

Picture Perfect Design Document

- Overview
- Backend
 - Language
 - Use Case Diagram
 - Database
 - ER Diagram
 - Database Tables
 - Authentication
- Frontend/UI
 - Language
 - Library
 - UX Mock Layout
- Other Technologies
- Automation/Testing Strategies

Overview:

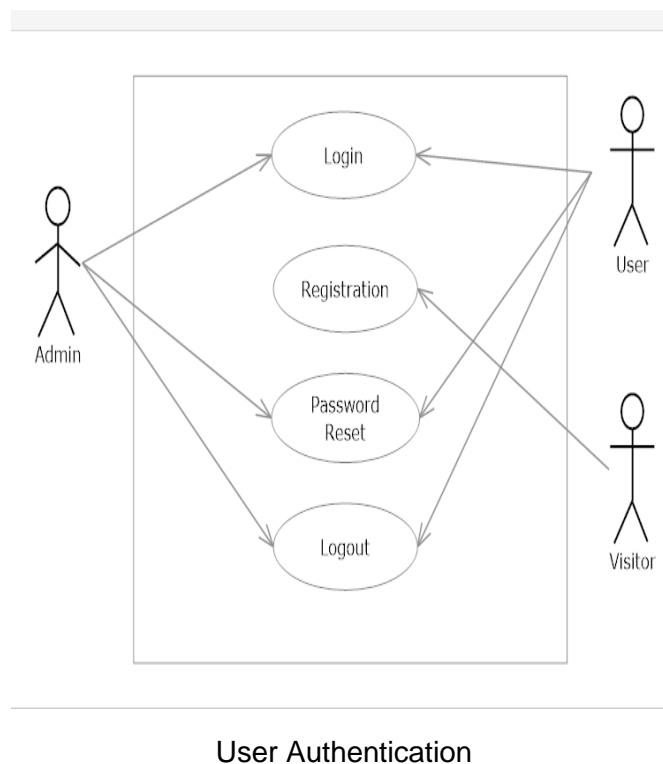
Picture Perfect is an online movie ticket booking, review and rating service. The service helps users generate reviews and rating content for movies across the world. One may wish to publish only a rating or a full review of the movie in a language of choice.

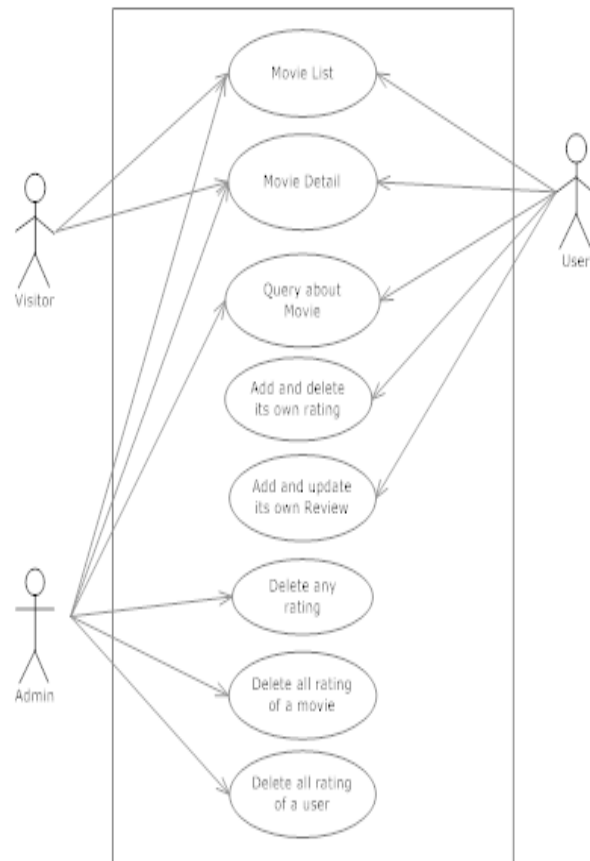
Backend:

Language: Golang

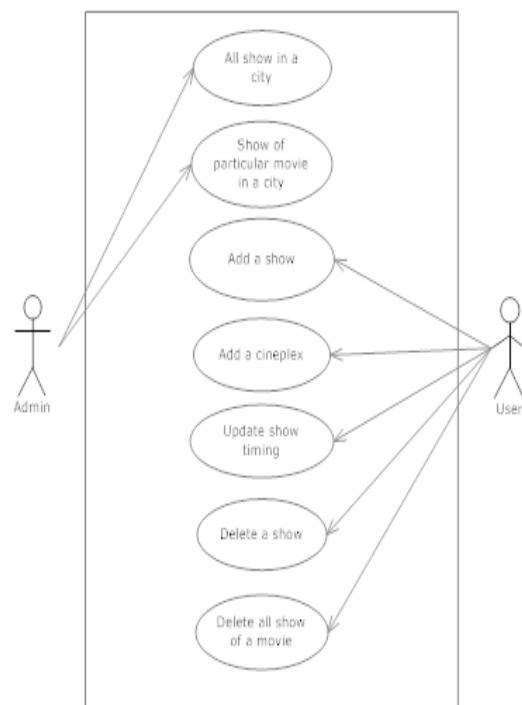
Go is one of the smallest and simplest languages in the world. Go compiles lightning-quick into fast native code. Go has excellent support for concurrency with goroutines and channels. Go is portable. Code compiles into single binary (no need to install dependencies). It also works great on different OS. Tests that are automated using Go can be executed on Windows, Linux, MacOS and each goroutine is 10x cheaper in resources than python thread.

Use Case Diagram:





Movie Catalogue

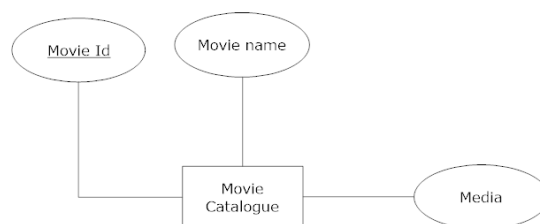
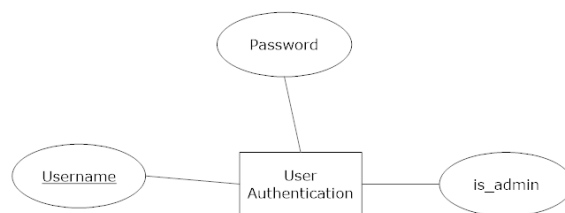
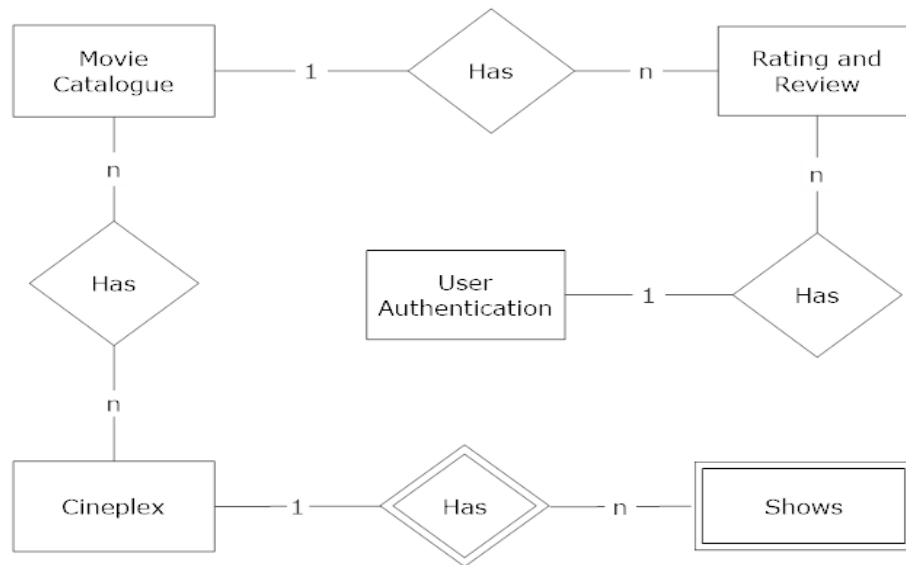


