

# **PICTURE PERFECT DESIGN DOCUMENT**

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# ABOUT

*This is a website which has a collection of various movies and their information like rating,review and other details. It provides a great user experience and lets users know everything about the recent and old movies. It also lists the various cineplexes which show the movie nearby.*

# BACKEND

**LANGUAGE :** *We will use go-lang to design the back-end server of the website. Go is a programming language developed by Google for building modern software. It is an excellent choice in building fast and scalable apps.*

*Some features of go-lang are:*

- 1. Go compiles lightning-quick into fast native code.*
- 2. Go has excellent support for concurrency with goroutines and channels.*
- 3. Go has an interesting take on object-oriented programming with interfaces.*
- 4. Exhaustive standard library containing everything you need to do server-side/network programming.*

**AUTHENTICATION:** *A JSON Web Token (JWT) is a compact and self-contained way for securely transmitting information between parties as a JSON object, and they are commonly used by developers in their APIs.*

*We will use JWTs because:*

- 1. A JWT is stateless. That is, it does not need to be stored in a database (persistence layer), unlike opaque tokens.*
- 2. The signature of a JWT is never decoded once formed, thereby ensuring that the token is safe and secure.*
- 3. A JWT can be set to be invalid after a certain period of time. This helps minimize or totally eliminate any damage that can be done by a hacker, in the event that the token is hijacked.*

*We will be using the 'dgrijalva/jwt-go' library to help us create and verify JWT tokens.*

**MICROSERVICES:***Go Kit is a programming toolkit for building microservices in Go. It is a library which is designed to be imported to a binary package. In go kit we can find packages for Transport, logging , Metrics , Tracing , Service discovery , Client and Server.*

**DATABASE : MySQL**

*MySQL is a very commonly used relational database management system. We have to maintain a database of movies and their contents and need a structured relational database which is highly scalable and quick so MySQL is perfect for our purpose.*

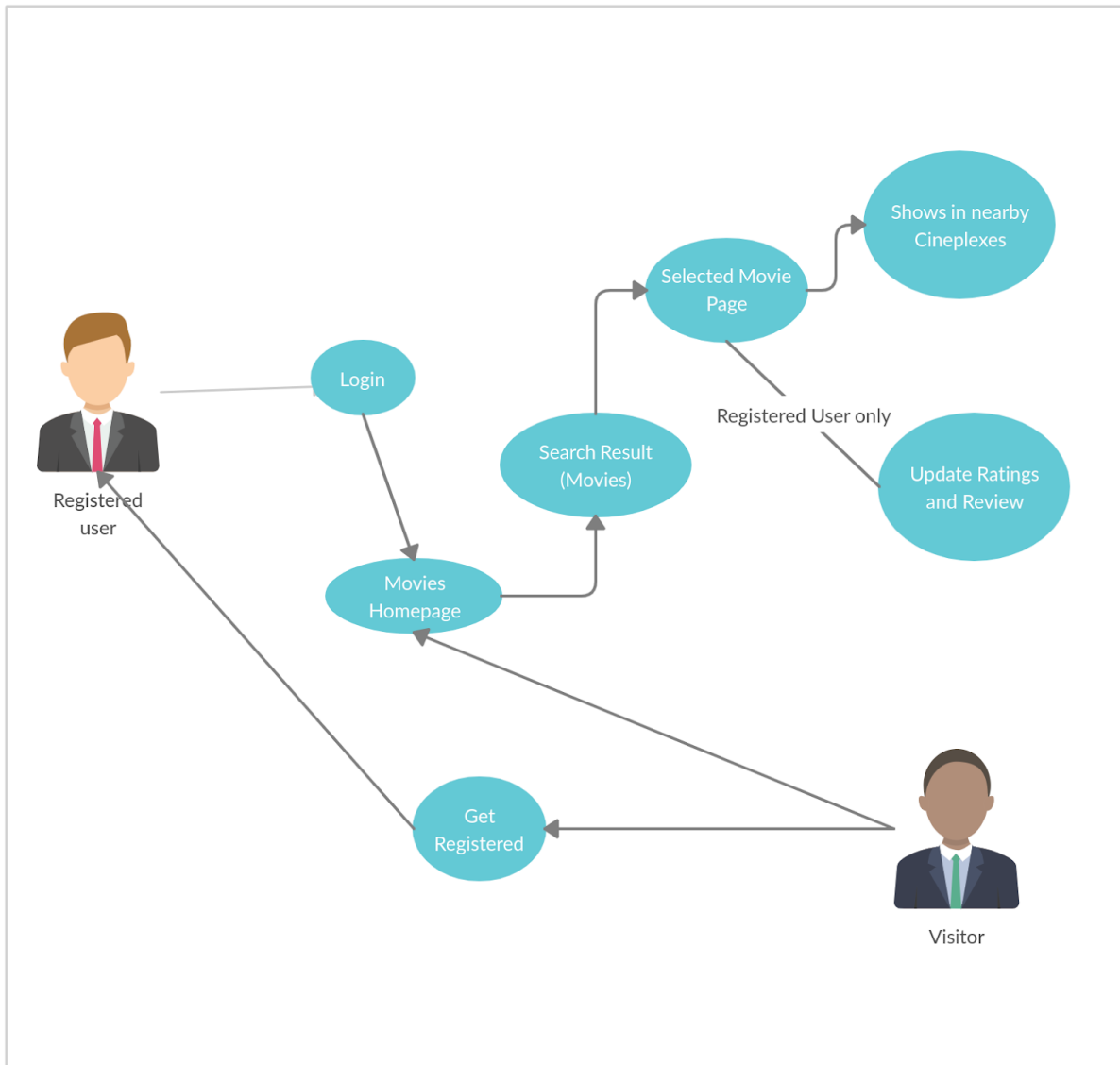
**AWS SERVICES :** *We will use AWS lambda, Amazon RDS (MySQL) , AWS CloudFront ( Networking and content-delivery ) and Amazon S3 (Storage).*

