



# Università degli studi Dell'Aquila

## Uniflix SOSE Project

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Service Oriented Software Engineering

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## **1. Project Description**

Uniflix is a distributed software system that implements a digital movie shop.

The architecture of the project is based on the SOA paradigm with a mixed choreography and orchestration approach.

Uniflix, similar to the modern movie streaming platforms, allows the users to buy and watch films from any device. The project is focused on the implementation of the services necessary for the purchase and for the information about the movies.

The system has 2 client application:

- Web application with the following features:
  - View the movies catalogue
  - View the detail of a movie
  - View the review of a movie
  - View the actors detail
  - Buy a movie
  - Register and Login for a user
  - View the user library (purchased movies)
  
- Mobile Application with the following features:
  - View the movies catalogue
  - View the detail of a movie

## **2. Requirements**

### **2.1. Functional Requirements**

<b>Requirement ID</b>	FR-01		
<b>Title</b>	User login		
<b>Description</b>	Users can login through a web application using their email/password.		
<b>Version</b>	V1.2	<b>Priority</b>	High

<b>Requirement ID</b>	FR-02		
<b>Title</b>	User registration		
<b>Description</b>	Users can register through a web application using their email/password.		
<b>Version</b>	V1.2	<b>Priority</b>	High

<b>Requirement ID</b>	FR-03		
<b>Title</b>	Show Catalogue		
<b>Description</b>	Users can view the movies catalogue through both mobile and web applications.		
<b>Version</b>	V1.0	<b>Priority</b>	High

<b>Requirement ID</b>	FR-04		
<b>Title</b>	Show Movie Details		
<b>Description</b>	Users can view the movies details through both mobile and web application.		
<b>Version</b>	V1.0	<b>Priority</b>	High

<b>Requirement ID</b>	FR-05		
<b>Title</b>	Show Movie Reviews		
<b>Description</b>	Users can view the movie reviews through the web application.		
<b>Version</b>	V1.0	<b>Priority</b>	Medium

<b>Requirement ID</b>	FR-06		
<b>Title</b>	Show Actor Details		
<b>Description</b>	Users can view the actors' details through the web application.		
<b>Version</b>	V1.0	<b>Priority</b>	Low

<b>Requirement ID</b>	FR-07		
<b>Title</b>	Buy Movie		
<b>Description</b>	Users can buy movies through the web application.		
<b>Version</b>	V1.0	<b>Priority</b>	High

<b>Requirement ID</b>	FR-08		
<b>Title</b>	User Library		
<b>Description</b>	Users can view his movie library through the web application.		
<b>Version</b>	V1.0	<b>Priority</b>	High

## 1.1. Non Functional Requirements

<b>Requirement ID</b>	NFR-01		
<b>Title</b>	Security		
<b>Description</b>	The access of the user on the system must be granted with login credentials.		
<b>Version</b>	V1.0	<b>Priority</b>	High

<b>Requirement ID</b>	NFR-02		
<b>Title</b>	Client Constraints		
<b>Description</b>	The system must provide at least a web application and a mobile application. The clients must interact with at least three services.		
<b>Version</b>	V1.0	<b>Priority</b>	High

<b>Requirement ID</b>	NFR-03		
<b>Title</b>	Architectural Constraints		
<b>Description</b>	The system must be implemented using both Rest and SOAP Technologies. The system must be implemented using Maven. The system must be implemented at least with: <ul style="list-style-type: none"><li>• Three service providers</li><li>• Two service prosumers</li></ul>		
<b>Version</b>	V1.0	<b>Priority</b>	High

