



# **LOAN MANAGEMENT SYSTEM**

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# PROJECT OVERVIEW

## Objective:

To design and develop a secure, role-based Loan Management System that enables online loan application, approval, EMI calculation, repayment tracking, and loan status monitoring.

- **Challenges in Traditional Loan Processing:**  
Manual loan processing lacks transparency, efficiency, and proper tracking

## Technology Stack:

- Backend: ASP.NET Core Web API
- Frontend: Angular
- Database: SQL Server

## Duration:

- 7 days

# PROBLEM STATEMENT

- Loan processing is largely manual or semi-automated.
- Lack of transparency in loan status and approvals.
- Difficulty in tracking EMIs, repayments, and outstanding balances.
- Higher chances of errors and processing delays.
- Limited security and role-based access control.
- Inefficient reporting and monitoring mechanisms.

**This creates the need for a secure and automated Loan Management System.**



# SOLUTION:

## Developed a secure, web-based Loan Management System:

- Automated the complete loan lifecycle from application to closure.
- Provided role-based access for Admin, Loan Officer, and Customer.
- Ensured secure authentication using JWT.
- Centralized loan, EMI, and repayment data for easy tracking.
- Provided mock payment gateways for seamless repayment of loans.



# ■ KEY FEATURES

- Secure user registration and login with role-based access (Admin, Loan Officer, Customer).
- Customers can apply for loans, track application status, view EMI schedules, pay EMIs via payment gateway, and view receipts.
- Loan Officers register after admin approval, view active/closed/pending loans, review applications, add remarks, and approve or reject loans.
- Admin can manage users, approve loan officers, assign roles, and create or delete users.
- Admin can manage loan types including interest rates, loan limits, and maximum tenure.
- Automated EMI calculation with centralized loan and repayment tracking.
- Dashboards for real-time monitoring and improved transparency.

