

Dot Net Full Stack Training Project

LOAN MANAGEMENT SYSTEM

Presented by: Batch 9 (Team 3)
Instructor: Shrivalli Maheshwaran



Contributions

- **Ashwin Menon** - Frontend Alerts, Exception Handling, (UI - Customer management, Item Purchased, View Loans, Navbar, Dashboard) & (APIs - Edit/Delete Employee, Get Purchased Items, Get Loan Cards, Role Based Auth), Test cases for GetLoanCards API.
- **Agastya Varma** - Frontend Login/Register page, Setting up AuthContext, Password hashing, APIs - Delete loan, Login, Register, Database Schema, DDL commands.
- **Soumil Kamat** - (UI- Apply for Loan, Edit loan, Add item, Bootstrap setup, UI for Tables, adding session storage), (APIs- Delete Item, Add loan card), (API connection from frontend - delete item, delete loan)
- **Hardik Sharma**- Frontend: Reusable TableComponent, UI enhancement of master tables and edit form, helper filter function, Backend: Unit tests for GetItems() API, APIs: Issueltem,UpdateItem,UpdateLoan, Deleteltem, exception for repos, DML commands
- **Manav Munjal** - (Ui tasks- User & Admin Dashboards, ApplyForLoan, Add Employee, Dates validation), (Backend tasks- Apis - (Login, Register, GetEmployeeByld), Dates validation), DDL commands, Tables creation and population sql.

Code Structure

API Specification (Swagger)

Customer



GET /api/Customer/GetPurchasedItems



GET /api/Customer/GetLoans



POST /api/Customer/ApplyForLoan



Login



POST /api/Login



Register



POST /api/Register



API Specification (Swagger)

Admin



PUT /api/Admin/UpdateEmployee



PUT /api/Admin/UpdateLoan



PUT /api/Admin/UpdateItem



GET /api/Admin/GetEmployees



GET /api/Admin/GetEmployeeById



GET /api/Admin/GetItems



GET /api/Admin/GetLoans



DELETE /api/Admin/DeleteLoanById



DELETE /api/Admin/DeleteEmployee



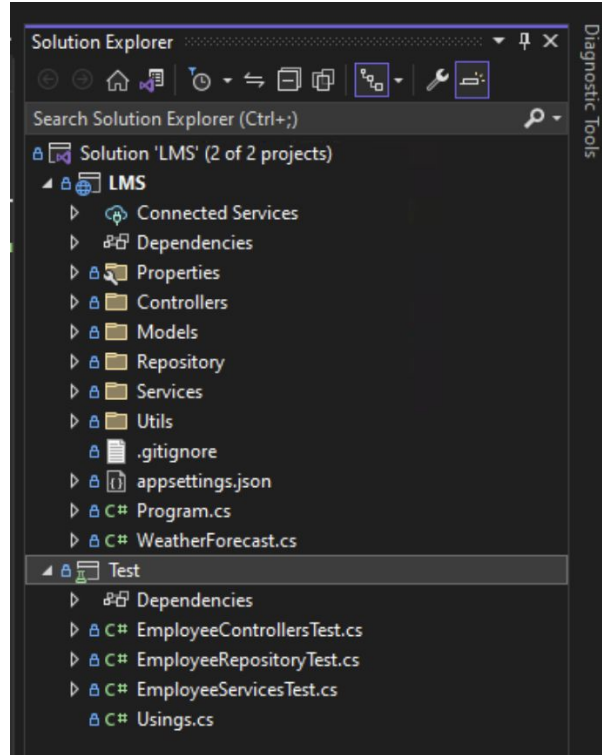
DELETE /api/Admin/DeleteItemById



POST /api/Admin/AddLoanCard



Backend Structure



Backend Structure

```
└─ Models
  ├── Category.cs
  ├── EditEmployeeViewModel.cs
  ├── EmployeeCardDetail.cs
  ├── EmployeeCredential.cs
  ├── EmployeeIssueDetail.cs
  ├── EmployeeIssueViewModel.cs
  ├── EmployeeMaster.cs
  ├── EmployeeViewModel.cs
  ├── GisdbContext.cs
  ├── ItemMaster.cs
  ├── ItemViewModel.cs
  ├── LoanCardMaster.cs
  ├── LoanViewModel.cs
  ├── LoginResponse.cs
  ├── Material.cs
  ├── RegisterCredentialsViewModel.cs
  └── RegisterViewModel.cs
```

```
└─ Controllers
  ├── AdminController.cs
  ├── CustomerController.cs
  ├── LoginController.cs
  ├── RegisterController.cs
  └── TestController.cs
```

```
└─ Repository
  ├── EmployeeRepository.cs
  └── IEmployeeRepository.cs
```

```
└─ Services
  ├── AdminService.cs
  ├── AuthService.cs
  ├── CustomerService.cs
  ├── IAdminService.cs
  ├── IAuthService.cs
  └── ICustomerService.cs
```

Frontend File Structure

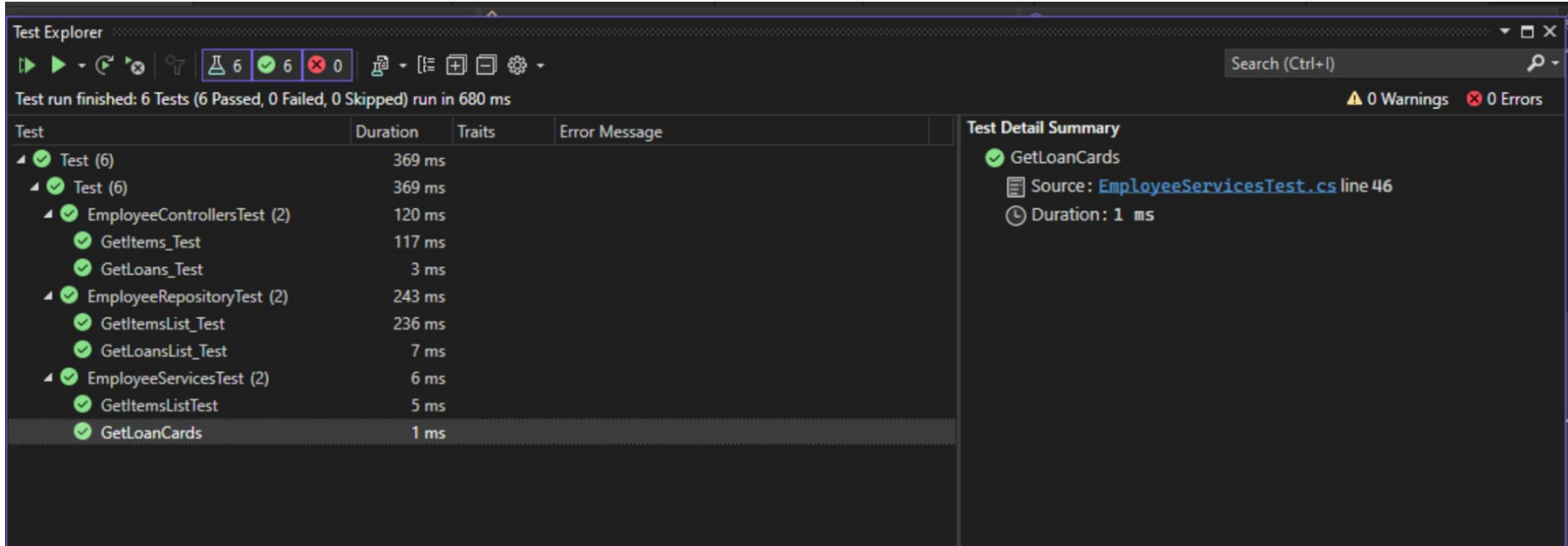
```

  ✓ Components
    JS DashboardCard.js
    JS NavbarAdmin.js
    JS NavbarCust.js
    JS TableComponent.js
  ✓ Contexts
    JS AuthContext.js
  ✓ Helpers
    JS responseFilter.js
```

```

  ✓ Pages
    JS AdminAddItem.js
    JS AdminDashboard.js
    JS AdminItemMaster.js
    JS AdminLoanDataEdit.js
    JS AdminLoanDataInsert.js
    JS ApplyForLoan.js
    JS CustomerDataManagement.js
    JS CustomerDetails.js
    JS CustomerItemsPurchased.js
    JS CustomerLoanCards.js
    JS Login.js
    JS Profile.js
    JS UserDashboard.js
  ✓ Services
    JS ProtectedRoute.js
  ✓ Styles
    # ApplyLoan.css
    # CustomerDetails.css
```