**GO LIBRARIES:**

- 1.net/http, standard library HTTP package.*
- 2.html/template, standard library HTML template engine.*
- 3.database/sql, standard library interface with driver support for MySQL, Postgres, Oracle, MS SQL, BigQuery and most SQL databases.*
- 4.markbates/goth, authentication for web apps.*

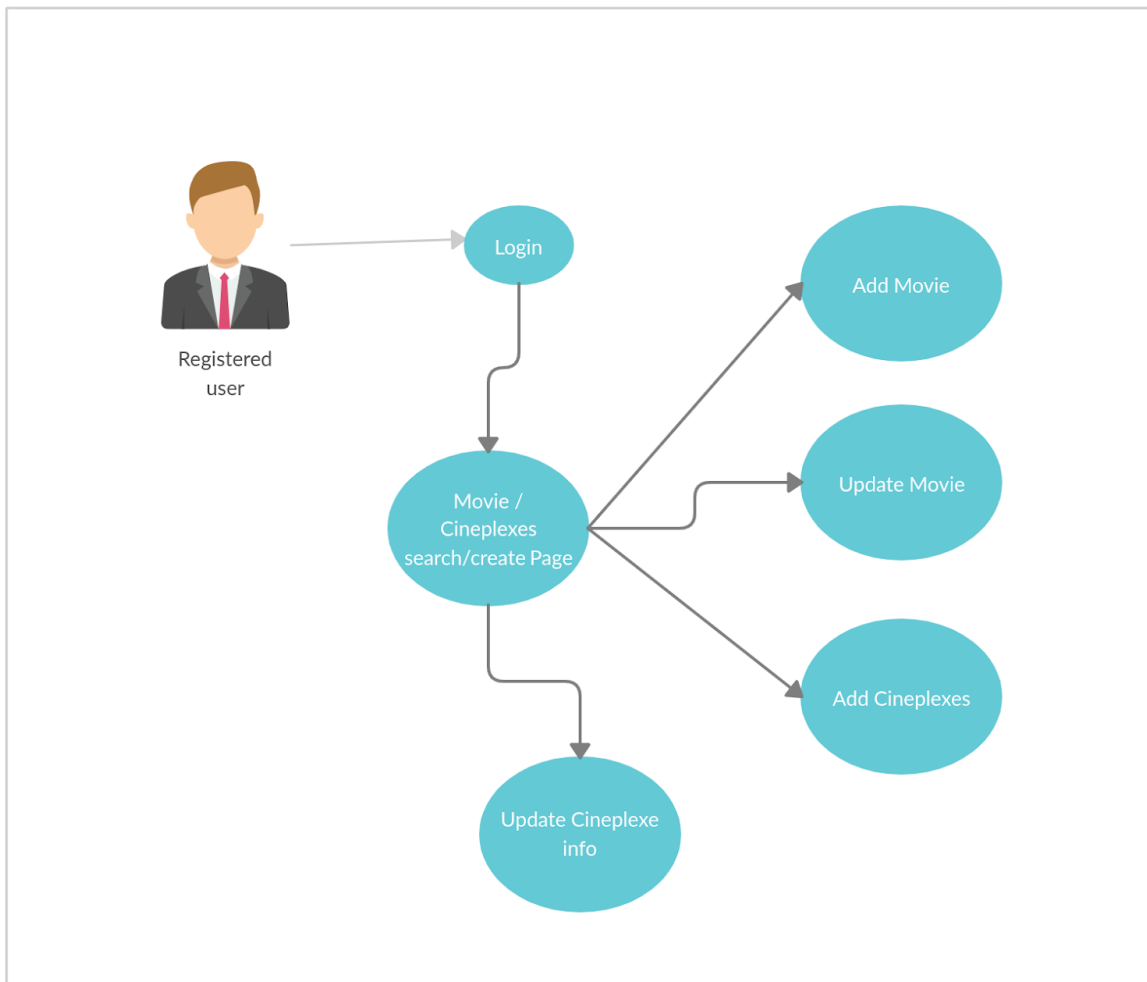
# SYSTEM DESIGN (UML DIAGRAMS)