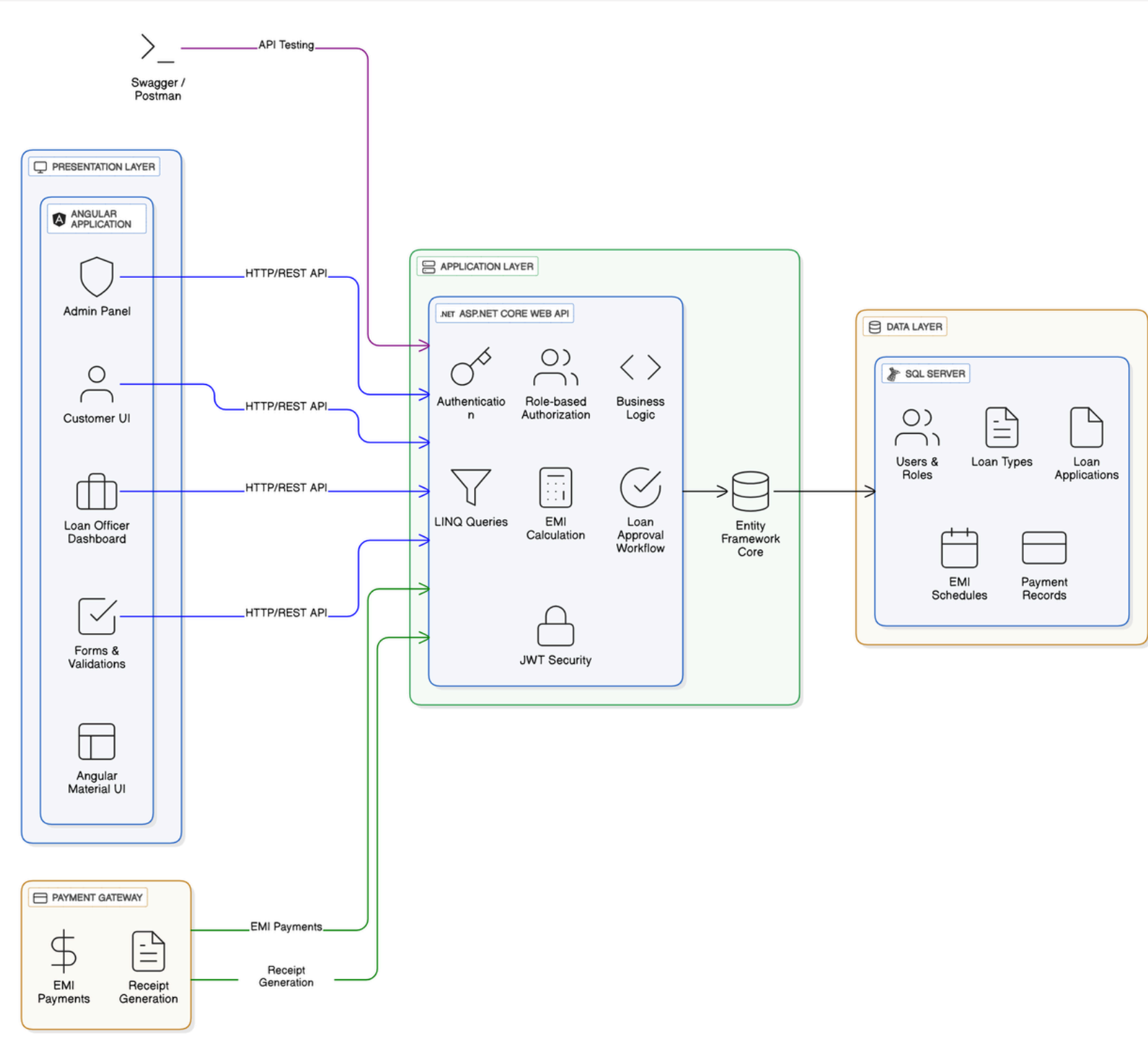
**LoanBox**

**Providing the best future  
for your **best living.****

Manage your loans securely, transparently, and efficiently.

[Get Started](#)