Unit Testing Results



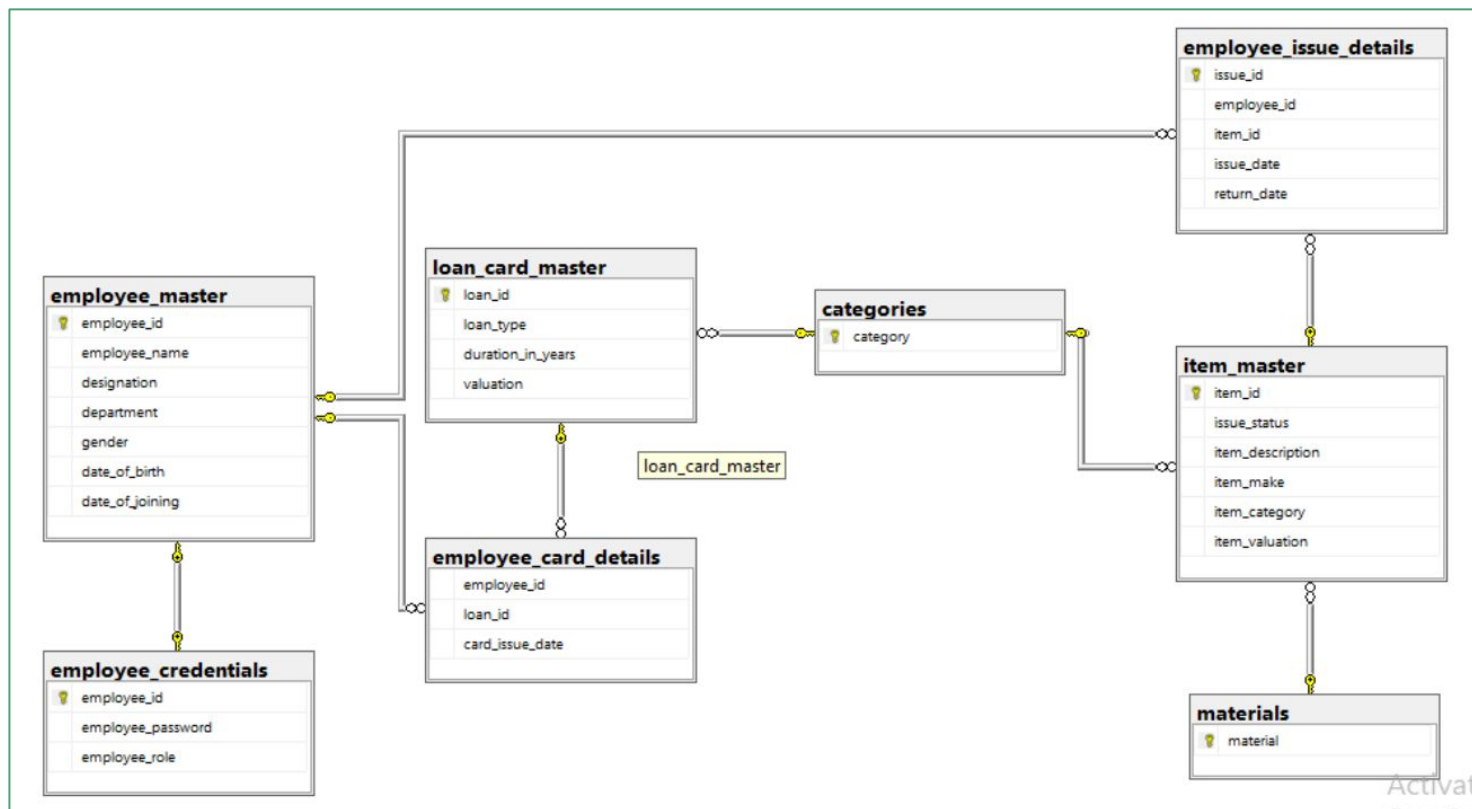
The screenshot displays the Visual Studio Test Explorer interface. At the top, a toolbar shows icons for running tests, with a summary of 6 passed, 0 failed, and 0 skipped tests. Below this, a message states: "Test run finished: 6 Tests (6 Passed, 0 Failed, 0 Skipped) run in 680 ms". The main area is a table of test results, and the right pane shows details for the selected test.

Test	Duration	Traits	Error Message
Test (6)	369 ms		
Test (6)	369 ms		
EmployeeControllersTest (2)	120 ms		
GetItems_Test	117 ms		
GetLoans_Test	3 ms		
EmployeeRepositoryTest (2)	243 ms		
GetItemsList_Test	236 ms		
GetLoansList_Test	7 ms		
EmployeeServicesTest (2)	6 ms		
GetItemsListTest	5 ms		
GetLoanCards	1 ms		

Test Detail Summary

- GetLoanCards
 - Source: [EmployeeServicesTest.cs](#) line 46
 - Duration: 1 ms

Database Schema



Special Features

Special Features

- Appropriate error handling like validation error is shown in case employee enters date of birth > date of joining
- User is shown appropriate status, e.g. when tables do not have any data, proper message is displayed instead of blank screen
- Data consistency has been taken care of, e.g. when deleting a loan card, associated items will be deleted as well
- Navbar has been added with user greeting on right side
- Loan card valuation is displayed which is the sum of all items purchased with it
- Displaying return date for items purchased

Reusable Table Component

```
<TableComponent  
  headerData={["Loan ID", "Loan Type", "Duration (in years)", "Card Issue Date", "Valuation"]}   
  tableData={responseFilter(loanCards, ["loanId", "loanType", "durationInYears", "cardIssueDate", "valuation"])}   
  noDataMessage={{ title: "No loan cards are availed", message: "Use the Apply for Loan option to add a loan card" }} />
```

The TableComponent takes various table header names, the corresponding row data and messages to display when no data is present in the table as prop arguments. All view table pages make use of this component. It also uses a helper function responseFilter(), which filters requisite columns from backend response.

