Appendix 1: Assignment submission cover sheet

ASSIGNMENT SUBMISSION COVER SHEET

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Cohort:	YEAR 2
Assignment title:	CSE202- OBJECT ORIENTED ANALYSIS & DESIGN WITH JAVA
Date of submission:	19/SEP/2025
Programme of Study:	BSC COMPUTER SYSTEMS ENGINEERING
Year of Study:	YEAR2

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By checking the box below, I certify that this assignment is my own work and is free from plagiarism. I understand that the assignment may be checked for plagiarism by electronic or other means and may be transferred and stored in a database for the purposes of data-matching to help detect plagiarism. The assignment has not previously been submitted for assessment in any other unit or to any other institution. **I**

have read and understood the Botswana Accountancy College plagiarism guidelines policy.

☒ Agree

Signature……

Date…19/SEP/2025……

Part A

Requirements Elicitation

Functional Requirements

Customer Management - The system shall allow registration of new customers (individuals, companies, organizations) and shall authenticate users through secure login credentials. In addition, the system shall maintain customer personal information including contact details, address, and employment information.

Account Management - The system shall allow customers to open multiple types of accounts simultaneously, and shall enforce account-specific business rules of all three account types:
- Savings Account (with interest earning capability) - Savings accounts restrict withdrawals.
- Investment Account (with higher interest rates) - Investment accounts require a minimum opening deposit of BWP 500.00.
- Cheque Account (for salary crediting) - Cheque accounts require employment verification.

Transaction Processing - The system shall process deposit transactions for all account types and shall process withdrawal transactions that were permitted by the account type.
The system shall record complete transaction history and maintain real-time balance updates

Interest Management - The system shall calculate and automatically apply monthly interest rates:
- Investment Account: 0.75% monthly
- Savings Account: 0.25% monthly

Reporting and Inquiry - The system shall provide account balance inquiry, generate transaction history reports, provide account statements, and display customer account portfolio.

Non-Functional Requirements

Security Requirements - The system shall implement secure user authentication and authorization, implement role-based access control, and protect against unauthorized access and data breaches.

Performance Requirements - The system shall provide real-time balance updates, support concurrent access by multiple users, and maintain 99.9% uptime during business hours.

Usability Requirements - The system shall provide an intuitive user interface for customers, provide clear error messages and guidance, and shall be accessible to users with disabilities.

Reliability and Availability - The system shall implement automatic backup and recovery procedures, maintain data integrity during system failures and shall ensure zero data loss during transactions.