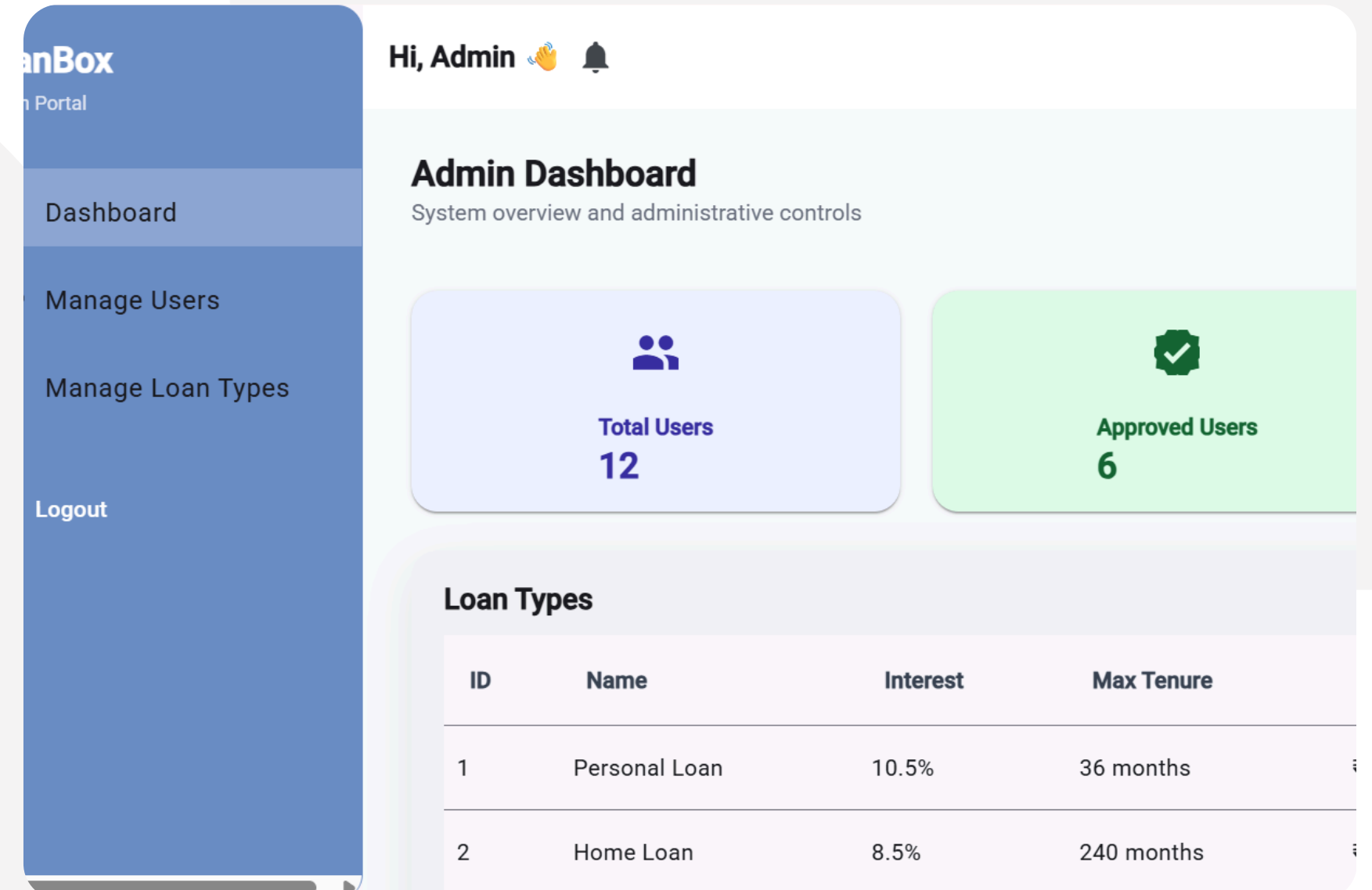
# ARCHITECTURE DIAGRAM



# KEY FEATURES FOR ADMIN:

## 01 ADMIN

- View total number of active users in the system
- Approve or reject loan officer registration requests
- Manage users (customers and loan officers)
- Assign roles, create new users, or delete existing users
- Manage loan types by updating interest rates, minimum and maximum loan amounts, and maximum tenure



# ADMIN WORKFLOW:

ADMIN LOGS IN TO THE SYSTEM SECURELY AND VIEWS DASHBOARD SHOWING ACTIVE USERS AND PENDING APPROVALS

LoanBox

Admin Portal

Dashboard

Manage Users

Manage Loan Types

Logout

Hi, Admin

Admin Dashboard

System overview and administrative controls

Total Users

12

Approved Users

6

Pending Approvals

1

Loan Types

ID	Name	Interest	Max Tenure	Min Amount	Max Amount
1	Personal Loan	10.5%	36 months	₹ 5,000	₹ 500,000
2	Home Loan	8.5%	240 months	₹ 500,000	₹ 5,000,000



# ADMIN WORKFLOW:

REVIEWS AND APPROVES LOAN OFFICER REGISTRATION REQUESTS.  
MANAGES USERS BY CREATING, DELETING, AND ASSIGNING ROLES (CUSTOMER / LOAN OFFICER)

LoanBox

Admin Portal

Dashboard

Manage Users

Manage Loan Types

Logout

User Management

+ Add User

Loan Officer Approval Requests

Email	Requested Role	Status	Assign
asd@lms.com	LoanOfficer	Pending	<div>Update</div>

All Users

Email	Role	Assigned Role	Status	Update	Delete
sanjana@a.com	Customer	Customer	Approved	<div>Update</div>	<div></div>