Application Walkthrough

Register Screen

← ↻ ⓘ localhost:3000

LMS

Register

Employee Name

John Doe

Password

Department Gender Designation Role

IT Male Manager Customer

Date Of Birth Date Of Joining

dd-mm-yyyy dd-mm-yyyy

Add Data

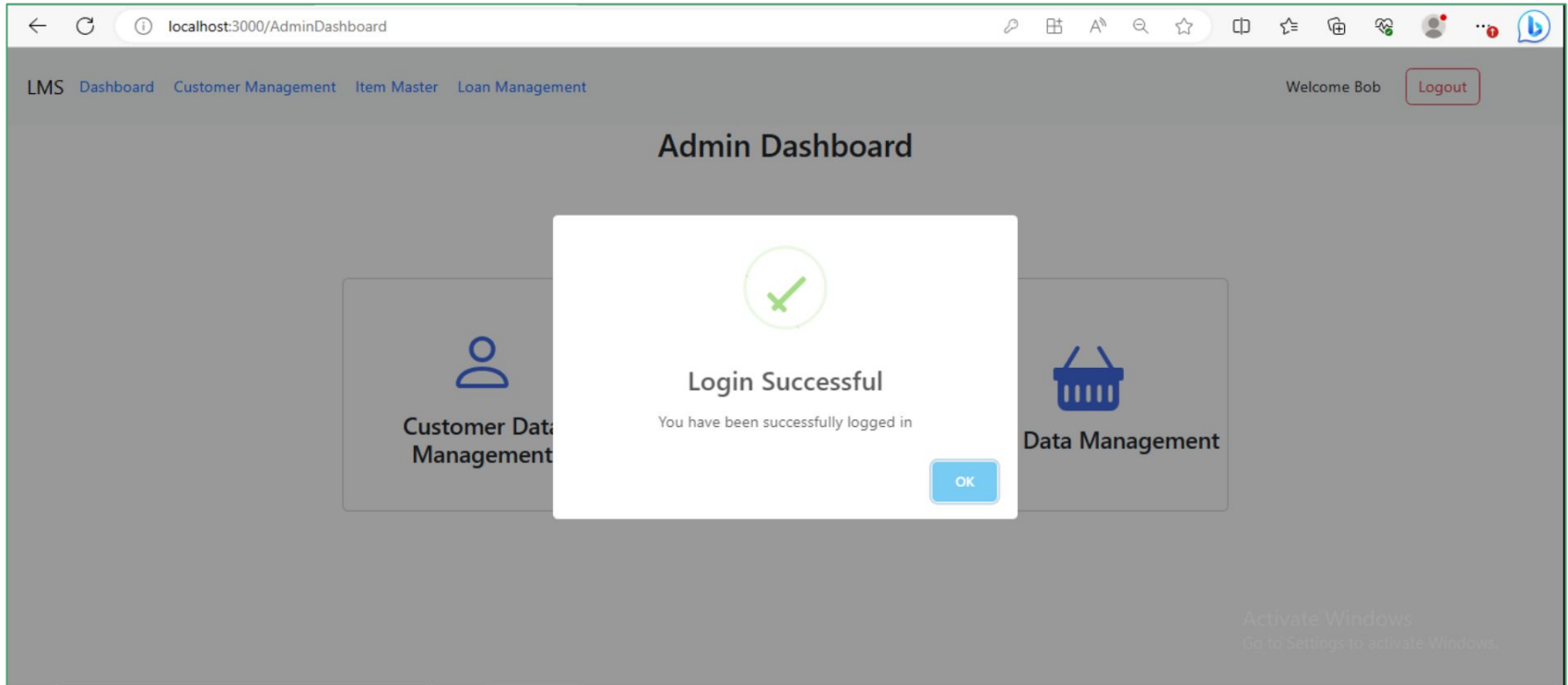
Login

Activate Windows
Go to Settings to activate Windows.

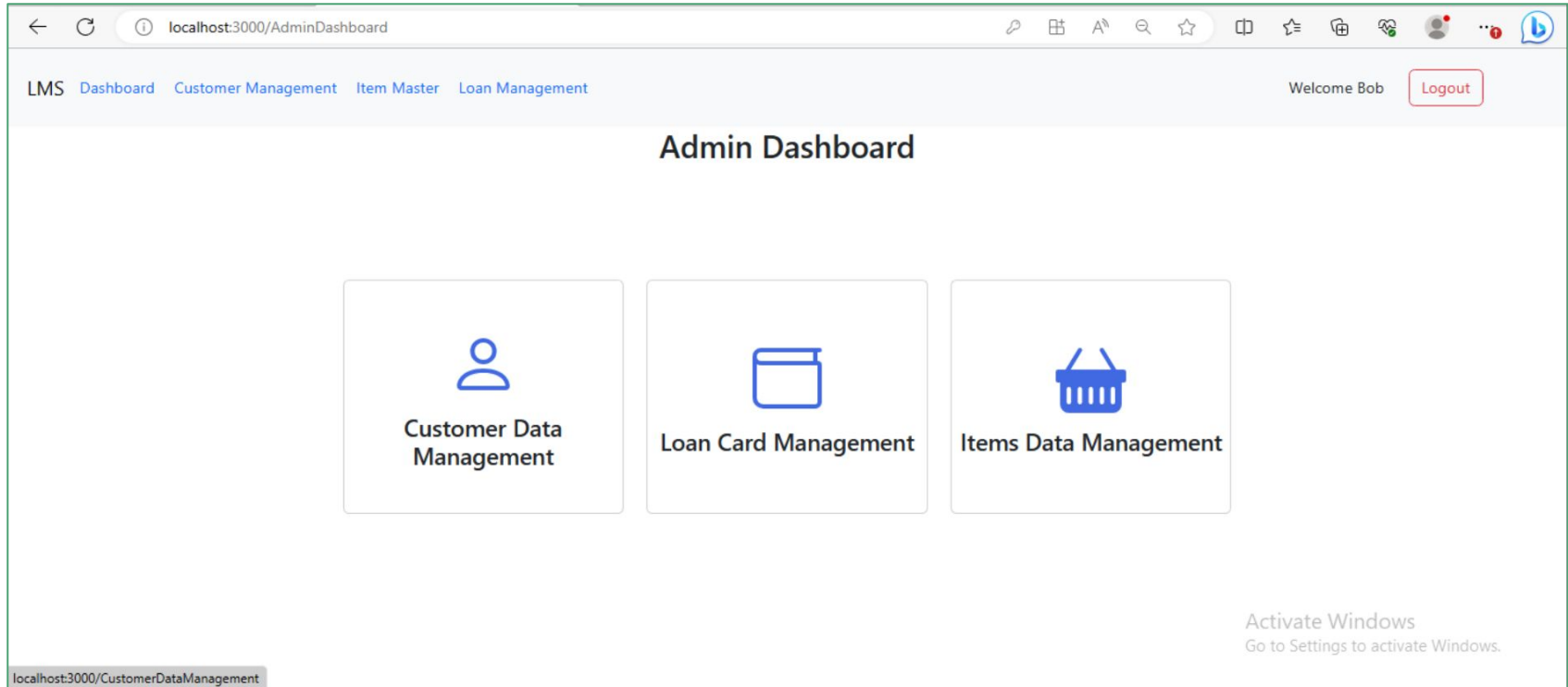
Login Screen

The screenshot shows a web browser window with the address bar displaying 'localhost:3000'. The page title is 'LMS'. The main content area features a light blue rounded rectangle with a dark blue header section containing the text 'Register' and 'Login'. Below this header, there are two input fields: 'Employee ID' with the value 'E0001' and 'Password' which is masked with dots. A blue 'Login' button is positioned at the bottom of the form. The browser's status bar at the bottom indicates 'Activate Windows' and 'Go to Settings to activate Windows.'