### 3. Use Case

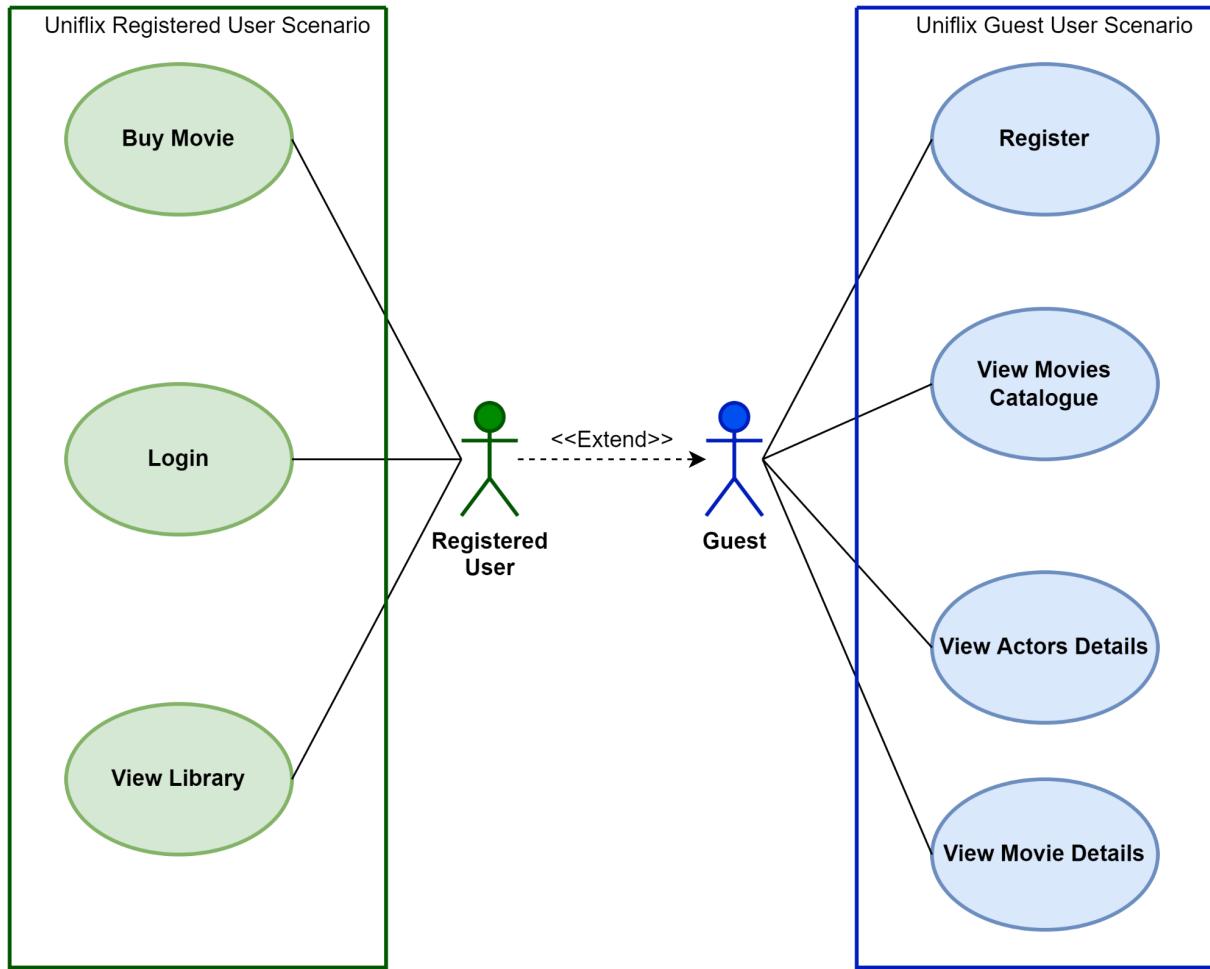


Fig 3.1 Use Case Diagram

The interaction scenarios are described by the above use case diagram, two types of user have been identified: Registered User and Guest.

The Guest user is the basic user, he can access the View functionalities and register inside the System.

The registered user is an extension of the Guest. He can Login inside the system, Buy a Movie and view his movie library, moreover he uses all the features provided to the guest users.