# ADMIN WORKFLOW:

MANAGES LOAN TYPES BY UPDATING INTEREST RATES, LOAN AMOUNT LIMITS, AND MAXIMUM TENURE

MONITORS OVERALL SYSTEM ACTIVITY FOR SMOOTH LOAN OPERATIONS

LoanBox

Admin Portal

Dashboard

Manage Users

Manage Loan Types

Logout

Manage Loan Types

Update available loans

Loan Types

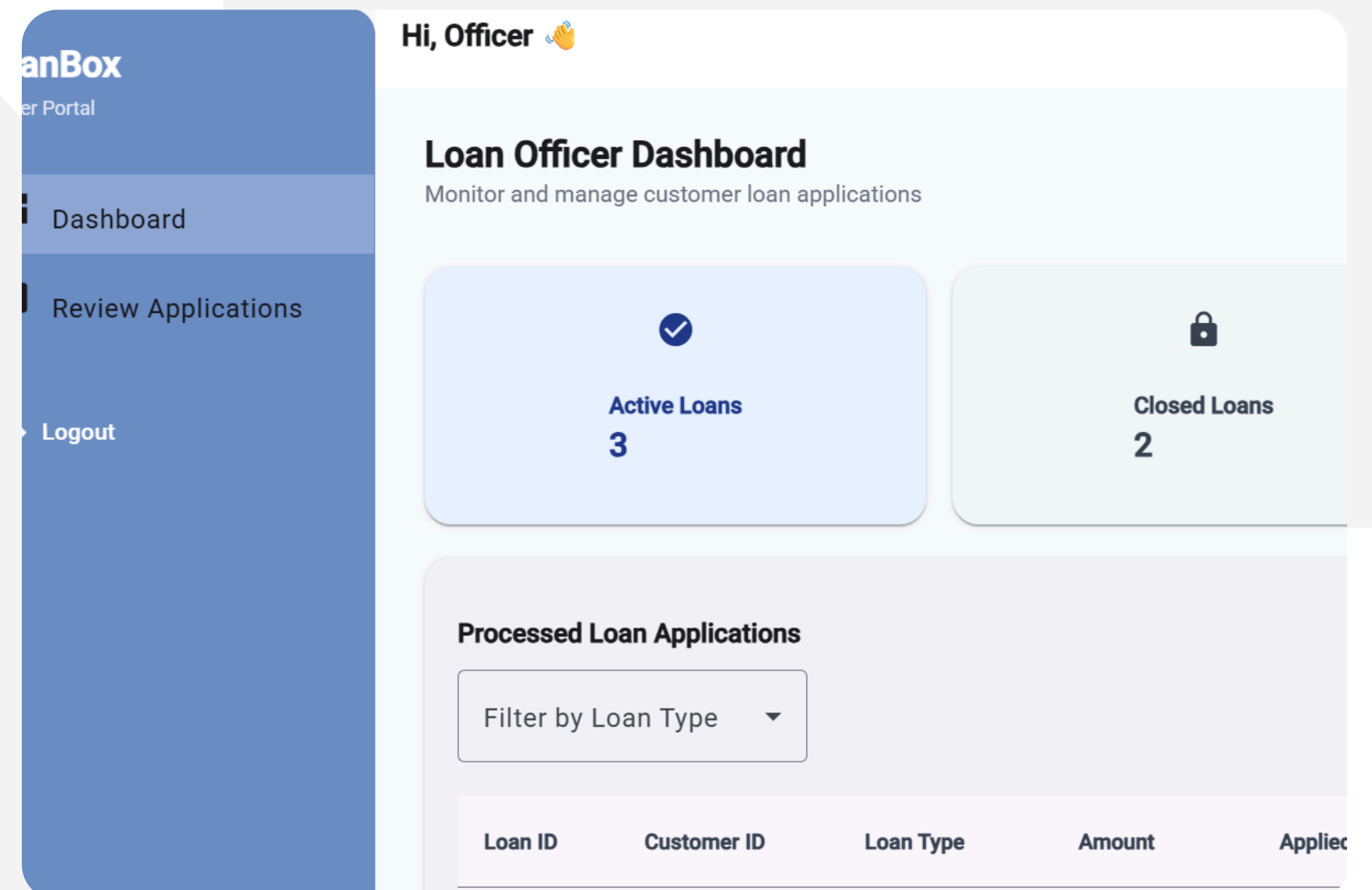
4 configured

ID	Loan Type	Interest	Min Amount	Max Amount	Max Tenure	Action
1	Personal Loan	10.5%	₹ 5,000	₹ 500,000	36 months	<div>Edit</div>
2	Home Loan	8.5%	₹ 500,000	₹ 5,000,000	240 months	<div>Edit</div>
3	Vehicle Loan	9.25%	₹ 100,000	₹ 1,500,000	60 months	<div>Edit</div>
4	Education Loan	7.6%	₹ 100,000	₹ 3,000,000	120 months	<div>Edit</div>

# KEY FEATURES FOR LOAN OFFICER:

## 02 LOAN OFFICER

- Loan officers can register and wait for admin approval before login access.
- View dashboard showing number of active, closed, and pending loans.
- Pending loans include customer applications not yet reviewed.
- View complete loan application details of customers.
- Add remarks and approve or reject loan applications.
- View the EMI report of the approved loans.



