# **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

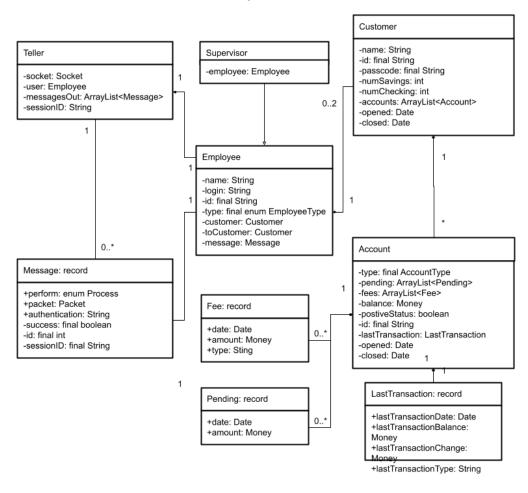
- -employee: Employee
- +newEmployee(Employee);
- +changePassword():
- +accessEmployee(int id):

- 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

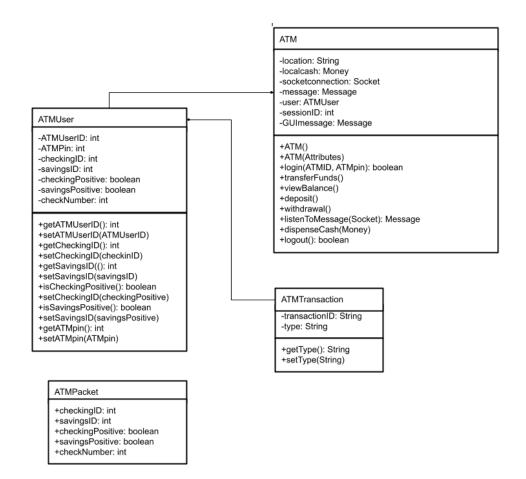
SAVINGS

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 +toString(): String +getFraction(): double +isGreater(): boolean +round(): Money +setAsRounded():

- -resolve(): Money //getters & setters: dollars,

cents

#### Process: enum

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

GET\_ID

#### 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)

#### Packet //record, parent class

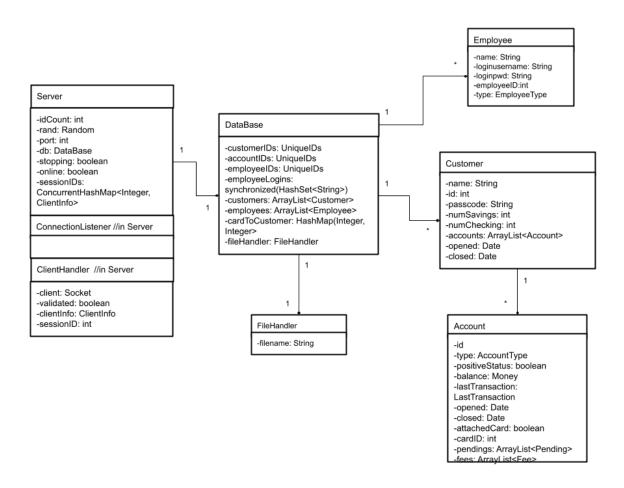
+actOnID: int

- +amount: Money
- +addendumID: int
- +checkNumber: int

#### ATMPacket

- +checkingID: int
- +savingsID: int +checkingPositive: boolean +savingsPositive: boolean +checkNumber: 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
- +addAccount(Account): boolean
- +findAccount(id): Account
- +removeAccount(id): boolean

#### Employee

- -name: String -loginusername: String -loginpwd: String -employeeID:int -type: EmployeeType
- +Employee(name, loginusername, loginpwd, type) +Employee(employeeID , name, loginusername, loginpwd, type) +getID(): int //getters & setters(

name, loginpwd,

loginusername, type)

#### Server

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

#### ConnectionListener //in Server

+run()

#### ClientHandler //in Server

- -client: Socket -validated: boolean
- -clientInfo: ClientInfo -sessionID: int
- +fail(Message): Message
- +success(Message): Message +validateATM(Message):

- +logout(Message): Message +access(Message): Message
- +dismiss(Message): Message
- +balance(Message): Message

#### DataBase

- -customerIDs: UniqueIDs -accountIDs: UniqueIDs
- -employeeIDs: UniqueIDs -employeeLogins:
- synchronized(HashSet<String>) -customers: ArrayList<Customer>
- -employees: ArrayList<Employee> -cardToCustomer: HashMap(Integer,
- -fileHandler: FileHandler
- +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

## FileHandler

### -filename: String

- +FileHandler(String)
- +save()
- +load() +setFilename(String)
- +getFilename(): String