Successful Login



Admin Dashboard



Admin > Customer Data Management

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localhost:3000/CustomerDataManagement

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LMS

Dashboard

Customer Management

Item Master

Loan Management

Welcome Bob

Logout

Customer Data Management

+ Add Employee

Employee ID	Employee Name	Gender	Designation	Department	Date of Birth	Date of joining	Actions
E0001	Bob	M	manager	it	1995-05-01	2021-05-02	<div><div>✍</div><div>🗑</div></div>
E0002	Dylan	M	ca	finance	1993-02-03	2019-02-06	<div><div>✍</div><div>🗑</div></div>
E0003	Tara	F	dgm	sales	1997-07-10	2015-03-11	<div><div>✍</div><div>🗑</div></div>
E0004	Barney	M	associate	hr	1991-10-11	2022-07-08	<div><div>✍</div><div>🗑</div></div>

Activate Windows
Go to Settings to activate Windows.

Admin > Customer Data Management > Edit Customer

localhost:3000/CustomerDataManagement

Employee ID	Employee Name	Gender	Designation	Department	Date of Birth	Date of joining	Actions
E0001	Bob	M	manager	it	1995-05-01	2021-05-02	✍ 🗑
E0002	Dylan	M	ca	finance	1993-02-03	2019-02-06	✍ 🗑
E0003	Tara	F	dgm	sales	1997-07-10	2015-03-11	✍ 🗑
E0004	Barney	M	associate	hr	1991-10-11	2022-07-08	✍ 🗑

Edit Employee

Employee Name

Dylan

Employee ID

E0002

Department

Finance

Gender

Male

Designation

CA

Date Of Birth

03-02-1993

Date Of Joining

06-02-2019

Edit Data

Cancel

Activate Windows
Go to Settings to activate Windows.

Admin > Customer Data Management > Delete Customer

The screenshot shows a web application interface for 'Customer Data Management'. A modal dialog with a green checkmark icon and the text 'Delete Successful' is centered on the screen, indicating that the deletion of an employee record was successful. The background page features a table of employee records and a form for adding or editing details.

Browser address bar: localhost:3000/CustomerDataManagement

Navigation: LMS Dashboard Customer Management Item Master Loan Management

Welcome Bob Logout

Customer Data Management

+ Add Employee

Employee ID	Employee Name	Gender	Designation	Department	Date of joining	Actions
E0001	Bob				2021-05-02	Edit Delete
E0002	Dylan				2019-02-06	Edit Delete
E0004	Barne				2022-07-08	Edit Delete

Delete Successful

The Employee details has been deleted successfully

OK

Employee ID: E0002

Department: Finance

Gender: Male

Designation: CA

Activate Windows
Go to Settings to activate Windows.

Admin > Customer Data Management > Add Employee

The screenshot shows a web browser at `localhost:3000/register`. The application has a navigation bar with links: LMS, Dashboard, Customer Management, Item Master, and Loan Management. A user named Bob is logged in, with a 'Logout' button. The main heading is 'Loan Management Application' followed by 'Customer Data Management'. The 'Add Employee' form contains the following fields:

Add Employee	
Employee Name	<input type="text" value="John Doe"/>
Password	<input type="password" value="****"/>
Department	<input type="text" value="IT"/>
Gender	<input type="text" value="Male"/>
Designation	<input type="text" value="Manager"/>
Date Of Birth	<input type="text" value="16-06-2001"/>
Date Of Joining	<input type="text" value="16-09-2023"/>
Role	<input type="text" value="Customer"/>
<input type="button" value="Add"/>	

An 'Activate Windows' watermark is visible in the bottom right corner of the browser window.

Admin > Item Master View

The screenshot shows a web application interface for managing item master data. The browser address bar indicates the URL is `localhost:3000/AdminItemsMaster`. The application has a navigation bar with links to `LMS`, `Dashboard`, `Customer Management`, `Item Master` (the active page), and `Loan Management`. A user greeting "Welcome Bob" and a `Logout` button are in the top right. A blue header bar displays "Item Master Data Details". Below this is a green `+ Add Item` button. A table lists four items with columns for ID, status, description, make, category, valuation, and actions. The actions column contains edit and delete icons for each item. An "Activate Windows" watermark is visible in the bottom right corner.