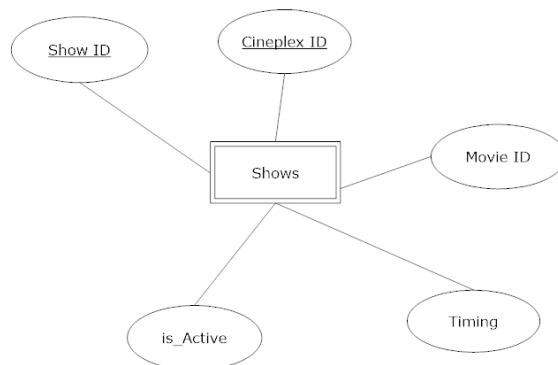
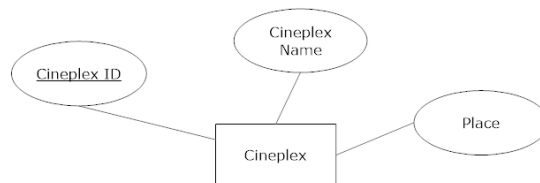
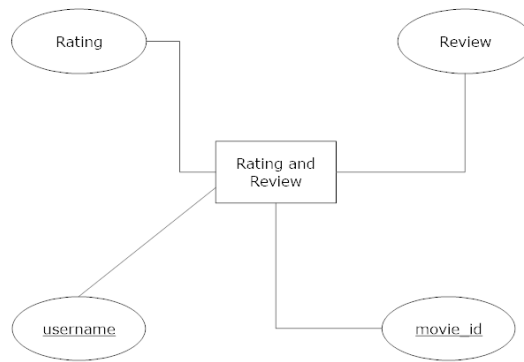
Cineplex shows

Database: MySQL

MySQL is the relational database which follows atomicity, consistency, isolation and durability (i.e. ACID properties)

ER Diagram:





Database Tables:

User Authentication:

Attribute	Type
Username	String (Primary Key)
Password	String
is_admin	Boolean

Primary Key: (Username)

Movie Catalogue Table:

Attribute	Type
Movie ID	String (Primary Key)
Movie Name	String
Media Links	Media

Primary Key: (Movie ID)

Rating and Review Table:

Attribute	Type
Movie ID	String
Username	String
Rating	Integer
Review	String

Primary Key: (Movie ID, Username)

Cineplex Table:

Attribute	Type
Cineplex ID	String
Cineplex Name	String
Place	String

Primary Key: (Cineplex ID)

Movie Shows Table:

Attribute	Type
Cineplex ID	String
Movie ID	String
Show Timing	Date
Is_active	Boolean

Primary Key: (Cineplex ID, Movie ID)

Session Table:

Attribute	Type
Session UUID	String
Username	String

Primary Key: (Session UUID)

Authentication:

- We will use cookies for authentication. Cookies will store UUID (Universally Unique Identifier) for each user to maintain the session.
- Go package “github.com/satori/go.uuid” will be used to generate UUID for each session.
- Go built-in package “bcrypt” is used for password encryption to ensure security and privacy.
- Any non-authenticated user can sign up and log in with the credentials.
- Different roles/permission will be defined for both user and admin.

Frontend/UI:

Language: HTML, CSS, JavaScript, TypeScript

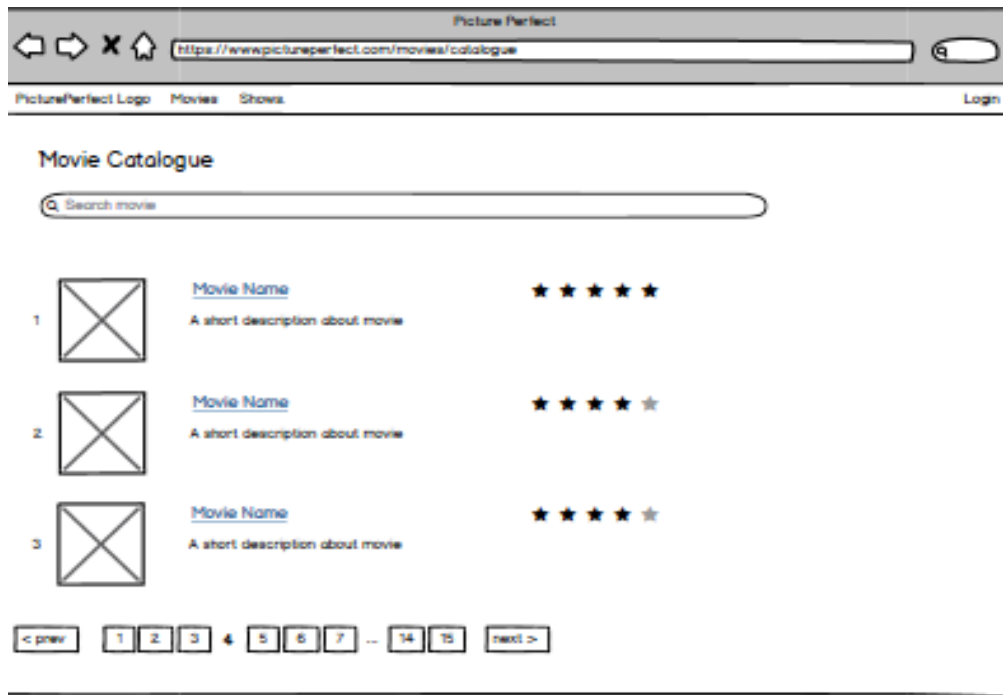
Library: React, Bootstrap

React is an open-source JavaScript library used for frontend development, which was developed by Facebook. Its component-based library lets us build high-quality user-

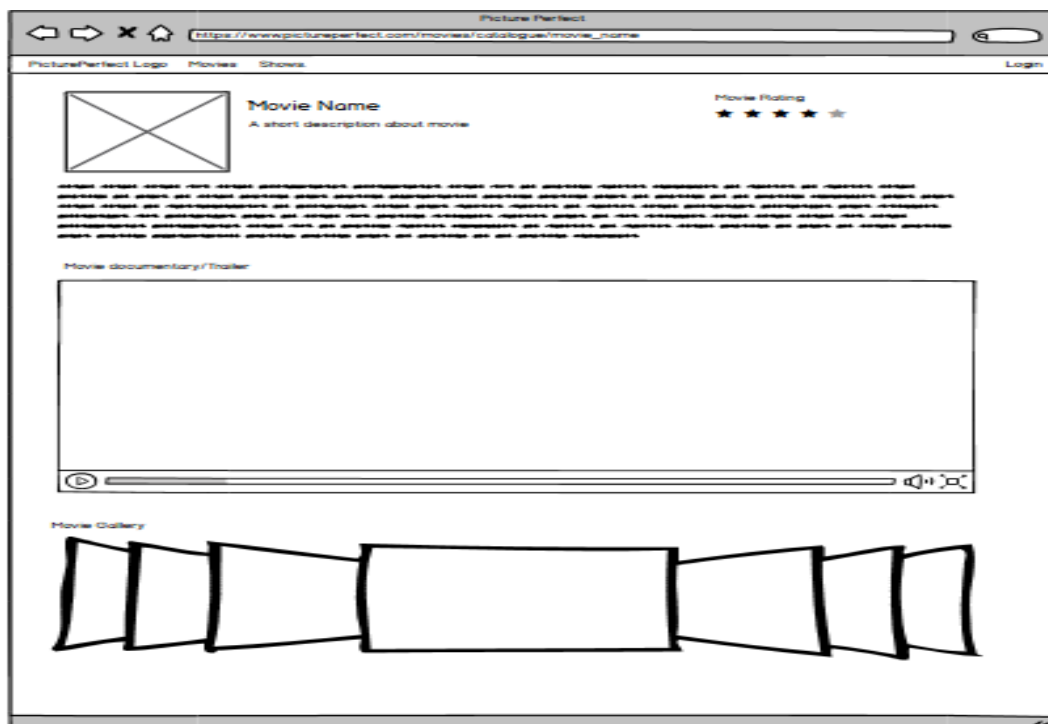
interfaces for web apps. This library allows us to place HTML code inside JavaScript and it works with Virtual DOM.

