redwood Circle, San Francisco, CA	820
10	10	Olivia Taylor	olivia.t@gmail.com	012-345-6789	707 Elm Street, Dallas, TX	690

Menu-Driven Working of Project :

1. **Loan Details with Id**

```
Connecting...
trying...
<pyodbc.Connection object at 0x000002C7A9289FE0>
Connected Succesfully

----------Main Menu----------
Press-1 to Check your Loan details with Id
Press-2 to Check Loan Status
Press-3 to see all the Loans in the system
Press-4 to Apply Loan
Press-5 to Calculate EMI
Press-6 to Loan Repayment
Press-7 to Calculate Interest
Press-8 to Exit
Select an option (1-8): 1
Enter Loan ID: 1
fetching loan details...
printing details...
your loan details: (1, 7, Decimal('500000.00'), 8, 36, 'CarLoan', 'Approved')
```

2. **Check Loan Status**

```
Connected Succesfully

----------Main Menu----------
Press-1 to Check your Loan details with Id
Press-2 to Check Loan Status
Press-3 to see all the Loans in the system
Press-4 to Apply Loan
Press-5 to Calculate EMI
Press-6 to Loan Repayment
Press-7 to Calculate Interest
Press-8 to Exit
Select an option (1-8): 2
Enter Loan ID: 4
fetching credit score and loan status...
the loan with ID 4 will be approved
```

3. **See all Loans in the System**

```
Connected Succesfully

----------Main Menu----------
Press-1 to Check your Loan details with Id
Press-2 to Check Loan Status
Press-3 to see all the Loans in the system
Press-4 to Apply Loan
Press-5 to Calculate EMI
Press-6 to Loan Repayment
Press-7 to Calculate Interest
Press-8 to Exit
Select an option (1-8): 3
loan details: [(1, 7, Decimal('500000.00'), 8, 36, 'CarLoan', 'Approved'), (2, 2, Decimal('1000000.00'), 7, 60, 'HomeLoan', 'Approved'), (3,
6, Decimal('300000.00'), 9, 24, 'CarLoan', 'Approved'), (4, 4, Decimal('800000.00'), 6, 48, 'HomeLoan', 'Approved'), (5, 5, Decimal('700000.0
0'), 8, 36, 'CarLoan', 'Approved'), (6, 1, Decimal('1200000.00'), 7, 60, 'HomeLoan', 'Pending'), (7, 2, Decimal('400000.00'), 9, 24, 'CarLoan
', 'Approved'), (8, 8, Decimal('900000.00'), 6, 48, 'HomeLoan', 'Pending'), (9, 9, Decimal('600000.00'), 8, 36, 'CarLoan', 'Pending'), (10, 1
0, Decimal('1100000.00'), 7, 60, 'HomeLoan', 'Approved'), (11, 3, Decimal('350000.00'), 9, 24, 'CarLoan', 'Approved'), (12, 4, Decimal('75000
0.00'), 6, 48, 'CarLoan', 'Approved'), (13, 3, Decimal('12345.00'), 4, 12, 'CarLoan', 'Pending')]
```

4. **Apply for loan**

```
----------Main Menu----------
Press-1 to Check your Loan details with Id
Press-2 to Check Loan Status
Press-3 to see all the Loans in the system
Press-4 to Apply Loan
Press-5 to Calculate EMI
Press-6 to Loan Repayment
Press-7 to Calculate Interest
Press-8 to Exit
Select an option (1-8): 4
Enter your Customer ID: 6
Enter the Principal Amount: 8000
Enter the Interest Rate: 8
Enter the Loan Term (in months): 12
Enter the Loan Type (CarLoan/HomeLoan): CarLoan
calling apply loan
entered into apply loan
Do you want to apply for this loan? (Yes/No): Yes
Loan has been successfully applied and stored in the database.
Loan application for has been submitted with status 'Pending'.
```

5. **Calculating EMI**

```
----------Main Menu----------
Press-1 to Check your Loan details with Id
Press-2 to Check Loan Status
Press-3 to see all the Loans in the system
Press-4 to Apply Loan
Press-5 to Calculate EMI
Press-6 to Loan Repayment
Press-7 to Calculate Interest
Press-8 to Exit
Select an option (1-8): 5
Calculating EMI...
Please enter the Loan ID to calculate EMI for your loan: 7
Retrieved Loan Detail: Principal: 400000.0, Interest Rate: 9.0, Term: 24
your monthly EMI is: 18273.90
Calculated EMI: 18273.90
```

6. Loan Repayment Method

```
----------Main Menu----------
Press-1 to Check your Loan details with Id
Press-2 to Check Loan Status
Press-3 to see all the Loans in the system
Press-4 to Apply Loan
Press-5 to Calculate EMI
Press-6 to Loan Repayment
Press-7 to Calculate Interest
Press-8 to Exit
Select an option (1-8): 6
Enter the loan ID: 5
Enter the repayment amount: 10000
Retrieved Loan Detail: Principal: 700000.0, Interest Rate: 8.0, Term: 36
your monthly EMI is: 21935.46
The amount you're trying to pay should be greater than EMI. EMI for loan 5 is 21935.46
```

7. Calculating Interest

```
----------Main Menu----------
Press-1 to Check your Loan details with Id
Press-2 to Check Loan Status
Press-3 to see all the Loans in the system
Press-4 to Apply Loan
Press-5 to Calculate EMI
Press-6 to Loan Repayment
Press-7 to Calculate Interest
Press-8 to Exit
Select an option (1-8): 7
Enter Loan ID: 6
The calculated interest for loan ID 6 is: 42000000.00
```

8. Exit

```
----------Main Menu----------
Press-1 to Check your Loan details with Id
Press-2 to Check Loan Status
Press-3 to see all the Loans in the system
Press-4 to Apply Loan
Press-5 to Calculate EMI
Press-6 to Loan Repayment
Press-7 to Calculate Interest
Press-8 to Exit
Select an option (1-8): 8
You are Exiting the system...
```