localhost:3000/AdminItemsMaster

LMS Dashboard Customer Management Item Master Loan Management

Welcome Bob Logout

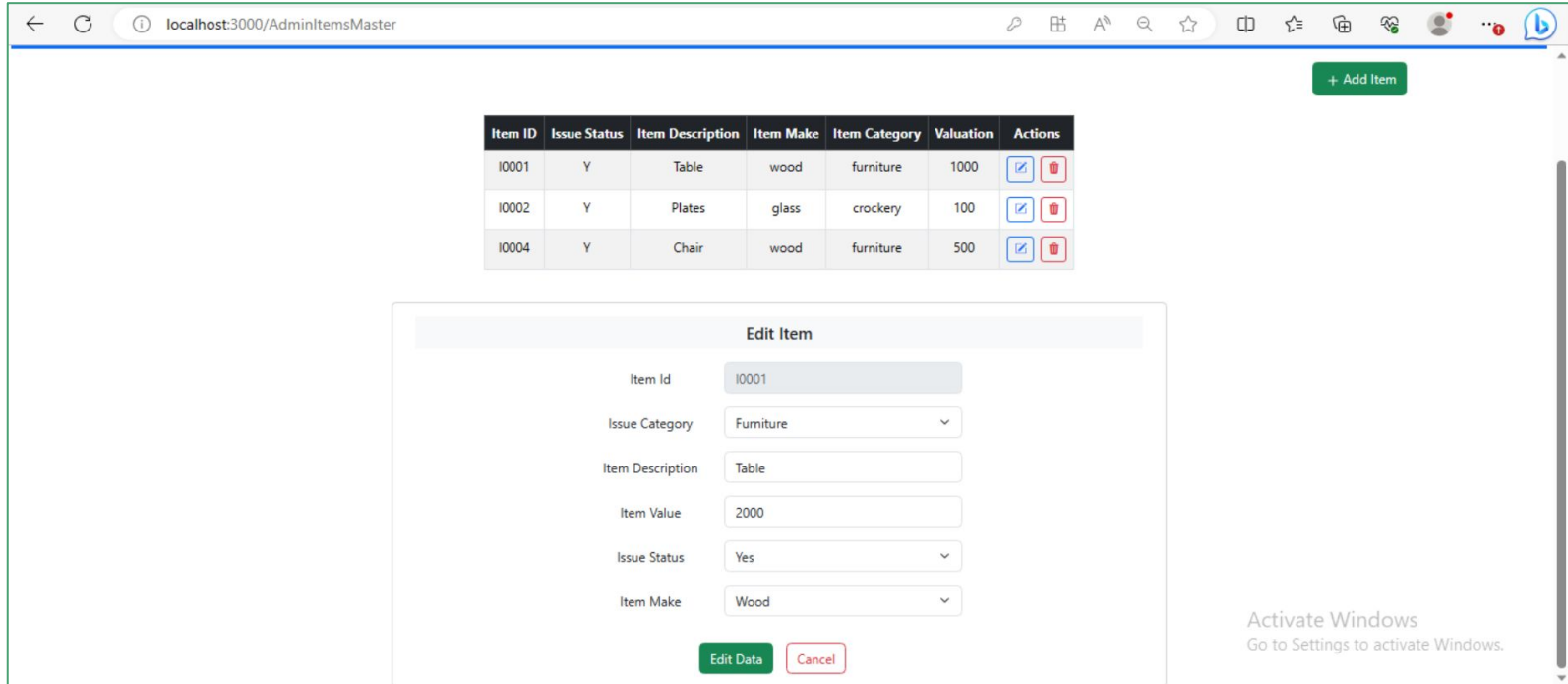
Item Master Data Details

+ Add Item

Item ID	Issue Status	Item Description	Item Make	Item Category	Valuation	Actions
I0001	Y	Table	wood	furniture	1000	 
I0002	Y	Plates	glass	crockery	100	 
I0003	Y	Scissors	plastic	stationery	50	 
I0004	Y	Chair	wood	furniture	500	 

Activate Windows
Go to Settings to activate Windows.

Admin > Item Master View > Edit Item



The screenshot displays a web application interface for managing items. At the top, a green button labeled '+ Add Item' is visible. Below it is a table with the following data:

Item ID	Issue Status	Item Description	Item Make	Item Category	Valuation	Actions
I0001	Y	Table	wood	furniture	1000	Edit Delete
I0002	Y	Plates	glass	crockery	100	Edit Delete
I0004	Y	Chair	wood	furniture	500	Edit Delete

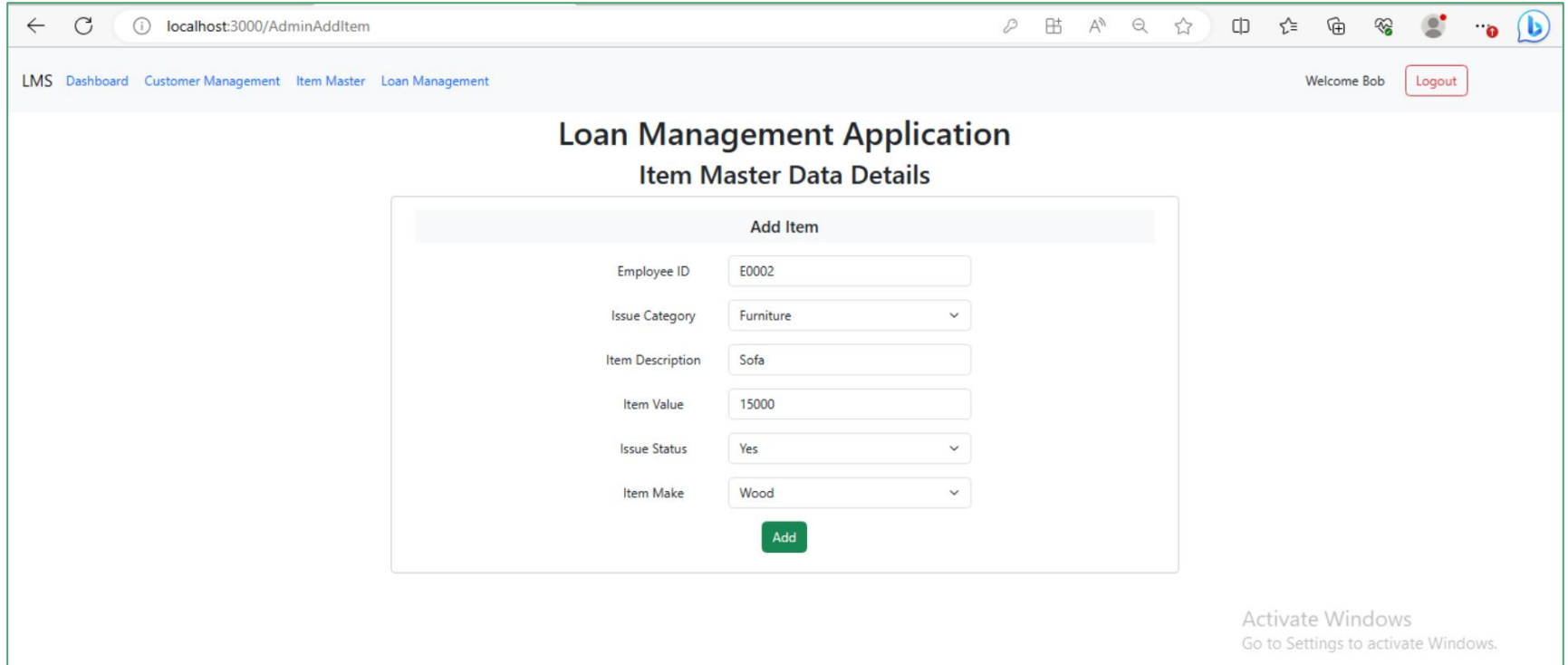
Below the table is an 'Edit Item' form. The form contains the following fields:

- Item Id: I0001
- Issue Category: Furniture
- Item Description: Table
- Item Value: 2000
- Issue Status: Yes
- Item Make: Wood

At the bottom of the form are two buttons: 'Edit Data' (green) and 'Cancel' (red).

Activate Windows
Go to Settings to activate Windows.

Admin > Add Item Form



The screenshot shows a web browser window with the address bar displaying `localhost:3000/AdminAddItem`. The browser's toolbar includes navigation and utility icons. The page header contains a navigation menu with links: [LMS](#), [Dashboard](#), [Customer Management](#), [Item Master](#), and [Loan Management](#). On the right side of the header, it says "Welcome Bob" and has a [Logout](#) button. The main content area is titled "Loan Management Application" and "Item Master Data Details". It features a form titled "Add Item" with the following fields: "Employee ID" (text input with value "E0002"), "Issue Category" (dropdown menu with value "Furniture"), "Item Description" (text input with value "Sofa"), "Item Value" (text input with value "15000"), "Issue Status" (dropdown menu with value "Yes"), and "Item Make" (dropdown menu with value "Wood"). Below these fields is a green "Add" button. In the bottom right corner of the page, there is a watermark that says "Activate Windows" and "Go to Settings to activate Windows."

localhost:3000/AdminAddItem

LMS [Dashboard](#) [Customer Management](#) [Item Master](#) [Loan Management](#) Welcome Bob [Logout](#)

Loan Management Application

Item Master Data Details

Add Item

Employee ID	<input type="text" value="E0002"/>
Issue Category	<input type="text" value="Furniture"/>
Item Description	<input type="text" value="Sofa"/>
Item Value	<input type="text" value="15000"/>
Issue Status	<input type="text" value="Yes"/>
Item Make	<input type="text" value="Wood"/>

[Add](#)







Activate Windows
Go to Settings to activate Windows.