*Use Case Diagram to illustrate user flow from one instance to another.*

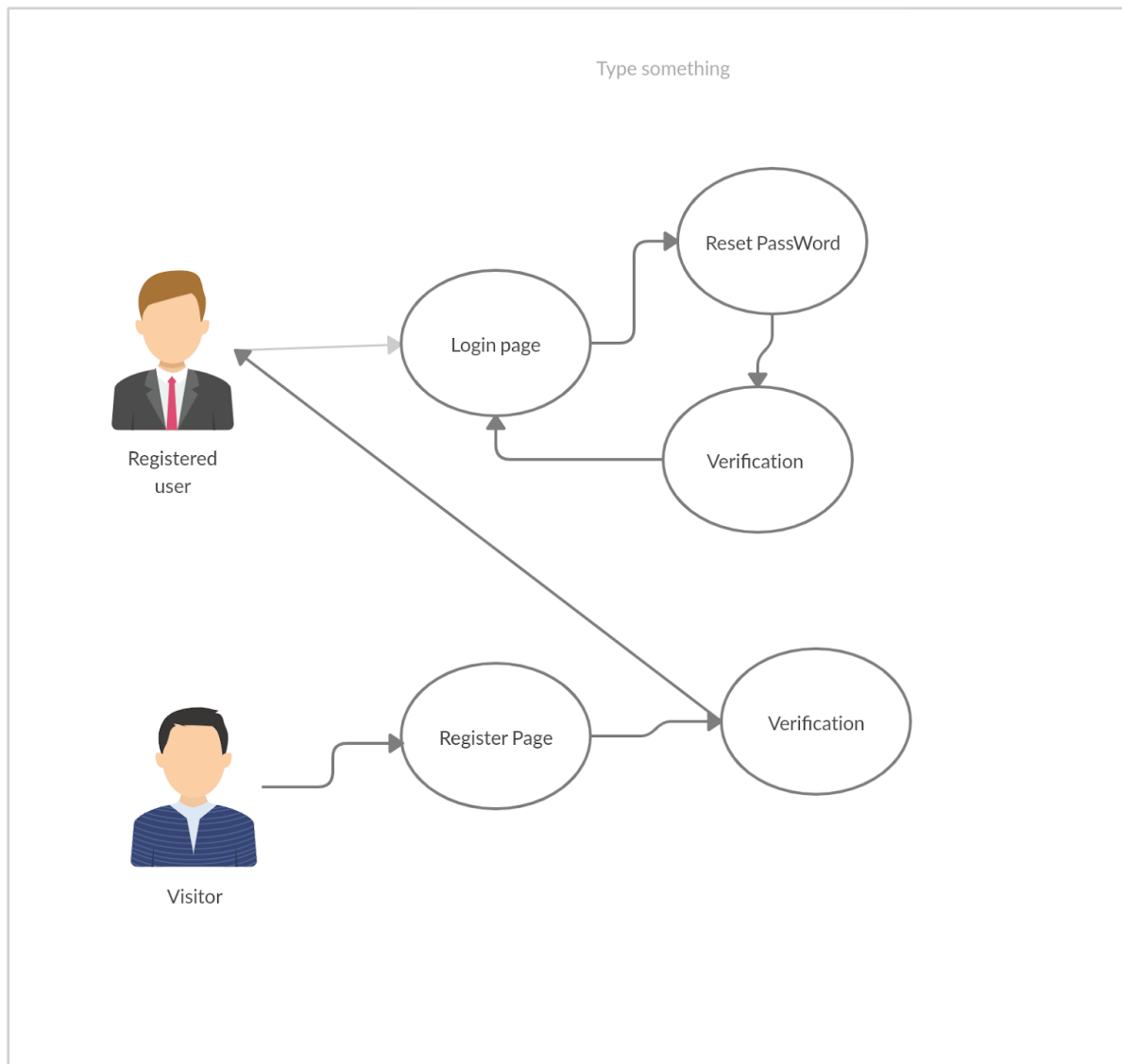


*Use Case Diagram to illustrate Admin Operations.*

Type something

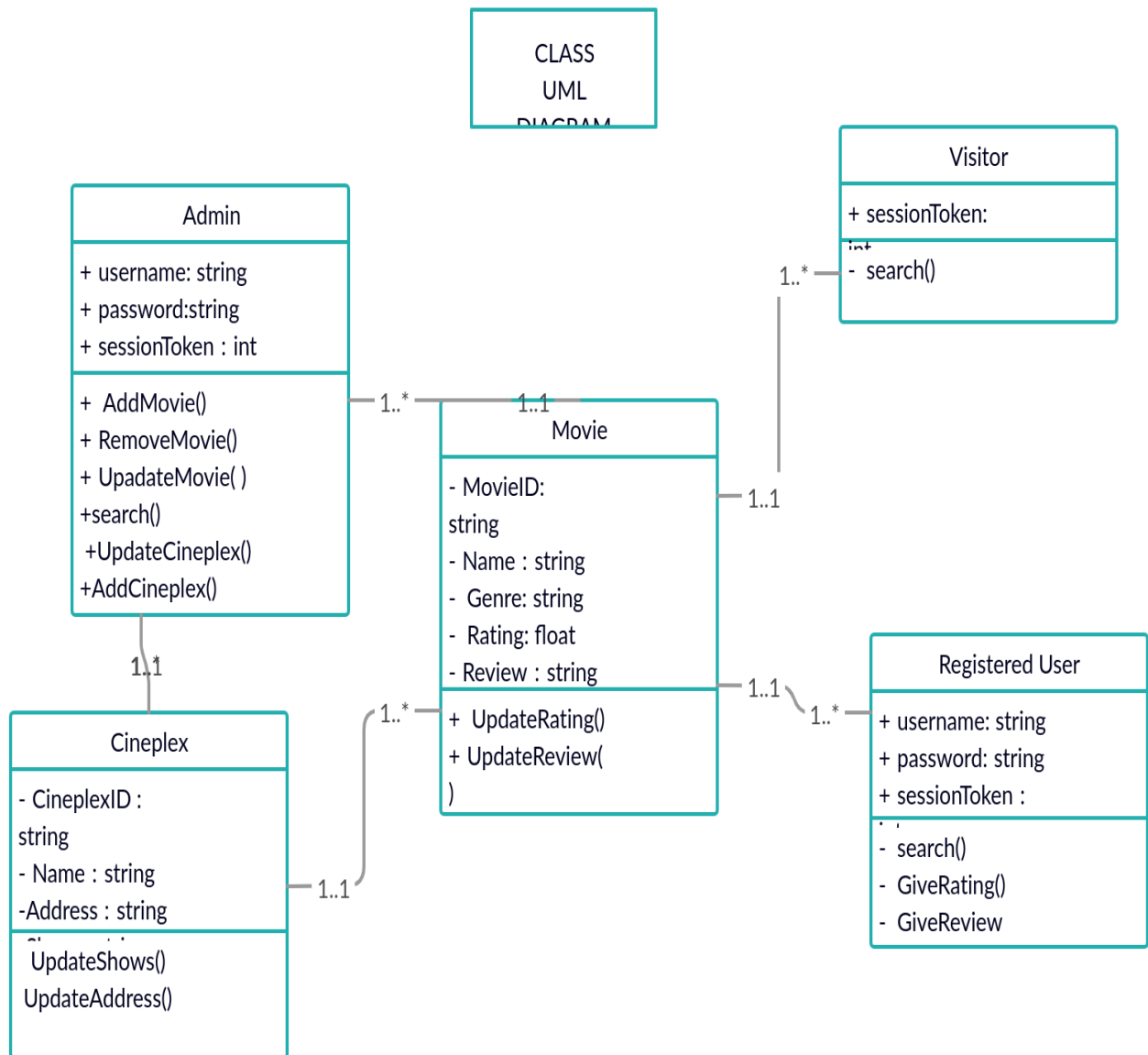


*Use Case diagram to illustrate the Login/Authentication Process.*

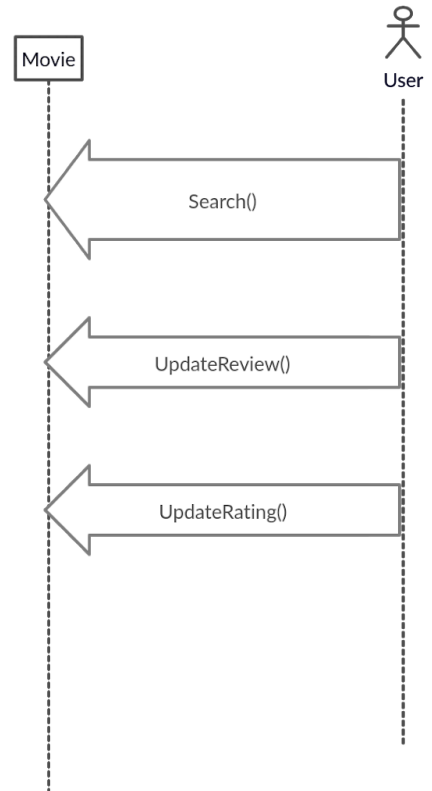
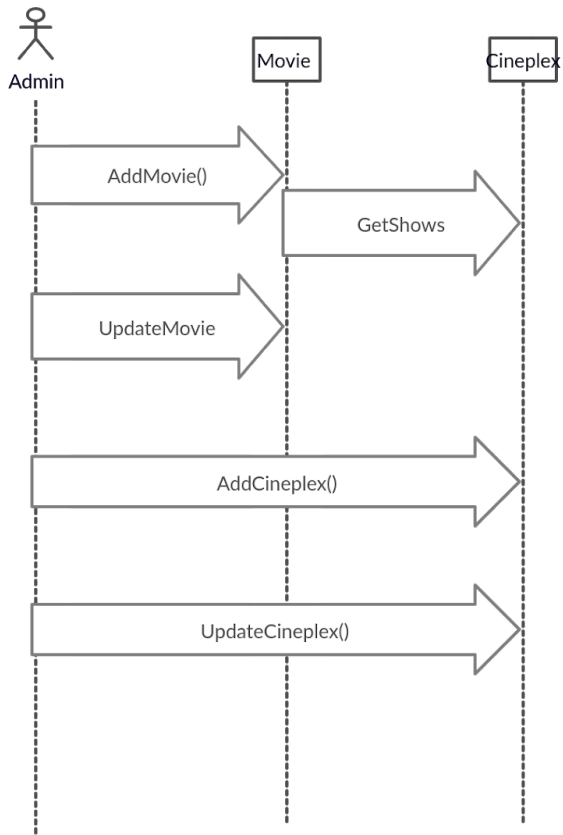