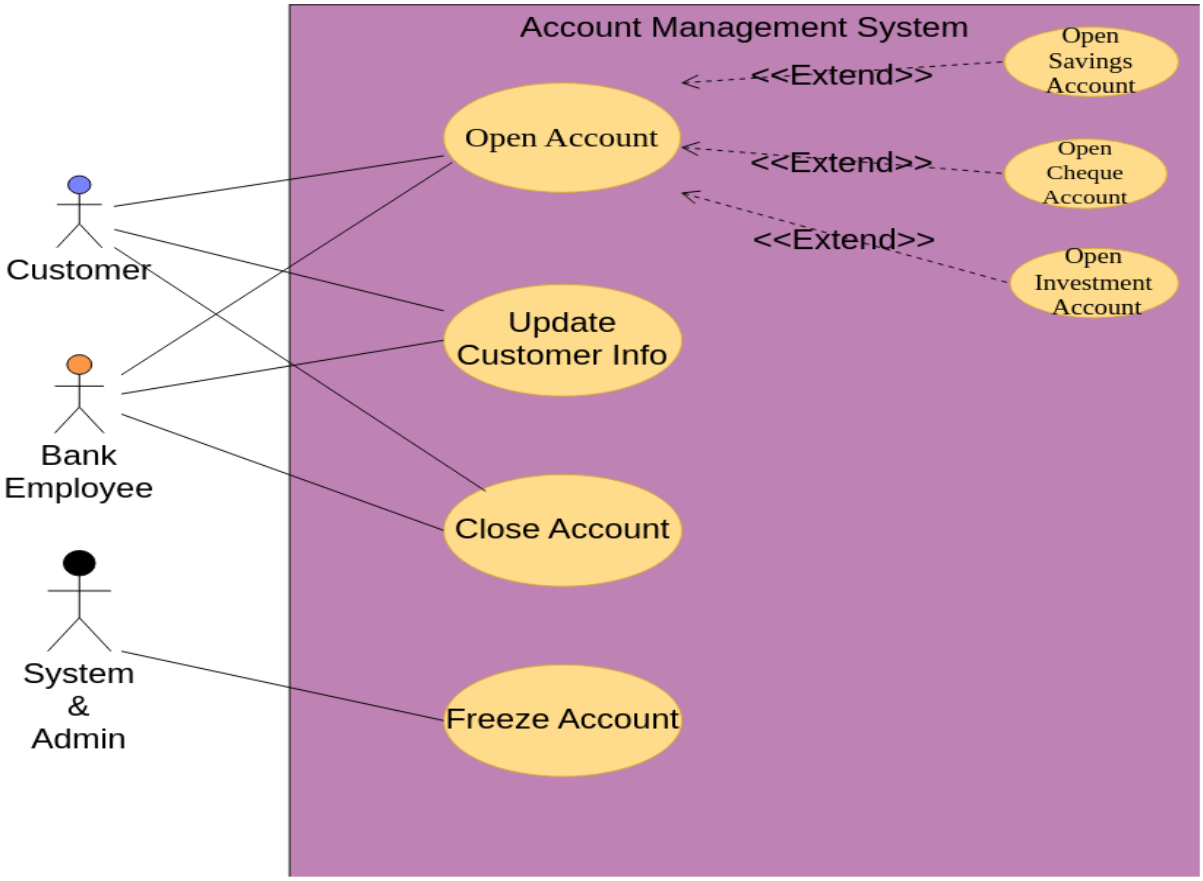
Scalability and Maintainability - The system shall be scalable to accommodate growing customer base, support future feature additions and modifications, and shall implement modular architecture for easy maintenance.

Behavioral Modelling

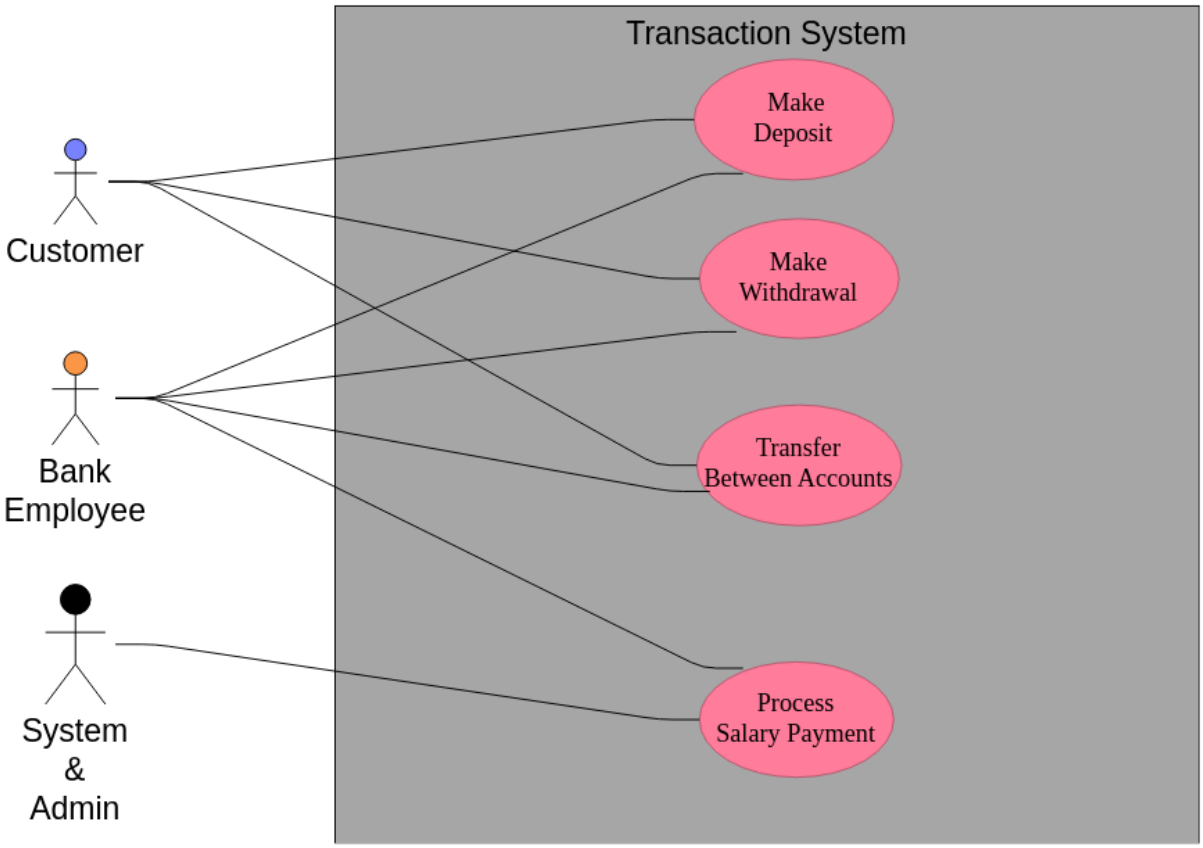
Structural UML Modelling

System Use Case Diagram

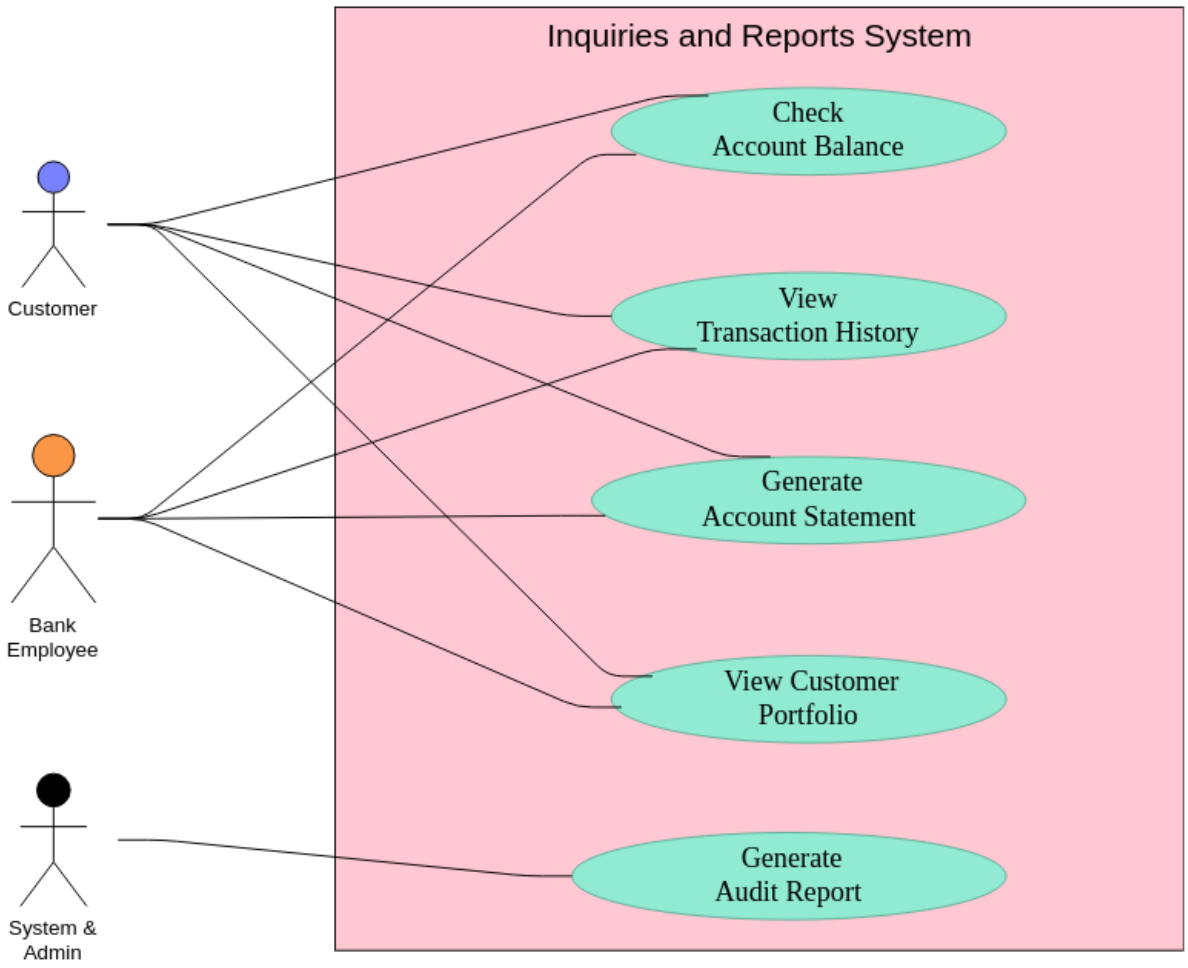
Account Management System



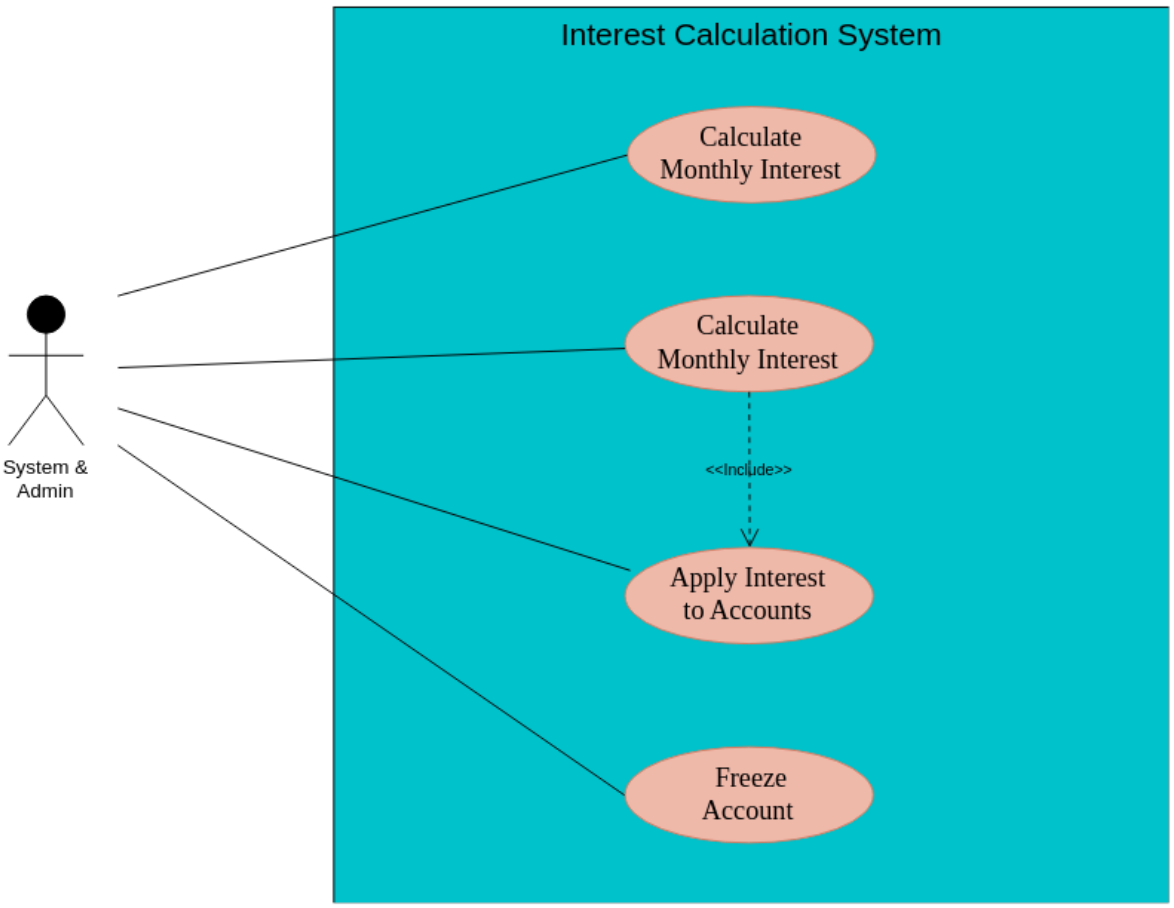
Transaction System



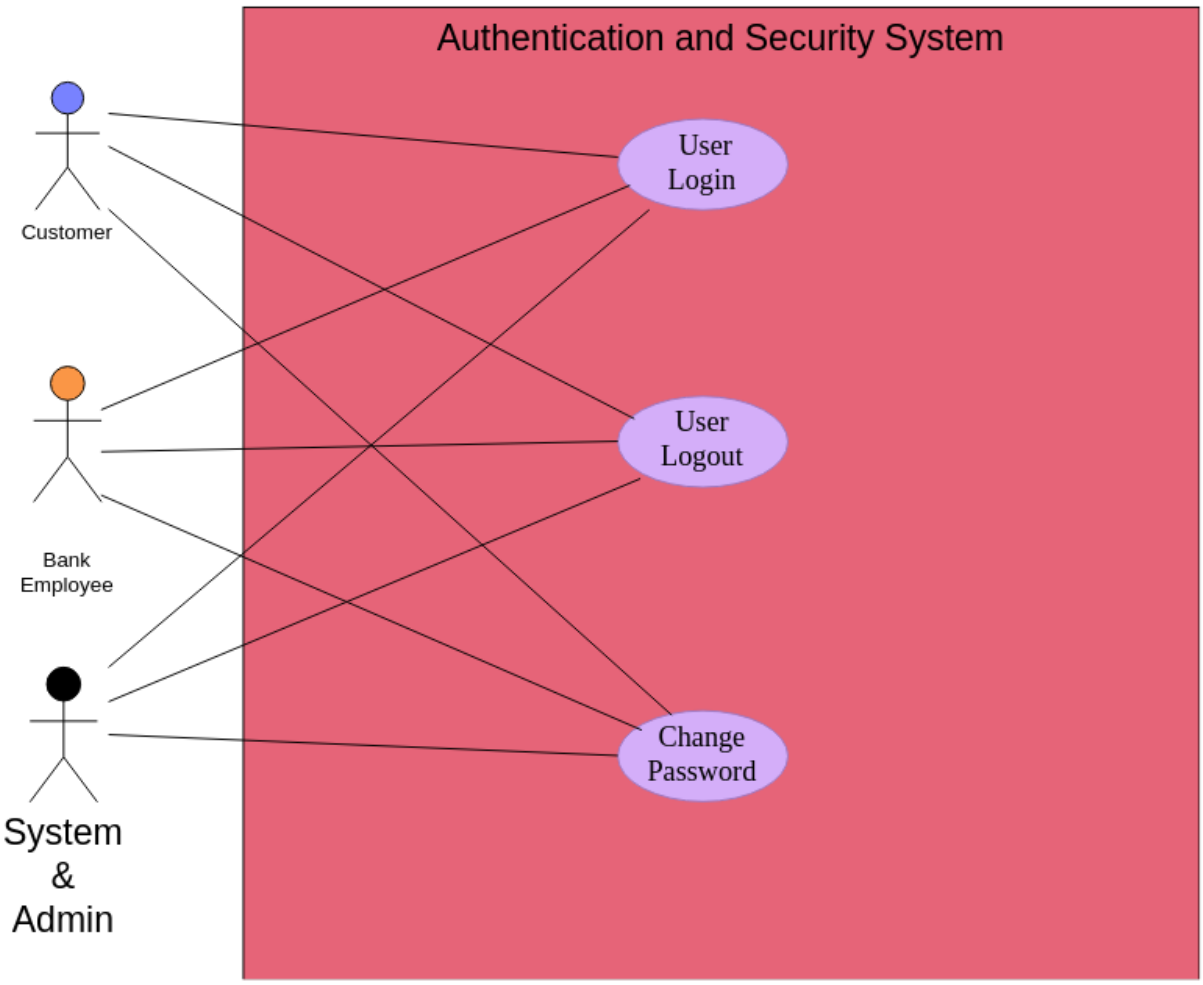
Inquiries and Reports System



