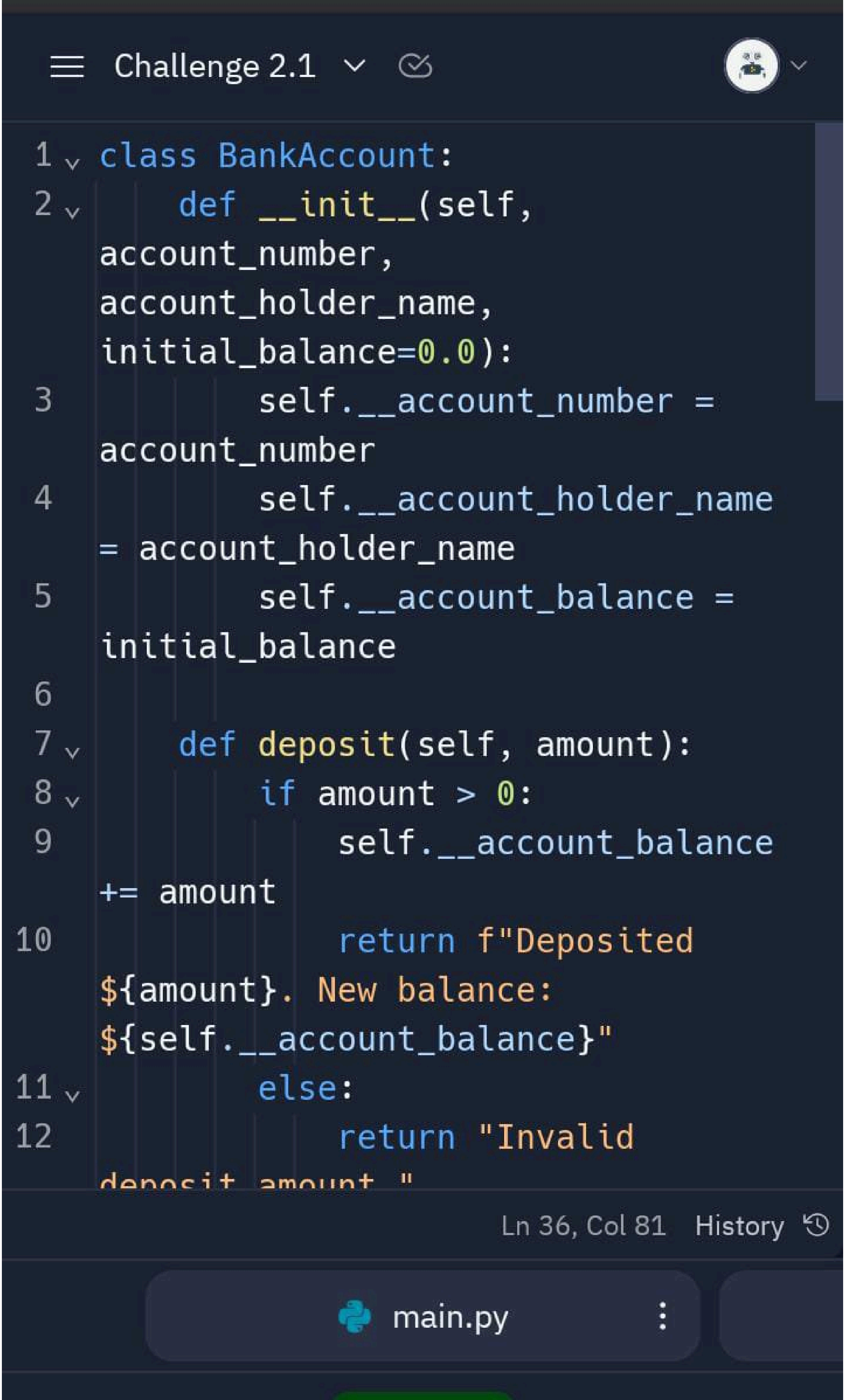
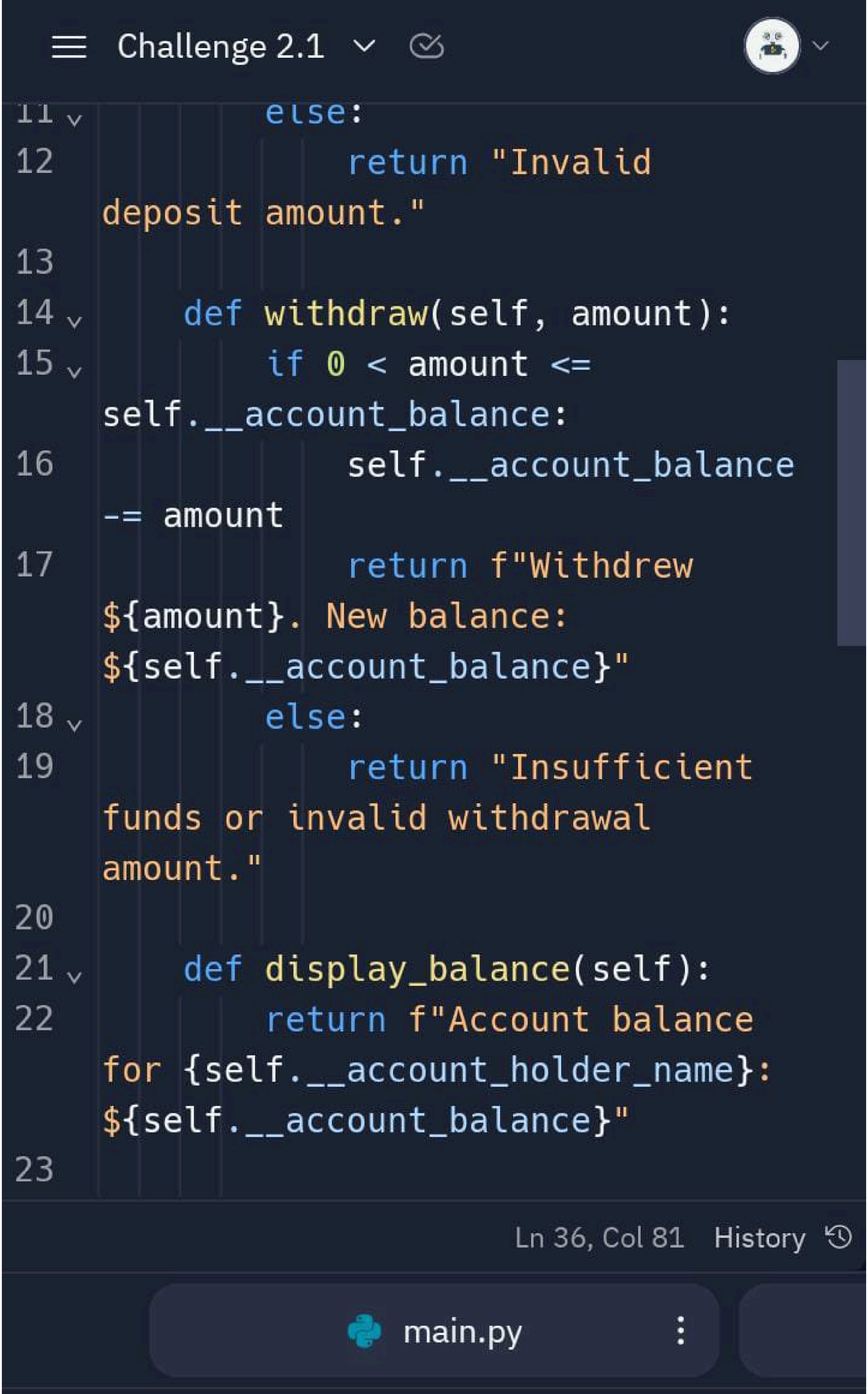


```python
class BankAccount:
    def __init__(self, account_number