UX Mock Layout:

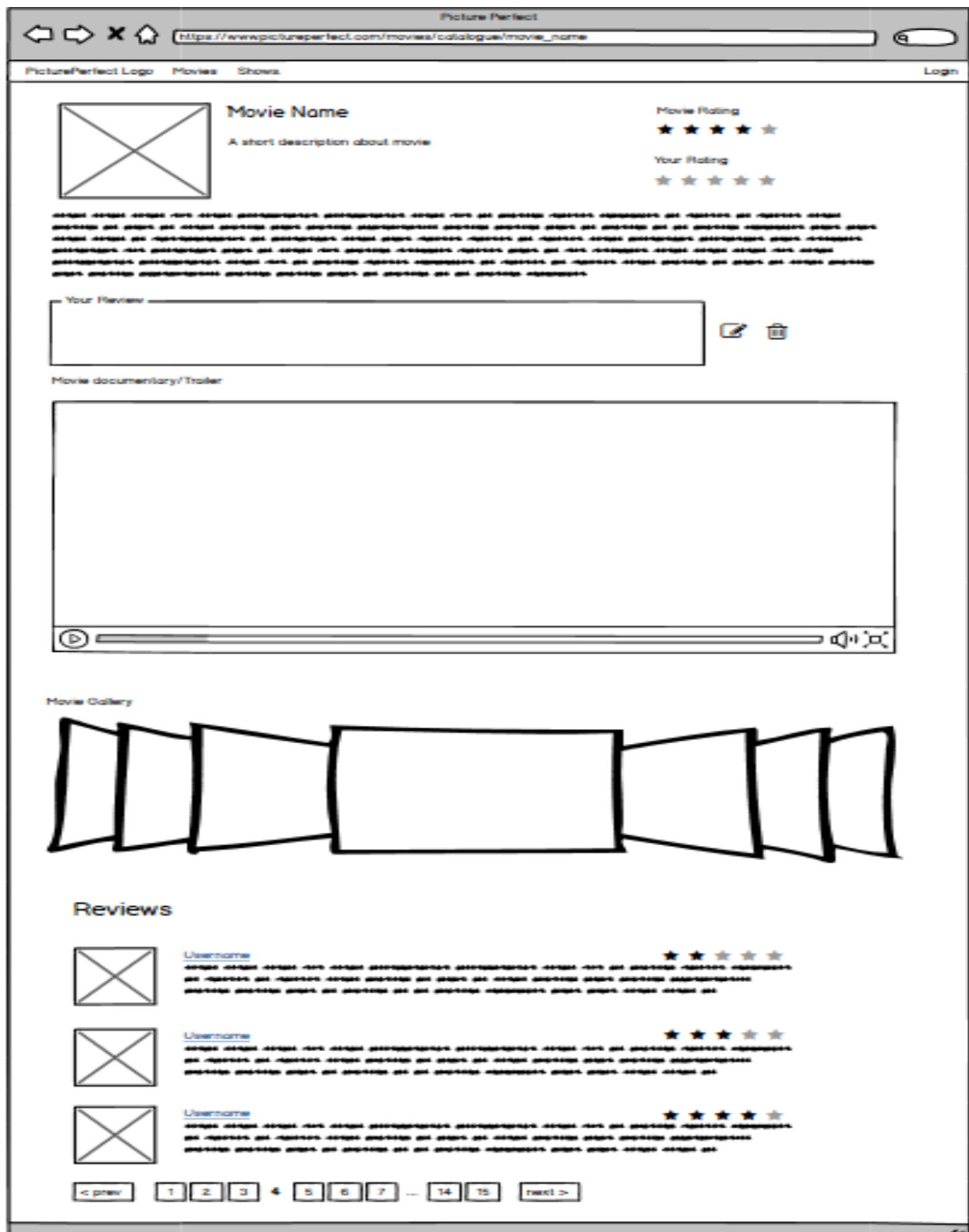
1. Get /movies/catalogue: it displays paginated list of movies, along with the associated media (links to the thumbnail pictures) for **users** and **visitors**



2. GET /movies/catalogue/{name} - displays a movie/documentary by name with detailed info and the media links images, videos to the **visitor**.



3. GET /movies/catalogue/{name} - displays a movie/documentary by name with detailed info and the media links images, videos to the **user**(rating and review enabled).