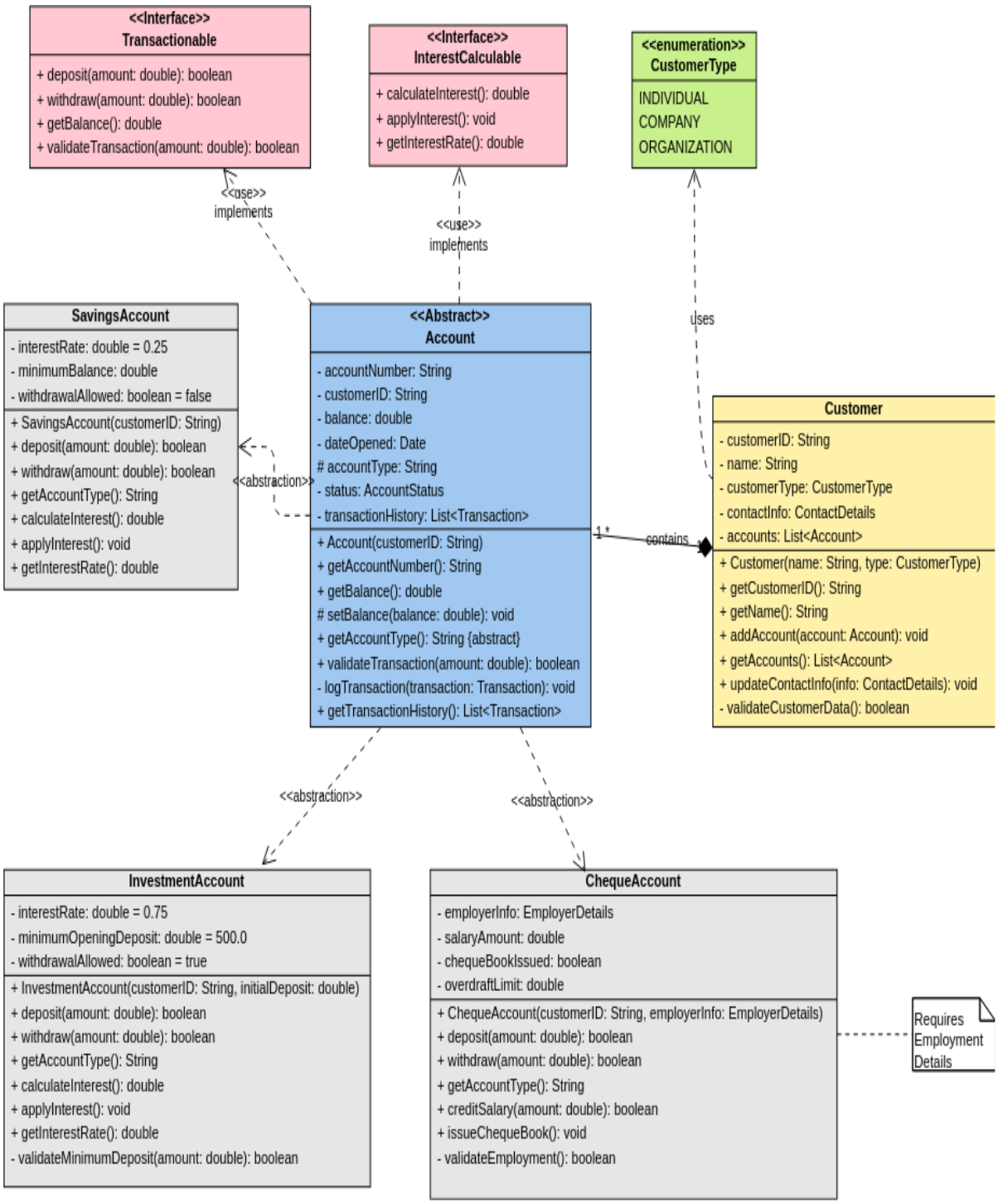
Interest Calculation System



Authentication and Security System


Authentication and Security System
Customer
Bank Employee
System & Admin
User Login
User Logout
Change Password

Class diagram



Class Description

Transactionable Interface - Defines standard transaction operations for all account types.

InterestCalculable Interface - Defines interest calculation and application methods for interest-bearing accounts.

Account (Abstract) - Base class providing common account functionality while enforcing specific implementations.

SavingsAccount - Implements savings account with interest earning but no withdrawal capability.

InvestmentAccount - High-yield account requiring minimum deposit with full transaction capabilities.

ChequeAccount - Transaction account for salary crediting and daily banking operations.

Customer - Represents bank customers (individuals, companies, organizations).