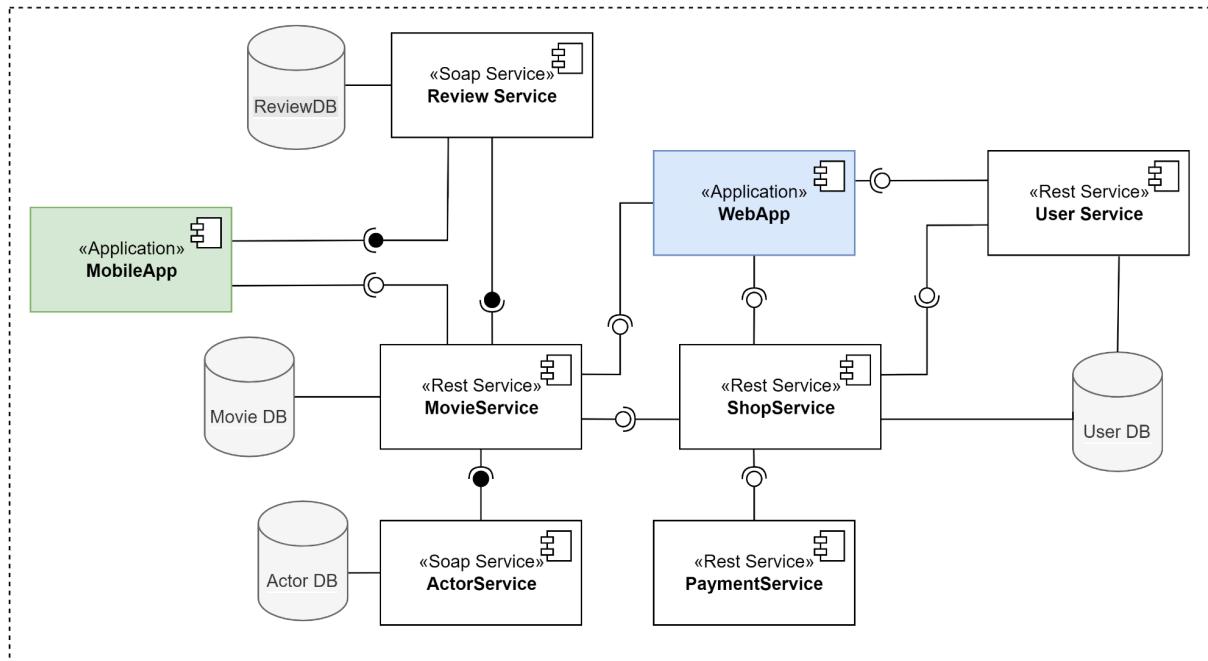
#### **4. Component Diagram**

The system contains the following components: *WebApp component* is the front-end component that allows users to interact with the system.

*Movieservice* contains the logic necessary to get lists or single movies, filtered eventually by genres, and also aggregate data obtained through interaction with the *ActorService* component (component responsible for obtaining the corresponding actors) and *ReviewService* ( that provides the reviews). The *UserService* provides all features on the user's account and authentication, such as sign-in, sign-up and personal library. *PaymentService* contains the necessary logic for payment.

The *ShopService* is interposed between the various components, sorting the requests made by users through *Webapp* to the appropriate components, aggregating and filtering outputs and returning them.

Finally, the *Android component* allows you to access the list of available movies on the system, possibly consulting reviews.



## Keys

Database	Scope	SOAP Connector	REST Connector	Data access
				—
component	Application	WebApplication		

Fig. 4.1 Component Diagram

## 5. Sequence Diagrams

In this section the are the main sequence diagrams identified from the described scenarios.

### 5.1. Available movies

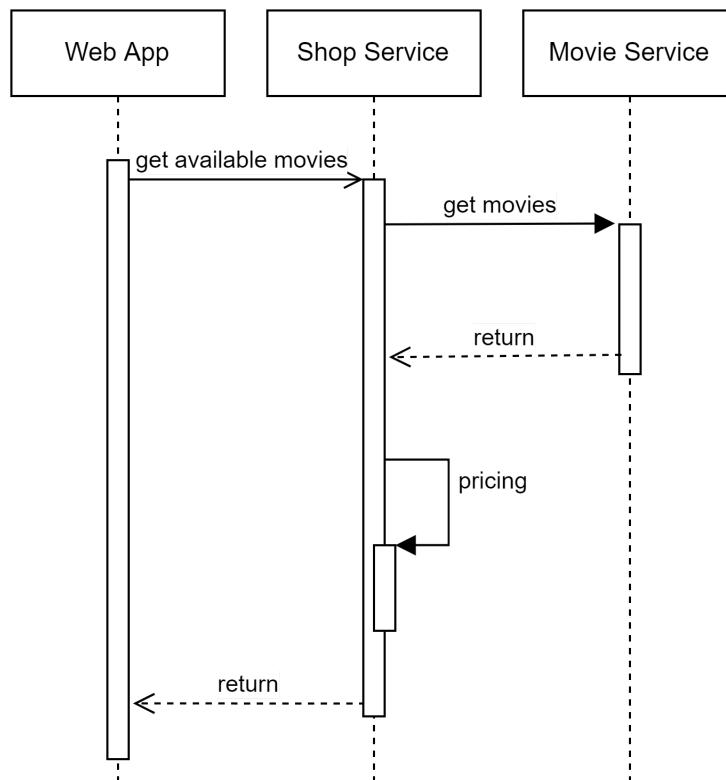


Fig. 5.1 Available movies sequence diagram

When the *Web App* needs to show users the available movies, it communicates with the *ShopService*. This service gets the movies data from the *MovieService*, which is responsible to only offer the metadata; after receiving the data, it filters the movies and applies a price to them based on their availability information. The computed available films are finally returned to the *WebApp*.