Admin > Loan Card Master and Edit Loan

← ↻ ⓘ localhost:3000/AdminLoanDataEdit 🔍 📅 🗒️ ⌵ ⭐ 📌 🔄 🧑 ⋮ 🗨️

Loan Card Details

+ Add Loan Card

Loan ID	Loan Type	Duration (in years)	Valuation	Actions
L0001	furniture	1	1000	 
L0002	crockery	2	100	 
L0004	furniture	2	500	 

Edit Loan

Loan Id

L0001

Loan Type

furniture

Loan Duration (in years)

3

Loan Valuation

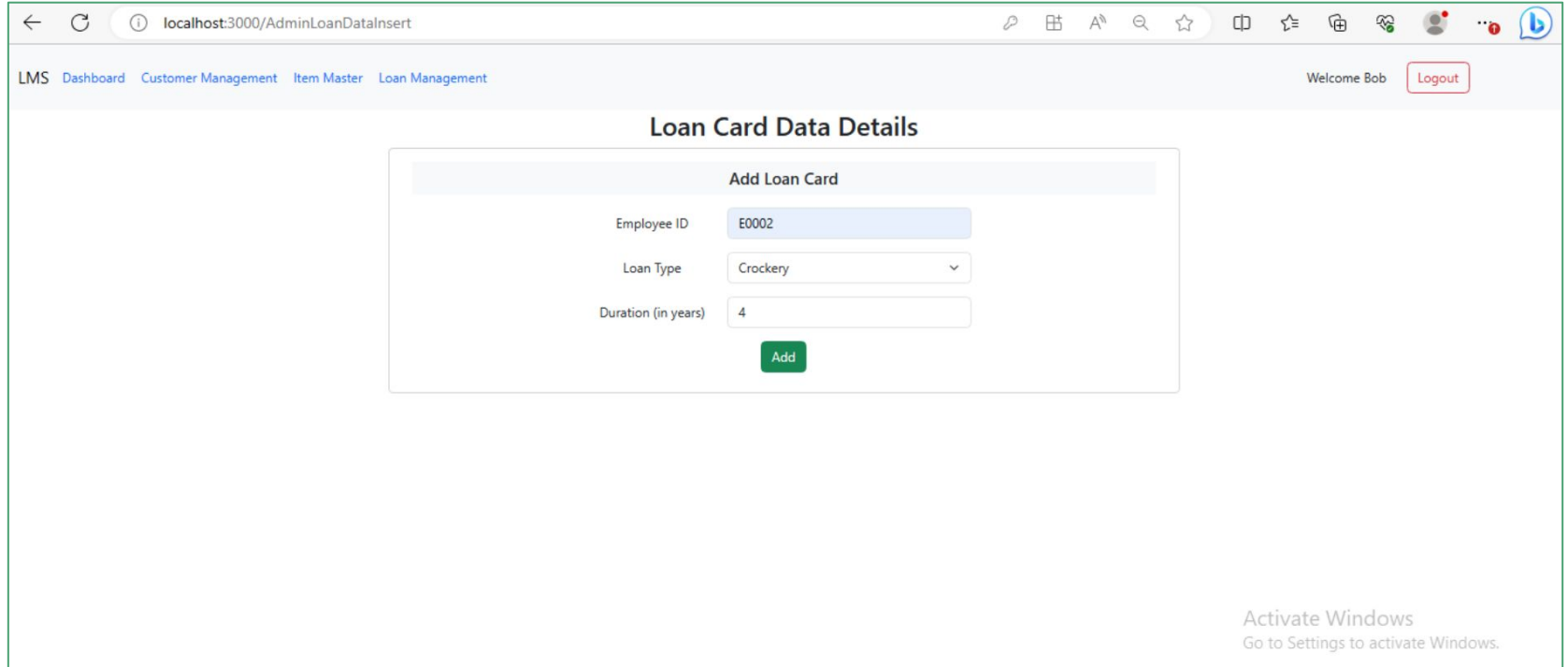
1000

Edit Data

Cancel

Activate Windows
Go to Settings to activate Windows.

Admin > Add Loan Card



The screenshot shows a web browser window at `localhost:3000/AdminLoanDataInsert`. The application header includes a navigation menu with 'LMS', 'Dashboard', 'Customer Management', 'Item Master', and 'Loan Management'. On the right, it says 'Welcome Bob' and has a 'Logout' button. The main content area is titled 'Loan Card Data Details' and contains a form titled 'Add Loan Card'. The form has three input fields: 'Employee ID' with the value 'E0002', 'Loan Type' with a dropdown menu showing 'Crockery', and 'Duration (in years)' with the value '4'. Below these fields is a green 'Add' button. In the bottom right corner, there is a Windows activation watermark that says 'Activate Windows. Go to Settings to activate Windows.'

