

Name : Muhammad Tamjeed Hussain

Roll No : 333899

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class BankAccount:
    def __init__(self, account_number, account_holder,
initial_balance=0):
        self.account_number = account_number
        self.account_holder = account_holder
        self.balance = initial_balance
        self.transactions = []

    def deposit(self, amount):
        if amount > 0:
            self.balance += amount
            self.add_transaction(f"Deposit: RS:{amount}")
            print(f"RS:{amount} deposited successfully. New balance:
RS:{self.balance}")
        else:
            print("Invalid deposit amount.")

    def withdraw(self, amount):
        if amount > 0 and amount <= self.balance:
            self.balance -= amount
            self.add_transaction(f"Withdrawal: RS:{amount}")
            print(f"RS:{amount} withdrawn successfully. New balance:
RS:{self.balance}")
        else:
            print("Insufficient funds or invalid amount.")

    def add_transaction(self, description):
        self.transactions.append(description)

    def print_statement(self):
        print(f"\nStatement for Account {self.account_number}
({self.account_holder}):")
        for transaction in self.transactions:
            print(transaction)
        print(f"Current Balance: RS:{self.balance}\n")

class Bank:
    def __init__(self):
        self.accounts = {}
        self.next_account_number = 1001

    def open_account(self, account_holder):
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        account = BankAccount(self.next_account_number,
account_holder)
        self.accounts[self.next_account_number] = account
        print(f"Account has been created successfully! Account Number:
{self.next_account_number}")
        self.next_account_number += 1

    def get_account(self, account_number):
        return self.accounts.get(account_number, None)

    def transfer(self, sender_account_number, receiver_account_number,
amount):
        sender = self.get_account(sender_account_number)
        receiver = self.get_account(receiver_account_number)
        if sender and receiver:
            if sender.balance >= amount:
                sender.withdraw(amount)
                receiver.deposit(amount)
                print(f"Transfer of RS:{amount} from Account
{sender_account_number} to {receiver_account_number} successful!")
            else:
                print("Insufficient balance in sender's account.")
        else:
            print("Invalid account number(s).")

    def admin_check_total_deposit(self):
        total_deposit = sum(account.balance for account in
self.accounts.values())
        print(f"Total deposits in the bank: RS:{total_deposit}")

    def admin_check_total_accounts(self):
        print(f"Total number of accounts in the bank:
{len(self.accounts)}")

def main():
    bank = Bank()

    while True:
        print("\n--- Welcome to The Banking System Menu ---")
        print("1. Open an Account")
        print("2. Deposit Money")
        print("3. Withdraw Money")
        print("4. Check Balance")
        print("5. Transfer Money")
        print("6. View Transaction Statement")
        print("7. Admin: Check Total Deposits")
        print("8. Admin: Check Total Accounts")
        print("9. Exit")

        choice = input("Enter your choice: ")

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if choice == "1":
    name = input("Enter account holder's name: ")
    bank.open_account(name)
elif choice == "2":
    account_number = int(input("Enter account number: "))
    account = bank.get_account(account_number)
    if account:
        amount = float(input("Enter deposit amount: "))
        account.deposit(amount)
    else:
        print("Invalid account number.")
elif choice == "3":
    account_number = int(input("Enter account number: "))
    account = bank.get_account(account_number)
    if account:
        amount = float(input("Enter withdrawal amount: "))
        account.withdraw(amount)
    else:
        print("Invalid account number.")
elif choice == "4":
    account_number = int(input("Enter account number: "))
    account = bank.get_account(account_number)
    if account:
        print(f"Current balance: RS:{account.balance}")
    else:
        print("Invalid account number.")
elif choice == "5":
    sender_account = int(input("Enter sender's account number:
"))
    receiver_account = int(input("Enter receiver's account
number: "))
    amount = float(input("Enter transfer amount: "))
    bank.transfer(sender_account, receiver_account, amount)
elif choice == "6":
    account_number = int(input("Enter account number: "))
    account = bank.get_account(account_number)
    if account:
        account.print_statement()
    else:
        print("Invalid account number.")
elif choice == "7":
    bank.admin_check_total_deposit()
elif choice == "8":
    bank.admin_check_total_accounts()
elif choice == "9":
    print("Exiting the banking system. Goodbye!")
    break
else:

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        print("Invalid choice. Please try again.")

if __name__ == "__main__":
    main()

--- Welcome to The Banking System Menu ---
1. Open an Account
2. Deposit Money
3. Withdraw Money
4. Check Balance
5. Transfer Money
6. View Transaction Statement
7. Admin: Check Total Deposits
8. Admin: Check Total Accounts
9. Exit

Enter your choice: 1
Enter account holder's name: Raqib Ali

Account has been created successfully! Account Number: 1001

--- Welcome to The Banking System Menu ---
1. Open an Account
2. Deposit Money
3. Withdraw Money
4. Check Balance
5. Transfer Money
6. View Transaction Statement
7. Admin: Check Total Deposits
8. Admin: Check Total Accounts
9. Exit

Enter your choice: 1
Enter account holder's name: Muhammad Tamjeed Hussain

Account has been created successfully! Account Number: 1002

--- Welcome to The Banking System Menu ---
1. Open an Account
2. Deposit Money
3. Withdraw Money
4. Check Balance
5. Transfer Money
6. View Transaction Statement
7. Admin: Check Total Deposits
8. Admin: Check Total Accounts
9. Exit
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Enter your choice: 2
Enter account number: 1001
Enter deposit amount: 5000

RS:5000.0 deposited successfully. New balance: RS:5000.0

--- Welcome to The Banking System Menu ---

1. Open an Account
2. Deposit Money
3. Withdraw Money
4. Check Balance
5. Transfer Money
6. View Transaction Statement
7. Admin: Check Total Deposits
8. Admin: Check Total Accounts
9. Exit

Enter your choice: 3
Enter account number: 1001
Enter withdrawal amount: 1500

RS:1500.0 withdrawn successfully. New balance: RS:3500.0

--- Welcome to The Banking System Menu ---

1. Open an Account
2. Deposit Money
3. Withdraw Money
4. Check Balance
5. Transfer Money
6. View Transaction Statement
7. Admin: Check Total Deposits
8. Admin: Check Total Accounts
9. Exit

Enter your choice: 4
Enter account number: 5

Invalid account number.

--- Welcome to The Banking System Menu ---

1. Open an Account
2. Deposit Money
3. Withdraw Money
4. Check Balance
5. Transfer Money
6. View Transaction Statement
7. Admin: Check Total Deposits
8. Admin: Check Total Accounts
9. Exit

Enter your choice: 4
Enter account number: 1002

Current balance: RS:0

--- Welcome to The Banking System Menu ---

1. Open an Account
2. Deposit Money
3. Withdraw Money
4. Check Balance
5. Transfer Money
6. View Transaction Statement
7. Admin: Check Total Deposits
8. Admin: Check Total Accounts
9. Exit

Enter your choice: 5
Enter sender's account number: 1001
Enter receiver's account number: 1002
Enter transfer amount: 1500

RS:1500.0 withdrawn successfully. New balance: RS:2000.0
RS:1500.0 deposited successfully. New balance: RS:1500.0
Transfer of RS:1500.0 from Account 1001 to 1002 successful!

--- Welcome to The Banking System Menu ---

1. Open an Account
2. Deposit Money
3. Withdraw Money
4. Check Balance
5. Transfer Money
6. View Transaction Statement
7. Admin: Check Total Deposits
8. Admin: Check Total Accounts
9. Exit

Enter your choice: 6
Enter account number: 1001

Statement for Account 1001 (Raqib Ali):
Deposit: RS:5000.0
Withdrawal: RS:1500.0
Withdrawal: RS:1500.0
Current Balance: RS:2000.0

--- Welcome to The Banking System Menu ---

1. Open an Account
2. Deposit Money
3. Withdraw Money

4. Check Balance
5. Transfer Money
6. View Transaction Statement
7. Admin: Check Total Deposits
8. Admin: Check Total Accounts
9. Exit

Enter your choice: 7

Total deposits in the bank: RS:3500.0

--- Welcome to The Banking System Menu ---

1. Open an Account
2. Deposit Money
3. Withdraw Money
4. Check Balance
5. Transfer Money
6. View Transaction Statement
7. Admin: Check Total Deposits
8. Admin: Check Total Accounts
9. Exit

Enter your choice: 8

Total number of accounts in the bank: 2

--- Welcome to The Banking System Menu ---

1. Open an Account
2. Deposit Money
3. Withdraw Money
4. Check Balance
5. Transfer Money
6. View Transaction Statement
7. Admin: Check Total Deposits
8. Admin: Check Total Accounts
9. Exit

Enter your choice: 9

Exiting the banking system. Goodbye!