## 5.2. Movie details

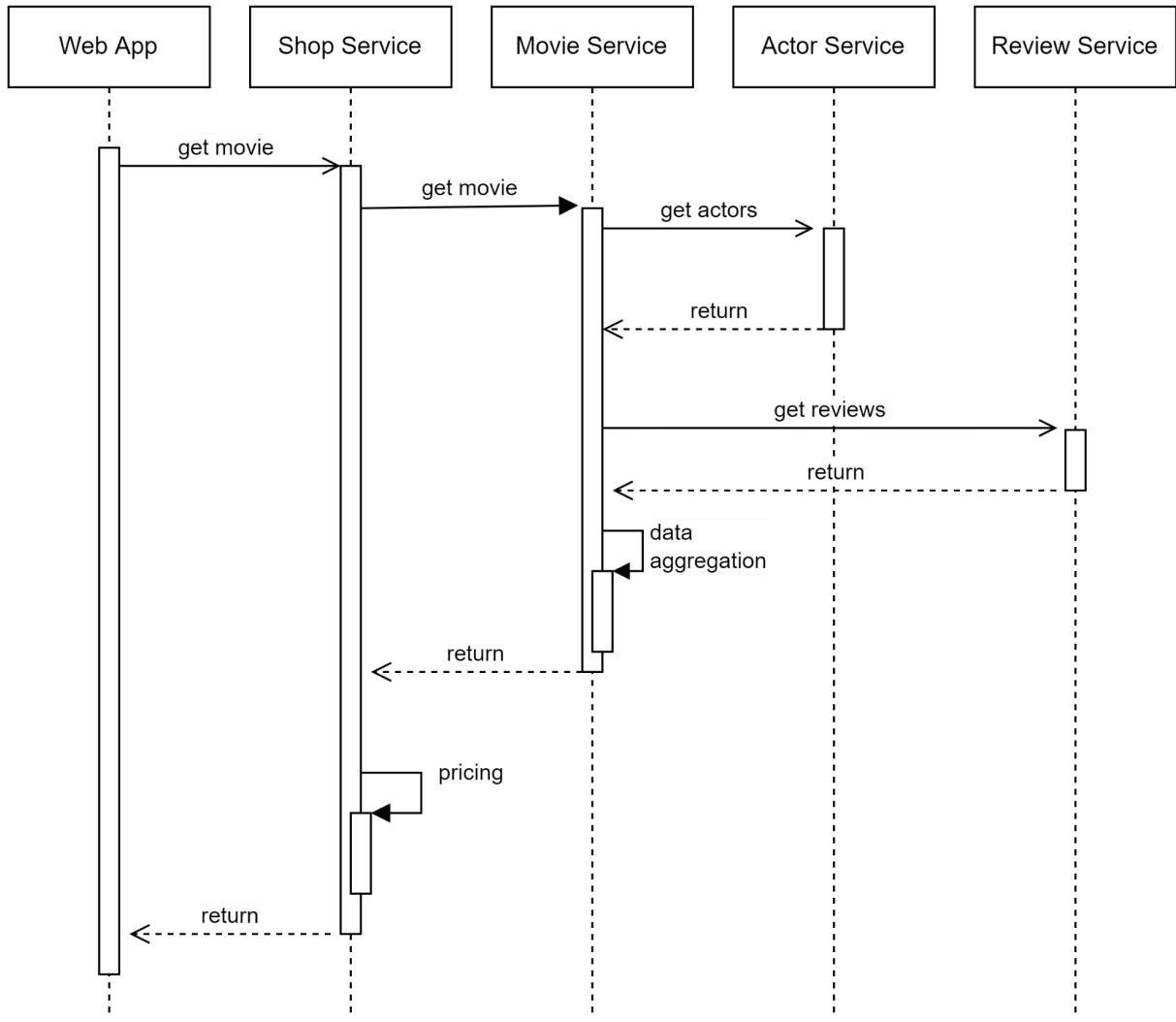


Fig. 5.2 Movie details sequence diagram

The purpose of the sequence diagram in Fig. 5.2 is to show how the metadata of a particular movie is collected when requested from the *WebApp*. The first service involved is the *ShopService*. Like in the previous sequence, it asks for the movie metadata to the *MovieService*. In this case, by the way, the *MovieService* needs additional data that is

managed by the *ActorService* and the *ReviewsService*. Those two services are called asynchronously. In fact, the *MovieService* doesn't wait for those data to arrive, but immediately does its things, i.e. queries his database for the film data. When data finally arrives from the asynchronous calls, it aggregates them into a single object that is returned to the *ShopService*. Before returning the movie to the user, the *ShopService* applies pricing policies to the movie.

