

Online Banking System Assignment

1. Introduction

Overview of the Online Banking System:

An online banking system is a digital platform designed to facilitate banking operations such as account management, funds transfer, bill payments, and loan applications over the internet. These applications provide a range of features and functionalities to connect bank customers with their financial services. Here's an overview of the key components typically found in an online banking system:

- **Account Management:** Customers can view and manage their bank accounts, check balances, and access transaction history.
- **Funds Transfer:** The system allows users to transfer funds between their own accounts or to other accounts, both within the same bank and externally.
- **Bill Payments:** Users can pay bills directly from their bank accounts, set up recurring payments, and view payment history.
- **Loan Services:** Customers can apply for loans, check loan status, and make loan payments.
- **Notifications:** The system sends alerts for account activity, payment due dates, and other important information.
- **Customer Support:** Integrated support features, such as live chat and messaging, for assistance with banking services.

2. Functional Requirements

User Management:

- **User Registration:** Allow users to register with personal information such as name, address, phone number, and email.
- **User Authentication:** Implement secure login procedures with multi-factor authentication.
- **User Profile:** Users can view and update their profiles, including contact information and security settings.

Account Management:

- **Account Overview:** Display account balances, recent transactions, and account statements.
- **Transaction History:** Provide detailed transaction history with filtering options.
- **Account Statements:** Generate and download account statements in PDF format.

Funds Transfer:

- **Internal Transfers:** Allow users to transfer funds between their own accounts.
- **External Transfers:** Enable transfers to other bank accounts, both within the same bank and externally.
- **Scheduled Transfers:** Users can schedule future transfers and set up recurring transfers.

Bill Payments:

- **One-time Payments:** Pay bills from various service providers.
- **Recurring Payments:** Set up recurring bill payments with automatic scheduling.
- **Payment History:** View past bill payments and manage payment schedules.

Loan Services:

- **Loan Applications:** Allow users to apply for personal, home, or auto loans.
- **Loan Management:** Check loan status, view loan details, and make loan payments.
- **Loan Calculators:** Provide tools to estimate loan payments and interest rates.

Notification System:

- **Email Notifications:** Send notifications for account activity, payment reminders, and security alerts.
- **SMS Alerts:** Notify users via SMS for critical updates and transactions.
- **Push Notifications:** Use mobile app push notifications for real-time alerts.

Customer Support:

- **Live Chat:** Integrated live chat for immediate assistance.
- **Messaging:** Allow users to send secure messages to bank representatives.
- **FAQ and Help Center:** Provide a comprehensive help center with FAQs and support articles.

Admin Panel:

- **Dashboard:** Offer admin tools for managing users, accounts, and transactions.
- **Reporting:** Generate reports on user activity, transaction volumes, and system performance.
- **User Management:** Admins can view, update, and deactivate user accounts.
- **Transaction Monitoring:** Monitor transactions for fraud detection and compliance purposes.

3. Non-Functional Requirements

- **Response Time:** Ensure quick loading times for account overviews, transaction history, and other operations.
- **Data Encryption:** Secure user data and transactions with strong encryption protocols.
- **Access Control:** Implement role-based access control for users and admins.
- **User Interface:** Design an intuitive and visually appealing interface for both web and mobile platforms.
- **Scalability:** Ensure the system can handle a growing number of users and transactions.

4. System Architecture

- **Frontend:** React.js for web applications and React Native for mobile applications.

- **Backend:** Java with Spring Boot for server-side operations.
- **Database:** MySQL or MongoDB for data storage.
- **Security:** Implement OAuth2 and JWT for secure authentication and authorization.

Gerkin feature of Online Banking System application

Feature 1: User Registration and Authentication

Feature: User Registration and Authentication

As a new user,

I want to register and authenticate myself,

So that I can access the online banking system securely.

Scenario: User Registration

Given I am a new user

When I navigate to the registration page

And I fill in the registration form with valid information

Name	Email	Password	Confirm Password	
John Doe	john@example.com	Pa\$\$w0rd	Pa\$\$w0rd	

And I submit the registration form

Then I should see a confirmation message "Registration successful"

And I should receive a confirmation email

Scenario: User Login

Given I am a registered user

And I have activated my account via email

When I navigate to the login page

And I enter my email "john@example.com" and password "Pa\$\$w0rd"

And I submit the login form

Then I should be logged in to my account

And I should see the account dashboard

Scenario: User Authentication Failure

Given I am a registered user

When I navigate to the login page

And I enter my email "john@example.com" and an incorrect password "WrongPass"

And I submit the login form

Then I should see an error message "Invalid email or password"

Feature 2: Funds Transfer

Feature: Funds Transfer

As a bank customer,

I want to transfer funds between accounts,

So that I can manage my finances.

Scenario: Internal Funds Transfer

Given I am logged into my account

And I have multiple accounts

When I navigate to the funds transfer page

And I select the source account "Savings Account"

And I select the destination account "Checking Account"

And I enter the amount "1000"

And I submit the transfer form

Then I should see a confirmation message "Transfer successful"

And the balance of the source account should be reduced by "1000"

And the balance of the destination account should be increased by "1000"

Scenario: External Funds Transfer

Given I am logged into my account

When I navigate to the external funds transfer page

And I enter the recipient's bank details

| Bank Name | Account Number | Recipient Name |

| ABC Bank | 1234567890 | Jane Smith |

And I enter the amount "500"

And I submit the transfer form

Then I should see a confirmation message "Transfer successful"

And the balance of my account should be reduced by "500"

Feature 3: Bill Payments

Feature: Bill Payments

As a bank customer,

I want to pay my bills online,

So that I can manage my finances conveniently.

Scenario: One-time Bill Payment

Given I am logged into my account

When I navigate to the bill payments page

And I select the payee "Electric Company"

And I enter the amount "150"

And I submit the payment form

Then I should see a confirmation message "Payment successful"

And the balance of my account should be reduced by "150"

And the payment should be recorded in my transaction history

Scenario: Recurring Bill Payment

Given I am logged into my account

When I navigate to the bill payments page

And I select the payee "Internet Provider"

And I enter the amount "60"

And I set the payment frequency to "Monthly"

And I submit the payment form

Then I should see a confirmation message "Recurring payment setup successful"

And the payment should be scheduled for the specified frequency

Feature: View Account Balance

As an online banking user

I want to view my account balance

So that I can keep track of my finances

Scenario: View balance of a checking account

Given the user is logged in

When the user navigates to the account summary page

Then the user should see the balance of their checking account

Scenario: View balance of a savings account

Given the user is logged in

When the user navigates to the account summary page

Then the user should see the balance of their savings account