Teller

Full Class Description

Employee

- -name: String
- -employeeID: int -loginusername: String
- -loginpwd: String
- -type: enum EmployeeType

name, login)

+Employee() +Employee(attributes) //getters & setters(

Customer

-name: String -id: final String -passcode: String -numSavings: int -numChecking: int

-accounts: ArrayList<Account>

-opened: Date -closed: Date

- +Customer(int id, String passcode)

- +getID(): String +getPasscode(): String +getAccounts(): ArrayList<Account> +setAccounts(Account):
- +addAccount(Account):

+removeAccount(String id): //getters & setters (

name, numSavings, numChecking)

Account

- +type: final AccountType
- +id: final String
- -pending: ArrayList<Pending>
- -fees: ArrayList<Fee>
- -balance: Money
- -postiveStatus: boolean
- -lastTransaction: LastTransaction
- +Account(AccountType, int id)
- +popPending(): Pending
- +addPending(Pending):
- +popFee(): Fee +addFee(Fee)
- //getters & setters(

pendings, fees, balance,

positiveStatus, lastTransaction)

Supervisor

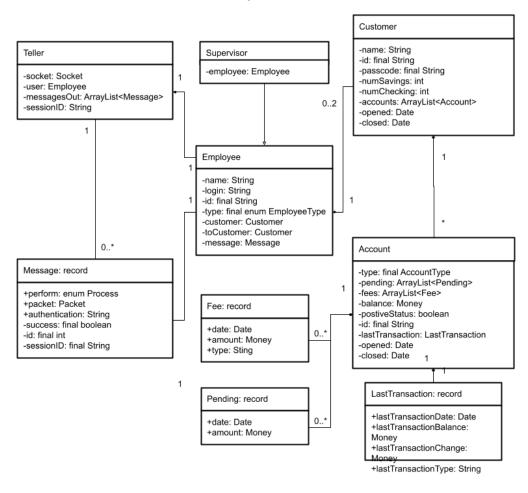
- -employee: Employee
- +newEmployee(Employee);
- +changePassword():
- +accessEmployee(int id):
- Message +save(): Message
- +load(): Message
- +removeEmployee(): Message
- +processDvidend(): Message +processPending(): Message

Teller

- -socket: Socket -employe: Employee
- -messagesOut: ArrayList<Message>
- -sessionID: String -customer: Customer
- +Connection(Socket, Employee)
- -makeConnection(): Socket +login(User, String password)
- +access(Customer) +listen(): Message +send(Message)

- +closeConnection():
- +newAccount(): Message
- +closeAccount(): Message
- +newCustomer(): Message
- +closeCustomer(): Message +accessCustomer(String passcode,
- String id): Message
- +withdraw(String id, Money):
- Message
- +deposit(String id, Money, Pending): Message
- +transfer(String id, String toID,
- Money): Message +transfer(String toID, String frID.
- Money): Message

System



Supporting Classes

Pending //record LastTransaction //record Fee //record Packet //record, parent class +date: Date +date: Date +date: Date +actOnID: int +priorBalance: Money +amount: Money +amount: Money +amount: Money +checkNumber: int +changeInBalance: Money +type: String +addendumID: int +type: String +checkNumber: int +Pending(Date, Money, +Fee(Date, Money, +LastTransaction(Date, Money, Money, String) int) String) +Fee(Date, Money) ATMPacket +checkingID: int Message //record +savingsID: int +checkingPositive: boolean +savingsPositive: boolean +perform: enum Process +packet: Packet +authentication: String Money Process: enum +success: final boolean +id: final int -dollar: int DEPOSIT +sessionID: final String CustomerPacket -cent: int WITHDRAWAL -fraction: double TRANSFER +Message() +customer: Customer TRANSFER_TOCUSTOMER +Message(int sessionID, int id) +Message(int sessionID, int id, +add(): Money BALANCE +sub(): Money +equals(): boolean CLOSE_ACCOUNT boolean success) ADD_ACCOUNT +mult(): Money +toString(): String +getFraction(): double +isGreater(): boolean NEW_CUSTOMER AccountPacket CLOSE_CUSTOMER ADD_EMPLOYEE EmployeeType: enum REMOVE_EMPLOYEE +account: Account +round(): Money CHANGE_PASSWORD **EMPLOYEE** +setAsRounded(): SUPERVISOR DIVIDEND //getters & setters: dollars, PENDING cents ONLINE SHUTDOWN EmployeePacket AccountType: enum SAVE LOAD

