Search . . .

MECH BANK

BANK SYSTEM

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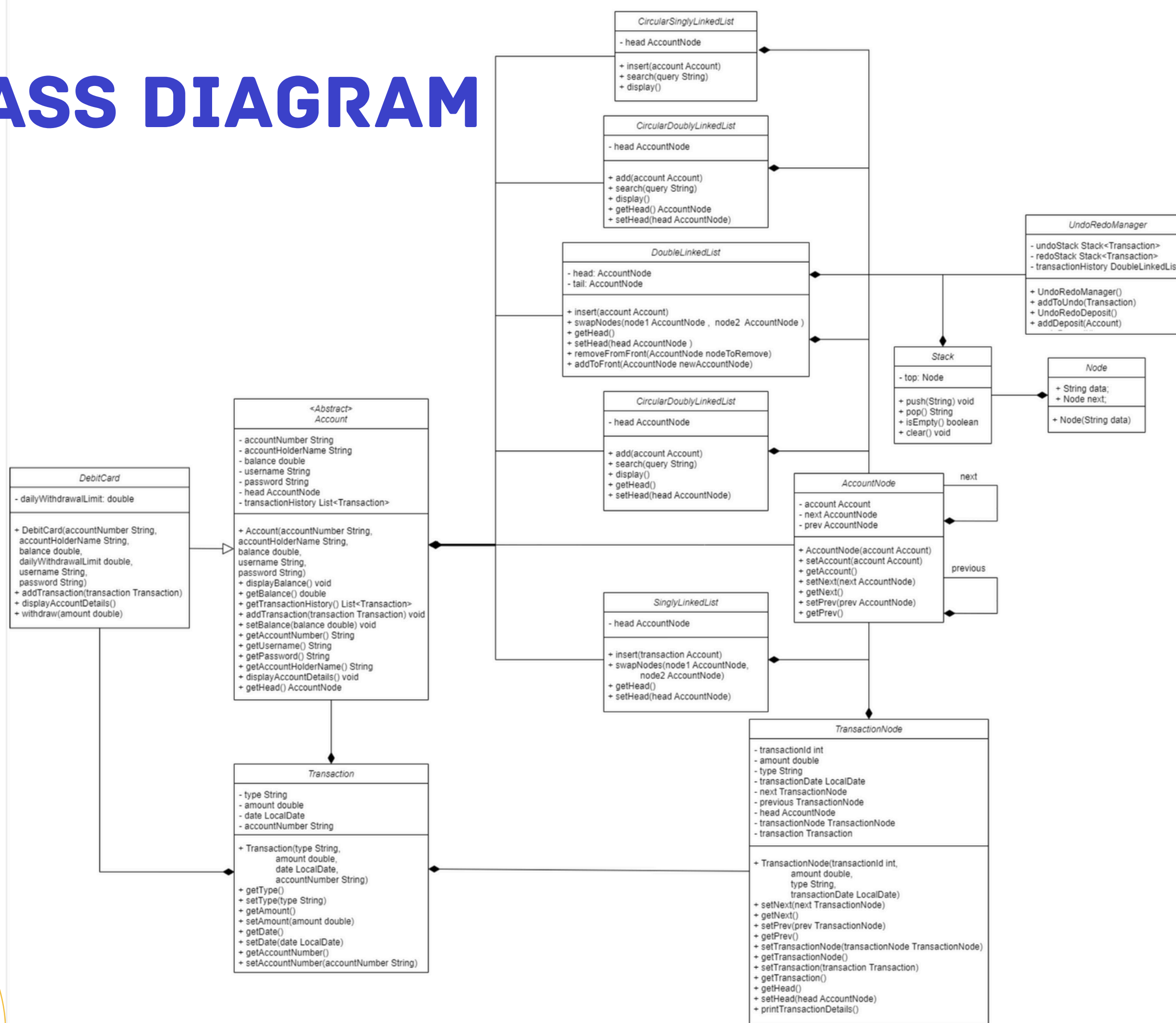Mathew Sebastian

