Cairo University   Faculty of Computers and Artificial Intelligence

Software design specification document

2023

Project Team

ID	Name	Email
20210274	Amr Khaled El-Hennawi	amr.k.elhennawi@gmail.com
20210335	Mohamed Hussein Hassan	mohamed.h.eladwy@gmail.com
20210057	Adham Wael Mansour	11410120210057@stud.cu.edu.eg
20210485	Youssef Mohamed Morad	youssefmohammed747@gmail.com

Contents

Class diagram design
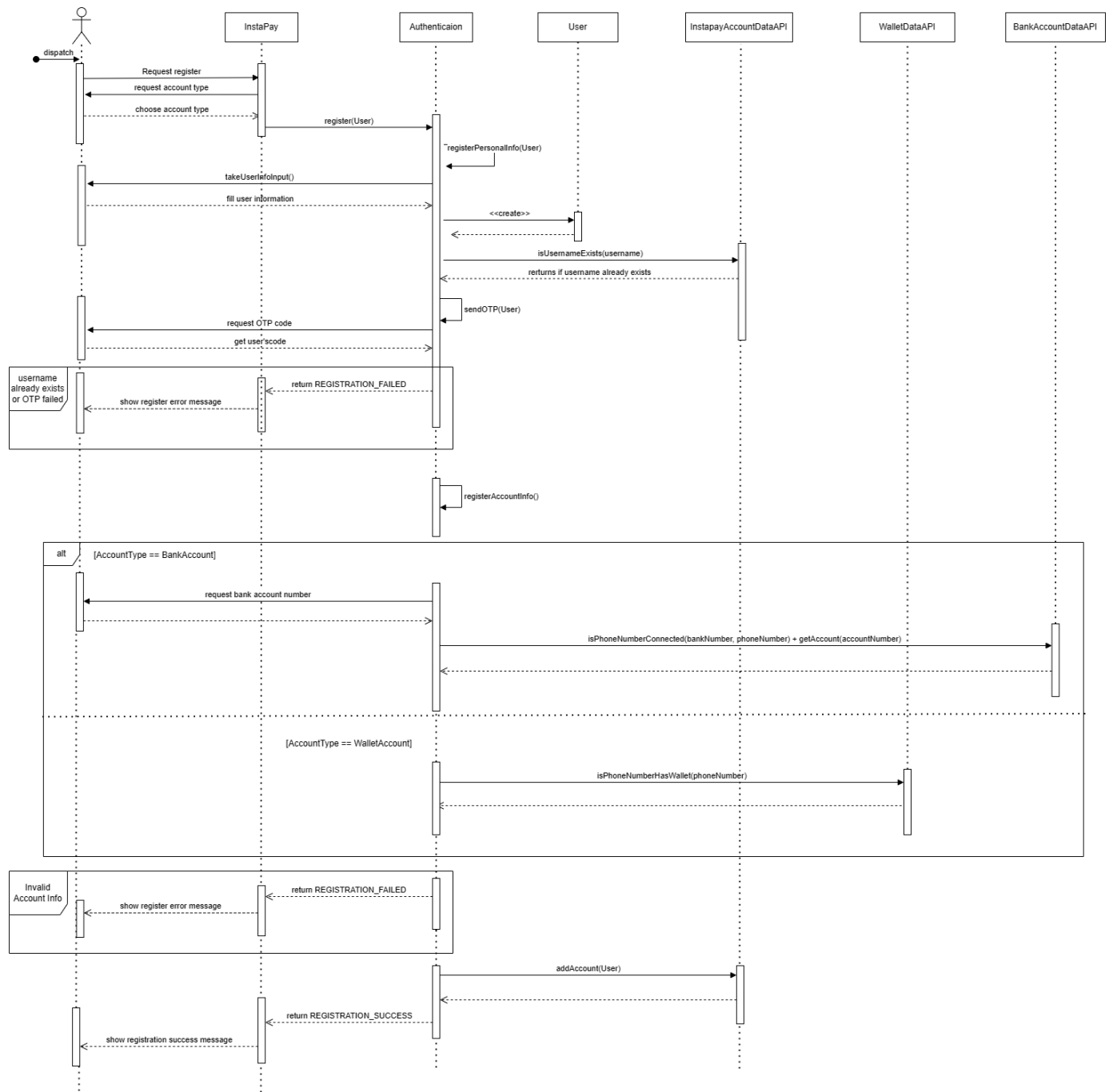
Class diagram Explanation

