Software Requirements Specification

for

AS Bank - Banking Management System

Version 1.0

Prepared By

Group Name: Banking Management System

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Table of Contents

1. Introduction

The AS Bank Banking Management System represents a cutting-edge and customer-centric software application designed to cater to the evolving needs of both new and existing AS Bank customers. In a rapidly transforming digital landscape, our commitment to providing an exceptional banking experience is unwavering, and this software system stands as a testament to that pledge. This document serves as the compass guiding the development of this innovative platform, setting forth the precise blueprint for a seamless and secure digital banking solution.

As financial services continue to embrace the digital era, the AS Bank Banking Management System emerges as a pivotal tool, aligning itself with the modern demands of convenience, security, and efficiency. Through the power of advanced technology, it promises to redefine the way customers interact with their financial assets, making banking not just a necessity but a pleasurable experience. This document articulates the intricate details of our vision, a vision where banking is accessible, intuitive, and secure.

2. System Overview

The system provides users with the following key features:

2.1. User Registration and Login

User Registration: The system facilitates a seamless and secure registration process for new customers looking to embark on their banking journey with AS

Bank. Aspiring account holders can enter their personal information, including name, address, email, phone number, and create a unique password. This registration process ensures a personalized and secure entry into the world of AS Bank's digital banking. After the completion of the registration process, our system generates a unique account number which will be further used for other essential purposes.

User Login: For existing customers, the system provides a straightforward login mechanism. Customers can access their accounts using their unique login credentials, ensuring quick and secure access to their financial data and services.

2.2. Fund Transactions

One of the cornerstones of the AS Bank Banking Management System is the ability to perform fund transactions with ease and confidence. Customers can initiate payments to other registered bank users, making the process of transferring money a breeze. Transactions are characterized by their speed, security, and user-friendliness. To initiate a transaction, users need to specify the recipient's account number and the transaction amount, ensuring a hassle-free and secure financial transfer.

2.3. Checking Account Balance

Customers can effortlessly check their current account balance, enabling them to stay up to date with their financial standing. This feature provides real-time account information, offering transparency and control over personal finances.

2.4. Viewing Transaction History

The system keeps a comprehensive record of all user transactions. Customers can easily access their transaction history, which includes details of past transactions, allowing them to track their financial activities and review transaction information as needed. This historical perspective enhances financial management and decision-making.

2.5. Withdrawal of Money

To meet the financial liquidity needs of customers, the system supports the initiation of withdrawal transactions. Customers can specify the amount they wish to withdraw, and the system will ensure a secure and reliable process, including validation of available funds to prevent overdrawing.

2.6. Deposit of Money

The AS Bank Banking Management System enables customers to make deposits effortlessly. Customers can initiate deposit transactions, specifying the amount they wish to deposit into their accounts. This feature ensures that funds can be added to accounts efficiently and with the utmost security.

The AS Bank Banking Management System, with its extensive range of features, sets a new standard for banking convenience and flexibility. By harmonizing these functionalities, the system aims to make banking more accessible and intuitive, offering customers a dynamic platform for managing their financial affairs with precision, security, and ease.

3. Functional Requirements

3.1. User Registration and Login

- Users can register by providing personal information.
- Existing customers can log in using their credentials.
- User registration includes capturing the following information: name, address, email, phone number, and a unique username and password.

3.2. Fund Transactions

- Users can initiate fund transactions to other registered bank users.
- Transaction details should include recipient's username and the transaction amount.
- Transactions must be secured with user authentication.

3.3. Account Balance and Transaction History

- Users can view their current account balance.
- Users can access their transaction history, displaying details of all past transactions.

3.4. Withdraw Money

- Users can initiate withdrawal transactions.
- Withdrawal transactions must be validated to ensure sufficient funds are available.

3.5. Deposit Money

- Users can initiate deposit transactions by providing the amount to be deposited.

4. Non-Functional Requirements

The AS Bank Banking Management System places paramount importance on non-functional requirements to ensure a secure, efficient, and user-friendly experience for all customers. These non-functional requirements encompass the following key aspects:

4.1. Security

Security stands as the bedrock of our digital banking solution. The AS Bank Banking Management System shall adhere to stringent security measures, safeguarding both user data and financial transactions. It will employ robust encryption and authentication mechanisms to guarantee the confidentiality, integrity, and authenticity of all data exchanges. Our commitment to security extends to preventing unauthorized access, data breaches, and cyber threats, offering customers peace of mind in an increasingly interconnected world.

4.2. Performance

Performance is the lifeblood of a responsive and dependable banking platform. To meet the demands of customers, the system will be engineered for optimal performance. It shall respond to user requests promptly, ensuring that transactions, inquiries, and account activities occur with minimal delay. Our aim is to deliver a seamless and frustration-free experience, irrespective of the volume of concurrent users.

4.3. Usability

Usability is at the heart of our user interface design. The user interface shall be designed to be not only user-friendly but also intuitive. It will prioritize ease of navigation, minimizing the learning curve for customers. Intuitive interfaces and clear, concise interactions will make managing finances an effortless and satisfying experience for all users. Our commitment to usability ensures that customers, whether technologically savvy or novices, can navigate the system with confidence and ease.

5. User Interface (UI) Design

The User Interface (UI) design of the AS Bank Banking Management System is a critical aspect of the software, as it directly impacts the user experience. Our focus is to create an interface that is not only aesthetically pleasing but, more importantly, designed to enhance usability and facilitate efficient interaction with the system. The UI will be intuitive and tailored to meet the diverse needs of our customer base.

5.1. Ease of Use

Our paramount consideration in UI design is ease of use. We are committed to providing an interface that can be navigated effortlessly, whether you are a seasoned banking professional or a first-time user. Key aspects of our user-centered design approach include:

Simplified Navigation: The navigation structure will be logical and intuitive, reducing the learning curve for users. Menu items and options will be clearly labeled and readily accessible.

Consistency: We will maintain a consistent layout and design elements across different screens, creating a familiar and predictable environment for users.

5.2. Screens and Functionality

The AS Bank Banking Management System's UI design will encompass a range of screens, each tailored to specific functionalities to enhance the overall user experience:

Registration: The registration screen will guide new users through the process of creating an account with AS Bank, collecting essential information while ensuring a secure and user-friendly experience.

Login: Our login screen will provide a straightforward and secure entry point for existing customers, requiring only their unique credentials to access their accounts.

Transaction Management: Users will experience a seamless and user-friendly interface for initiating, tracking, and managing their fund transactions. The design will prioritize clarity and simplicity, guiding users through the process.

Balance Viewing: The account balance screen will offer a real-time, at-a-glance view of a customer's financial status, enhancing transparency and control.

Transaction History: The transaction history screen will present a chronological view of past transactions, complete with detailed information, making it easy for users to review and reconcile their financial activities.

Our UI design is driven by a commitment to customer satisfaction. It seeks to not only meet but exceed the expectations of our diverse user base. Through a user-centric design approach, we aim to create an interface that harmonizes aesthetics with usability, empowering our customers with an engaging and efficient banking experience. The AS Bank Banking Management System's user interface is not merely a gateway but a delightful journey, ensuring that customers can confidently manage their finances with ease.

6. System Interfaces

The AS Bank Banking Management System's core functionality hinges on its interaction with a robust MySQL backend SQL database. This database serves as the secure repository for essential data, encompassing user information and detailed transaction records. Every user registration, login, fund transaction, balance inquiry, and transaction history request will seamlessly interface with this database. The MySQL backend database will ensure data accuracy, efficient retrieval, and data security through encryption and access controls. It's the foundation of our system, underpinning the reliability, performance, and data integrity essential for delivering exceptional banking services to our valued customers.

7. Data Requirements

The AS Bank Banking Management System relies on a well-structured data management strategy to ensure the integrity, availability, and security of vital information. Our data requirements encompass a spectrum of crucial aspects:

7.1. User Data

User data is at the core of our system. This category includes personal information such as names, addresses, email addresses, phone numbers, as well as user authentication credentials. It is imperative that this data is captured, maintained, and protected with the utmost care to foster trust and compliance with privacy regulations.

Data Capture: User data should be captured during the registration process, ensuring completeness and accuracy.

Data Maintenance: To guarantee the relevance and accuracy of user information, the system should facilitate updates and modifications.

7.2. Transaction Details

Transaction details form a significant part of our data requirements. These records document each financial interaction, encompassing the sender, recipient, transaction amounts, timestamps, and unique identifiers. Storing these details accurately is vital for tracking and validating transactions.

Data Accuracy: Transaction details should be recorded accurately to provide an auditable and accountable history.

Data Validation: Validating transactions ensures that the system processes and records transactions accurately and efficiently.

7.3. Account Balances

Account balances are essential for maintaining financial transparency. These values represent the current financial status of each customer's account, offering real-time insights into available funds.

Real-time Updates: Account balances should be updated in real time to reflect deposits, withdrawals, and fund transfers accurately.

Funds Verification: Accurate account balances are crucial for verifying available funds before processing withdrawal and transaction requests.

7.4. Data Backup

Data backup is not only a requirement but a safeguard for maintaining data integrity. Regular backups ensure that customer data, transaction records, and account balances are protected from unforeseen data loss events.

Backup Frequency: Data should be backed up regularly, with predefined intervals to safeguard against data loss and system failures.

Data Recovery: In the event of data loss or system issues, reliable data recovery mechanisms should be in place to restore information to its last known state.

Our data requirements serve as the cornerstone for the AS Bank Banking Management System's reliable, accurate, and secure operation. The meticulous capture, storage, and protection of user data, transaction details, and account balances are pivotal in ensuring a banking experience that is both seamless and trustworthy. Through regular data backups, we provide a safety net, mitigating potential data loss risks and upholding the integrity of our customers' financial information.

8. Constraints

The AS Bank Banking Management System operates within specific constraints to ensure a reliable and user-friendly experience for our customers. These constraints encompass various factors, each contributing to the system's accessibility, compatibility, and stability:

8.1. Accessibility and Uptime

24/7 Availability: Our foremost constraint is ensuring round-the-clock accessibility for our customers. The system must be operational 24 hours a day, 7 days a week, to accommodate customer needs at any time. This constraint underscores our commitment to providing banking services that are readily available, promoting convenience and flexibility for our customers.

Minimal Downtime for Maintenance: While accessibility is paramount, scheduled maintenance is sometimes necessary to maintain the system's performance, security, and integrity. It is a constraint to minimize downtime for maintenance activities. Our aim is to perform maintenance during off-peak hours and keep disruptions to a minimum, ensuring uninterrupted access for our customers.

These constraints form the framework that guides the development and operation of the AS Bank Banking Management System. We adhere to these limitations to guarantee accessibility, reliability, and compatibility, which are integral to our mission of providing banking services that are both accessible and user-friendly. Our commitment is to offer an uninterrupted service and a consistent user experience across different platforms, reinforcing our dedication to customer satisfaction.

9. Assumptions and Dependencies

The successful operation and implementation of the AS Bank Banking Management System rely on several key assumptions and dependencies, each playing a critical role in shaping the system's functionality and accessibility:

9.1. Internet Access

User Internet Connectivity: A fundamental dependency for our system is that users are expected to have reliable access to the internet. This assumption underlines the essence of an online banking solution, emphasizing that customers need a stable internet connection to interact with the system, perform transactions, and access their accounts. The quality and availability of their internet connection may affect the user experience and the system's performance.

9.2. Integration with Existing Infrastructure

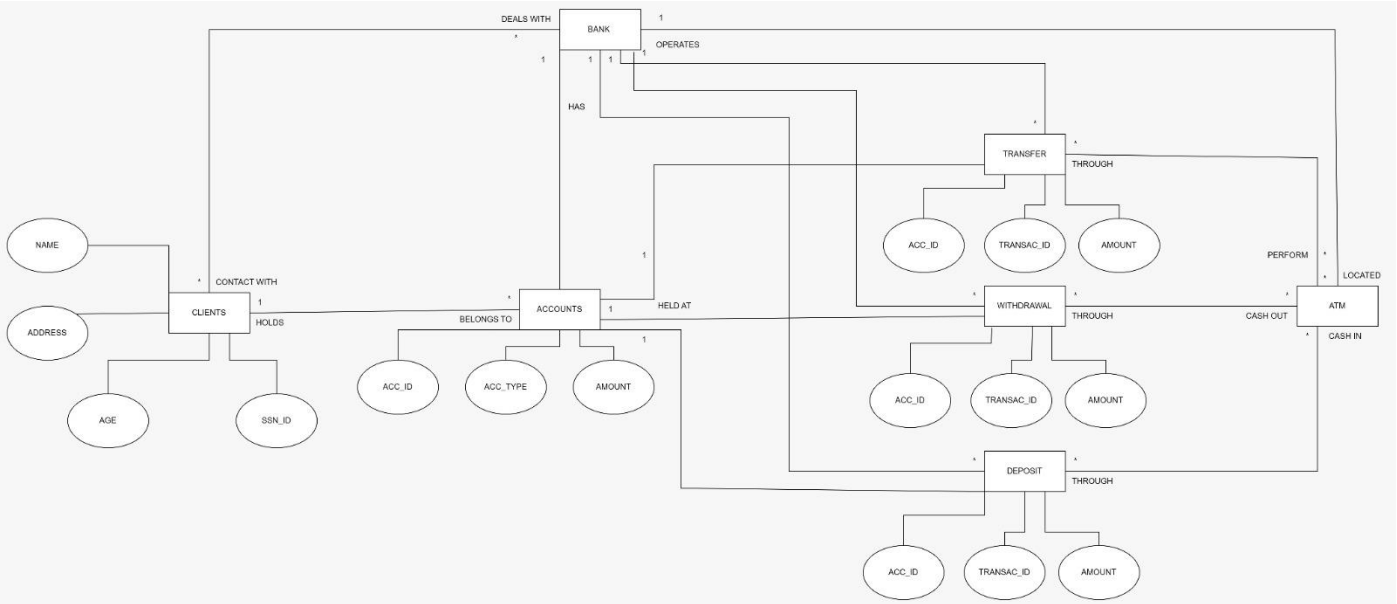
Bank's Infrastructure: A pivotal dependency is the readiness and availability of AS Bank's existing infrastructure, which includes databases and servers. The system is reliant on the seamless integration of these elements to operate efficiently. This integration ensures the secure storage of customer data, transaction records, and account balances. It is a foundational component of the AS Bank Banking Management System, supporting the flow of data and information.

Data Synchronization: The accuracy and consistency of data in the system rely on dependable data synchronization processes with the bank's existing infrastructure. These processes ensure that user data and transaction details remain up-to-date and coherent.

Our system's success hinges on the adherence to these dependencies and assumptions. They are the pillars that uphold the system's functionality and reliability. The assumption of internet access reflects the digital nature of the banking platform, while the dependency on the bank's infrastructure underscores the need for a cohesive and synchronized data environment. By acknowledging and accommodating these factors, we aim to provide our customers with a robust and accessible banking solution that aligns with modern banking expectations.

10. Entity Relationship (ER) Diagram

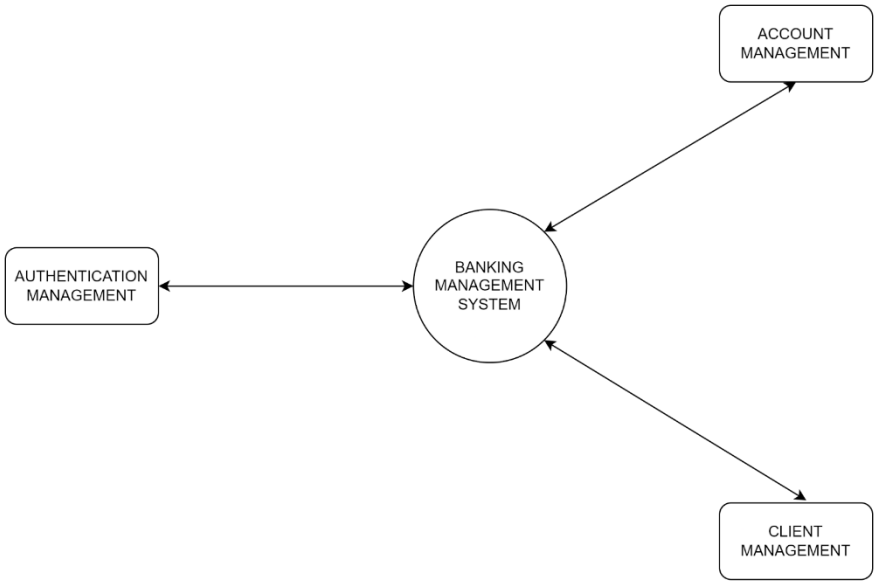
Given below is the ER diagram of our system:



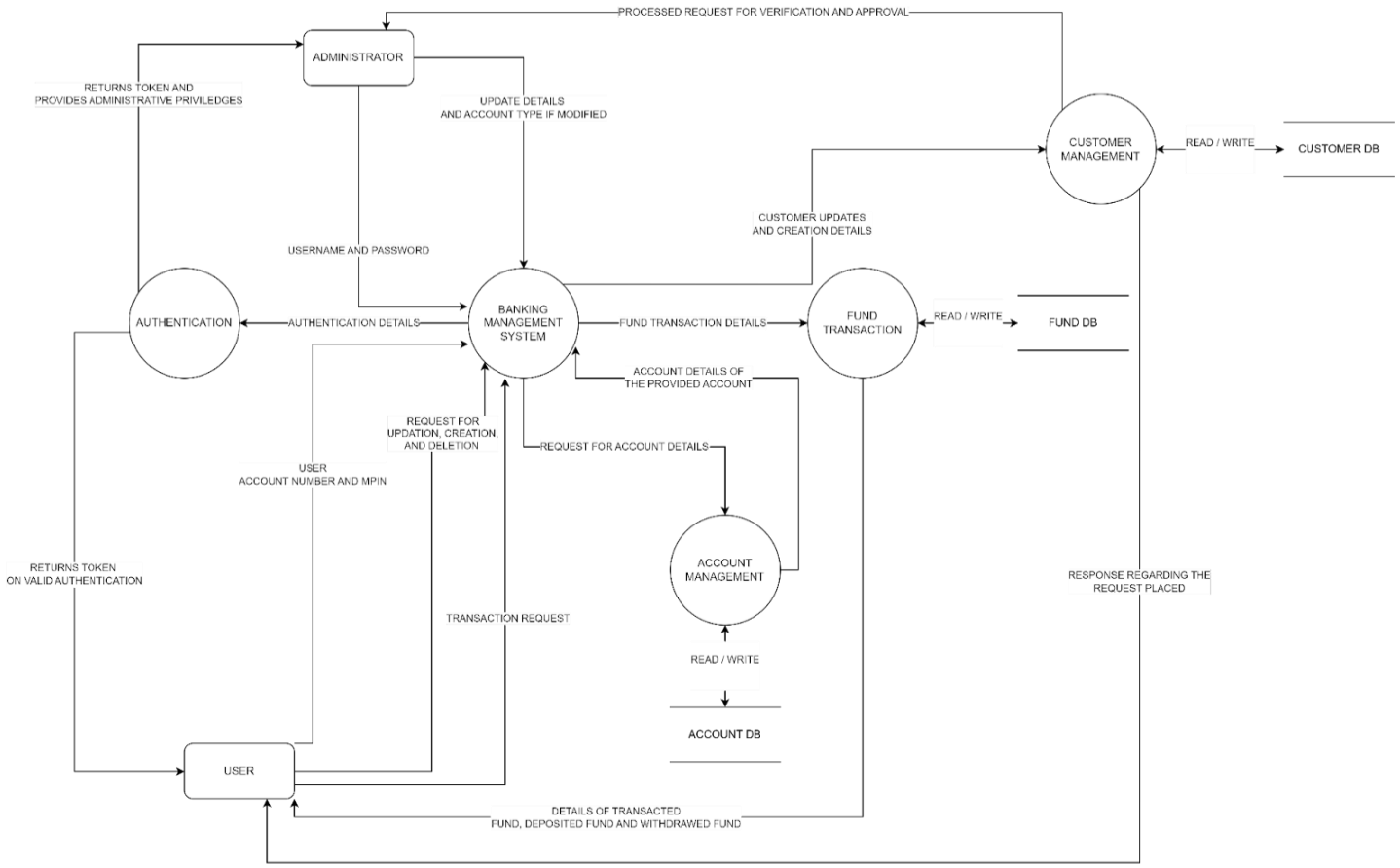
ER DIAGRAM FOR BANKING MANAGEMENT SYSTEM