, account_holder_name, initial_balance=0.0):
        self.__account_number = account_number
        self.__account_holder_name = account_holder_name
        self.__account_balance = initial_balance

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

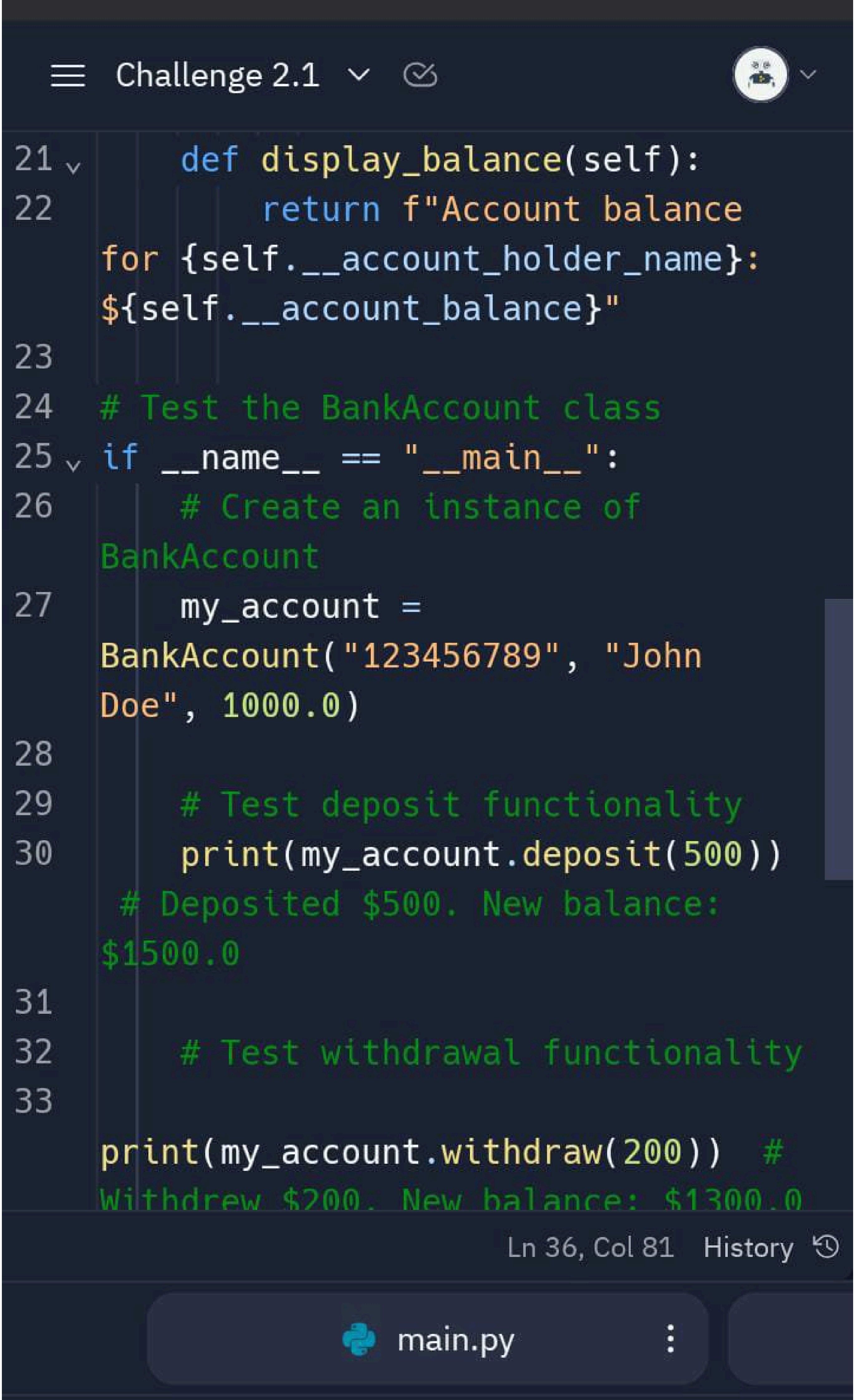