4. POST /login: displays the login page for the **user**.

The screenshot shows a web browser window titled "Picture Perfect" with the address bar displaying "https://www.pictureperfect.com/login". The browser's navigation bar includes "PicturePerfect Logo", "Movies", and "Shows". The main content area features a "Login" heading above a light gray form box. Inside the form, there are two input fields: "Email" and "Password". Below the "Password" field is a "Login" button and a blue link labeled "Forgot password?".

5. POST /reset - Reset the password to a new one.

The screenshot shows a web browser window titled "Picture Perfect" with the address bar displaying "https://www.pictureperfect.com/reset". The browser's navigation bar includes "PicturePerfect Logo", "Movies", "Shows", and a "Login" link on the right. The main content area features a "Forgot Password" heading above a light gray form box. Inside the form, there is an "Email" input field and a "Get new password" button below it.

6. GET /movies/shows/{city} - display all shows in all cineplexes in a city to a **user**.


Picture Perfect

https://www.pictureperfect.com/movies/shows/city_name


PicturePerfect Logo Movies Shows Login

List of Cineplex of city_name

search

1  [Cineplex Name](#)
A short description or address

Movie 1: Show_1	Show_2	Show_3
Movie 2: Show_1	Show_2	Show_3
Movie 3: Show_1	Show_2	Show_3

2  [Cineplex Name](#)
A short description or address

Movie 1: Show_1	Show_2	Show_3
Movie 2: Show_1	Show_2	Show_3
Movie 3: Show_1	Show_2	Show_3