LOGIN

ACCESS GET_ID

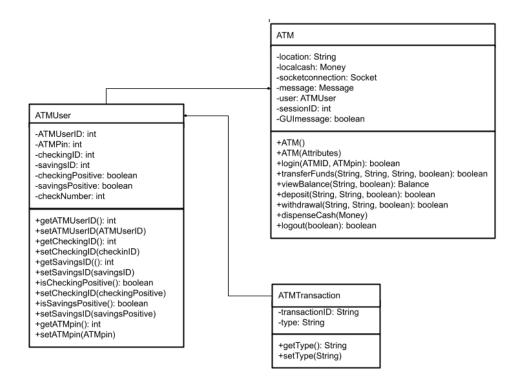
SAVINGS

CHECKING

+employee: Employee

ATM

System



Supporting classes

Money

- -dollar: int
- -cent: int -fraction: double
- +add(): Money
- +sub(): Money

- +equals(): boolean +mult(): Money +div(double d): Money +toString(): String +getFraction(): double

- +isGreater(): boolean
- +round(): Money
- +setAsRounded():
- -resolve(): Money

//getters & setters: dollars,

Process: enum

GET_ID

DEPOSIT WITHDRAWAL TRANSFER TRANSFER_TOCUSTOMER BALANCE CLOSE_ACCOUNT ADD_ACCOUNT NEW_CUSTOMER CLOSE_CUSTOMER ADD_EMPLOYEE REMOVE_EMPLOYEE CHANGE_PASSWORD DIVIDEND PENDING ONLINE SHUTDOWN SAVE LOAD LOGIN LOGOUT ACCESS DISMISS

ATMDeposit

- +amount: Money
- +accountID: int
- +accountPositive: boolean
- +ATMDeposit(int, Money,
- +ATMDeposit(Message,
- boolean) +ATMDeposit(Message, String)

Message //record

- +perform: enum Process
- +packet: Packet
- +authentication: String
- +success: final boolean
- +d: final int +sessionID: final int
- +Message()
- +Message(int sessionID)
- +Message(int sessionID, int id)
- +Message(int sessionID, int id, boolean
- success)

ATMWithdrawal

- +amount: Money
- +accountID: int
- +accountPositive: boolean
- +ATMWithdrawal(int,
- Money, int)
- +ATMWithdrawal(Message , boolean) +ATMWithdrawal(Message
- String)

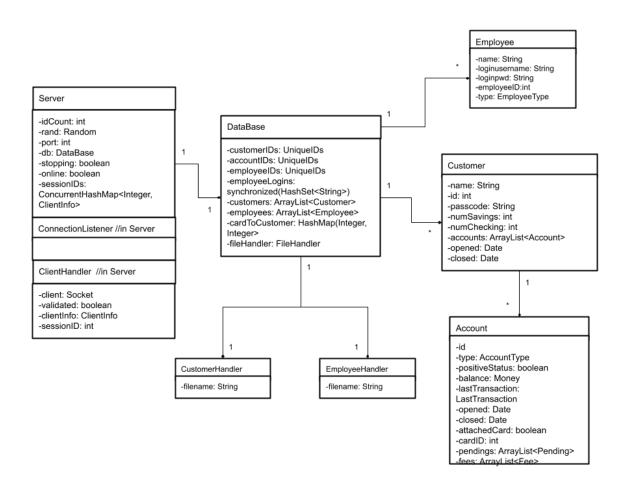
ATMLogin

- +checkingID: int
- +savingsID: int
- +checkingPositive: boolean
- +savingsPositive: boolean
- +cardID: int
- +PIN:int
- +ATMLogin(int, int)
- +ATMLogin(int,int,boolean,
- boolean,int,Message)
- +ATMDeposit(Message, String)