*Class Diagram to illustrate various modules and relations.*



*Sequence Diagram to show various operations.*



# FRONT-END

**LIBRARY USED:** *React , Bootstrap .*

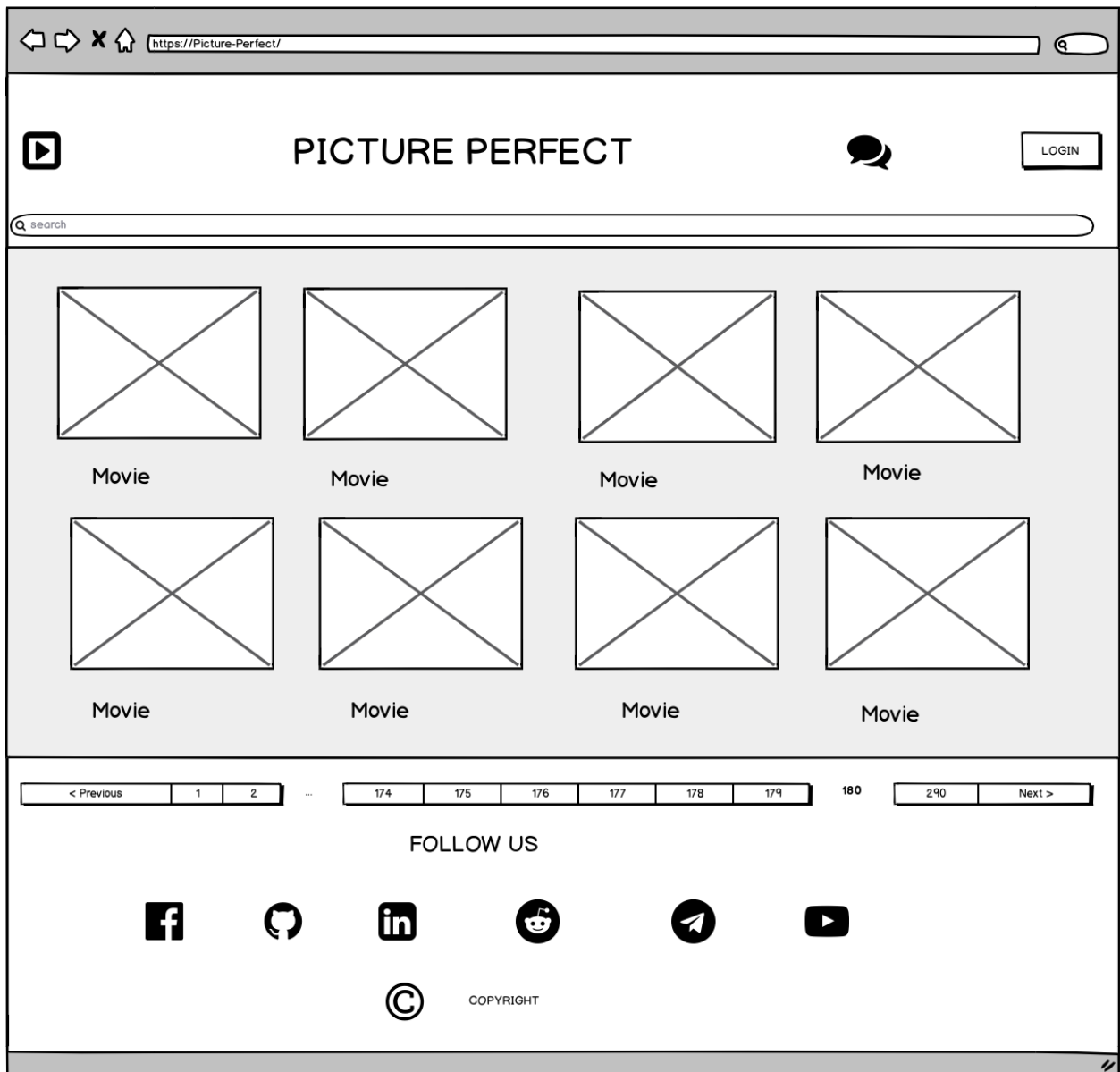
**React** allows developers to create large web applications that can change data, without reloading the page. The main purpose of React is to be fast, scalable, and simple. It works only on user interfaces in the application.

