Project Requirements Document

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# Overview

Develop a C# application for Acme Bank that allows tellers to access customer accounts. The application will manage three types of accounts: Personal Account, ISA Account, and Business Account. The deadline for this task is **19th July 2024**.

# Account types and requirements

## Personal Account

### ID Requirements:

* Photo ID (e.g., passport, driving licence)
* Address-based ID (e.g., utility bill, council letter)

### Minimum Opening Balance

£1 (GBP)

## **Charges**

* No charges for owning an account
* Potential charges if the account is overdrawn

### Features

* Direct debits
* Standing orders

### Account Limit

A customer **can have multiple** personal accounts.

## ISA Account

### Reference

Details found at Individual Savings Accounts (ISAs): <https://www.gov.uk/individual-savings-accounts>

### Benefits

* Annual APR of 2.75% on the average annual balance.

### Account Limit

* A customer can have only one ISA account.
* Business Account
* In the 2024 to 2025 tax year, the maximum amount a customer can save in ISAs is £20,000.

### ID Requirements

* Proof and details of an existing business (e.g., business registration documents).
* Must be 18 or over to open an ISA.
* Must be resident in the UK or a member of the armed forces or a Crown servant (or their spouse/civil partner) if not residing in the UK.

### Exclusions

* Enterprises, PLCs, charities, public sector businesses (handled by another department).

### Types of ISAs:

* Cash ISA
* Stocks and shares ISA
* Innovative finance ISA
* Lifetime ISA (specific requirements: must be under 40 to open, only for individuals born between 6 April 2006 and 5 April 2008, can open one cash ISA before turning 18)

**No need to differentiate between them**

### Features

* Business cheque book (on request)
* Debit/credit cards
* Overdraft facility
* International trading
* Access to loans
* Annual Charge: £120 (GBP)

### Account Limit

A business **can only apply for one** account.

## Business Account

### ID Requirements

* Proof and details of an existing business (e.g., business registration documents).

## Exclusions

* Enterprises, PLCs, charities, public sector businesses (handled by another department).

### Features

* Business cheque book (on request)
* Debit/credit cards
* Overdraft facility
* International trading
* Access to loans
* Annual Charge: £120 (GBP)

### Account Limit

A business can **only apply for one** account.

# Functional Requirements

## Personal Account

* Customers must provide photo ID (passport, driving licence) and address-based ID (utility bill, council letter) when opening an account.
* A minimum opening balance of £1 (GBP) is required.
* Direct debits and standing orders can be set up.
* Customers can have multiple personal accounts.
* No charges for maintaining the account, but charges may apply if the account is overdrawn.

## ISA Account

* Customers can only have one ISA account.
* The account provides an annual APR of 2.75% on the average annual balance.
* Validate that the customer is 18 or over (for all ISAs except Lifetime ISA, which requires the customer to be under 40).
* Ensure the customer is either a UK resident or qualifies under specific criteria (armed forces, Crown servant, or their spouse/civil partner).
* Verify that the customer does not exceed the £20,000 annual savings limit across all ISA accounts.
* Implement checks to ensure that a customer can only have one ISA of each type (e.g., one cash ISA, one stocks and shares ISA, etc.).
* Include functionality for handling ISA withdrawals and the conditions under which they are allowed.

## Business Account

* Customers must provide proof and details of an existing business (e.g., business registration documents).
* Enterprises, PLCs, charities, and public sector businesses are excluded.
* Account features include a business cheque book (on request), debit/credit cards, overdraft facility, international trading, and access to loans.
* An annual charge of £120 (GBP) applies.
* Businesses can only have one business account.
* Authentication and Authorization

## Authentication

* Implement a method to authenticate customers to access their accounts.
* Ensure only authorised tellers can access customer account information.

## Transaction Management

* Support for common transactions such as deposits, withdrawals, and transfers between accounts.
* Ensure validation and error handling for all transactions.

## Menu System

* Implement a simple menu system for tellers to navigate through the application.
* Provide options to view, add, edit, and delete accounts.
* This will be done as a console application

## Help System

* Integrate a help system to assist tellers in using the application.
* The help system should provide context-sensitive help linked to the current task.

## Data Validation

* Ensure all input data is validated to prevent incorrect or malicious data entries.
* Provide clear error messages for invalid inputs.

# 

# Non-Functional Requirements

## Performance

* What are the acceptable performance metrics?
* Are there specific testing requirements?

## Scalability

* Are there any plans for expanding the types of accounts or services in the future e.g. does the programme need to account for scalability concerns?
* Ensure the architecture supports easy addition of new features and account types.

## Reliability

* Implement error handling to ensure the system does not crash due to invalid inputs or other errors.

## Security

* Are there any additional security measures required (e.g., encryption, logging)?
* Implement secure authentication mechanisms to protect customer data.
* Encrypt sensitive data to prevent unauthorized access. (if possible)
* Conduct regular security audits and updates.

## Usability

* The menu system should be intuitive and easy to navigate for tellers.
* Provide comprehensive documentation and training materials for new tellers.
* Are there specific usability standards or guidelines to follow?

## Compliance

* Ensure the application complies with all relevant banking regulations and guidelines.
* Regularly update the system to adhere to new regulations and standards.

## Maintainability

* The codebase should be well-documented and follow standard coding practices.
* Implement modular design to facilitate easier maintenance and updates.

## Backup and Recovery

* Implement regular data backup procedures to prevent data loss.
* Ensure the system can recover quickly from failures or data corruption.

