

Development of a Web Application for Bank

Project Abstract:

This case study focuses on the development of a robust web application for a bank, designed to streamline operations like account management, loan processing, and customer support. The goal is to enhance customer satisfaction, ensure secure transactions, and improve operational efficiency using modern technological solutions.

Objective:

To create a user-friendly, secure web application that provides comprehensive banking services, thereby improving customer experience and operational effectiveness.

Modules and Implementation:

1. User Module:

- **Login/Registration:** Secure access to banking profiles using multi-factor authentication.
- **Account Management:** Allows users to manage their accounts, view balances, and recent transactions.
- **Loan Application:** Users can apply for loans and track their application status.
- **Customer Support:** Enables users to interact with support for assistance and queries.

2. Banking Staff Module:

- **Login:** Secure access for banking staff.
- **Customer Management:** Provides access to customer profiles for service management.
- **Transaction Approval:** Authorization for high-value transactions and loan approvals.
- **Reporting:** Tools to generate various operational and customer activity reports.

3. Admin Module:

- **User Management:** Handles roles and permissions for system users.
- **Audit Trails:** Keeps track of system activities for security and compliance.
- **System Configuration:** Manages settings related to operational parameters and security.

Flow:

• Home Page

- Options: Sign In, Register

• Registration Process

- Input: Username, Password, Personal Details
- Actions: Validate Data, Create Account
- Output: Confirmation, Redirect to Login

- **Login Process**

- Input: Username, Password
- Actions: Authenticate User
- Output: Redirect to User Dashboard

- **User Dashboard (After Login)**

- Options: Account Management, Loan Application, Customer Support, Logout

- **Account Management**

- View Account Details: Balances, Recent Transactions
- Modify Account Settings: Update Personal Information

- **Loan Application**

- Input: Loan Type, Amount, Personal Details
- Actions: Validate Loan Application, Submit for Approval
- Output: Loan Status Updates

- **Customer Support**

- Input: Query Type
- Actions: Submit Query, Get Assistance
- Output: Resolution Status, Follow-up Options

- **Banking Staff Module**

- Login for Staff
- Customer Management: Access and Manage Customer Profiles
- Transaction Approval: Review and Approve High-value Transactions
- Reporting: Generate Reports on Demand

- **Admin Module**

- Login for Admin
- User Management: Create/Manage Roles, Audit User Activities
- System Configuration: Set Up System Parameters, Security Settings

- **Security Features Across All Modules**

- Secure Login with Multi-factor Authentication
- Data Encryption for Sensitive Information
- Regular Audits and Compliance Checks

Technology Stack:

- **Frontend Technologies:** HTML, CSS, JavaScript, and Bootstrap for building a responsive interface.
- **Frontend Framework:** Angular for a dynamic and efficient user experience.
- **Server Side Programming:** Spring Boot for handling server-side logic efficiently.
- **Backend Frameworks:** Hibernate for object-relational mapping and Spring MVC for the application framework, complemented by Spring Boot Rest for API services.
- **Language:** Java, leveraging its robustness and scalability for enterprise-level applications.
- **Database:** MySQL, chosen for its reliability and performance in handling complex queries and transactions.

Validation Parameters:

- **Data Validation:** Forms will include rigorous validation to ensure accuracy and completeness of data entry.
- **Authentication:** Implementation of secure session management and JWT (JSON Web Tokens) for authentication.