In this class diagram, two design patterns were employed. The template method pattern is utilized in the Authentication, BankAccountAuthentication, and WalletAccountAuthentication classes within the Registration context. This design choice stems from the presence of identical steps in the registration process, differing only in the type of account.

Additionally, the strategy pattern is applied to the Account, BankAccount, WalletAccount, Bill, ElectricityBill, GasBill, and WaterBill classes. This strategic design decision provides flexibility for altering the account and bill types during runtime, promoting loose coupling, and enhancing reusability.
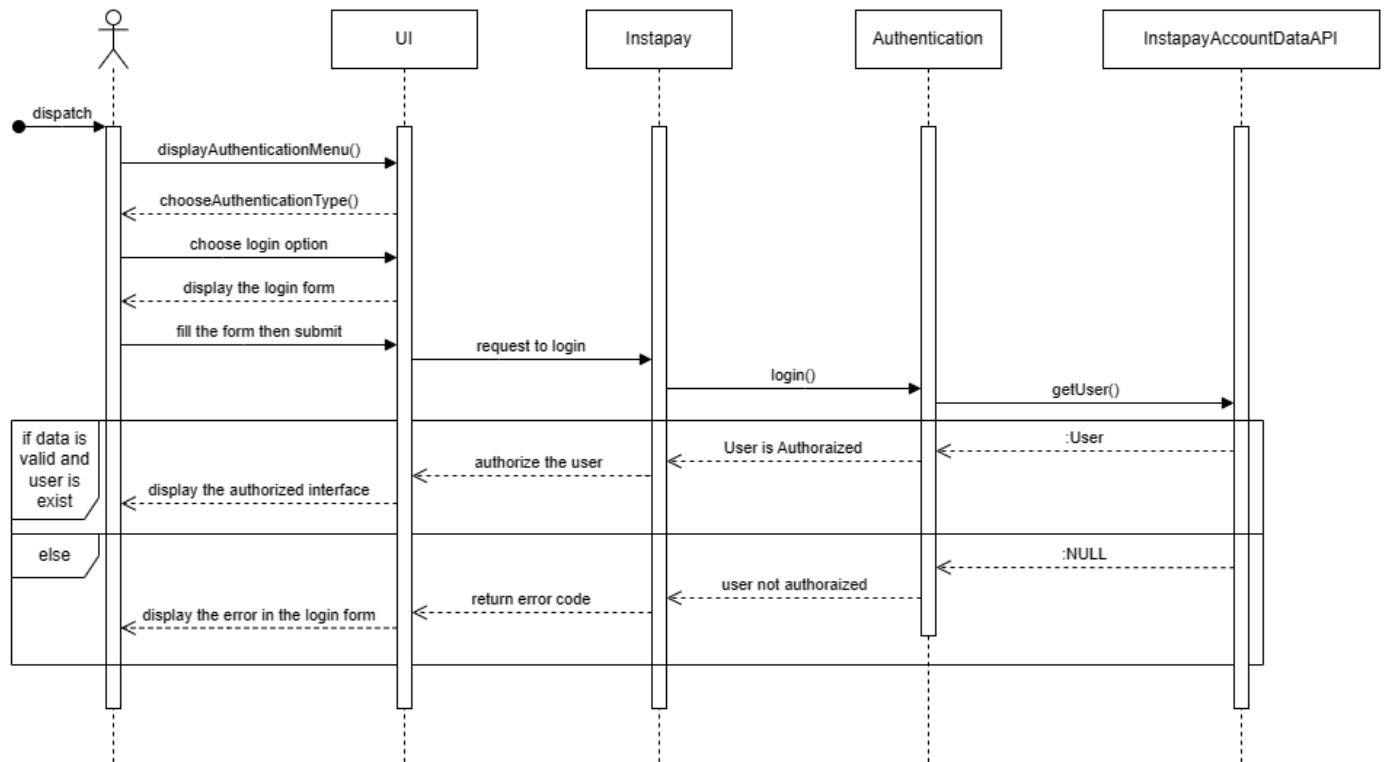
The template method pattern, employed in the register method of the Authentication class facilitates code reuse and reduces code duplicates by encapsulating the common steps between different registration processes (such as User information gathering). while the strategy pattern in the Account and Bill