11. Data Flow Diagram (DFD)

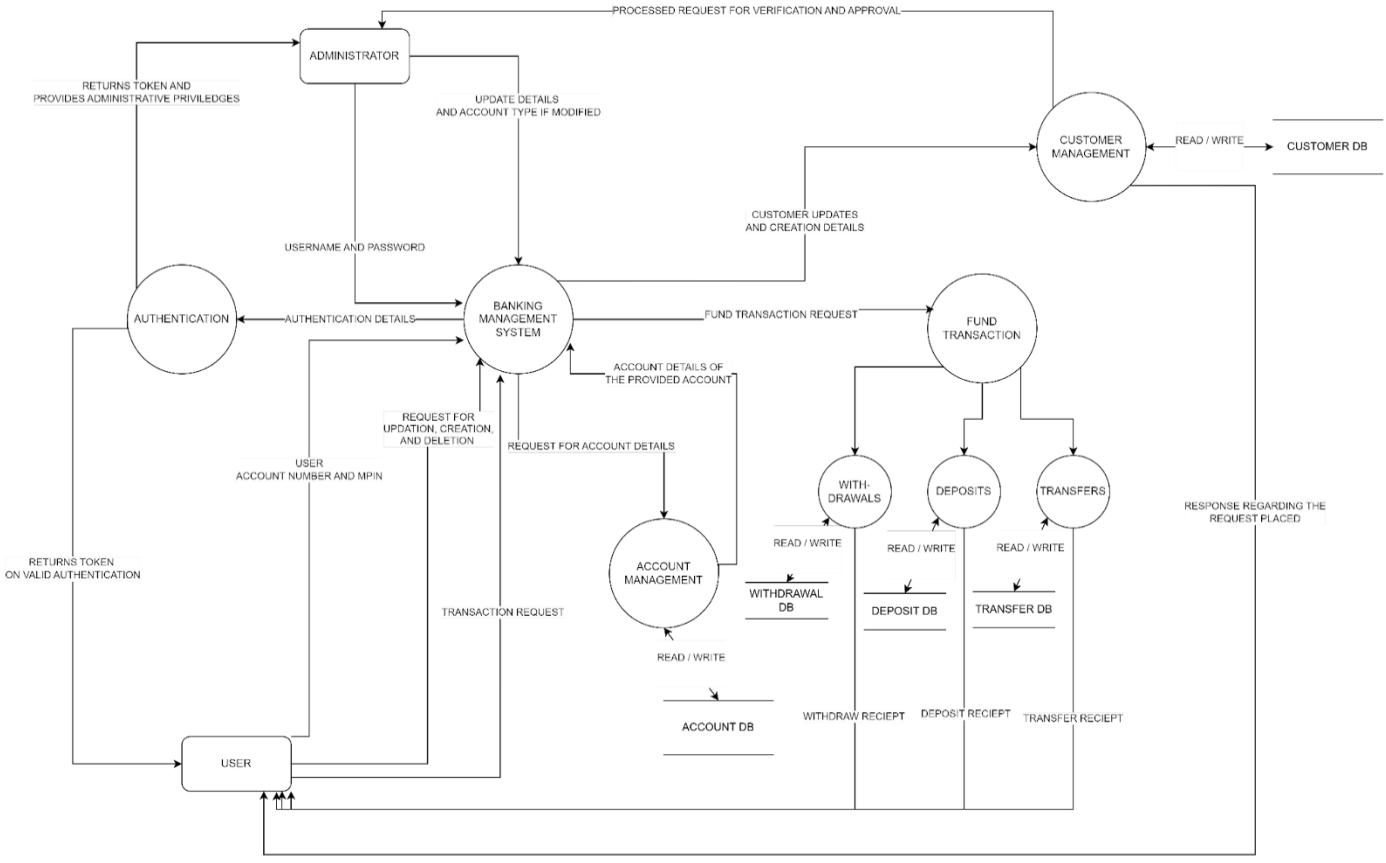
Given below are the 3 levels of DFDs:



LEVEL 0 DFD FOR BANKING MANAGEMENT SYSTEM



LEVEL 1 DFD FOR BANKING MANAGEMENT SYSTEM



LEVEL 2 DFD FOR BANKING MANAGEMENT SYSTEM

12. Route Specifications

1. **Home Route `/` (GET, POST)**
   - This is the landing page of your application.
   - If a user is logged in, it redirects to the `customer_search` route.
   - If a user is not logged in and the request method is POST, it attempts to log in the user.
   - If login is successful, it redirects to the `customer_search` route.
   - If login fails, it shows an error message.

2. ***Customer Route* `/customer` (GET, POST, with an optional parameter `update_id`)**
   - This route is used to create or update customer information.
   - If a user is not logged in, it redirects to the `home` route.

- If the user is logged in, it retrieves a list of states from the database and prepares the data for customer creation or update.
- If it receives a POST request, it processes the form data for either creating a new customer or updating an existing one.