# LOAN OFFICER WORKFLOW:

AFTER APPROVAL BY THE ADMIN, OFFICER LOGS IN TO THE SYSTEM AND VIEWS DASHBOARD WITH ACTIVE, CLOSED, AND PENDING LOANS

LoanBox

Officer Portal

Dashboard

Review Applications

Logout

Hi, Officer

Loan Officer Dashboard

Monitor and manage customer loan applications

Active Loans3

Closed Loans2

Pending Loans1

Processed Loan Applications

Filter by Loan Type

Loan ID	Customer ID	Loan Type	Amount	Applied On	Status	Action
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# LOAN OFFICER WORKFLOW:

REVIEWS PENDING LOAN APPLICATIONS SUBMITTED BY CUSTOMERS

LoanBox

Officer Portal

Dashboard

Review Applications

Logout

Hi, Officer

Pending Loan Applications

Loans awaiting officer review

Loan ID	Loan Type	Amount	Applied On	Status
13	Home Loan	₹ 600,000	Jan 5, 2026	<div>Applied</div> <div>Review</div>

# LOAN OFFICER WORKFLOW:

CHECKS COMPLETE CUSTOMER AND LOAN DETAILS AND ADDS REMARKS AND APPROVES OR REJECTS LOAN APPLICATIONS

LoanBox

Officer Portal

Dashboard

Review Applications

Logout

Loan Review

Loan ID: 13

Customer: Sanjana Sinha (ID: 4)