# Checklist

This is a checklist

## Personal Account

* **Method**: SetupDirectDebit
* **Method**: SetupStandingOrder
* **Method**: CheckOverdraft
* **Method**: ChargeOverdraftFees

## ISA Account

* **Method**: OpenISAAccount
  + Validate Age Requirement
  + Validate Residency Requirement
  + Ensure Single ISA Account Limit
  + Ensure Annual Savings Limit
* **Method**: CalculateISAInterest
  + Calculate annual APR of 2.75%
* **Method**: HandleISAWithdrawals
* **Method**: CheckISAContributionLimit

## Business Account

* **Method**: OpenBusinessAccount
  + Validate Business Documents
* **Method**: RequestBusinessChequeBook
* **Method**: IssueDebitCreditCards
* **Method**: SetupOverdraft
* **Method**: SetupInternationalTrading
* **Method**: AccessBusinessLoans
* **Method**: ChargeAnnualFee

## Authentication and Authorization

* **Method**: AuthenticateCustomer
* **Method**: AuthorizeTeller

## Transaction Management

* **Method**: Deposit
* **Method**: Withdraw
* **Method**: TransferFunds

This applies to all!

## Menu System

* **Method**: DisplayMenu
* **Method**: NavigateToAddAccount
* **Method**: NavigateToEditAccount
* **Method**: NavigateToDeleteAccount
* **Method**: ViewAccountDetails

## Help System

* **Method**: DisplayHelp
  + Give relevant FAQ and Guidence

## Data Validation

* **Method**: ValidateInputData
* **Method**: DisplayErrorMessage

## Security

* **Method**: EncryptSensitiveData
* **Method**: RegularSecurityAudit?

## Compliance

* Ensure Regulatory Compliance
* Update System For New Regulations

## Usability

* Provide User Documentation

## Additional Methods Based on Questions for Trevor

Implement Transaction Limits

Verify ID functions

Calculate APR

Handle PIN Entry

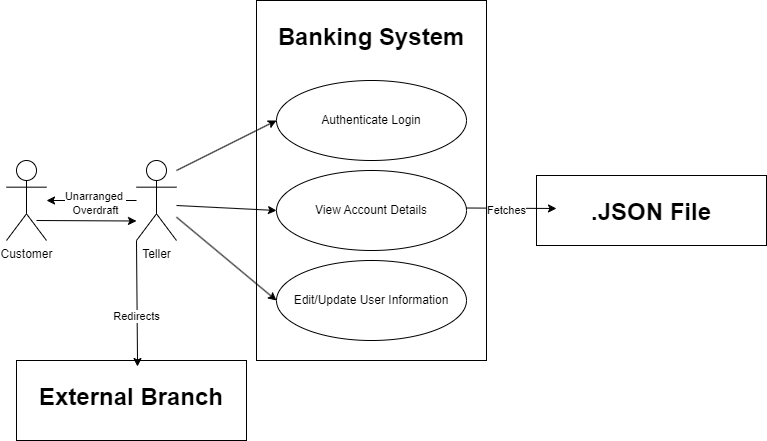
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# Missing Information

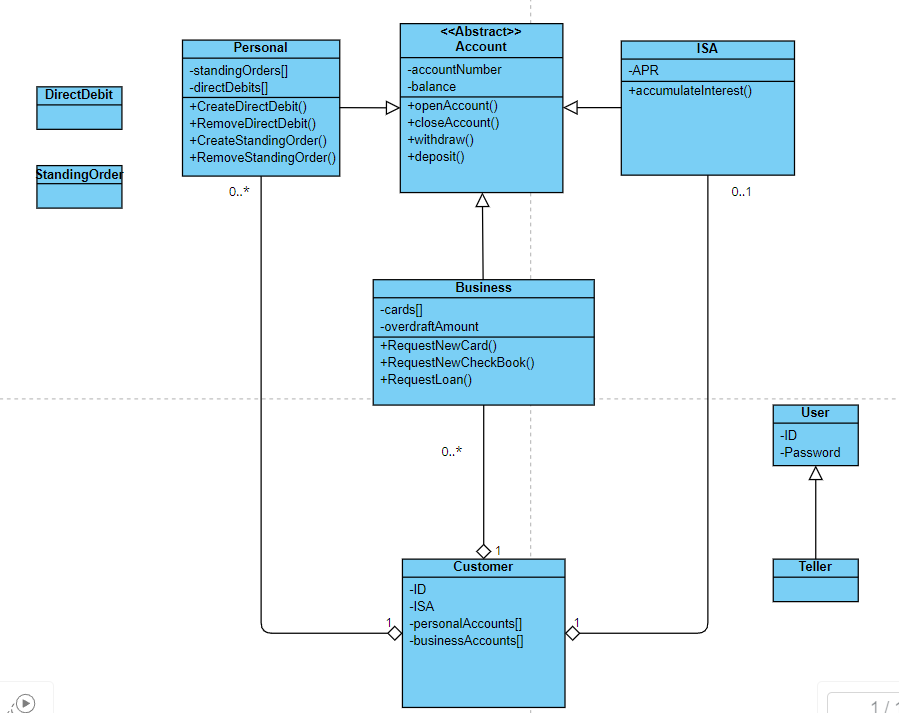
* Are there specific usability standards or guidelines to follow?
* Are there any additional security measures required (e.g., encryption, logging)?
* What are the acceptable performance metrics?
* Are there specific testing requirements?
* What types of testing should be performed (e.g., unit testing, integration testing, user acceptance testing)?
* Are there specific tools or frameworks preferred for testing?
* Should the ISA be one generic ISA or handle multiple ISA accounts (Lifetime - Stock and Share)?
* Are there any specific rules or limits for transactions?
* What are the daily, monthly, or transaction-specific limits for deposits, withdrawals, and transfers?
* Are there any specific validation rules for transactions (e.g., overdraft limits, account balance checks)?
* Are there specific requirements for password policies and strength?

# Diagrams

## Use Case



## Class Diagram



## Personas