3. **Customer Status Route `/customer-status` (GET, POST)**
   - This route displays the status of customer-related operations.
   - If a user is not logged in, it redirects to the `home` route.
   - If the user is logged in, it retrieves the customer status data and displays it.

4. **View Profile Route `/viewprofile` (GET, POST, with an optional parameter `id`)**
   - This route displays the profile of a specific customer.
   - If a user is not logged in, it redirects to the `home` route.
   - If a valid customer ID is provided, it retrieves the customer's information and displays it.
   - If the customer ID is not valid, it shows an error message and redirects to the `customer_status` route.

5. **Customer Search Route `/customer-search` (GET, POST)**
   - This route is used to search for a customer by either customer ID or SSN ID.
   - If a user is not logged in, it redirects to the `home` route.
   - If a POST request is received, it searches for the customer and redirects to the `view_profile` route if a match is found.

6. **Delete Customer AJAX Route `/ajax/delete_customer` (POST)**
   - This route is used for deleting customer information via an AJAX request.

- It checks if the user is logged in, deletes the customer, and returns a status.

7. **Change State AJAX Route `/ajax/change_state` (POST)**
   - This route is used for changing the state in the customer form via an AJAX request.
   - It returns a list of cities based on the selected state.

8. **Account Route `/account` (GET, POST)**
   - This route is used to create and manage customer accounts.
   - If a user is not logged in, it redirects to the `home` route.
   - It retrieves a list of customers and account types from the database.
   - If it receives a POST request, it processes the form data for creating a new account.

9. **Account Status Route `/account-status` (GET, POST)**
   - This route displays the status of account-related operations.
   - If a user is not logged in, it redirects to the `home` route.
   - If the user is logged in, it retrieves the account status data and displays it.

10. **Account View Profile Route `/account-profile` (GET, POST, with an optional parameter `id`)**
    - This route displays the profile of a specific account.
    - If a user is not logged in, it redirects to the `home` route.
    - If a valid account ID is provided, it retrieves the account information and displays it.
    - If the account ID is not valid, it shows an error message and redirects to the `account_search` route.

11. **Account Search Route `/account-search` (GET, POST)**

- This route is used to search for an account by either customer ID or account ID.
- If a user is not logged in, it redirects to the `home` route.
- If a POST request is received, it searches for the account and redirects to the `account_view_profile` route if a match is found.

12. **Delete Account AJAX Route `/ajax/delete_account` (POST)**
    - This route is used for deleting account information via an AJAX request.
    - It checks if the user is logged in, deletes the account, and returns a status.

13. **Cash Deposit Route `/cash-deposit` (GET, POST, with an optional parameter `id`)**
    - This route is used for making cash deposits into an account.
    - If a user is not logged in, it redirects to the `home` route.
    - If a valid account ID is provided, it retrieves the account information and displays the deposit form.

14. **Cash Withdraw Route `/cash-withdraw` (GET, POST, with an optional parameter `id`)**
    - This route is used for making cash withdrawals from an account.
    - If a user is not logged in, it redirects to the `home` route.
    - If a valid account ID is provided, it retrieves the account information and displays the withdrawal form.

15. **Cash Transfer Route `/cash-transfer` (GET, POST, with an optional parameter `id`)**
    - This route is used for transferring cash between accounts.
    - If a user is not logged in, it redirects to the `home` route.

- If a valid account ID is provided, it retrieves the source account information and displays the transfer form.

16. **Transaction Control AJAX Route `/ajax/transaction_control` (POST)**
    - This route is used to control transactions such as deposits, withdrawals, and transfers via an AJAX request.
    - It checks if the user is logged in and processes the transaction, returning a status.

17. **Create Account Route `/create-account` (GET, POST)**
    - This route allows users to create accounts.
    - If a POST request is received, it validates and creates a new user account and redirects to the `home` route.

18. **Logout Route `/logout` (GET, POST)**
    - This route logs out the user by clearing the session and redirects to the `home` route.

19. **Account Statement Route `/account-statement` (GET, POST)**
    - This route allows users to view account statements.
    - If a user is not logged in, it redirects to the `home` route.
    - Users can search for statements by transaction number or date range.

20. **Write Statement into Excel Route `/excel-write-statement` (GET, POST)**
    - This route generates an Excel file containing account statements.
    - It allows users to search for statements by transaction number or date range and then exports them to an Excel file.