### 5.3. Order payment

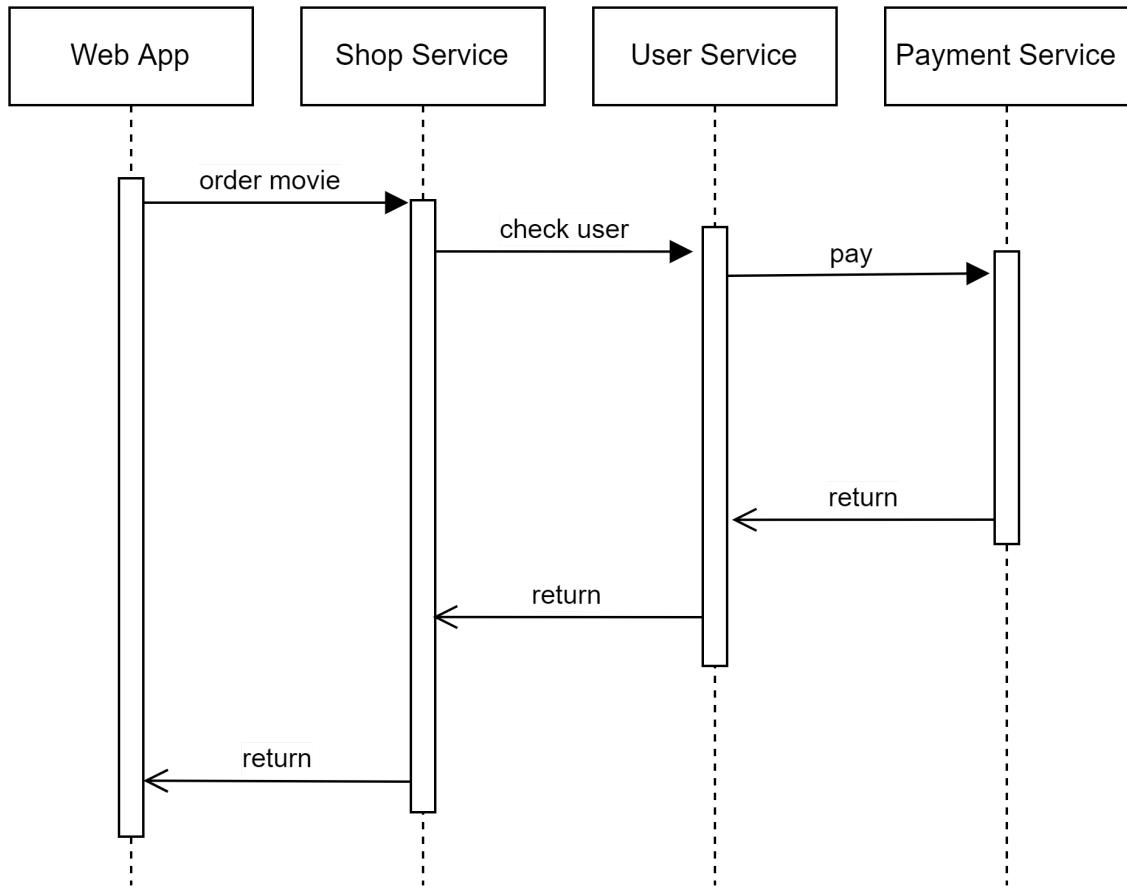


Fig. 5.3 Order payment sequence diagram

Fig. 5.3 describes the services involved in an order request. Like before, the first interaction of the *WebApp* is with the *ShopService*. For security reasons, the *ShopService* interacts with the *UserService* to ensure that the user is legit. The payment is then delegated to a *PaymentService*. Once the payment has been verified, the control is returned to the user that receives the confirmation of the purchase.

## 6. Navigation Diagram

The GUI consists of 6 pages:

- *Home Page* contains a preview of the most watched movies,
- *Login Page* contains a form for authentication,
- *Register Page* contains a form for registering,
- *Movie Details Page* contains the movie, the reviews and the cast,
- *Actor Details Page* contains the biography of the actor,
- *Account Page* contains personal profile data (email, password),
- *Library Page* contains the summary of the movies purchased,
- *Payment Page* contains the form to buy a movie.

Each page is linked to the home page and to the authentication page. To access the protected pages you must first access the authentication page.