Erikson Tandanu

San Cornelius

THE METHOD THAT USE MECH BANK SYSTEM

- **Inheritance:** allows inheriting methods and data from a class (superclass or parent class) to a new class (subclass or child class).
- **Polymorphism:** allows flexibility and ease in software development.
- **Encapsulation:** all data in the bank is confidential, therefore we use encapsulation in each class to maintain the confidentiality of each attribute in the class.
- **Abstraction:** to overcome complexity by removing unimportant information from the user.
- **Linked List:**
  - **Singly Linked List:** we use a singly linked list to keep track of deposit and withdrawal information.
  - **Doubly Linked List:** to hold all of the transaction data, so user can check each transaction one by one,
  - **Circular Doubly Linked List:** to hold all the user's data. It's like having a circle of information where you can move both forward and backward through the data, and it never ends. It helps us manage and access user data efficiently.
  - **Stack:** data structure that follows the Last In, First Out (LIFO) principle
  - **Queue:** data structure that follows the First In, First Out (FIFO) principle,

CLASS DIAGRAM

CircularSinglyLinkedList

- head AccountNode

+ insert(account Account)
+ search(query String)
+ display()

CircularDoublyLinkedList

- head AccountNode

+ add(account Account)
+ search(query String)
+ display()
+ getHead() AccountNode
+ setHead(head AccountNode)

DoubleLinkedList

- head: AccountNode
- tail: AccountNode

+ insert(account Account)
+ swapNodes(node1 AccountNode , node2 AccountNode)
+ getHead()
+ setHead(head AccountNode)
+ removeFromFront(AccountNode nodeToRemove)
+ addToFront(AccountNode newAccountNode)

UndoRedoManager

- undoStack Stack<Transaction>
- redoStack Stack<Transaction>
- transactionHistory DoubleLinkedList

+ UndoRedoManager()
+ addToUndo(Transaction)
+ UndoRedoDeposit()
+ addDeposit(Account)

Stack

- top: Node

+ push(String) void
+ pop() String
+ isEmpty() boolean
+ clear() void

Node

+ String data;
+ Node next;

+ Node(String data)

<Abstract> Account

- accountNumber String
- accountHolderName String
- balance double
- username String
- password String
- head AccountNode
- transactionHistory List<Transaction>

+ Account(accountNumber String, accountHolderName String, balance double, username String, password String)
+ displayBalance() void
+ getBalance() double
+ getTransactionHistory() List<Transaction>
+ addTransaction(transaction Transaction) void
+ setBalance(balance double) void
+ getAccountNumber() String
+ getUsername() String
+ getPassword() String
+ getAccountHolderName() String
+ displayAccountDetails() void
+ getHead() AccountNode

DebitCard

- dailyWithdrawalLimit: double

+ DebitCard(accountNumber String, accountHolderName String, balance double, dailyWithdrawalLimit double, username String, password String)
+ addTransaction(transaction Transaction)
+ displayAccountDetails()
+ withdraw(amount double)

CircularDoublyLinkedList

- head AccountNode

+ add(account Account)
+ search(query String)
+ display()
+ getHead()
+ setHead(head AccountNode)

AccountNode

- account Account
- next AccountNode
- prev AccountNode

+ AccountNode(account Account)
+ setAccount(account Account)
+ getAccount()
+ setNext(next AccountNode)
+ getNext()
+ setPrev(prev AccountNode)
+ getPrev()

next

previous

SinglyLinkedList

- head AccountNode

+ insert(transaction Account)
+ swapNodes(node1 AccountNode, node2 AccountNode)
+ getHead()
+ setHead(head AccountNode)

Transaction

- type String
- amount double
- date LocalDate
- accountNumber String

+ Transaction(type String, amount double, date LocalDate, accountNumber String)
+ getType()
+ setType(type String)
+ getAmount()
+ setAmount(amount double)
+ getDate()
+ setDate(date LocalDate)
+ getAccountNumber()
+ setAccountNumber(accountNumber String)

TransactionNode

- transactionId int
- amount double
- type String
- transactionDate LocalDate
- next TransactionNode
- previous TransactionNode
- head AccountNode
- transactionNode TransactionNode
- transaction Transaction

+ TransactionNode(transactionId int, amount double, type String, transactionDate LocalDate)
+ setNext(next TransactionNode)
+ getNext()
+ setPrev(prev TransactionNode)
+ getPrev()
+ setTransactionNode(transactionNode TransactionNode)
+ getTransactionNode()
+ setTransaction(transaction Transaction)
+ getTransaction()
+ getHead()
+ setHead(head AccountNode)
+ printTransactionDetails()

