Bank System Implementation

Introduction

This system consists of a Bank that manages a list of Account objects. The primary goal of this system is to manage bank accounts, including adding, deleting, saving, and loading accounts to and from a file. The Bank class implements the LegalEntity interface, ensuring that the bank has an address and VAT (Value Added Tax number) number.

Class Descriptions

1. LegalEntity Interface

Purpose: The LegalEntity interface defines the contract for any entity that is considered a legal entity, requiring it to provide an address and a VAT number.

Methods:

- String getAddress(): Returns the address of the legal entity.

- String getVatNumber(): Returns the VAT number of the legal entity.

2. Account Class

Purpose: The Account class represents a bank account. It includes details such as the account number, the owner's name, and the balance.

Fields:

- String accountNumber: The unique identifier for the account.

- String ownerName: The name of the account owner.

- double balance: The current balance of the account.

Methods:

- Account(String accountNumber, String ownerName, double balance): Constructor to initialize the account with an account number, owner's name, and initial balance.

- String getAccountNumber(): Returns the account number.

- void setAccountNumber(String accountNumber): Sets the account number.

- String getOwnerName(): Returns the owner's name.

- void setOwnerName(String ownerName): Sets the owner's name.

- double getBalance(): Returns the account balance.

- void setBalance(double balance): Sets the account balance.

- String toString(): Returns a string representation of the account.

3. Bank Class

Purpose: The Bank class represents a bank that manages multiple accounts. It implements the LegalEntity interface to ensure the bank has an address and VAT number. The class includes methods for adding, deleting, saving, and loading accounts.

Fields:

- String address: The address of the bank.

- String vatNumber: The VAT number of the bank.

- List<Account> accounts: The list of accounts managed by the bank.

Methods:

- Bank(String address, String vatNumber): Constructor to initialize the bank with an address and VAT number.

- String getAddress(): Returns the bank's address.

- String getVatNumber(): Returns the bank's VAT number.

- void addAccount(Account account): Adds an account to the bank.

- boolean deleteAccount(Account account): Deletes an account from the bank.

- List<Account> getAccounts(): Returns a list of all accounts in the bank.

- void saveAccountsToFile(String fileName): Saves the list of accounts to a file.

- void loadAccountsFromFile(String fileName): Loads the list of accounts from a file.

Conclusion

This simple banking system demonstrates how to manage bank accounts within a Bank class, which implements the LegalEntity interface. The system allows for adding, deleting, saving, and loading accounts, making it a basic but functional representation of a banking system.