ATMTransfer

- +amount: Money
- +toaccountID: int
- +fraccountID: int
- +toaccountPositive: boolean
- +fraccountPositive:
- boolean
- +ATMtransfer(int, Money, int, int)
- +ATMTransfer(Message,
- boolean, boolean)
- +ATMTransfer(Message, String)

Server System



Full Class Description

Customer

- -name: String
- -id: int
- -passcode: String
- -numSavings: int
- -numChecking: int -accounts: ArrayList<Account>
- -opened: Date
- -closed: Date
- +Customer(id, name)
- +Customer(id, name, passcode, numSavings, numChecking, opened, closed)
- +getID(): int

Employee

-name: String

-loginpwd: String -employeeID:int

-loginusername: String

-type: EmployeeType

+Employee(name,

+Employee(employeeID , name, loginusername,

loginusername,

loginpwd, type)

loginpwd, type)

//getters & setters(

loginusername, type)

name, loginpwd,

+getID(): int

- +addAccount(Account): boolean
- +findAccount(id): Account
- +removeAccount(id): boolean

- -idCount: int -rand: Random
- -port: int

Server

- -db: DataBase
- -stopping: boolean -online: boolean
- -sessionIDs:
- ConcurrentHashMap<Integer, ClientInfo>
- +Server(port) //static +stop()
- reserveSessionID(ClientInfo): int

ConnectionListener //in Server

+run()

DataBase

- -customerIDs: UniqueIDs -accountIDs: UniqueIDs
- -employeeIDs: UniqueIDs -employeeLogins:
- synchronized(HashSet<String>) -customers: ArrayList<Customer>
- -employees: ArrayList<Employee> -cardToCustomer: HashMap(Integer, Integer>
- -loginToIDTable:
- ConcurrentHashMap<String, Integer> -employeeFile: EmployeeHandler -customerFile: CustomerHandler
- -overdraftFee: Fee
- +getCustomerFromCard(cardNum): customerID
- +addCardToCustomer(cardNum, customerID)
- +getNewCustomerID(): int +reserveAccountID(): int //mutates accountIDs
- +findCustomer(id): Customer
- +setCustomer(Customer): boolean
- +removeCustomer(id): boolean
- +addCustomer(Customer): boolean +findEmployee(id): Employee
- +setEmployee(Employee): boolean +removeEmployee(id): boolean
- //setters and getters: overdraftFee

CustomerHandler -filename: String

+parse(String): ArrayList <Customer> +save(String,

ArrayList<Customer>) +setFilename(String) +getFilename(): String

EmployeeHandler

-filename: String

+parse(String): ArrayList <Employee> +save(String, ArrayList<Employee>) +setFilename(String) +getFilename(): String

UniqueIDs

- -countGenerator: int -idSet: HashSet<Integer>
- +addID(int): boolean +findNewID(): int +removeID(int): boolean

Account

- -type: AccountType positiveStatus: boolean
- . -balance: Monev -lastTransaction:
- LastTransaction
- -opened: Date
- -closed: Date -attachedCard: boolean
- -cardID: int
- -pendings: ArrayList<Pending>
- +getID(): boolean
- +getType(): AccountType
- +addPending(Pending): boolean
- +addFee(Fee): boolean
- +findPending(Date): Pending
- +findFee(Date): Fee +removeFee(Date): boolean
- +removePending(Date): boolean
- //aetters & setters
- (isPositiveStatus,
- lastTransaction, balance, opened, closed, attachedCard.
- cardID, pendings, fees)