localhost:3000/AdminLoanDataInsert

LMS Dashboard Customer Management Item Master Loan Management

Welcome Bob Logout

Loan Card Data Details

Add Loan Card

Employee ID E0002

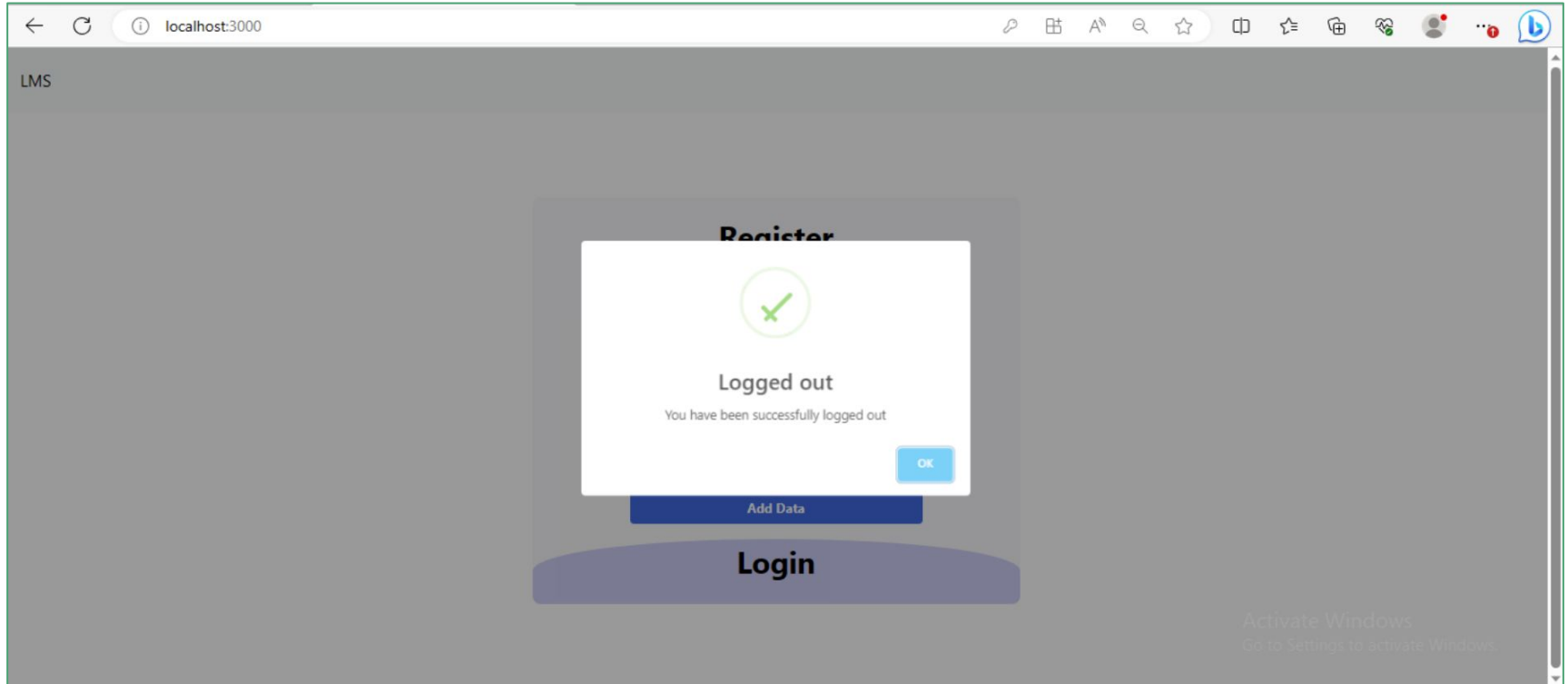
Loan Type Crockery

Duration (in years) 4

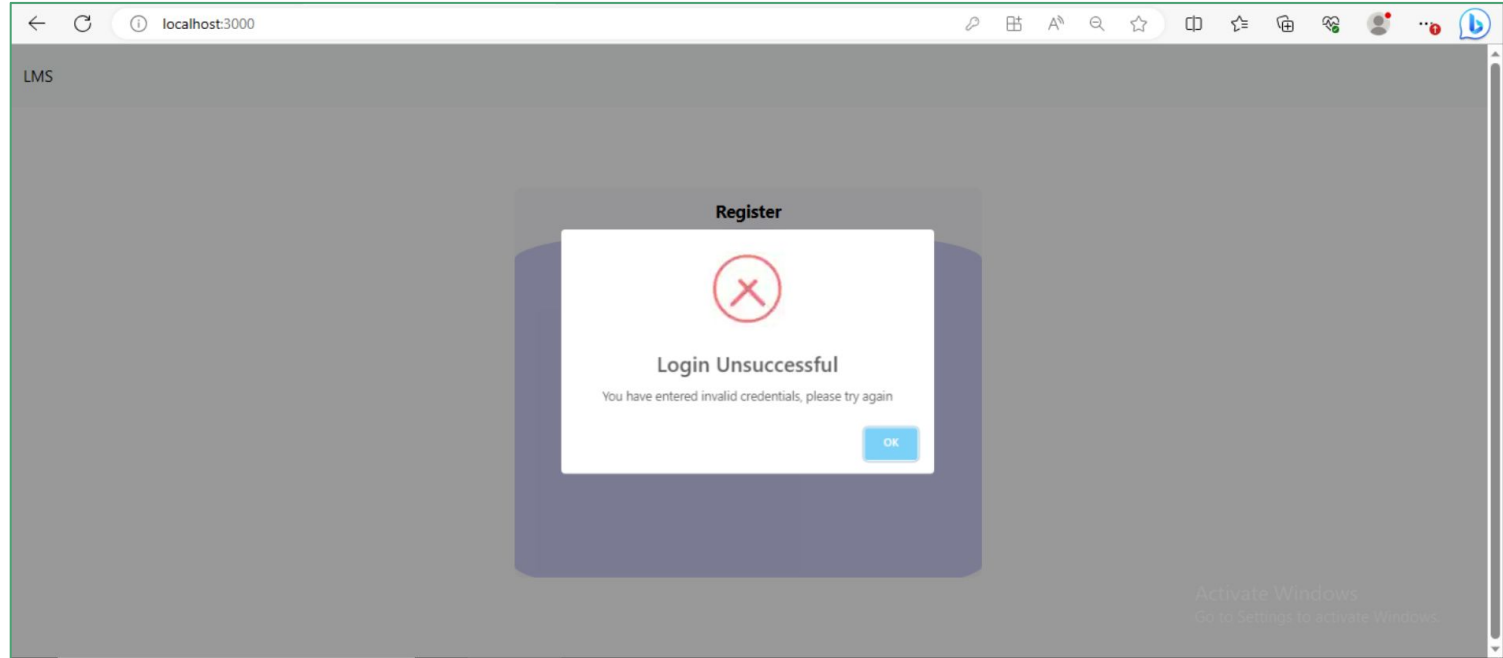
Add

Activate Windows
Go to Settings to activate Windows.