#### UniqueIDs

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

#### Account

- -id
- -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**

Pending //record			
-cents: int -fraction: double -isPositive: boolean //0, frue +Money() +Money() +Money() +Money() +Money(int, int, boolean) +getFraction(): double +add(): Money +sub(): Money +mult(): Money +div(): Money +div(): Money +equals(): boolean +resolve() -negAdd(): Money -negAdd(): Money +setAsRounded(): //getters & setters( dollars, cents, isPositive)	<u> </u>	Pending //record	Fee //record
+Money(Money) +Money(int, int, boolean) +getFraction(): double +add(): Money +sub(): Money +div(): Money +div(): Money +div(): boolean +toString(): String +isGreater(): boolean -resolve() +absMoney(): Money -negAdd(): Money -negAdd(): Money -negAdd(): Money -negAdd(): Money -negSub(): Money +setAsRounded(): //getters & setters( dollars, cents, isPositive)    ClientInfo //record	-cents: int -fraction: double -isPositive: boolean //0,	+date: Date	+date: Date
+add(): Money +sub(): Money +mult(): Money +div(): Money +div(): Money +div(): Money +equals(): boolean +toString(): String +isGreater(): boolean -resolve() +absMoney(): Money -negAdd(): Money -negSub(): Money +setAsRounded(): //getters & setters( dollars, cents, isPositive)  LastTransaction //record  +date: Date +priorBalance: Money +type: String  Packet //record  +actOnID: int +amount: Money +addendumID: int +checkNumber: int  -checkValidation  -checkValidation  +rand: Random  +validateCheck(): boolean  +validateCheck(): boolean  +validateCheck(): boolean	+Money(Money) +Money(int, int, boolean)		
+sub(): Money +mult(): Money +div(): Money +equals(): boolean +toString(): String +isGreater(): boolean -resolve() +absMoney(): Money -negSub(): Money -negSub(): Money +setAsRounded(): //getters & setters( dollars, cents, isPositive)  LastTransaction //record  +date: Date +priorBalance: Money +type: String  Packet //record  +actOnID: int +amount: Money +addendumID: int +checkNumber: int  +Packet() +Packet() +Packet(int, Money, int, int)  ClientInfo //record  +clientType: ClientType +customerID: int +isSupervisor: boolean  +ClientInfo(ClientType, id, isSupe)  ClientType: enum  CHECKING SAVINGS  ClientType: enum  ATM Teller  CheckValidation +rand: Random +validateCheck(): boolean			
+div(): Money +equals(): boolean +toString(): String +isGreater(): boolean -resolve() +absMoney(): Money -negAdd(): Money -negAdd(): Money +round(): Money +round(): Money +setAsRounded(): //getters & setters( dollars, cents, isPositive)  ClientInfo //record +clientType: ClientType +customerID: int +isSupervisor: boolean +ClientInfo(ClientType, id, isSupe)  ClientType: enum  At M Teller  CheckValidation  ATM Teller  CheckValidation  -rand: Random +validateCheck(): boolean  -validateCheck(): boolean  -validateCheck(): boolean -validateCheck(): boolean -validateCheck(): boolean -validateCheck(): boolean -validateCheck(): boolean -validateCheck(): boolean -validateCheck(): boolean -validateCheck(): boolean -validateCheck(): boolean -validateCheck(): boolean -validateCheck(): boolean	+sub(): Money +mult(): Money +div(): Money +equals(): boolean +toString(): String +isGreater(): boolean -resolve() +absMoney(): Money -negAdd(): Money -negSub(): Money +round(): Money +setAsRounded(): //getters & setters( dollars,	Packet //record	EmployeeType: enum
+absMoney(): Money -negAdd(): Money -negSub(): Money +setAsRounded(): //getters & setters( dollars, cents, isPositive)  ClientInfo //record  +clientType: ClientType +customerID: int +isSupervisor: boolean  +ClientInfo(ClientType, id, isSupe)  ClientType: enum  CHECKING SAVINGS  CHECKING SAVINGS  CHECKING SAVINGS  ClientType: enum  ATM Teller  ClientType: enum  ATM Teller  CheckValidation  +rand: Random +validateCheck(): boolean		+amount: Money +addendumID: int	
+round(): Money +setAsRounded(): //getters & setters( dollars, cents, isPositive)			
//getters & setters( dollars, cents, isPositive)  +clientType: ClientType +customerID: int +isSupervisor: boolean  +ClientInfo(ClientType, id, isSupe)  LastTransaction //record  +date: Date +priorBalance: Money +changeInBalance: Money +type: String  ClientType: enum  ATM Teller  CheckValidation +rand: Random +validateCheck(): boolean		ClientInfo //record	
+customerID: int +isSupervisor: boolean  +ClientInfo(ClientType, id, isSupe)  LastTransaction //record  +date: Date +priorBalance: Money +changeInBalance: Money +type: String  ClientType: enum  ATM Teller  CheckValidation +rand: Random +validateCheck(): boolean			$\dashv$
LastTransaction //record  +date: Date +priorBalance: Money +changeInBalance: Money +type: String  -tilentTrype, id, isSupe)  CheckValidation +rand: Random +validateCheck(): boolean		+customerID: int	ClientType: enum
+date: Date +priorBalance: Money +changeInBalance: Money +type: String  CheckValidation +rand: Random +validateCheck(): boolean			
+priorBalance: Money +changeInBalance: Money +type: String  +rand: Random +validateCheck(): boolean	LastTransaction //record		
+type: String +validateCheck(): boolean	+priorBalance: Money		CheckValidation
+LastTransaction(Date, Money, Money, String) +validateCheck(): boolean			+rand: Random
	+LastTransaction(Date, Mone	ey, Money, String)	+validateCheck(): boolean

Hessage //record

+perform: enum Process
+packet: Packet
-success: boolean
-id: final int
-sessionID: final String

+Message()
+Message(int sessionID, int id)
+getSuccess(): boolean

Process: enum

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
GET\_ID