**Bootstrap** is a framework to help you design websites faster and easier. It includes HTML and CSS based design templates for typography, forms, buttons, tables, navigation, modals, image carousels, etc.

## UX LAY-OUT MOCKS:

*Here are various mock layouts of various web pages of our application that we are going to build :*

## Home Page



Movie Page : Have all details and media of a particular movie.

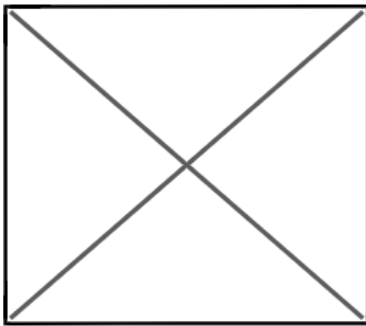


# PICTURE PERFECT



LOGIN

search



## MOVIE

GENRE : MYSTERY , CRIME

LANGUAGE : ENGLISH , HINDI

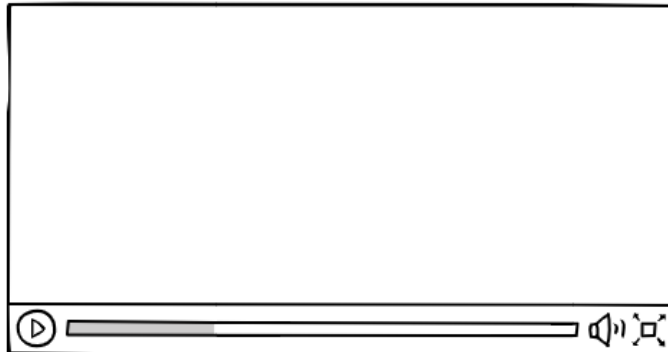


After the devastating events of Avengers: Infinity War (2018), the universe is in ruins. With the help of remaining allies, the Avengers assemble once more in order to reverse Thanos' actions and restore balance to the universe.



