In [18]:
```python
class BankAccount:
    def __init__(self, account_number, pin, balance=0.0):
        self.account_number = account_number
        self.pin = pin
        self.balance = balance

    def check_balance(self):
        return f"Your current balance is ${self.balance}"

    def deposit(self, amount):
        if amount > 0:
            self.balance += amount
            return f"Deposited ${amount}. {self.check_balance()}"
        else:
            return "Invalid deposit amount."

    def withdraw(self, amount):
        if amount <= 0:
            return "Invalid withdrawal amount."
        elif amount > self.balance:
            return "Insufficient funds."
        else:
            self.balance -= amount
            return f"Withdrew ${amount}. {self.check_balance()}"

    def change_pin(self, old_pin, new_pin):
        if self.pin == old_pin:
            self.pin = new_pin
            return "PIN successfully changed."
        else:
            return "Old PIN is incorrect."

def login(account_number, pin, accounts_db):
    if account_number in accounts_db:
        account = accounts_db[account_number]
        if account.pin == pin:
            return account
        else:
            return "Incorrect PIN."
    else:
        return "Account not found."

def main():
    # Sample Accounts (Account Number -> BankAccount)
    accounts_db = {
        1001: BankAccount(1001, "1234", 500000.0),
        1002: BankAccount(1002, "5678", 30000.0),
        1003: BankAccount(1003, "2468", 1800000.0),
        1004: BankAccount(1004, "0000", 300000000.0)
    }

    print("Welcome to the Python Banking System")

    # User Login
    account_number = int(input("Enter your account number: "))
    pin = input("Enter your PIN: ")

    account = login(account_number, pin, accounts_db)
```

```python
        if isinstance(account, BankAccount):
            print(f"Welcome! Account number: {account.account_number}")
            while True:
                print("\nPlease choose an option:")
                print("1. Check Balance")
                print("2. Deposit Money")
                print("3. Withdraw Money")
                print("4. Change PIN")
                print("5. Exit")

                choice = input("Enter your choice: ")

                if choice == "1":
                    print(account.check_balance())

                elif choice == "2":
                    amount = float(input("Enter amount to deposit: "))
                    print(account.deposit(amount))

                elif choice == "3":
                    amount = float(input("Enter amount to withdraw: "))
                    print(account.withdraw(amount))

                elif choice == "4":
                    old_pin = input("Enter old PIN: ")
                    new_pin = input("Enter new PIN: ")
                    print(account.change_pin(old_pin, new_pin))

                elif choice == "5":
                    print("Thank you for using the banking system.")
                    break

                else:
                    print("Invalid choice. Please try again.")
        else:
            print(account)  # Display login error message (Incorrect PIN or Account

if __name__ == "__main__":
    main()
```

```
Welcome to the Python Banking System
Welcome! Account number: 1001

Please choose an option:
1. Check Balance
2. Deposit Money
3. Withdraw Money
4. Change PIN
5. Exit
Your current balance is $500000.0

Please choose an option:
1. Check Balance
2. Deposit Money
3. Withdraw Money
4. Change PIN
5. Exit
```

```
Deposited $1520000.0. Your current balance is $2020000.0

Please choose an option:
1. Check Balance
2. Deposit Money
3. Withdraw Money
4. Change PIN
5. Exit
Withdrew $150000.0. Your current balance is $1870000.0

Please choose an option:
1. Check Balance
2. Deposit Money
3. Withdraw Money
4. Change PIN
5. Exit
PIN successfully changed.

Please choose an option:
1. Check Balance
2. Deposit Money
3. Withdraw Money
4. Change PIN
5. Exit
Thank you for using the banking system.
```

In [ ]: