UNIVERSITÀ
DEGLI STUDI
DE L'AQUILA

Dipartimento di Ingegneria e Scienze
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Università degli Studi dell'Aquila

Online Library System

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Corso : Service Oriented For Service Engineering

Docente : *Marco Autili*

Project GitHub Repository:

https://github.com/valerio-crescia/OnlineLibrary

Progetto realizzato da:

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Requirements

Functional Requirements

1 The customer can consult all books in the archive.

Priority: **Medium**

2 The customer can see the details of each individual book.

Priority: **Medium**

3 The customer can read reviews for each individual book.

Priority: **Low**

4 The customer has to log on to the site to buy a book.

Priority: **Medium**

5 The system must provide a login.

Priority: **Medium**

4 The customer can buy books.

Priority: **High**

The customer must be able to buy a book in the system, so the system must be able to pay for the book with a card and must be able to manage the shipment.

Non Functional Requirements

1 Security.

Priority: **Medium**

Customers must log in to buy books.

2 The system must include a web client and a mobile application.

Priority: **High**

3 The System must provide both Rest and SOAP services.
Priority: **High**

4 The system must be implemented using maven.

Priority: **High**

5 The system must have at least three services and two prosumers.

Priority: **High**

USE CASE DIAGRAM

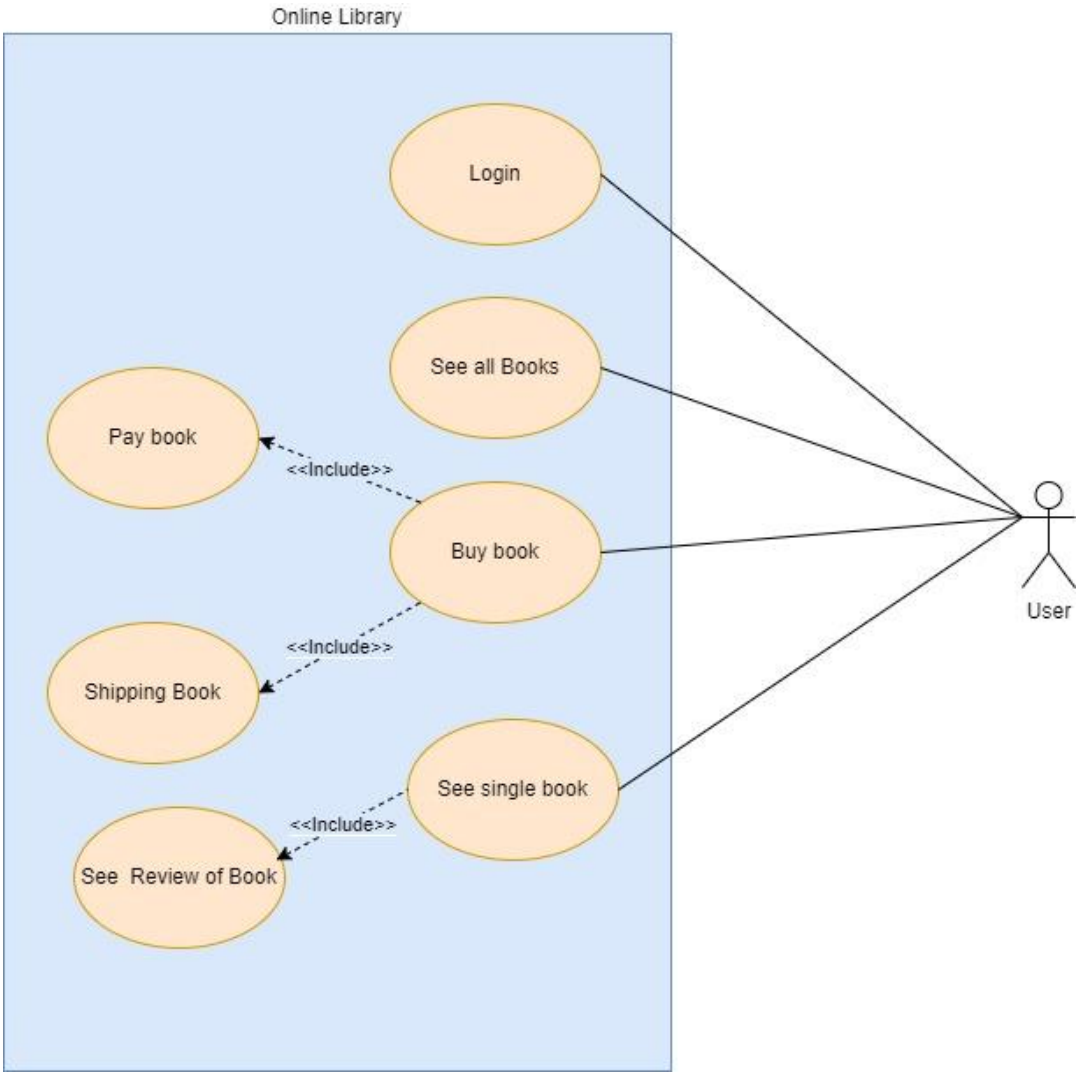

Figure 1: Use Case Diagram

In this scenario we can see that we have a user who can perform the following actions: login, view all books, buy a book, view a single book.

We note that the action of buying a book involves paying for the chosen book and shipping the book.

The action of viewing the individual book includes the fact that you can also see all the reviews linked to it.

SYSTEM ARCHITECTURE

Component Diagram

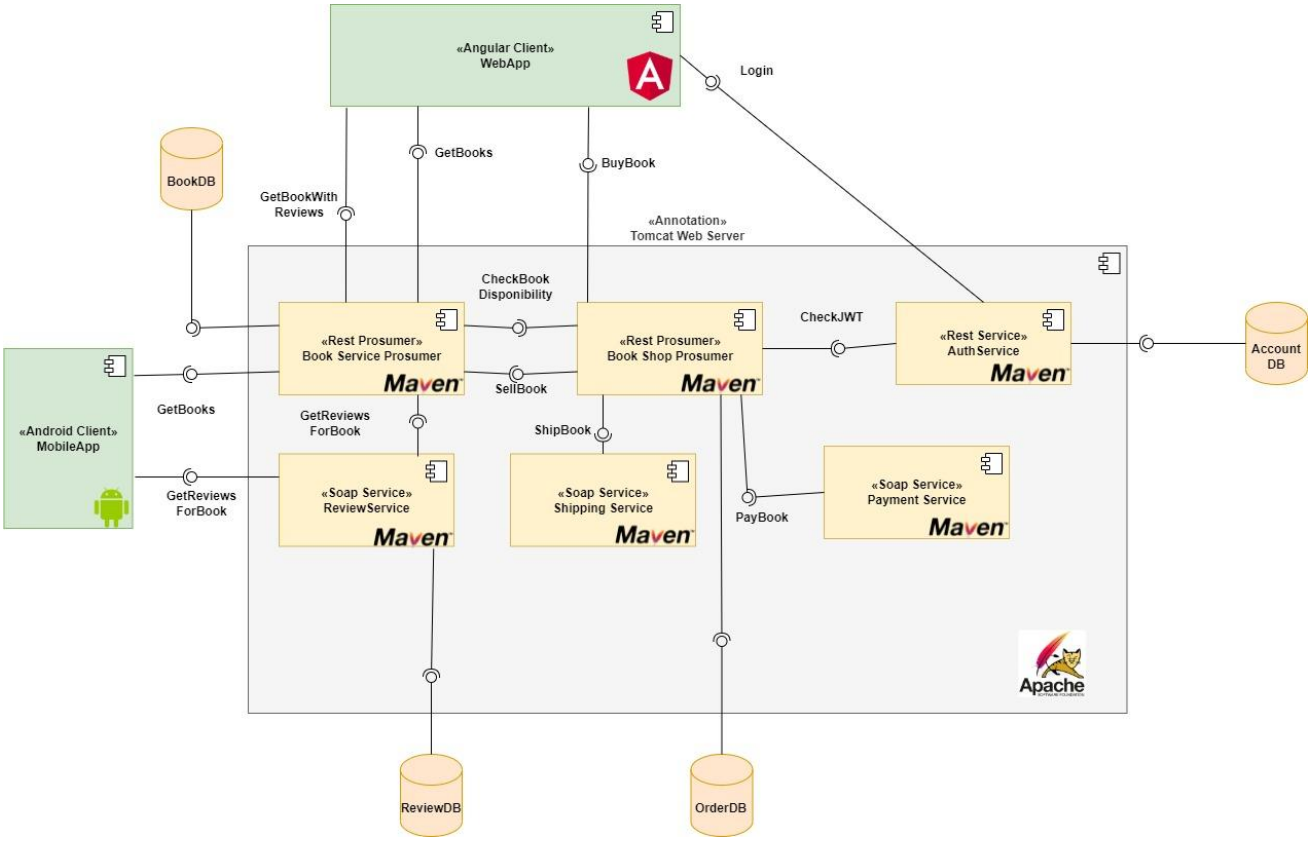

Figure 2: Online Library System - Component Diagram

Figure 2 shows the component diagram of the system. The services part is made up of 6 subsystems which are in charge of managing a certain functionality of the system.