classes allows for dynamic behavior modification, supporting a more adaptable and maintainable system architecture. This combination of design patterns contributes to a robust and scalable class diagram.
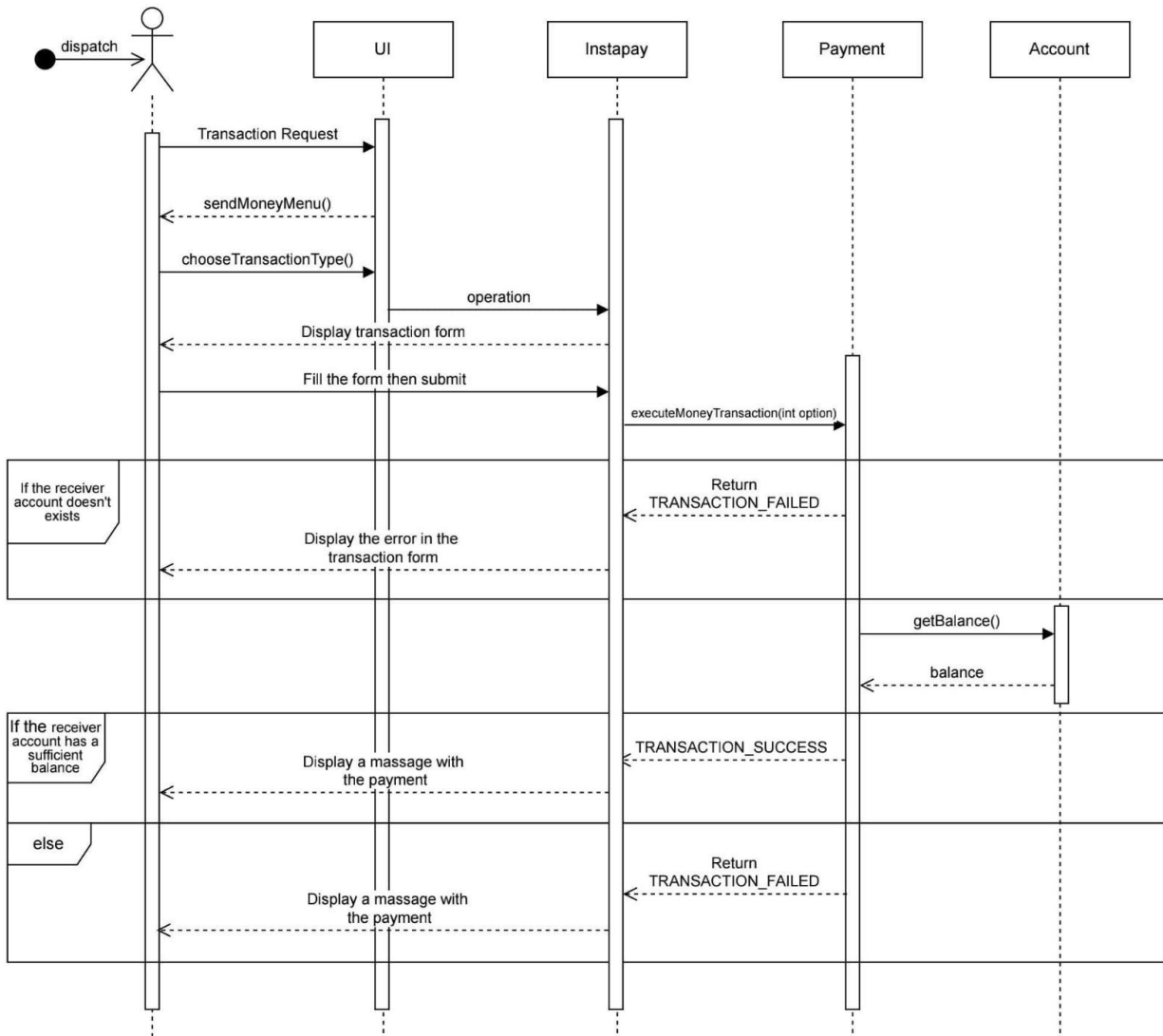
Sequence diagrams design
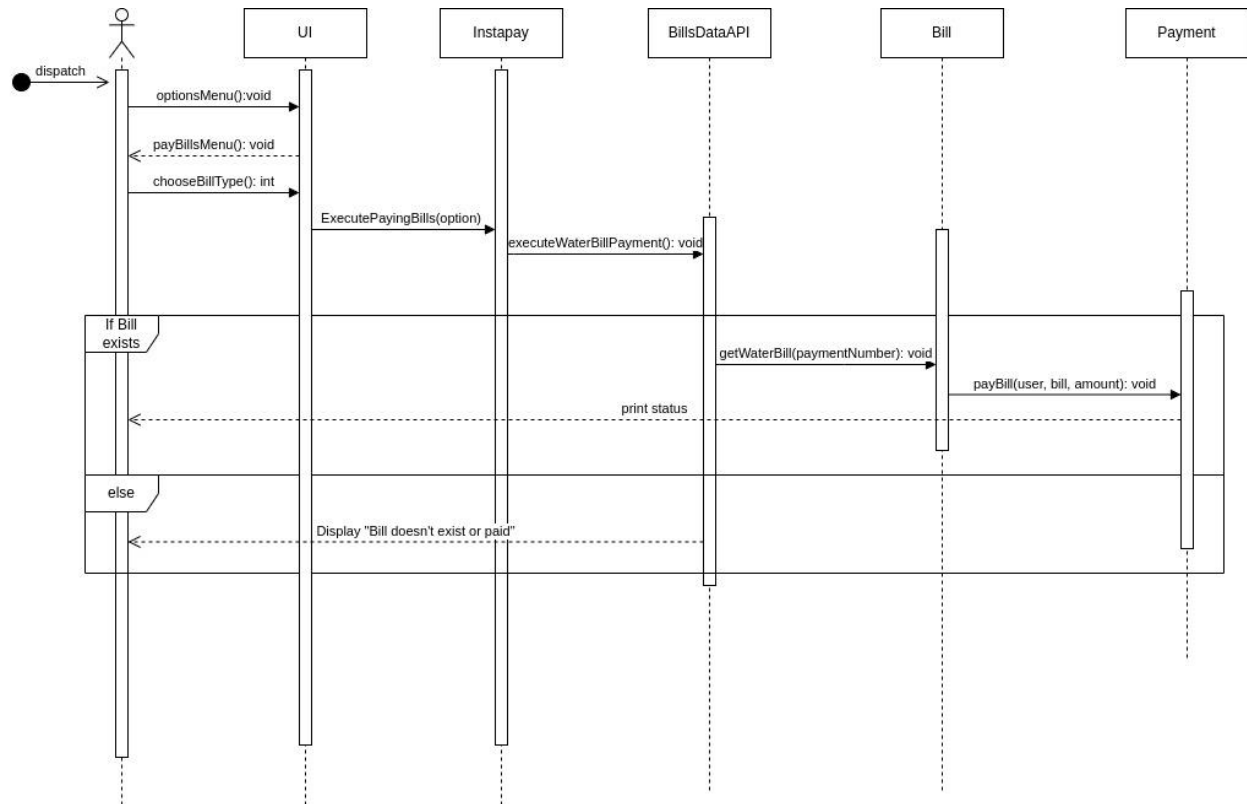
1- Register sequence diagram

2- Login sequence diagram

3- Payment Transaction sequence diagram

4- Bills sequence diagram

Github repository link

- https://github.com/moheladwy/Instapay