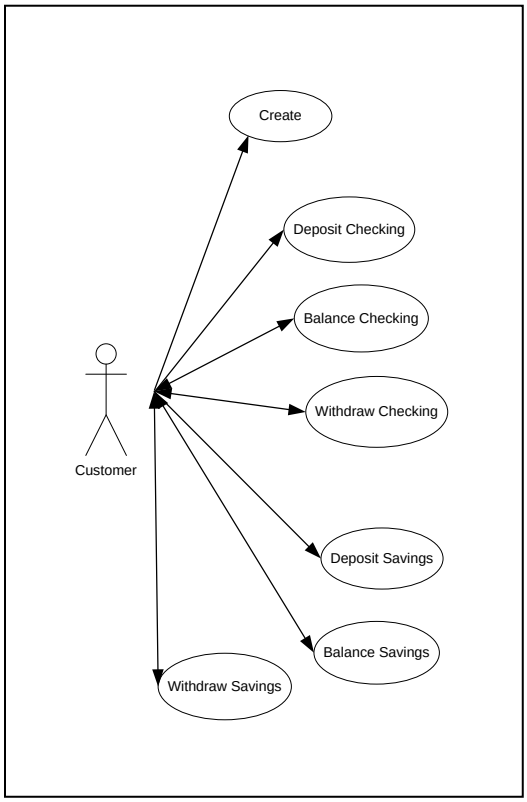
Use Case Diagram



Create Account

Create a user account and set all balances to 0

Exception

Out of memory

Deposit Checking

Enter an amount into the checking component

Exception

Account does not exist

The amount entered is negative

Balance Checking

Return the balance in the checking component

Exception

Account does not exist

Withdraw Checking

Withdraw an amount from the checking component

Exception

Account does not exist

The amount withdrawn is negative

The amount withdrawn exceeds the current balance

Deposit Savings

Enter an amount into the savings component

Exception

Account does not exist

The amount entered is negative

Balance Savings

Return the balance in the savings component

Exception

Account does not exist

Withdraw Savings

Withdraw an amount from the savings component

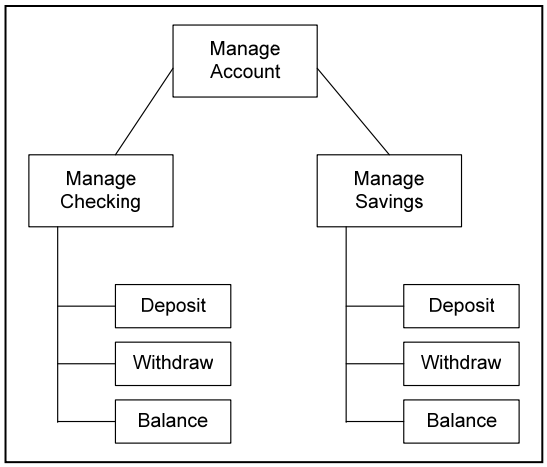
Exception

Account does not exist

The amount withdrawn is negative

The amount withdrawn exceeds the current balance

Functional Decomposition



The system comprises one top-level function or job, that is, to manage an account which is made up of a Checking portion and a Savings portion. The second level jobs or functions are to manage the two components of the account. Here we must manage the Checking and the Savings portions. An additional level of decomposition expresses the need to manage the necessary basic operations of each of the two-second level functions.

CRC Cards

- Manage Account
  - Responsibilities
    - Accept deposits into Checking portion
    - Accept deposits into Savings portion
    - Accept withdraw request from Checking portion
    - Accept withdraw request from into Savings portion
    - Accept balance request for Checking portion
    - Accept balance request for into Savings portion
    - Manage first level of exception handling
  - Collaborators
    - Checking portion
    - Savings portion

- Manage Checking
  - Responsibilities
    - Make deposits into Checking portion
    - Make withdraw from Checking portion
    - Return balance from Checking portion
    - Manage second level of exception handling
  - Collaborators
    - Account

- Manage Savings
  - Responsibilities
    - Make deposits into Savings portion
    - Make withdraw from Savings portion
    - Return balance from Savings portion
    - Manage second level of exception handling
  - Collaborators
    - Account

Class Diagram

The account is a composition of instances of a checking and a savings account class.

Private:

The instances of the checking and saving accounts

Public:

The public portions of the account class use accessor functions to access the private savings and checking portions of the account to make deposits, withdrawals, and to check the balance in either component.

Exception management in each component is managed by the specific component.

The checking class maintains and manages access to the checking balance

Private:

The checking balance

Public:

The public portion of the checking class provides the access functions to the checking balance to permit deposits, withdrawals, and balance check. These accessors ensure that amounts and access methods comply with requirements

The savings class maintains and manages access to the savings balance

Private:

The savings balance

Public:

The public portion of the savings class provides the access functions to the savings balance to permit deposits, withdrawals, and balance check. These accessors ensure that amounts and access methods comply with requirements