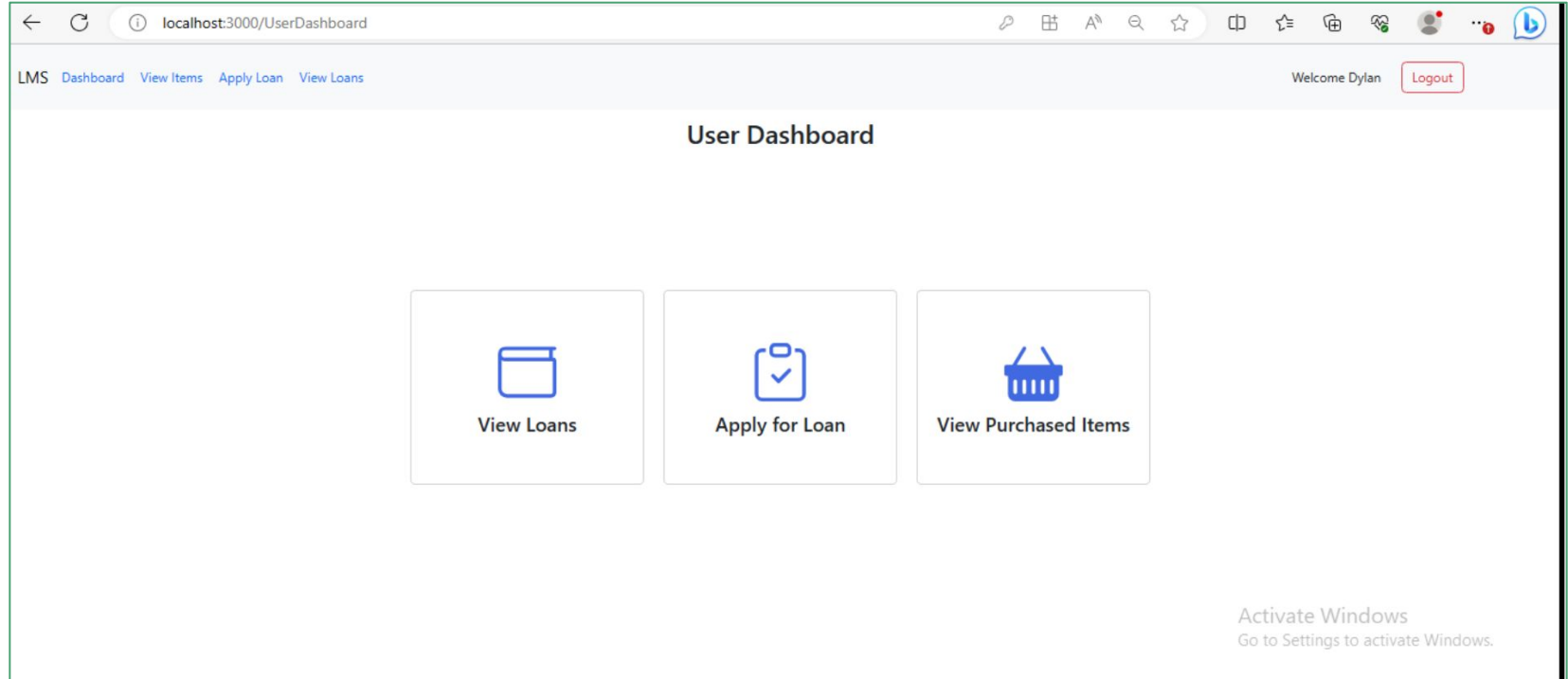
Logout Screen



Error screen on entering invalid credentials



Customer Dashboard



Customer > View Items Purchased

← ↻ ⓘ localhost:3000/ViewItem

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LMS [Dashboard](#) [View Items](#) [Apply Loan](#) [View Loans](#)

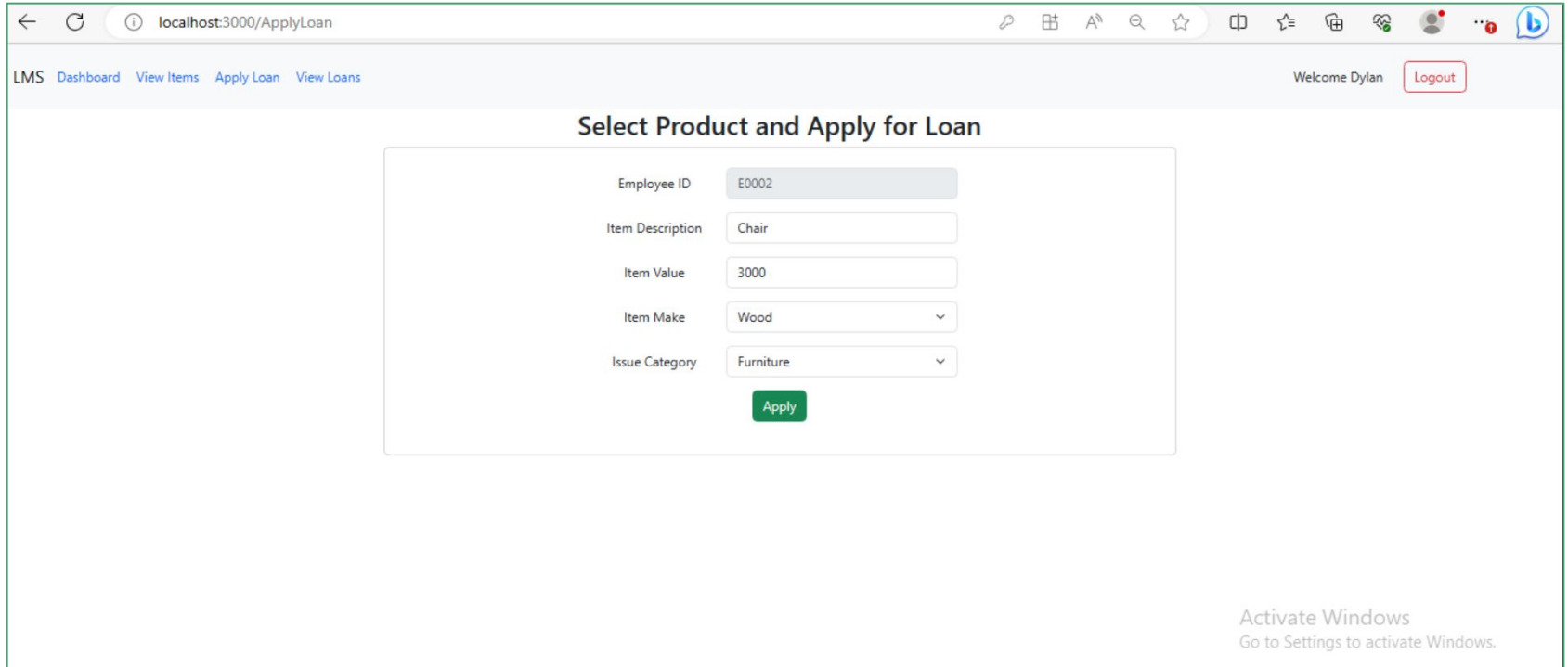
Welcome Dylan [Logout](#)

Items Purchased

Issue ID	Item Description	Item Make	Item Category	Item Valuation	Return Date
10001	Table	wood	furniture	1000	2024-08-23
10002	Plates	glass	crockery	100	2025-07-24

Activate Windows
Go to Settings to activate Windows.

Customer > Apply for Loan



The screenshot shows a web browser window with the address bar displaying 'localhost:3000/ApplyLoan'. The browser's address bar and tabs are visible at the top. Below the browser window, there is a navigation bar with the text 'LMS' and links for 'Dashboard', 'View Items', 'Apply Loan', and 'View Loans'. On the right side of the navigation bar, it says 'Welcome Dylan' and has a 'Logout' button. The main content area is titled 'Select Product and Apply for Loan'. It contains a form with the following fields: 'Employee ID' (with value 'E0002'), 'Item Description' (with value 'Chair'), 'Item Value' (with value '3000'), 'Item Make' (with value 'Wood' and a dropdown arrow), and 'Issue Category' (with value 'Furniture' and a dropdown arrow). Below these fields is a green 'Apply' button. In the bottom right corner of the page, there is a message: 'Activate Windows Go to Settings to activate Windows.'

localhost:3000/ApplyLoan

LMS [Dashboard](#) [View Items](#) [Apply Loan](#) [View Loans](#)

Welcome Dylan [Logout](#)

Select Product and Apply for Loan

Employee ID

Item Description

Item Value

Item Make

Issue Category

[Apply](#)

Activate Windows
Go to Settings to activate Windows.

Customer > View Loans

The screenshot shows a web browser window with the address bar displaying 'localhost:3000/ViewLoan'. The browser's toolbar includes navigation and utility icons. The application's header features a navigation menu with 'LMS', 'Dashboard', 'View Items', 'Apply Loan', and 'View Loans'. On the right, it says 'Welcome Dylan' and has a 'Logout' button. A prominent blue banner reads 'Loan Cards Available'. Below this, a table lists two loan cards. At the bottom right, there is a Windows activation watermark.

Loan ID	Loan Type	Duration (in years)	Card Issue Date	Valuation
L0001	furniture	1	2023-08-23	1000
L0002	crockery	2	2023-07-24	100

Activate Windows
Go to Settings to activate Windows.

Customer > View Loans (No Loan Cards Available)