Amount: ₹ 600000

Interest: 8.5%

Applied On: Jan 5, 2026

Loan Type: Home Loan

Tenure: 24 months

Annual Income: ₹ 1000000

Applied

Officer Remarks

Under Review

Approve

Reject

# LOAN OFFICER WORKFLOW:

SYSTEM UPDATES LOAN STATUS AND GENERATES EMI SCHEDULE UPON APPROVAL WHICH CAN BE VIEWED BY THE OFFICER

LoanBox

Officer Portal

Dashboard

Review Applications

Logout

Loan Status:  
Approved

Loan ID: 5

Account Summary

Total Loan Amount  
₹ 5000000

Outstanding Amount  
₹ 4628042.96

Paid EMIs  
6

Pending EMIs  
114

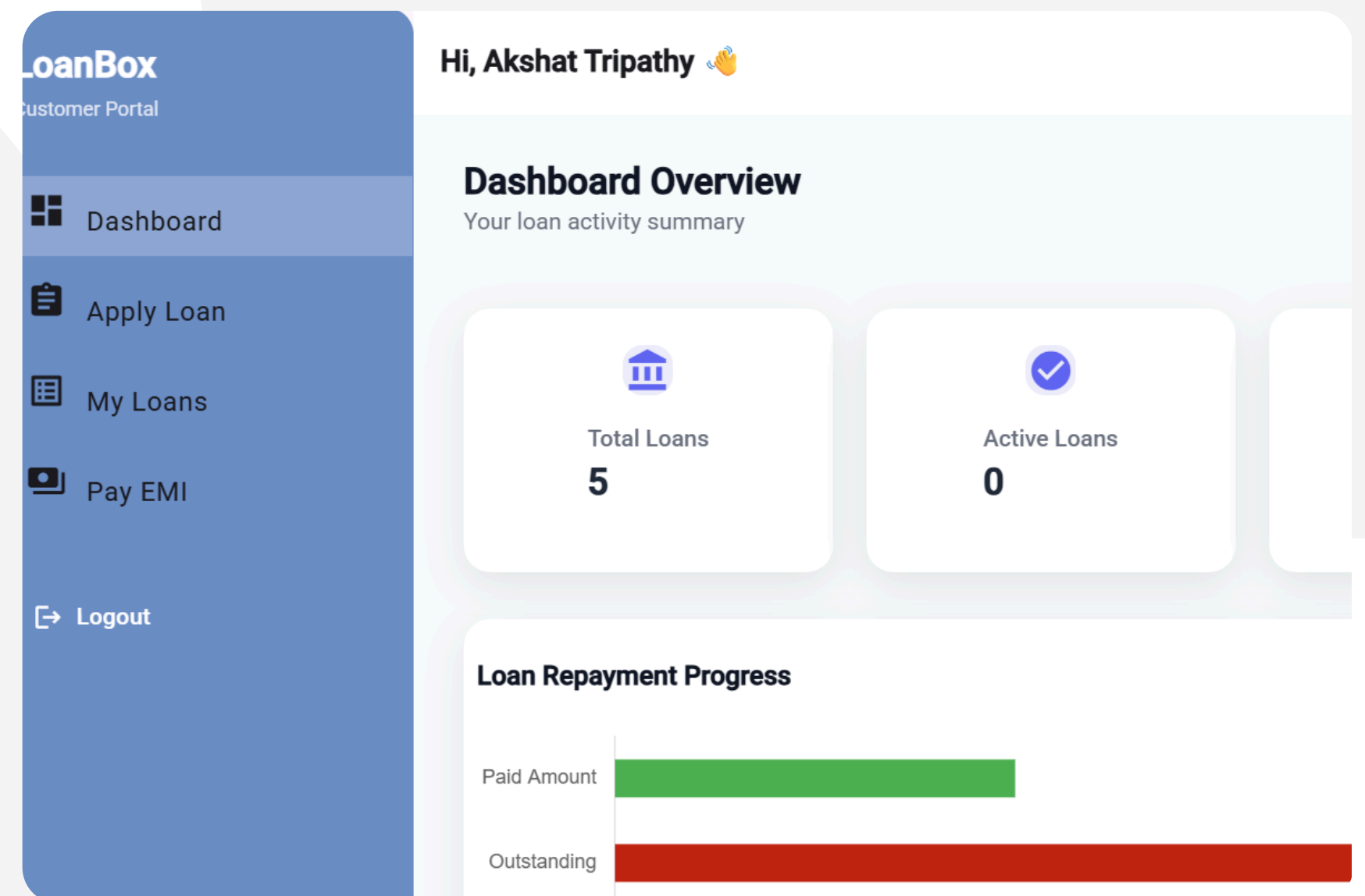
EMI Schedule

EMI No	Due Date	Amount	Status
1	Feb 4, 2026	₹ 61992.84	Paid

# KEY FEATURES FOR CUSTOMER:

## 03 CUSTOMER

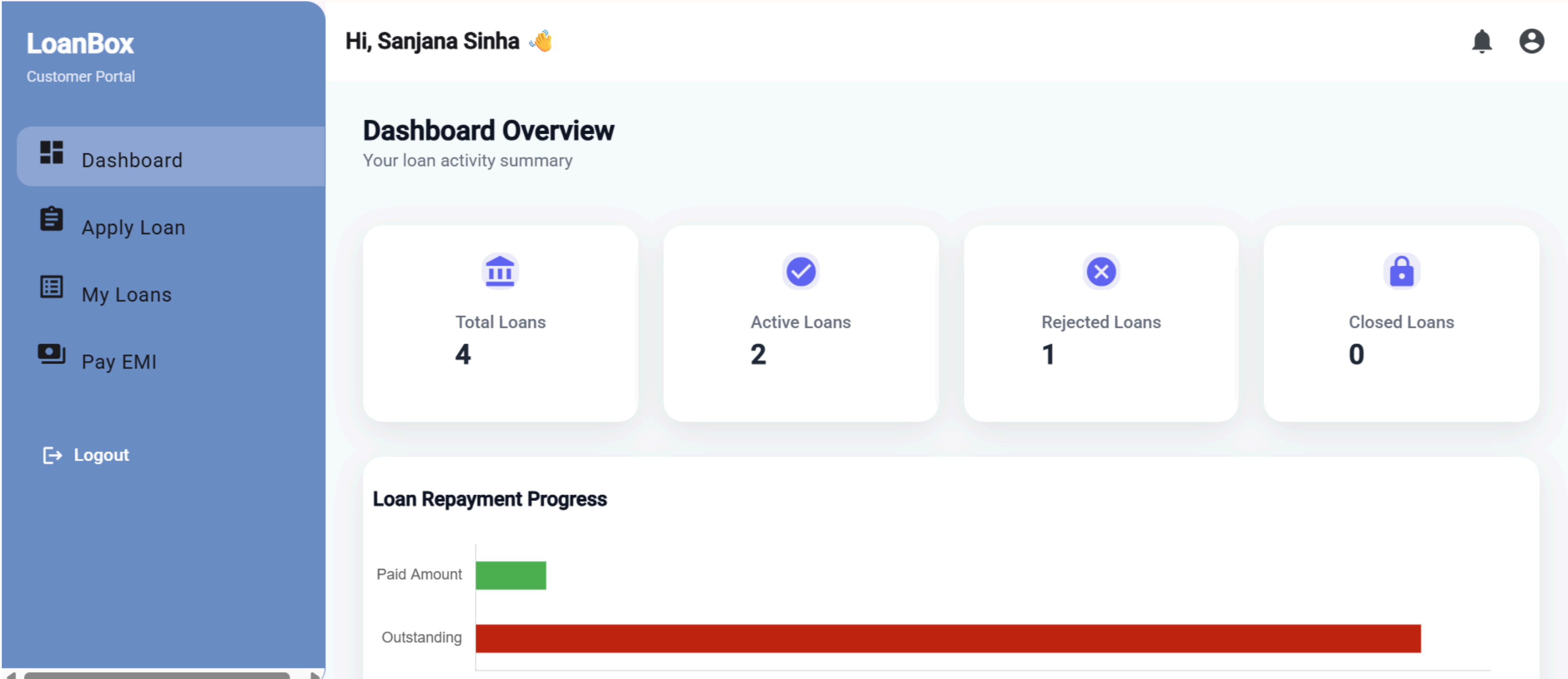
- Customers can register and log in to their account securely.
- Apply for various loan types available in the system.
- View real-time status of their loan applications.
- After loan approval, view detailed EMI schedule and repayment report.
- Pay EMIs through an integrated payment gateway.
- View payment receipts after successful EMI payment.