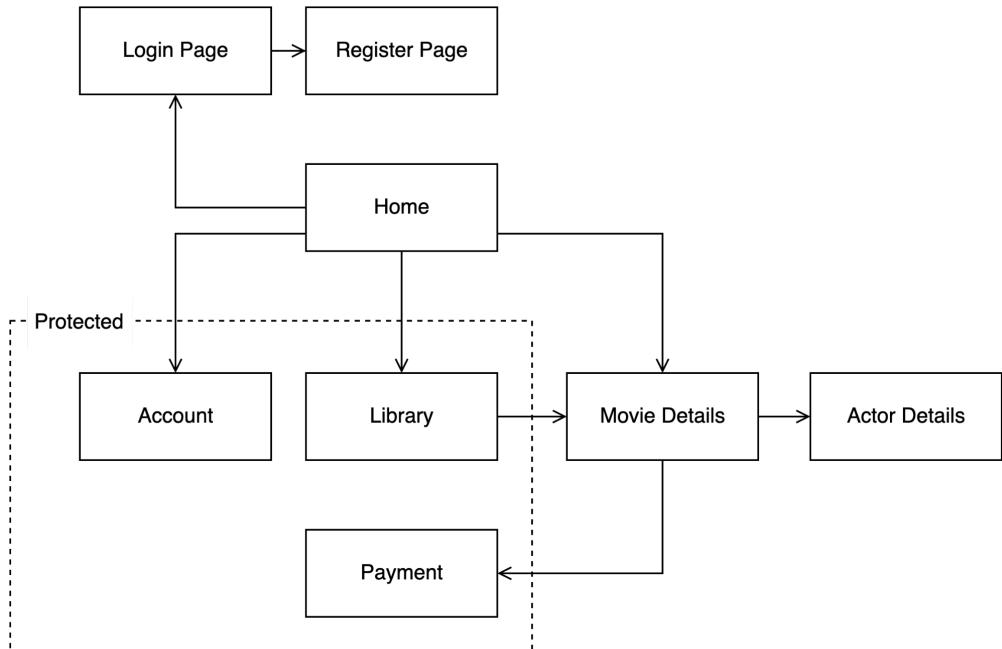


Fig. 6.1 Navigation Diagram

## 7. Lo-Fi

Logo

Login

Category #1

Category #2

**Home Page**

Logo

Email

Password

Login

**Auth Page**

Logo

Name

Fullname

Email

LOGOUT

**Account Page**

Logo

Fullscreen

Email

Password

Register

**Register Page**

Logo

Name

Title	Author	Year	Price	Date

**Library Page**

Logo

Library

Name

Title

Author, Year

Description

Lore ipsum dolor sit amet, consectetur adipisicing elit, sed do eiusmod tempor incididunt ut labore et dolore magna aliqua.

Score

4.6 / 5

Reviews

Lore ipsum dolor sit amet, consectetur adipisicing elit, sed do eiusmod tempor incididunt ut labore et dolore magna aliqua.