Supporting Classes

Money

- -dollars: int -cents: int
- -fraction: double
- -isPositive: boolean //0,

- +getFraction(): double

- +getFraction(): double +add(): Money +sub(): Money +mult(): Money +div(): Money +equals(): boolean +toString(): String +isGreater(): boolean -resolve()

- -resolve() +absMoney(): Money -negAdd(): Money -negSub(): Money
- +round(): Money
- //getters & setters(dollars,
- cents, isPositive)

+Fee(Date, Money, String) +Fee(Money, String)

Fee //record

+date: Date +type: String

+amount: Money

EmployeeType: enum

EMPLOYEE SUPERVISOR

AccountType: enum

CHECKING SAVINGS

ClientType: enum

ATM Teller Process: enum

DEPOSIT WITHDRAWAL TRANSFER BALANCE CLOSE_ACCOUNT
ADD_ACCOUNT
NEW_CUSTOMER
CLOSE_CUSTOMER
ADD_EMPLOYEE REMOVE_EMPLOYEE
CHANGE_PASSWORD DIVIDEND ONLINE SHUTDOWN SAVE LOGIN

ClientInfo //record

LOGOUT **ACCESS**

DISMISS

+clientType: ClientType

+customerID: int +isSupervisor: boolean

LastTransaction //record

- +date: Date
- +priorBalance: Money
- +changeInBalance: Money
- +type: String
- +LastTransaction(Date, Money, Money, String)

Message Solution (all subclasses of Message)

Message //record	TellerLogin //record	CustoemrAccess //record	Domeyo Employee //record
+perform: final enum Process +success: final boolean +id: final int +sessionID: final String +why: final String	+login: String +password: String +supervisor: boolean	+passcode: String +id: int +customer: Customer	RemoveEmployee //record +employee: Employee
	ATMLogin //record	Dismiss //record	_]
ATMWithdrawal //record +amount: Money +accountID: int +accountPositive: boolean	+checkingID: int +savingsID: int +checkingPositive: boolean +savingsPositive: boolean		RemoveAccount //record
		NewEmployee //record	+account. Account
	Logout //record	+employee: Employee +employeeID: int	RemoveCustomer //record
ATMTransfer //record		ChangePassword //record	+customer: Customer
+toAccount: Account +frAccount: Account +amount: Money +toAccountPositive: boolean +frAccountPositive: boolean	TellerTransfer //record	+employee: Employee	
	+toAccount: Account +frAccount: Account	Cimpley St. Elimpiey St.	Online //record
		NewCustomer //record	Shutdown //record
ATMDepositl //record	TellerDeposit //record	+customer: Customer	Shuldown //record
+amount: Money +accountID: int	+account: Account	+customerID: id	Save //record
+accountPositive: boolean		AddAccount //record	1
	TellerWithdrawal //record		Balance //record
	+account: Account	+account: Account +customerID: int +accountID: int	+amount: Money +accountID: int

Server: Client Handler

-client: Socket -validated: boolean -clientInfo: ClientInfo

ClientHandler //in Server

+run()

-sessionID: int

+run()
+validateATM(Message): Message
-logout(Logout): Logout
-customerAccess(customerAccess): customerAccess
-dismiss(dismiss): dismiss

-balance(balance): balance -atmTransfer(atmTransfer): atmTransfer

-TellerTransfer(TellerTransfer): TellerTransfer

-atmDeposit(atmDeposit): atmDeposit

-atmWithdrawal(atmWithdrawal): atmWithdrawal

-balance(balance): balance

-dismiss(dismiss): dismiss

-online(online): online

-customerAccess(customerAccess): customerAccess

-employeeAccess(employeeAccess): employeeAccess

-shutdown(shutdown): shutdown

-save(save): save

-newEmployee(newEmployee): newEmployee

-newCustomer(newCustomer):newCustomer

-removeEmployee(removeEmployee):removeEmploye

-removeCustomer(removeCustomer):removeCustomer -removeAccount(removeAccount):removeAccount

-changePassword(changePassword):changePassword