Auth Service

This part of the system provides the functionality for login and user management. This component provides JWT tokens to logged in users and checks if a token is valid.

Payment Service

This component is responsible for carrying out the payment of the object, in our case a book, via a SOAP API.

Shipping Service

This component is in charge of managing book shipments in the store via a SOAP API.

Review Service

This component is responsible for managing the reviews of books in the store.

Book Service Prosumer

This component handles the management of the books in the store with a REST api to be exposed to the various clients and servers in the system.

Book Shop Prosumer

Component that manages the various book orders received via a REST API.

Web App

The web client that provides the user with access to the various services of the system.

Mobile App

Mobile application that displays reviews for all books in the system.

Sequence Diagram

Get Book With Reviews

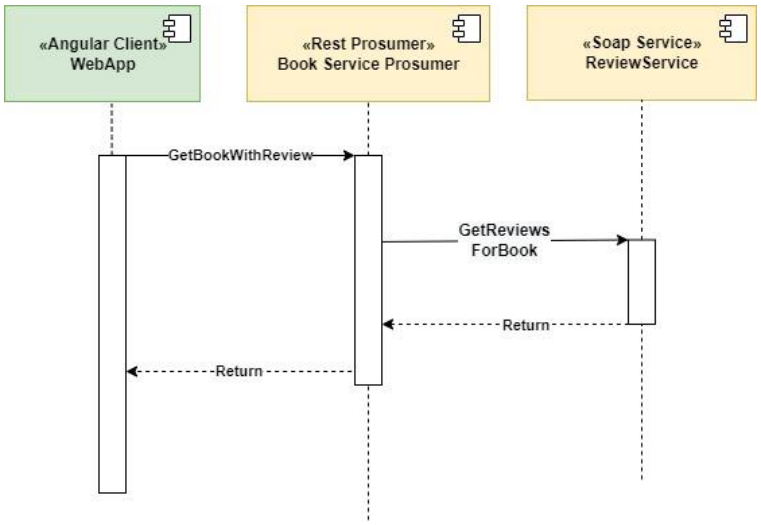

Figure 3: GetBookWithReview - Sequence Diagram

In this operation we can see that the client performs a rest call on the prosumer book Service, before completing the call, makes a soap call to the service that handles the various reviews. Finally, the service returns all the reviews in the system and the information about the book.

Buy Book

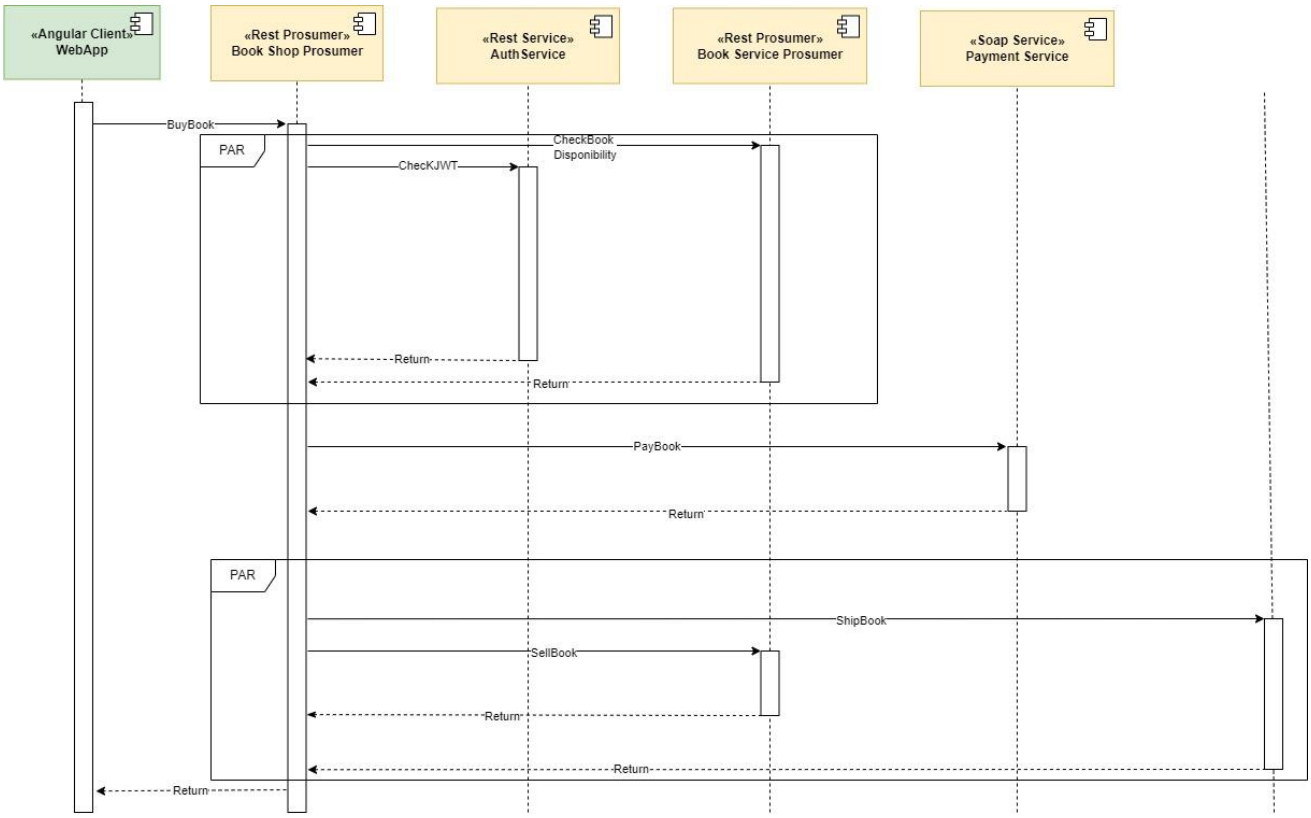

Figure 3: Buy Book - Sequence Diagram

This scenario sees the interaction of components when a rest call is made to purchase a book in the system. We can see that the "checkJWT" and "Availability" calls occur in parallel as the "SellBook" and "ShipBook" calls. the "PayBook" call does not take place in parallel because we control the sending of the amount.

Navigation Diagram Web App

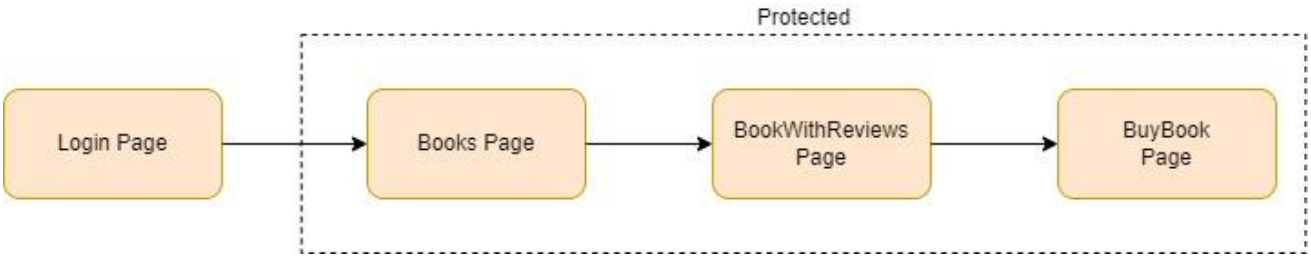

Figure 4: Web App - Navigation Diagram

Web App Prototype

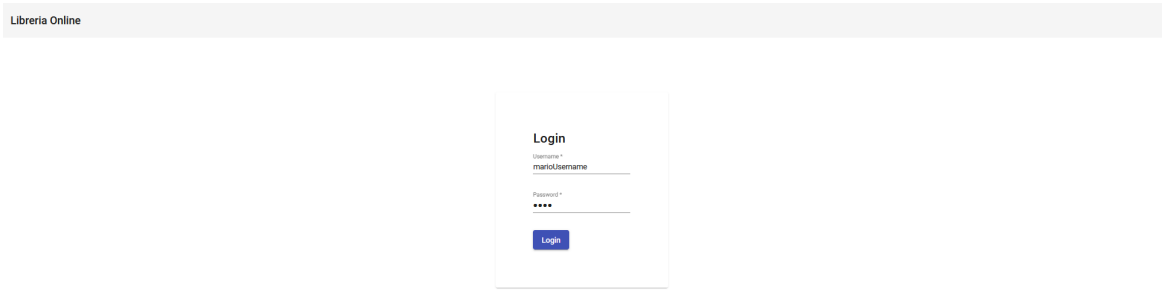

Figure 5: Web App - Login Page

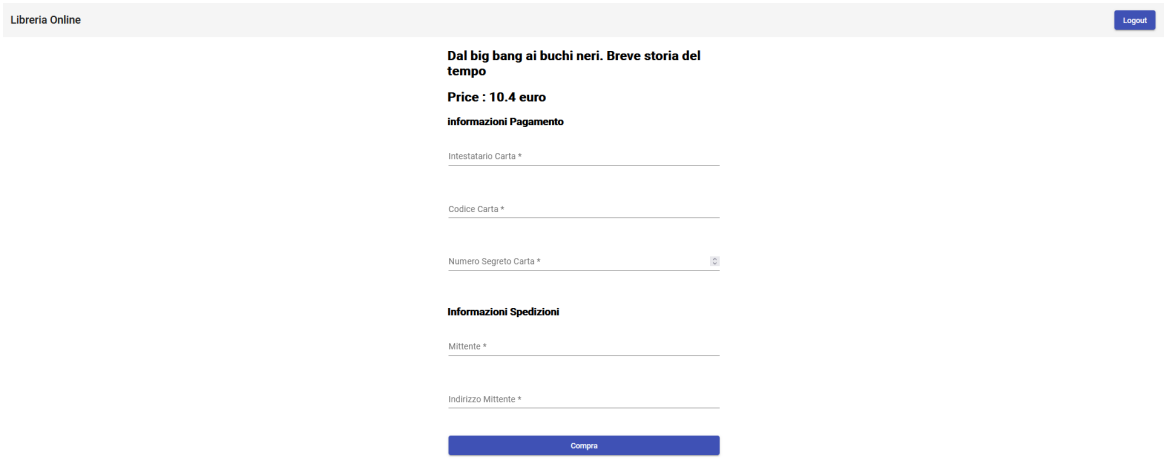

Figure 6: Web App - Buy Page

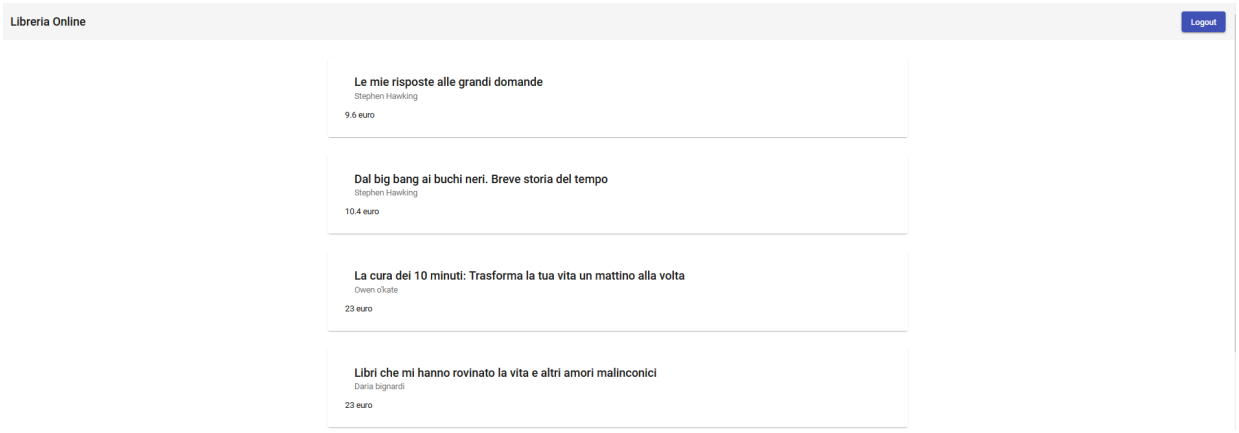

Figure 7: Web App - Books Page

Figure 8: Web App - Book Page

TECHNOLOGIES