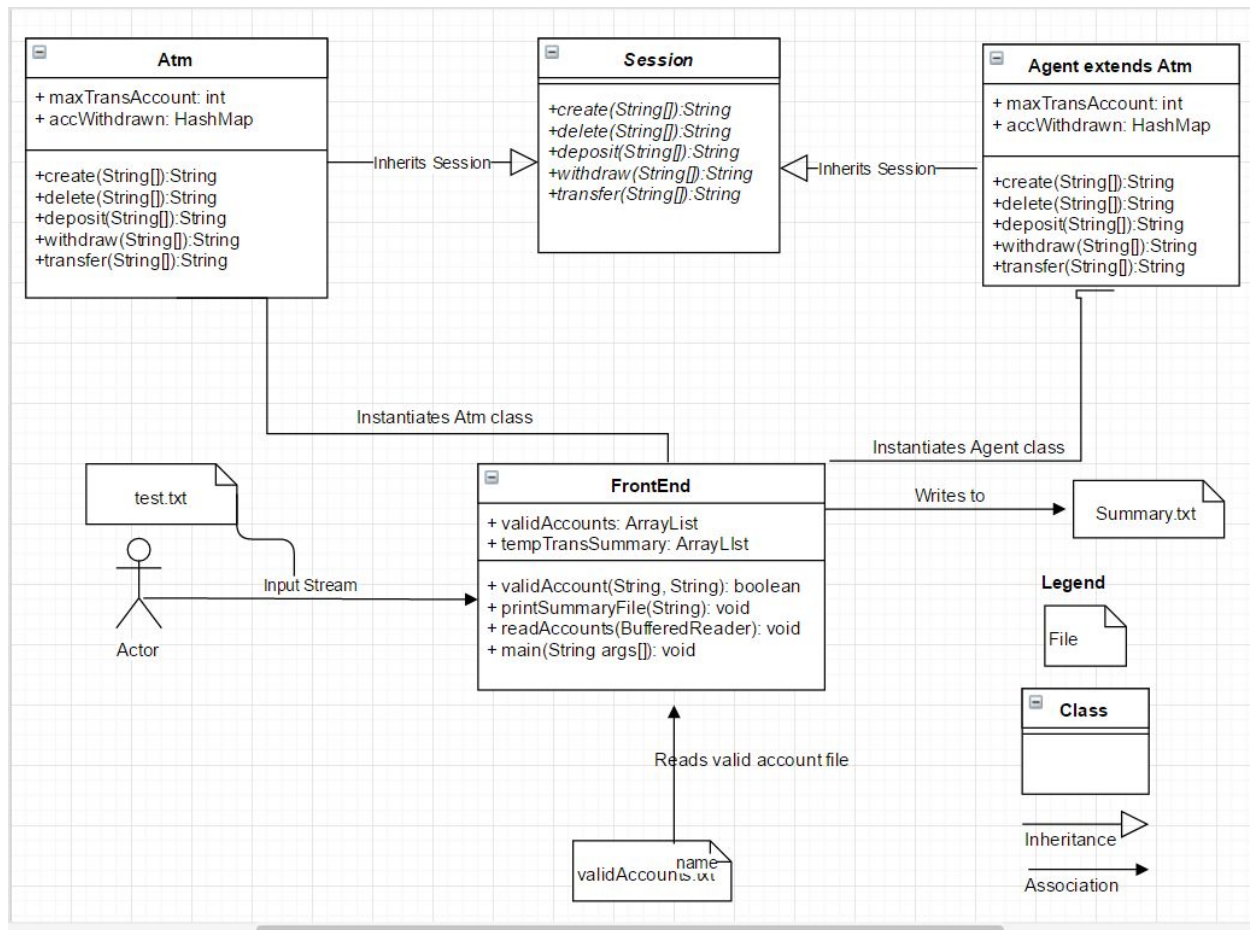


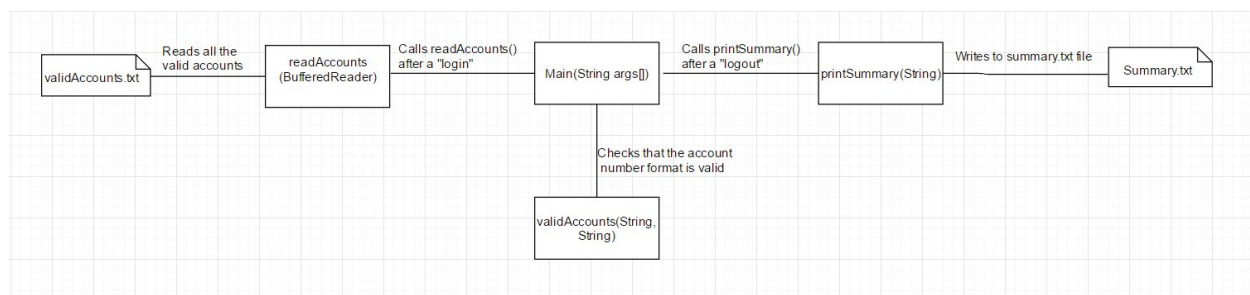
CISC 327 FRONT END RAPID PROTOTYPE

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Architecture Design



FrontEnd Methods



Structure of the Architecture

Atm and Agent classes extend Session and inherit all abstract methods such as create, delete, deposit, withdraw and transfer. Atm and Agent have different values for maximum amount allowed for deposit, withdraw, and transfer. Atm overrides create() and delete() to return null since it does not have permission to perform these methods. However, Agent class will be able to have full access to all abstract methods inherited from Session Class.

