ATM INTERFACE:

The ATMs in our cities are built on Python, as we have all seen them. It is a console-based application with five different classes. In order to use the system, the user must enter his or her user ID and pin when it starts. Once the details are entered successfully, ATM functionality is unlocked. As a result of the project, the following operations can be performed:

• Transactions History

• Withdraw

• Deposit

• Transfer

• Quit

CODE:

```
class User:
    def __init__(self, user_id, pin):
        self.user_id = user_id
        self.pin = pin
        self.balance = 0
        self.transaction_history = []
    def deposit(self, amount):
        self.balance += amount
        self.transaction_history.append(f"Deposit: +${amount}")
    def withdraw(self, amount):
        if amount <= self.balance:
            self.balance -= amount
            self.transaction_history.append(f"Withdrawal: -${amount}")
        else:
```

```
            print("Insufficient funds")
    def transfer(self, amount, recipient):
        if amount <= self.balance:
            self.balance -= amount
            recipient.balance += amount
            self.transaction_history.append(f"Transfer: -${amount} to {recipient.user_id}")
            recipient.transaction_history.append(f"Transfer: +${amount} from {self.user_id}")
        else:
            print("Insufficient funds")
    def show_history(self):
        print("Transaction History:")
        for transaction in self.transaction_history:
            print(transaction)
class ATM:
    def __init__(self):
        self.users = {}
        self.current_user = None
    def authenticate_user(self, user_id, pin):
        if user_id in self.users and self.users[user_id].pin == pin:
            self.current_user = self.users[user_id]
            return True
        else:
            return False
    def create_user(self, user_id, pin):
        if user_id not in self.users:
            if len(pin) == 4 and pin.isdigit():  # Check if PIN is 4 digits and contains only numbers
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```
            self.users[user_id] = User(user_id, pin)
            print("User created successfully")
        else:
            print("PIN must be exactly 4 digits and contain only numbers")
    else:
        print("User ID already exists")
def main_menu(self):
    while True:
        print("\nATM Main Menu:")
        print("1. Login")
        print("2. Create User")
        print("3. Quit")
        choice = input("Enter your choice: ")
        if choice == "1":
            user_id = input("Enter your user ID: ")
            pin = input("Enter your PIN: ")
            if self.authenticate_user(user_id, pin):
                self.user_menu()
            else:
                print("Invalid user ID or PIN")
        elif choice == "2":
            user_id = input("Enter your desired user ID: ")
            pin = input("Enter your desired PIN (4 digits): ")
            self.create_user(user_id, pin)
        elif choice == "3":
            break
```

```
        else:
            print("Invalid choice")
    def user_menu(self):
        while True:
            print("\nUser Menu:")
            print("1. View Balance")
            print("2. Deposit")
            print("3. Withdraw")
            print("4. Transfer")
            print("5. View Transaction History")
            print("6. Logout")
            choice = input("Enter your choice: ")
            if choice == "1":
                print(f"Your balance is ${self.current_user.balance}")
            elif choice == "2":
                try:
                    amount = float(input("Enter the amount to deposit: "))
                    if amount > 0:
                        self.current_user.deposit(amount)
                        print("Deposit successful")
                    else:
                        print("Invalid amount")
                except ValueError:
                    print("Invalid input. Please enter a valid amount.")
            elif choice == "3":
                try:
```

```
            amount = float(input("Enter the amount to withdraw: "))
            if amount > 0:
                self.current_user.withdraw(amount)
            else:
                print("Invalid amount")
        except ValueError:
            print("Invalid input. Please enter a valid amount.")
    elif choice == "4":
        recipient_id = input("Enter the recipient's user ID: ")
        try:
            amount = float(input("Enter the amount to transfer: "))
            if amount > 0:
                recipient = self.users.get(recipient_id)
                if recipient:
                    self.current_user.transfer(amount, recipient)
                else:
                    print("Recipient not found")
            else:
                print("Invalid amount")
        except ValueError:
            print("Invalid input. Please enter a valid amount.")
    elif choice == "5":
        self.current_user.show_history()
    elif choice == "6":
        self.current_user = None
        break
```

```
        else:
            print("Invalid choice")
# Main code
if __name__ == "__main__":
    atm = ATM()
    atm.main_menu()
```

```
ATM Main Menu:
1. Login
2. Create User
3. Quit
Enter your choice: 2
Enter your desired user ID: 12345
Enter your desired PIN (4 digits): dfg
PIN must be exactly 4 digits and contain only numbers
ATM Main Menu:
1. Login
2. Create User
3. Quit
Enter your choice: 2
Enter your desired user ID: 1234
Enter your desired PIN (4 digits): 1234
User created successfully
ATM Main Menu:
1. Login
2. Create User
3. Quit
```

Enter your choice: 2

Enter your desired user ID: 1111

Enter your desired PIN (4 digits): 2222

User created successfully

ATM Main Menu:

1. Login

2. Create User

3. Quit

Enter your choice: 1

Enter your user ID: 1234

Enter your PIN: 1234

User Menu:

1. View Balance

2. Deposit

3. Withdraw

4. Transfer

5. View Transaction History

6. Logout

Enter your choice: 2

Enter the amount to deposit: 60000

Deposit successful

User Menu:

1. View Balance

2. Deposit

3. Withdraw

4. Transfer

5. View Transaction History

6. Logout

Enter your choice: 4

Enter the recipient's user ID: 11111

Enter the amount to transfer: 2334

Recipient not found

User Menu:

1. View Balance

2. Deposit

3. Withdraw

4. Transfer

5. View Transaction History

6. Logout

Enter your choice: 4

Enter the recipient's user ID: 1111

Enter the amount to transfer: 4356

User Menu:

1. View Balance

2. Deposit

3. Withdraw

4. Transfer

5. View Transaction History

6. Logout

Enter your choice: 5

Transaction History:

Deposit: +$60000.0

Transfer: -$4356.0 to 1111

User Menu:

1. View Balance

2. Deposit

3. Withdraw

4. Transfer

5. View Transaction History

6. Logout

Enter your choice: 1

Your balance is $55644.0

User Menu:

1. View Balance

2. Deposit

3. Withdraw

4. Transfer

5. View Transaction History

6. Logout

Enter your choice: 5

Transaction History:

Deposit: +$60000.0

Transfer: -$4356.0 to 1111

User Menu:

1. View Balance

2. Deposit

3. Withdraw

4. Transfer

5. View Transaction History

6. Logout

Enter your choice: 6

ATM Main Menu:

1. Login

2. Create User

3. Quit

Enter your choice: 3