```python
        else:
            return "Invalid deposit amount."

    def withdraw(self, amount):
        if 0 < amount <= self.__account_balance:
            self.__account_balance -= amount
            return f"Withdrew ${amount}. New balance: ${self.__account_balance}"
        else:
            return "Insufficient funds or invalid withdrawal amount."

    def display_balance(self):
        return f"Account balance for {self.__account_holder_name}: ${self.__account_balance}"

```

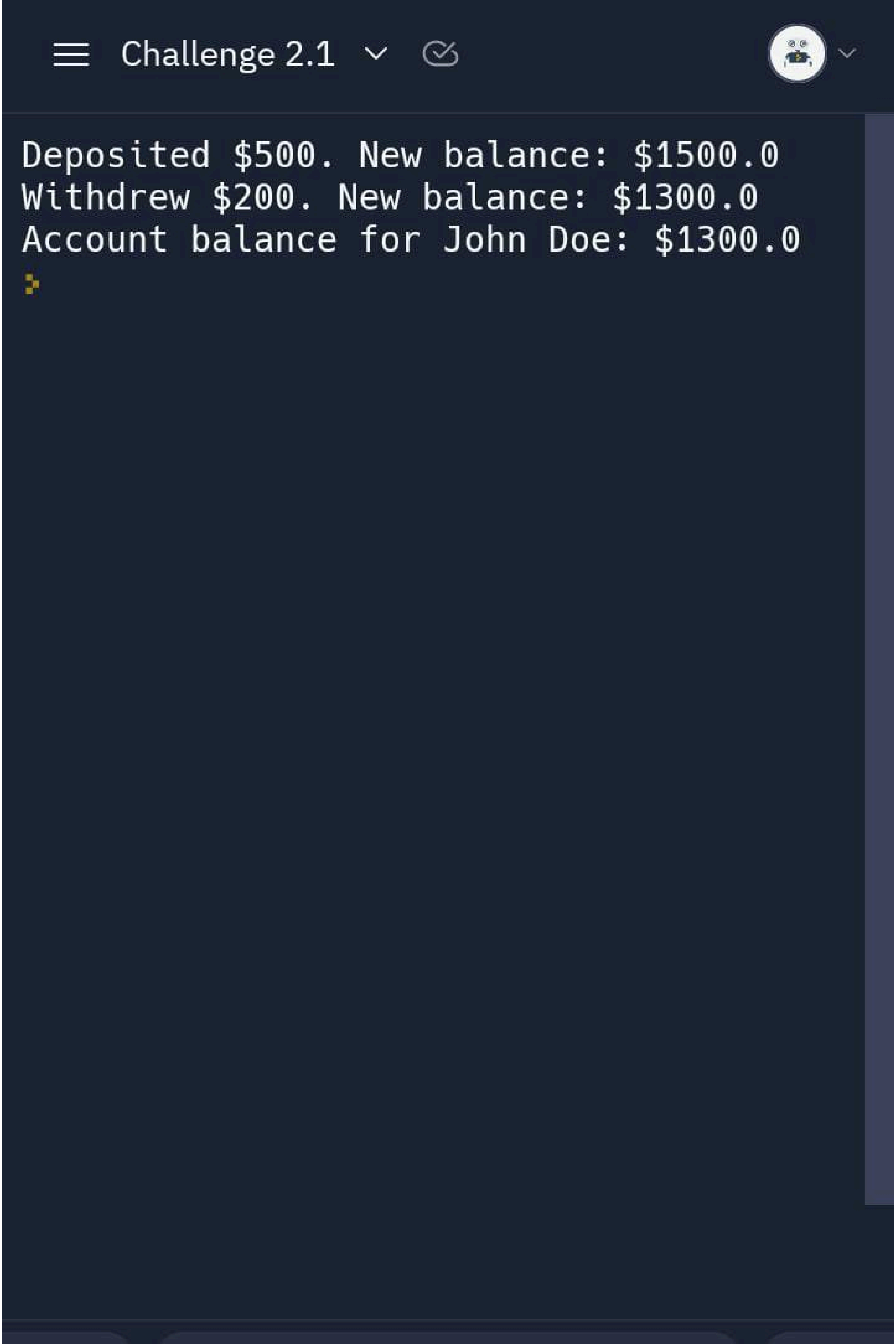


```
    def display_balance(self):
        return f"Account balance for {self.__account_holder_name}: ${self.__account_balance}"

# Test the BankAccount class
if __name__ == "__main__":
    # Create an instance of BankAccount
    my_account = BankAccount("123456789", "John Doe", 1000.0)

    # Test deposit functionality
    print(my_account.deposit(500))  # Deposited $500. New balance: $1500.0

    # Test withdrawal functionality
    print(my_account.withdraw(200))  # Withdrew $200. New balance: $1300.0
```



```
Deposited $500. New balance: $1500.0
Withdrew $200. New balance: $1300.0
Account balance for John Doe: $1300.0
>
```