

Functional Requirements

Customer Management:

- **New Customer Onboarding:** Bank staff can register new customers by capturing essential personal details like name and address. For customers who are employed, the system also records their company name and address.
- **Customer Information Retrieval:** Authorized users can easily look up any customer's profile, viewing all their personal and employment details, along with a comprehensive list of all accounts they currently hold.

Account Management:

- **Account Opening:** Bank personnel have the ability to open new accounts for existing customers. The available account types are Savings, Investment, and Cheque.
- **Account Type Specific Rules:**
 - **Investment Accounts:** Require a minimum initial deposit of BWP 500.00 to be opened.
 - **Cheque Accounts:** Can only be established if the customer's profile includes employment information.
- **Multiple Account Holdings:** A single customer is permitted to have multiple accounts across any of the available types.

Transaction Processing:

- **Deposits:** Customers can deposit any positive amount into their Savings, Investment, or Cheque accounts.
- **Withdrawals:** Withdrawals are permitted from Investment and Cheque accounts, provided there are sufficient funds. Notably, withdrawals from Savings accounts are not allowed.
- **Interest Handling:** The system automatically calculates and credits interest on a monthly basis:
 - **Savings Accounts:** Earn an interest of 0.05% monthly on their current balance.
 - **Investment Accounts:** Accrue interest at a rate of 5% monthly on their current balance.
 - **Cheque Accounts:** Do not earn any interest.

Non Functional Requirements

Security:

- **Data Integrity:** Every transaction is like a single, complete action. When you withdraw money, the system checks if you have enough first. If you do, it takes the money out. If not, nothing happens. It's all or nothing, keeping your money safe and sound.
- **Authentication:** Only the right people can get in. The system uses a login (username and password) to make sure only authorized bank staff can access it. It's like having a key to a secret door.

Usability:

- **Easy :** The system will have a text based menu. It's like a simple, friendly guide that helps bank staff do what they need to do. It's designed to be straightforward and easy to understand, with clear choices and instructions.

Reliability:

- **Always On:** The system will be available when the bank is open. It's like having a reliable friend who's always there for you.
- **Error Handling:** If something goes wrong (like you try to withdraw too much), the system won't freak out. It'll handle it smoothly, giving you a clear message instead of crashing. It's like having a backup plan.

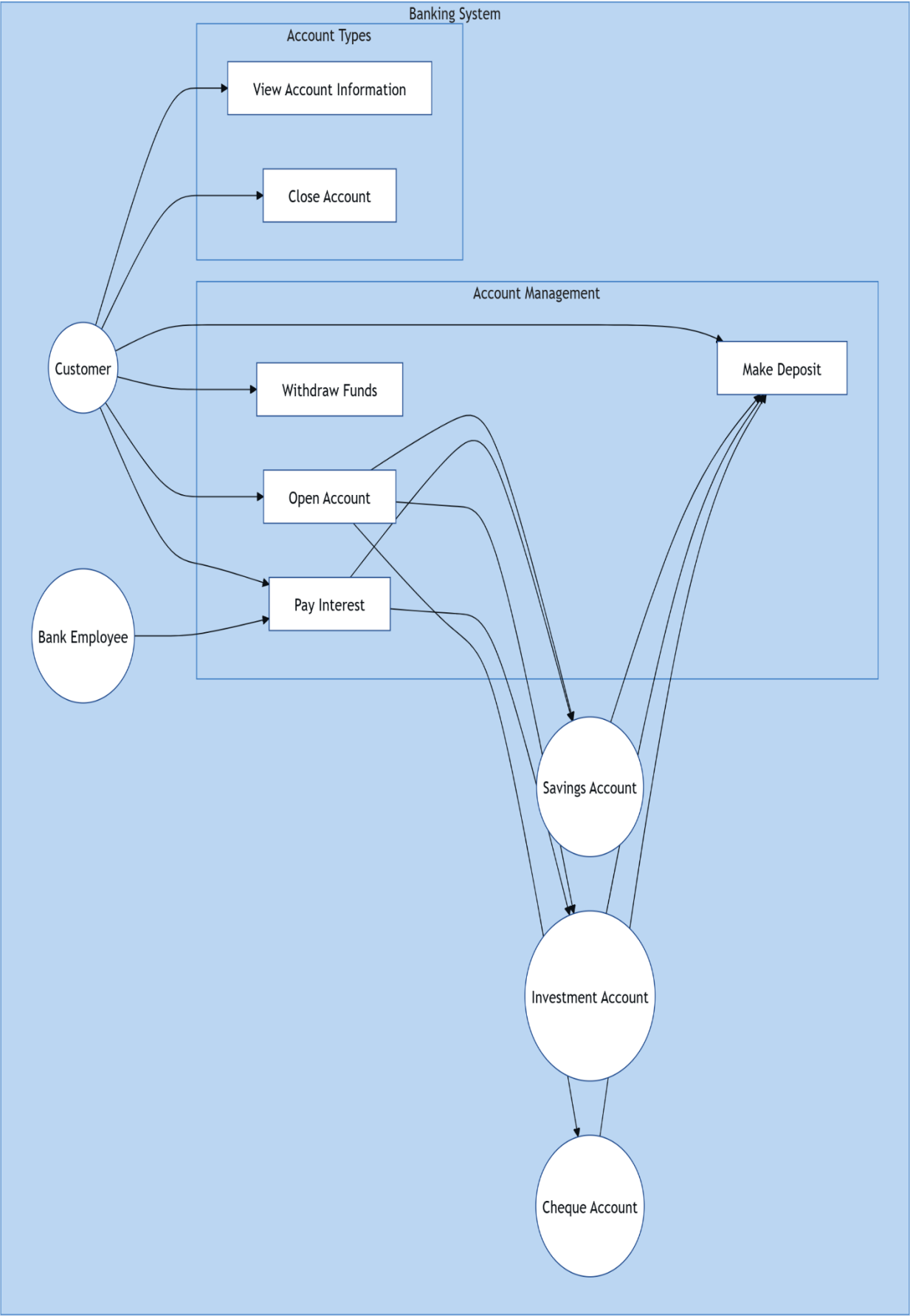
Maintainability:

- **Built to Last:** The system will be designed using Object-Oriented Programming (OOP). This means the code is organized in a way that makes it easy to change and add new features in the future. It's like building with building blocks easy to rearrange and expand.

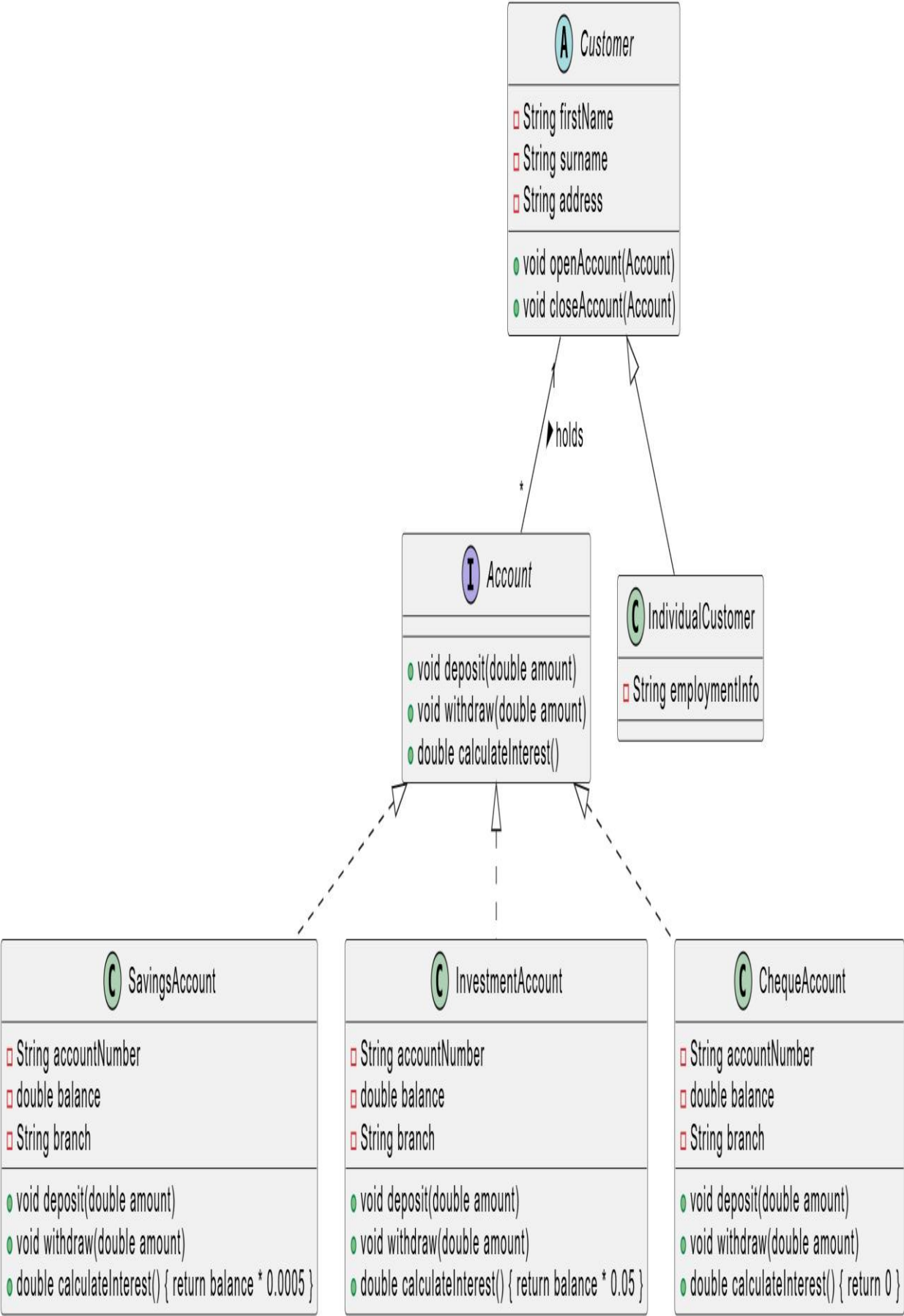
Correctness:

- **Spot On:** The system will get everything right. It will accurately follow all the rules and do all the math correctly, especially when calculating interest. You can trust that the numbers are always correct.

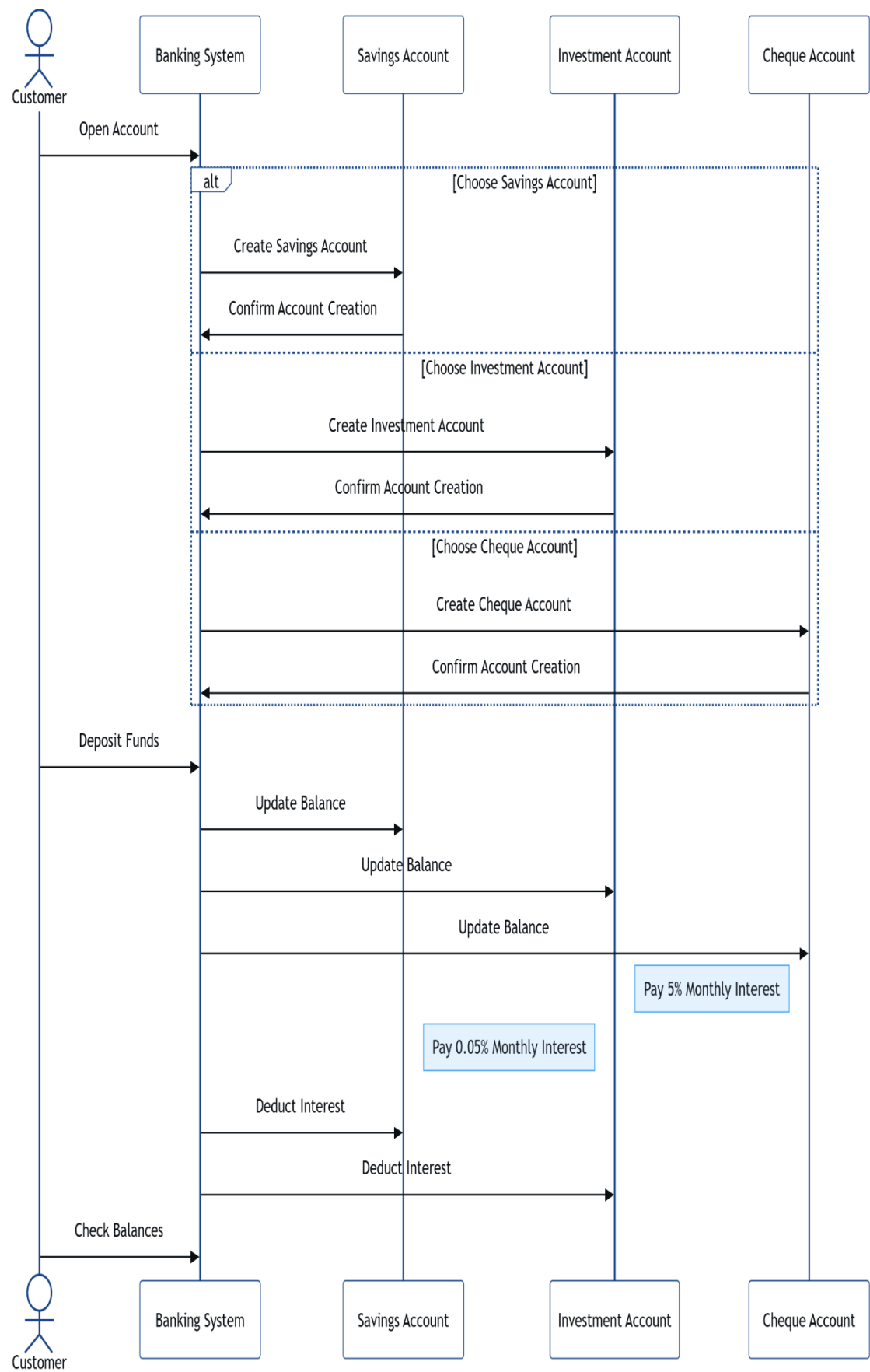
System Design & Implementation
Use Case Diagram



Class diagram



Sequence Diagram



State Diagram