BUY PRICE

pop-up

**Confirmation**

Title

Price

BUY

**Movie Details Page**

*Fig 7.1 - Lo-Fi*

## 8. Prototype

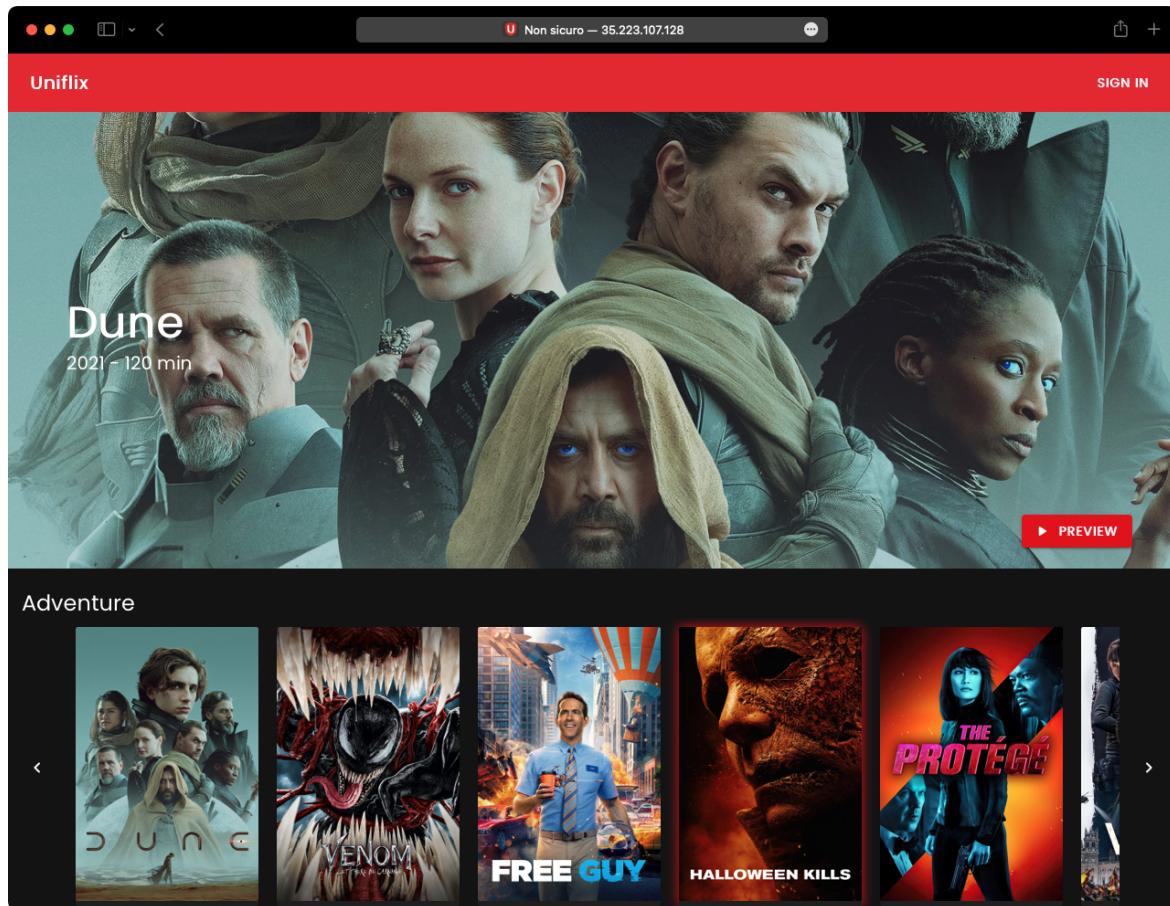
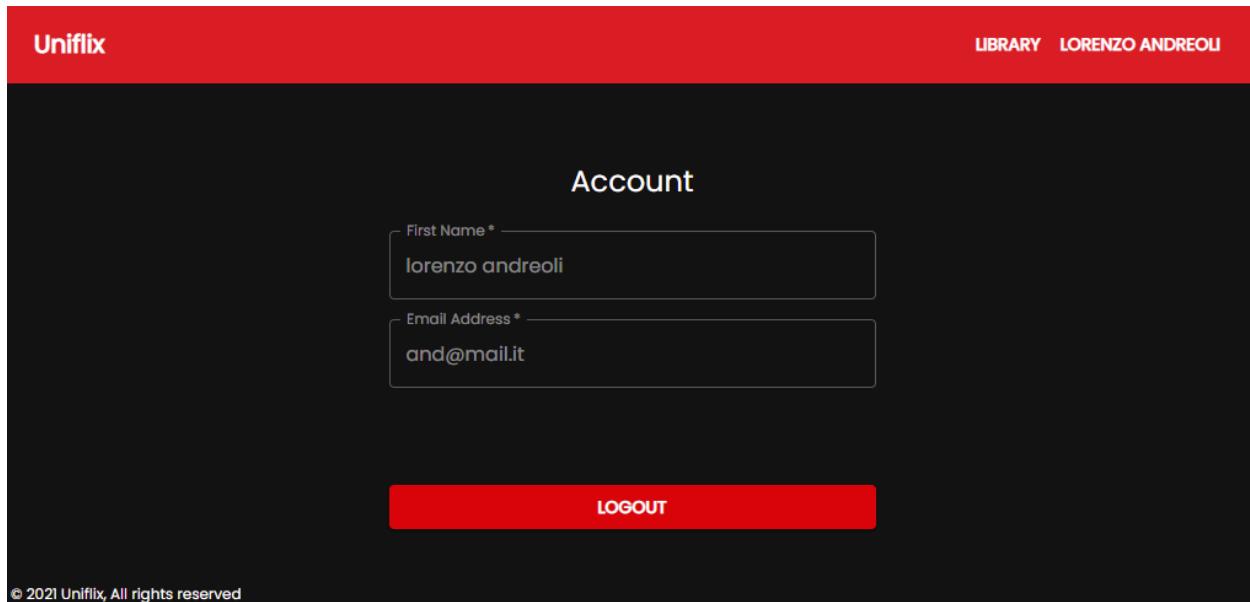
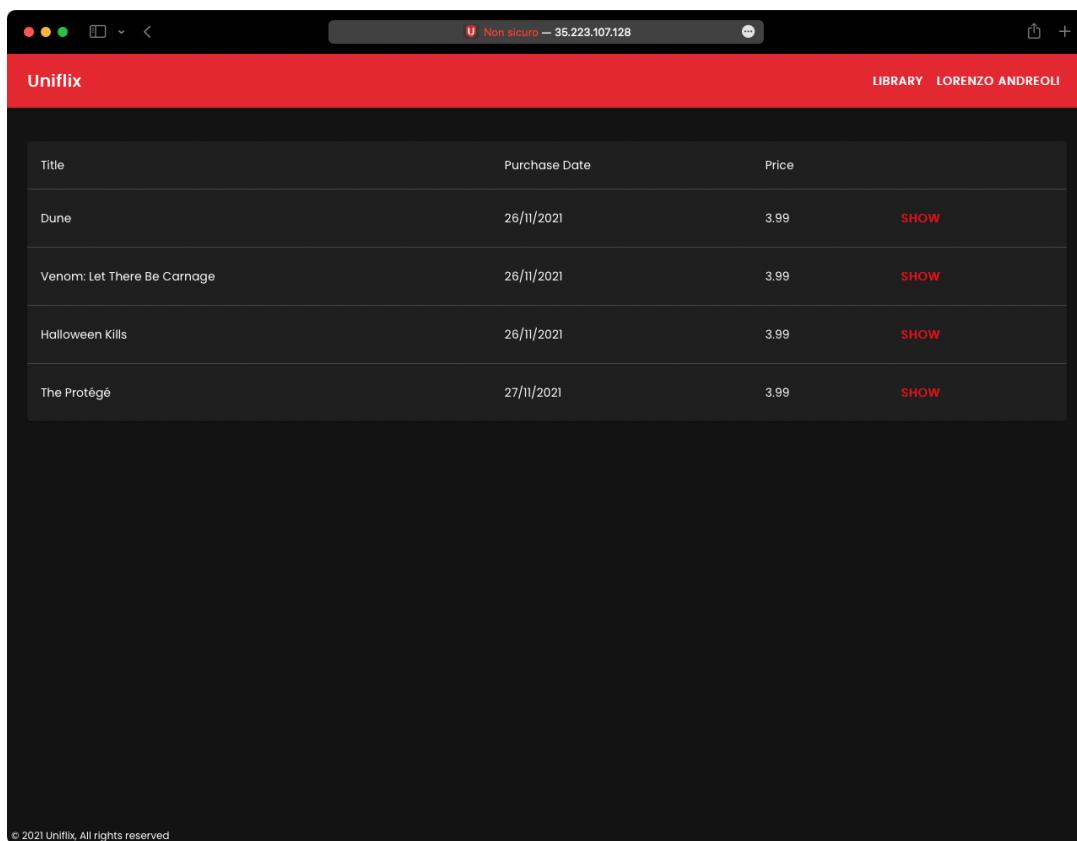