Shows

## TRAILER



## REVIEWS

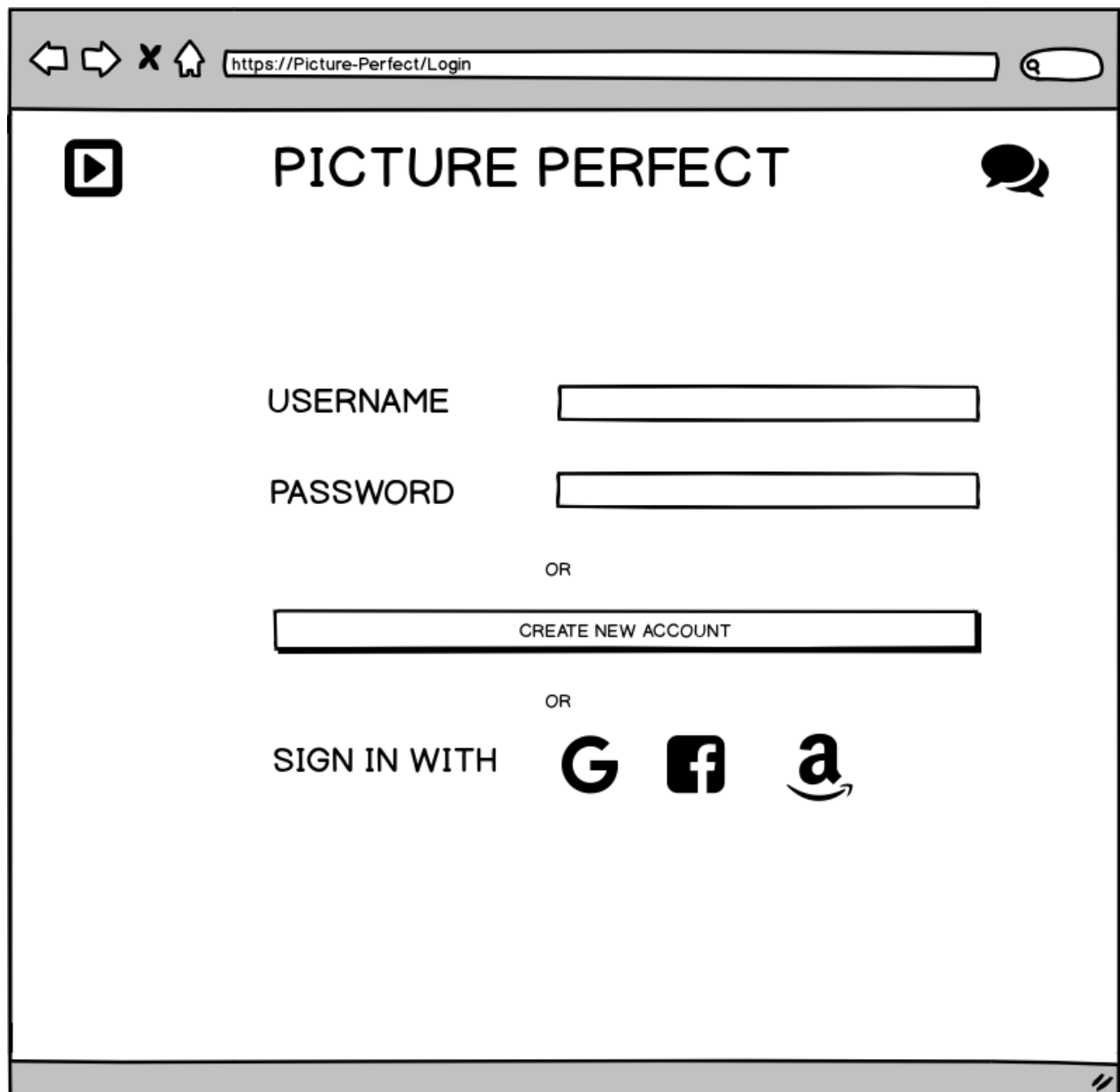


Truly a masterpiece, The Best Hollywood film of 2019, one of the Best films of the decade... And truly the Best film to bring a comic book so chillingly and realistically to real life. Remarkable Direction, Cinematography, Music and the Acting. Some people are surprised to find it DISTURBING and VIOLENT, but it's a necessity and message





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*Login Page for User/Admin with various other login/sign in options.*



The image shows a web browser window with the address bar displaying "https://Picture-Perfect/Login". The page has a header with a play button icon, the text "PICTURE PERFECT", and a speech bubble icon. The main content area contains a login form with fields for "USERNAME" and "PASSWORD", a "CREATE NEW ACCOUNT" button, and social media login options for Google, Facebook, and Amazon.