# CUSTOMER WORKFLOW:

CUSTOMER REGISTERS AND LOGS IN TO THE SYSTEM AND VIEWS THE ACTIVE V/S CLOSED LOANS ON THE DASHBOARD



# CUSTOMER WORKFLOW:

APPLIES FOR AVAILABLE LOAN TYPES BY ENTERING REQUIRED DETAILS

LoanBox

Customer Portal

Dashboard

Apply Loan

My Loans

Pay EMI

Logout

Select Loan Type

Personal Loan

Interest: 10.5%

Max Tenure: 36 months

Amount: ₹ 5000 – ₹ 500000

Home Loan

Interest: 8.5%

Max Tenure: 240 months

Amount: ₹ 500000 – ₹ 5000000

Vehicle Loan

Interest: 9.25%

Max Tenure: 60 months

Amount: ₹ 100000 – ₹ 1500000

Education Loan

Interest: 7.6%

Max Tenure: 120 months

Amount: ₹ 100000 – ₹ 3000000

Apply for Home Loan

Loan Type

Home Loan

Loan Amount\*

# CUSTOMER WORKFLOW:

TRACKS REAL-TIME STATUS OF LOAN APPLICATIONS

LoanBox

Customer Portal

Dashboard

Apply Loan

My Loans

Pay EMI

Logout

My Loans

Manage your loan applications

Loan ID or Status

Loan Type

Loan ID	Loan Type	Amount	Tenure	Status	Applied On	Action
5	Home Loan	₹ 5,000,000	120 months	Approved	Jan 4, 2026	<div>View Details</div>
6	Personal Loan	₹ 200,000	40 months	Rejected	Jan 4, 2026	—
7	Vehicle Loan	₹ 1,200,000	24 months	Approved	Jan 5, 2026	<div>View Details</div>
13	Home Loan	₹ 600,000	24 months	Applied	Jan 5, 2026	<div>View Details</div>

# CUSTOMER WORKFLOW:

VIEWS EMI SCHEDULE AFTER LOAN APPROVAL

LoanBox

Customer Portal

Dashboard

Apply Loan

My Loans

Pay EMI

Logout

₹

Total Loan

₹ 1200000

Outstanding

₹ 1090081.12

Paid EMIs

2

Pending EMIs

22


EMI Schedule


EMI	Due Date	Amount	Status
#1	Feb 5, 2026	₹ 54959.44	Paid
#2	Mar 5, 2026	₹ 54959.44	Paid
#3	Apr 5, 2026	₹ 54959.44	Pay Now
#4	May 5, 2026	₹ 54959.44	Pay Now