FrontEnd class interacts with user requests from std input terminal. Once “login” followed by “atm” or “agent” has been entered, main() reads/updates the validAccounts ArrayList and declares a Session object that polymorphs into either Atm or Agent class. Once the user starts entering transactions, main() interacts with validAccount(), uses Session object to handle requests, and calls printSummaryFile() to write the transaction summary to summary.txt.

Associated Files

| Files | |
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| tests.txt | Contains test case inputs. |
| validAccounts.txt | Contains all the valid account numbers. |
| summary.txt | Contains all the transaction summary from a session. |

Description of Classes and Its Associated Attributes, Constructor, and Methods

| Class | Purpose |
|----------------------|---|
| FrontEnd | Contains methods for checking valid account numbers, handling transaction input, and outputting to the transaction summary file. FrontEnd is the main class and makes use of Atm and Agent class objects. |
| Attributes | |
| validAccounts | An ArrayList to store all valid account numbers to cross check with user input account number. |
| tempTransSummary | An ArrayList to store all successful transactions that will be used to write to summary.txt. |
| Methods | |
| Main(Strings[] args) | Continuously runs to take user input, handles the input, and prints out |

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| | the transaction summary file. |
| validAccount(String, String) | Checks whether the account number passed into the argument follows the correct format conventions and is valid for the transaction. It also checks that the account number argument exists in the validAccounts ArrayList. |
| printSummaryFile(String) | Writes all the transactions made in the session from tempTransSummary ArrayList to summary.txt. |
| readAccounts(BufferedReader) | Reads all account numbers from validAccounts.txt and stores them in validAccounts ArrayList. |

| Class | Purpose |
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| Session | This class allows Atm instance and Agent instance to be used as a singular object type session without having to cast the object when a method call is required. Defines all transactions that can be made in all sessions and abstract methods for Atm and Agent to extend from. |
| Methods | |
| create(String[]) | An abstract method to create a new account. Args[0] contains account number and args[1] contains the name of the new account. |
| delete(String[]) | An abstract method to delete an existing account. Args[0] contains account number and args[1] contains the name of the new account. |
| deposit(String[]) | An abstract method to deposit money to an account. Args[0] contains the account number and args[1] contains the amount in cents to deposit. |
| withdraw(String[]) | An abstract method to withdraw money from an account. Args[0] contains the account number and args[1] contains the amount in cents to transfer. |
| transfer(String[]) | An abstract method to transfer money from one account to another. Args[0] contains the account number and args[1] contains the account number to transfer to and args[2] contains the transfer amount in cents. |

| Class | Purpose |
|-------|---|
| Atm | Atm extends Session class. Defines attributes and methods an Atm session can perform. Atm class should not have permission to create and delete, so Atm class overrides the methods to return null. (Checking if the account number is valid is done in the FrontEnd class) |

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| Attributes | |
| maxTransAmmount | An integer value defining the maximum withdraw/deposit/transfer an Atm class can perform. Sets accWithdrawn to 100000 (in cents). |
| accWithdrawn | A HashMap to keep track of how much an account has withdrawn in a session. |
| Constructors | |
| Atm() | Initializes accWithDrawn and maxTransAmmount to 100000 when object is instantiated. |
| Methods | Methods display message back to the user through std output. |
| create(String[]) | This method is never called since Atm doesn't have permission to create an account. Returns null. |
| delete(String[]) | This method is never called since Atm doesn't have permission to delete an account. Returns null. |
| deposit(String[]) | Checks that the amount to deposit does not exceed Agent class' maxTransAmmount. |
| withdraw(String[]) | Gets the account's previous withdrawn amount from accWithdrawn HashMap, adds that to current request withdrawn amount to make sure that it doesn't exceed Agent class' maxTransAmmount. |
| transfer(String[]) | Checks that the request transfer amount does not exceed Agent class' maxTransAmmount. |

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| Class | Purpose |
| Agent | Atm extends Session class. Defines attributes and methods an Agent session can perform. (Checking if the account number is valid is done in the FrontEnd class) |
| Attributes | |
| maxTransAmmount | An integer value defining the maximum withdraw/deposit/transfer an Atm class can perform. Sets accWithdrawn to 999999999(in cents). |
| accWithdrawn | A HashMap to keep track of how much an account has withdrawn this session. |
| Constructors | |
| Agent() | Initializes accWithDrawn and maxTransAmmount to 999999999 when |

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| | object is instantiated. |
| Methods | Methods display message back to the user through std output. |
| create(String[]) | Checks that the account name is valid and returns the transaction code. |
| delete(String[]) | Checks that the account name is valid and returns the transaction code. |
| deposit(String[]) | Checks that the amount to deposit does not exceed Agent class maxTransAmmount. |
| withdraw(String[]) | Gets the account's previous withdrawn amount from accWithdrawn HashMap, adds that to current request withdrawn amount to make sure that it doesn't exceed Agent class maxTransAmmount. |
| transfer(String[]) | Checks that the request transfer amount does not exceed Agent class maxTransAmmount. |