← → × ↗ <https://Picture-Perfect/Login> 🔍




 **PICTURE PERFECT** 

USERNAME

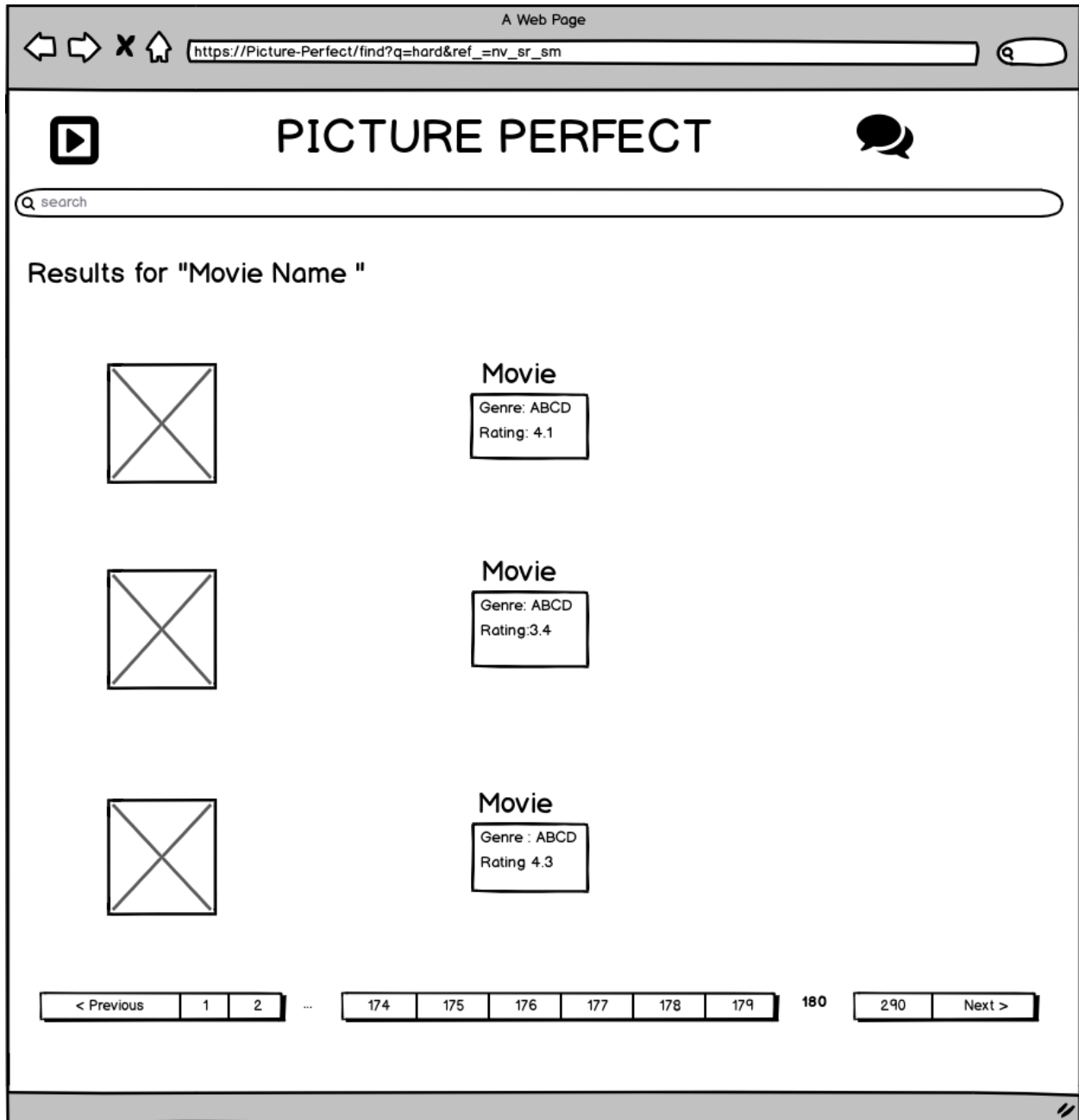
PASSWORD

OR

OR





SIGN IN WITH   


*Search Result Page with related results.*




*Review and Rating Page with some edit options for registered users.*


A Web Page

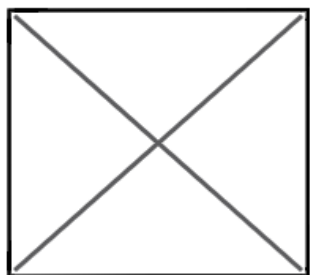


<https://Picture-Perfect/Movie/Review&Ratingedit234%3>



PICTURE PERFECT










MOVIE






Genre : ancd ef


Language : English , Hindi



Movie Rating

Your Rating :







Add Review

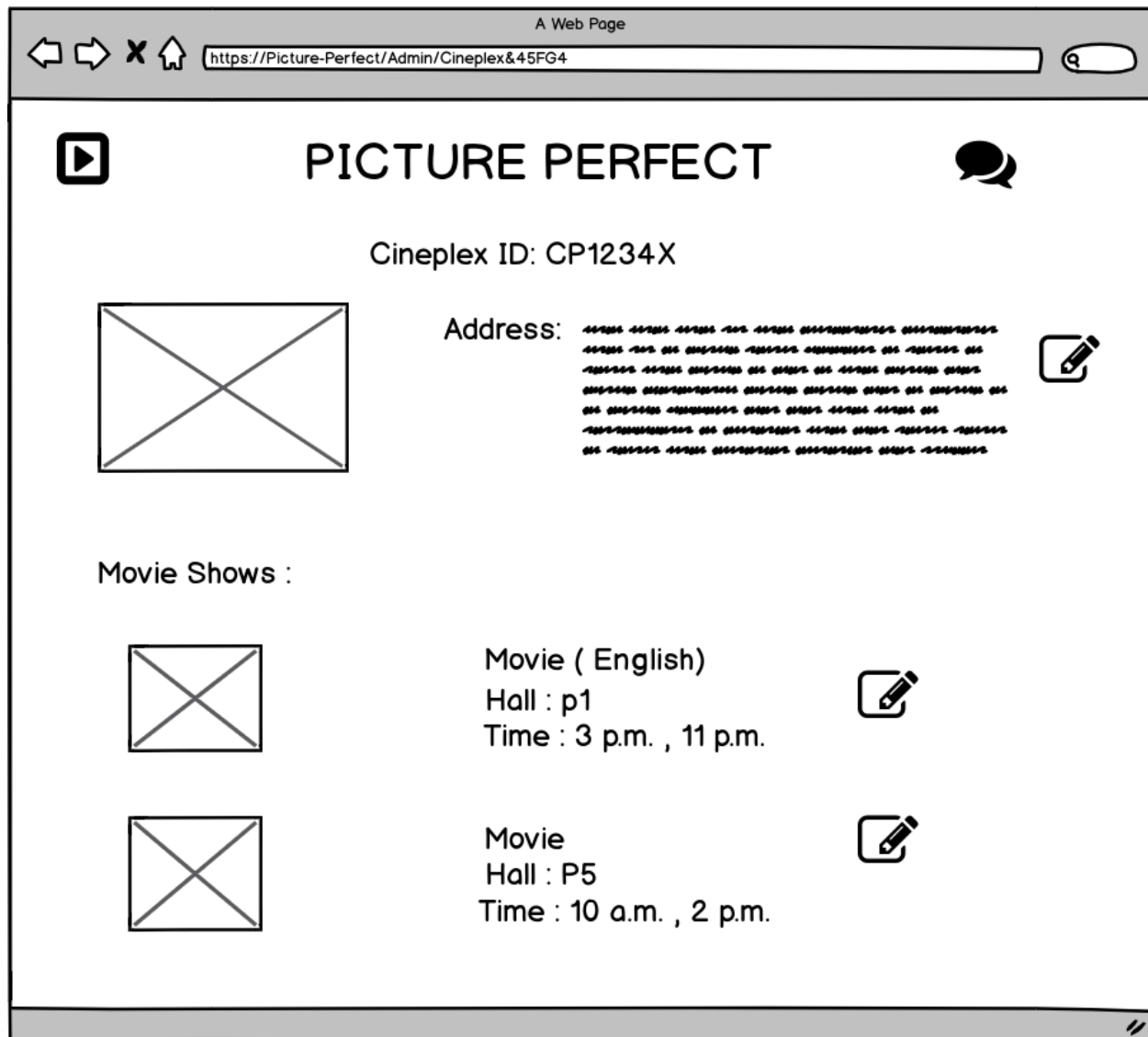
Select Language :

Your Previous Reviews :









*Cineplex Page (Admin only) with editable details.*





*Admin Dashboard : For Editing/Adding Movie/Cineplex.*

A Web Page




https://Picture-Perfect/Admin-Login%45





PICTURE PERFECT



MovieID of movie to be edited :

or


Add a new Movie :