LOGIN/SIGN UP MENU

```
WELCOME TO MECH BANK
1. LOGIN
2. SIGNUP
3. KELUAR
CHOICE : 2

PLEASE ENTER YOUR PERSONAL INFORMATION TO SIGN UP
NAME : Matthew
USERNAME : Matthew
PASSWORD : qwerty123
ENTER BALANCE FOR DEBIT $ 1000
ENTER LIMIT WITHDRAWAL FOR DEBIT $ 100
SIGN UP WAS SUCCESSFUL, PLEASE LOGIN TO MAKE A TRANSACTION

WELCOME TO MECH BANK
1. LOGIN
2. SIGNUP
3. KELUAR
CHOICE : 1
USERNAME : Matthew
PASSWORD : qwerty123
LOGIN SUCCESSFUL
SIGN UP WAS SUCCESSFUL, PLEASE LOGIN TO MAKE A TRANSACTION


WELCOME TO MECH BANK
1. SHOW ACCOUNT DETAIL
2. DEPOSIT
3. WITHDRAW
4. CANCEL TRANSACTION
5. TRANSACTION HISTORY
6. FIND ANOTHER ACCOUNT
7. ASK QUESTIONS
8. EXIT
CHOICE :
```

SHOW ACCOUNT DETAIL

```
WELCOME TO MECH BANK
1. SHOW ACCOUNT DETAIL
2. DEPOSIT
3. WITHDRAW
4. CANCEL TRANSACTION
5. TRANSACTION HISTORY
6. FIND ANOTHER ACCOUNT
7. ASK QUESTIONS
8. EXIT
CHOICE : 1
Debit Card Details
Account Number    : AC_35281
Account Name      : Matthew
Balance           : $ 1000.0
Withdrawal Limit : $ 100.0/Days
```

DEPOSIT

```
WELCOME TO MECH BANK
1. SHOW ACCOUNT DETAIL
2. DEPOSIT
3. WITHDRAW
4. CANCEL TRANSACTION
5. TRANSACTION HISTORY
6. FIND ANOTHER ACCOUNT
7. ASK QUESTIONS
8. EXIT
CHOICE : 2
DEPOSIT AMOUNT $ 1000
==== DEPOSIT SUCCESSFUL ====
( New balance $ 2000.0 )
```

WITHDRAW

```
WELCOME TO MECH BANK
1. SHOW ACCOUNT DETAIL
2. DEPOSIT
3. WITHDRAW
4. CANCEL TRANSACTION
5. TRANSACTION HISTORY
6. FIND ANOTHER ACCOUNT
7. ASK QUESTIONS
8. EXIT
CHOICE : 3
WITHDRAWAL AMOUNT $ 1000
==== WITHDRAWAL SUCCESSFUL ====
( Remaining balance $ 1000.0 )
```

TRANSACTION HISTORY

```
WELCOME TO MECH BANK
1. SHOW ACCOUNT DETAIL
2. DEPOSIT
3. WITHDRAW
4. CANCEL TRANSACTION
5. TRANSACTION HISTORY
6. FIND ANOTHER ACCOUNT
7. ASK QUESTIONS
8. EXIT
CHOICE : 5
1. DEPOSIT
2. WITHDRAW
3. ALL
4. BACK
CHOICE : 1
DEPOSIT TRANSACTION HISTORY
--------------------------------
Account Number : AC_35281
--------------------------------
Transaction Code : ed307172 - Deposit - 2024-05-28
Type             : Deposit
Amount           $ 1000.0
Date             : 2024-05-28
--------------------------
1. DEPOSIT
2. WITHDRAW
3. ALL
4. BACK
CHOICE : 2
WITHDRAW TRANSACTION HISTORY
--------------------------------
Account Number : AC_35281
--------------------------------
Transaction Code : c3896dad - Withdrawal - 2024-05-28
Type             : Withdrawal
Amount           $ 1000.0
Date             : 2024-05-28
--------------------------
```

FIND ANOTHER ACCOUNT

```
WELCOME TO MECH BANK
1. SHOW ACCOUNT DETAIL
2. DEPOSIT
3. WITHDRAW
4. CANCEL TRANSACTION
5. TRANSACTION HISTORY
6. FIND ANOTHER ACCOUNT
7. ASK QUESTIONS
8. EXIT
CHOICE : 6
Masukkan nama atau nomor rekening : Hans
Account ditemukan :
Debit Card Details
Account Number    : AC_61078
Account Name      : Hans
Balance           : $ 1000.0
Withdrawal Limit : $ 100.0/Days
```

THANK YOU