# CUSTOMER WORKFLOW:


PAYS EMIS THROUGH THE INTEGRATED PAYMENT GATEWAY


**LoanBox**  
Customer Portal

 Dashboard

 Apply Loan

 My Loans

 Pay EMI

 Logout

**Pay EMI**  
Secure loan repayment

Loan ID\*

7

Fetch Loan Details

☒ Pay Next EMI

☐ Pay Full Outstanding

Installment No: 3

Amount: ₹ 54959.44

Choose Payment Method

☒ UPI

☐ Debit Card

☐ Credit Card

Pay Now

# CUSTOMER WORKFLOW:

## RECEIVES PAYMENT RECEIPT AFTER SUCCESSFUL TRANSACTION

LoanBox

Customer Portal

Dashboard

Apply Loan

My Loans

Pay EMI

Logout

Loan ID\*

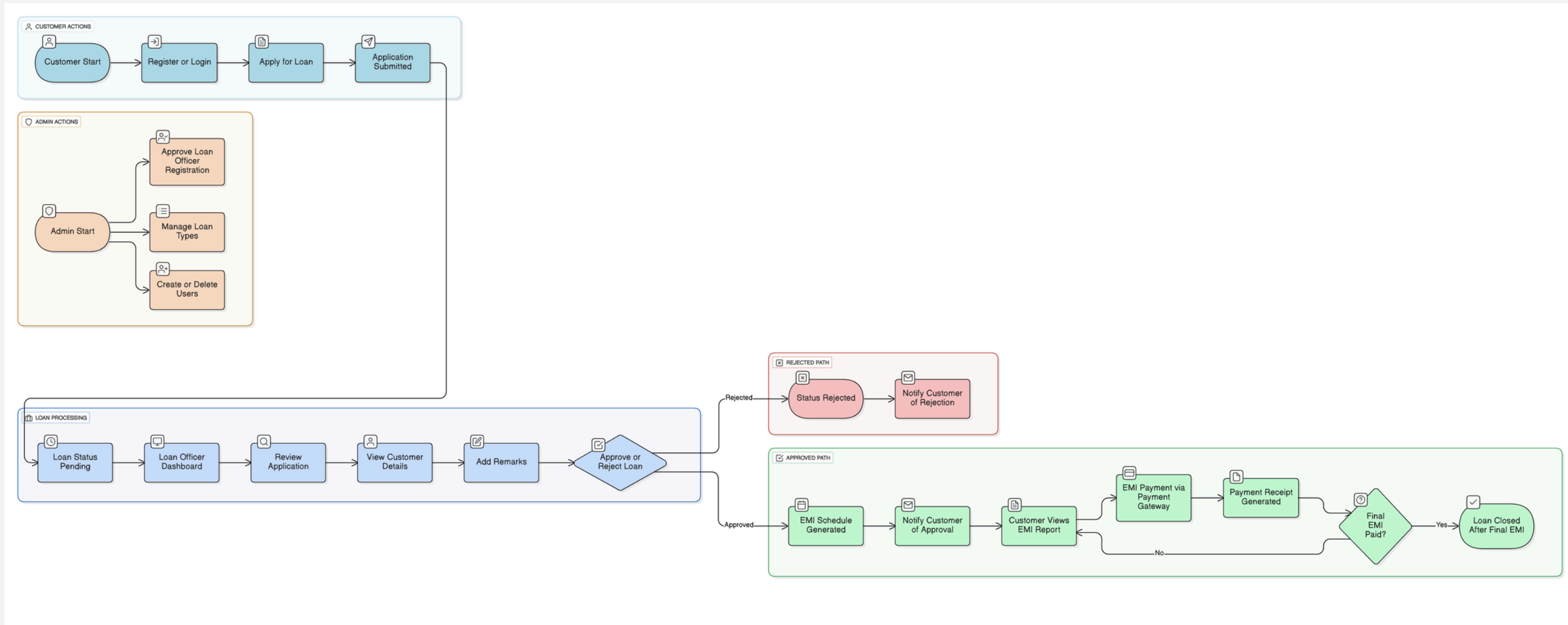
Fetch Loan Details

EMI paid successfully

Payment Receipt

Loan ID	7
Payment Type	EMI
EMI No	3
Amount Paid	₹ 54959.44
Payment Method	UPI
Payment Date	Jan 6, 2026, 1:13:42 PM

# WORKFLOW DIAGRAM



# QUALITY ASSURANCE AND TESTING

- **Unit Testing:**

Core business logic and API methods are tested using unit tests to ensure correctness and reliability.

- **API Testing:**

Swagger is used for API documentation and quick endpoint testing during development.

- **Postman Testing:**

Postman is used to test all APIs including authentication, role-based access, loan workflows, and error scenarios.

- **Security Testing:**

JWT authentication and role-based authorization are verified to prevent unauthorized access.

- **Outcome:**

Ensures stable, secure, and bug-free application behavior across all modules.



**LIVE DEMO**