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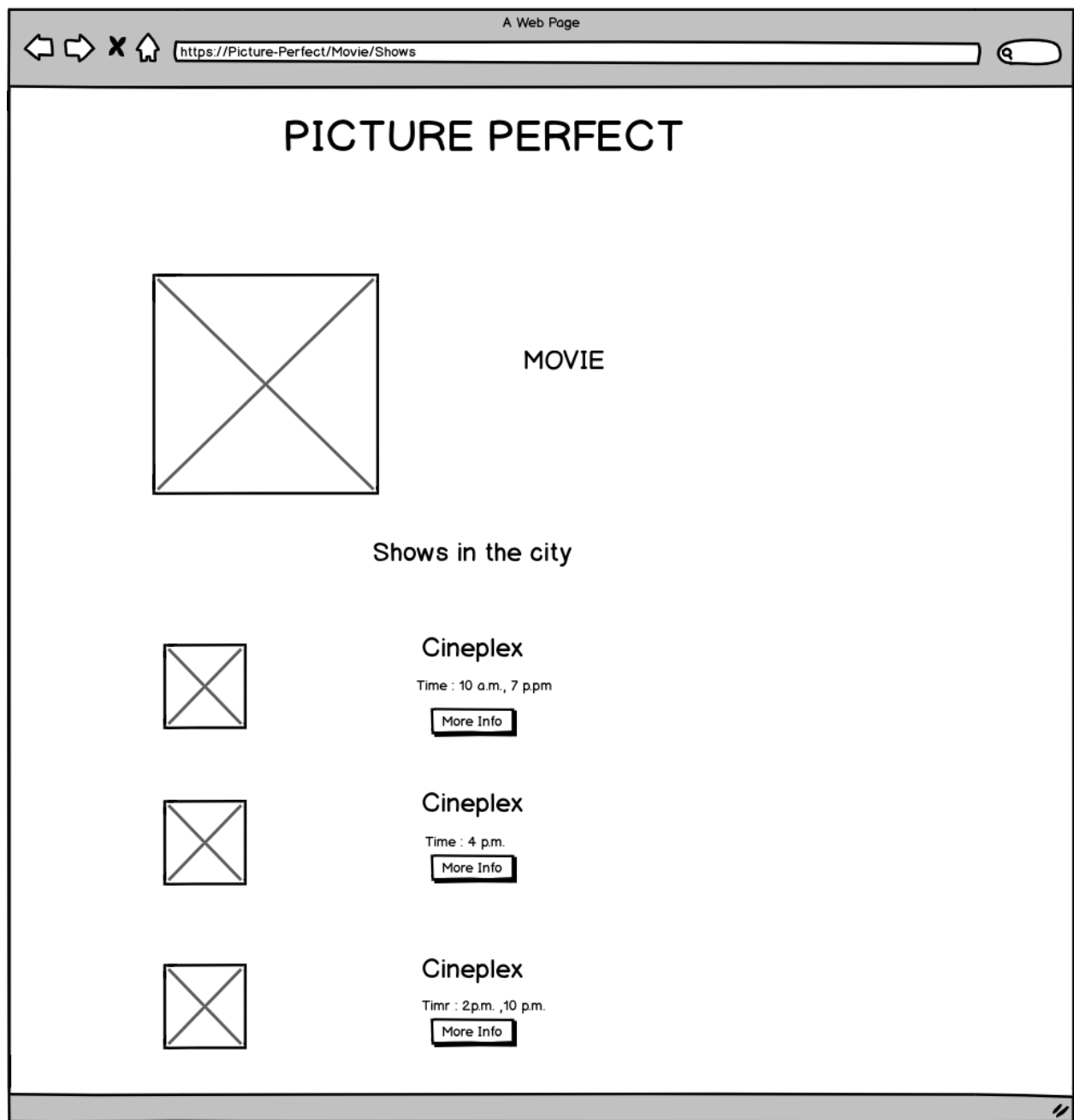
ID of Cineplex to be updated :

or

Add a new Cineplex :



*Shows Page for a particular movie in the city showing Cineplexs info.*



Movie Page (Admin only) to update movie information

A Web Page

https://Picture-Perfect/Admin/Edit%432

PICTURE PERFECT

MovieID : BR1456J

Movie Name :

Genre :

Language :

Rating : About : 

Dom Cobb is a skilled thief, the absolute best in the dangerous art of extraction, stealing valuable secrets from deep within the subconscious during the dream state, when the mind is at its most vulnerable. Cobb's rare ability has made him a coveted player in this treacherous new world of corporate espionage, but it has also made him an international fugitive and cost him everything he has ever loved.

Reviews :

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Trailer :

# TESTING AND AUTOMATION

**TESTING :** *Some testing approaches we are going to use are :*

*1.Functionality Testing : The first step of the testing phase is to make sure that the web application is functionally correct. Functionality testing checks the database connection, all links in the web pages, cookies, forms used for submitting and/or getting info from the user etc. This will be done alongside go server development. The built-in **testing** package is provided by the Go's standard library.*

*2.Interface Testing : This web page test checks whether or not all interaction between the app server and the web server runs smoothly. Not only the communication process needs to be tested, but the displaying of error messages as well. Also, this test is used to determine whether the interruptions by the server and/or by the user are handled properly.*

*3.Compatible Testing : We need to run the browser compatibility test to check if the app is displayed correctly in different browsers. Another test to run is the mobile browser compatibility which is supposed to confirm that the app displays correctly across mobile browsers.*

*4.Performance Testing : Performance testing includes testing under different internet speeds as well as under normal and peak loads.*

*5.Security Testing : This type of testing is done to check if our app is secure from any malicious programs and its data and integration are protected. We will test some programs on our application to verify its security.*

## LIBRARIES FOR TESTING IN GOLANG

**1.testing** : This package contains all testing functions needed in go.

**2.net/http/httpptest** :It is a library for testing web applications.

## AUTOMATION TESTING TOOLS

**CI/CD** : Jenkins is a continuous integration (CI) and continuous delivery (CD) solution. The idea of CI is to merge code from individual developers into a project multiple times per day and test continuously to avoid downstream problems. CD takes this a step further to ensure that all merged code is always in a production-ready state. Jenkins enables developers to automate this process as much as possible - up to the point of deployment.

**Selenium**: It provides extensions to emulate user interaction with browsers, a distribution server for scaling browser allocation, and the infrastructure for implementations of the W3C WebDriver specification that lets you write interchangeable code for all major web browsers.

**Pytest**:The `pytest` framework makes it easy to write small tests, yet scales to support complex functional testing for applications and libraries.

**CLOUD SERVER**: AWS EC2 using AWS CodeDeploy.