Fig 8.1 - Home Page



The screenshot shows the Uniflix application's login page. At the top, there is a red header bar with the Uniflix logo on the left and a "LIBRARY LORENZO ANDREOLI" link on the right. Below the header, the word "Account" is centered in white text. There are two input fields: the first one is labeled "First Name \*" and contains the value "lorenzo andreoli"; the second one is labeled "Email Address \*" and contains the value "and@mail.it". At the bottom of the page is a red button labeled "LOGOUT". A small copyright notice, "© 2021 Uniflix. All rights reserved", is visible at the very bottom.

Fig 8.2 - Auth Page



The screenshot shows the Uniflix application's library page. The interface is similar to the auth page, with a red header bar containing the Uniflix logo and a "LIBRARY LORENZO ANDREOLI" link. The main content area displays a table of purchased movies:

Title	Purchase Date	Price	Action
Dune	26/11/2021	3.99	<a href="#">SHOW</a>
Venom: Let There Be Carnage	26/11/2021	3.99	<a href="#">SHOW</a>
Halloween Kills	26/11/2021	3.99	<a href="#">SHOW</a>
The Protégé	27/11/2021	3.99	<a href="#">SHOW</a>

A copyright notice, "© 2021 Uniflix. All rights reserved", is located at the bottom of the page.

Fig 8.3 - Library Page

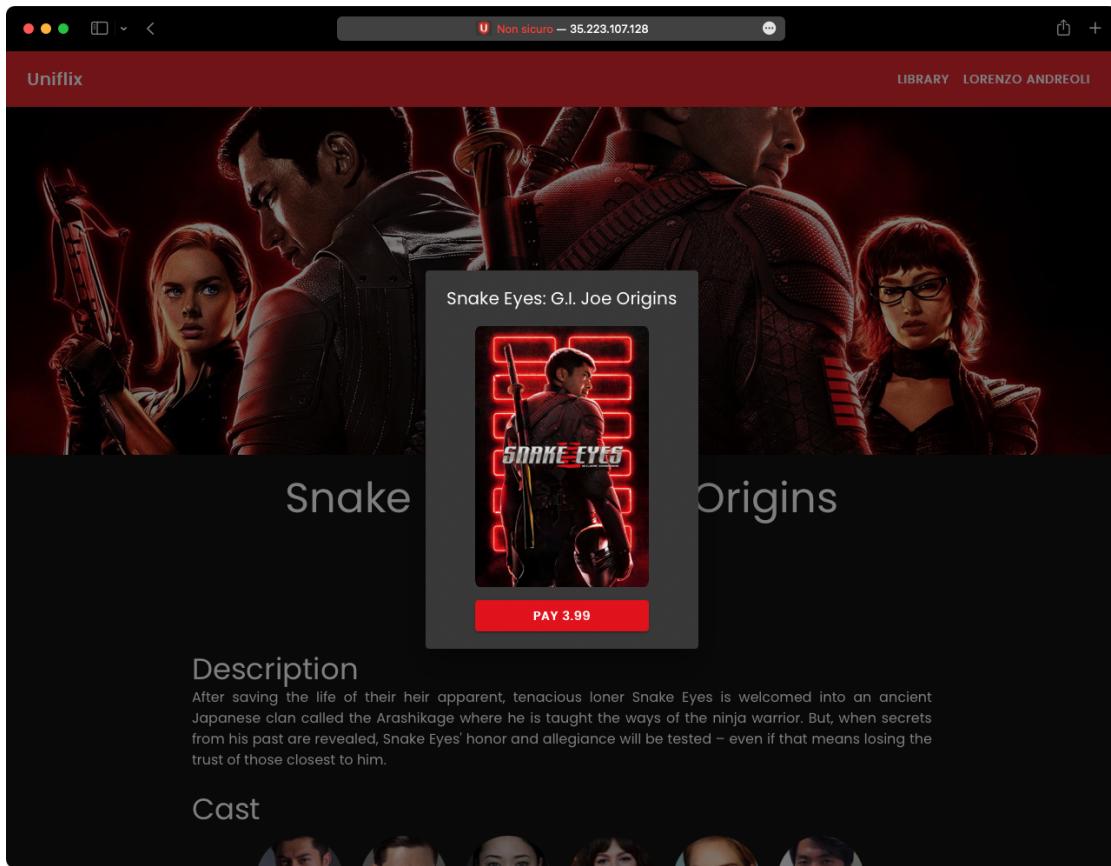


Fig 8.4 Movie Details/Payment Page