< prev 1 2 3 4 5 6 7 ... 14 15 next >

7. GET /movies/shows/{city}/{movie} - List the cineplexes screening a particular movie


Picture Perfect

https://www.pictureperfect.com/movies/shows/city_name


PicturePerfect Logo Movies Shows Login

List of Cineplex showing movie_name in city_name

search ★★★★★

1  [Cineplex Name](#)
A short description or address

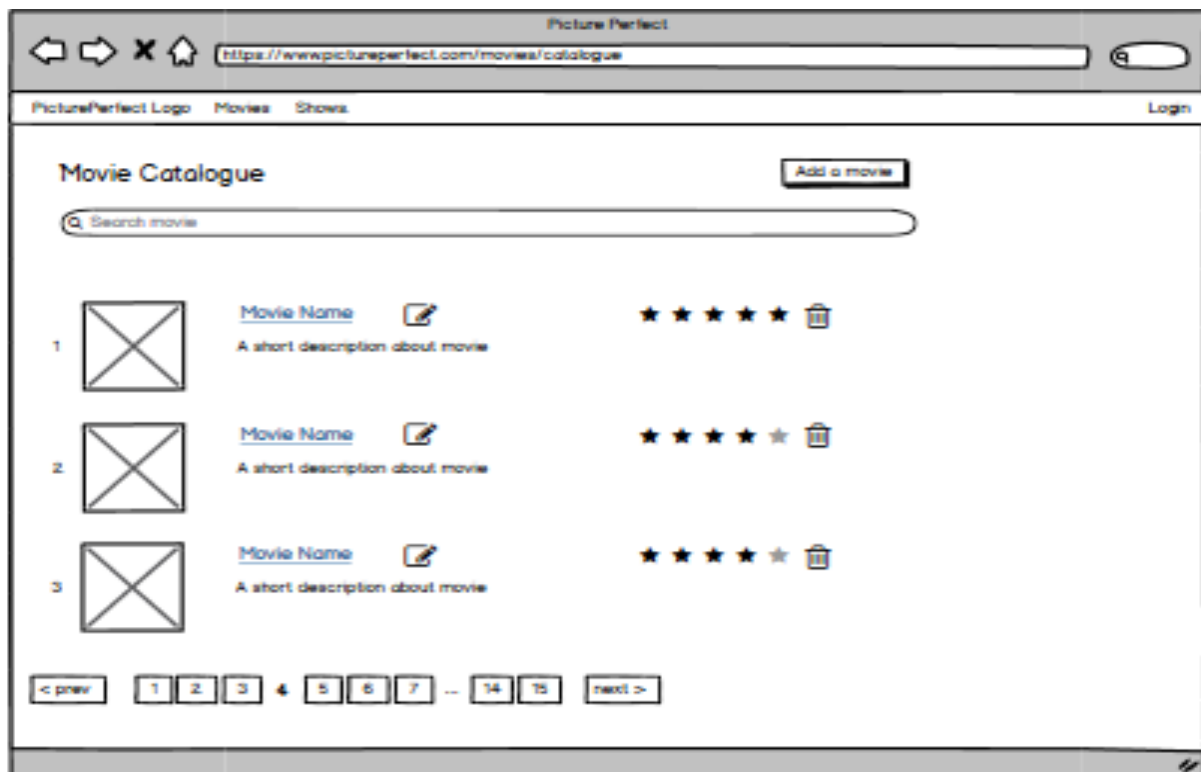
Show 1 Show 2 Show 3

2  [Cineplex Name](#)
A short description or address

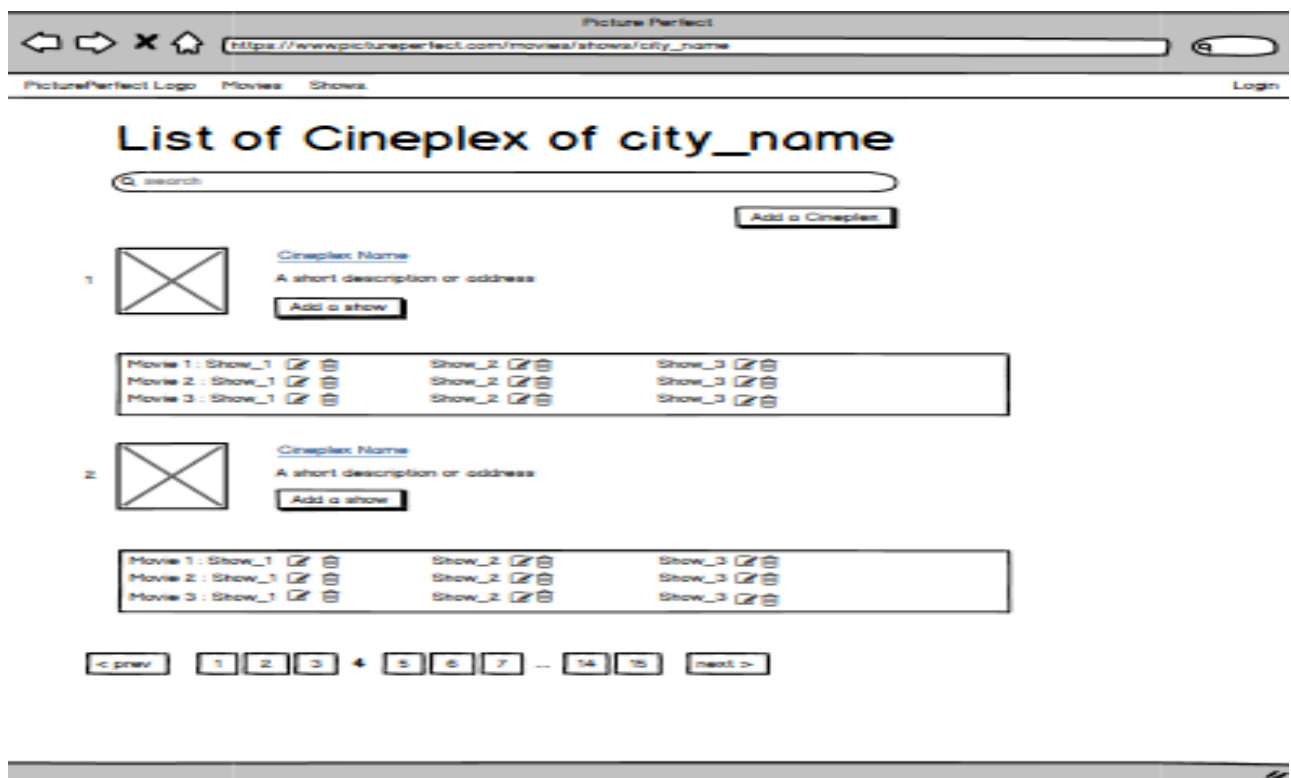
Show 1 Show 2 Show 3 Show 4

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8. Get /movies/catalogue: it displays paginated list of movies, along with the associated media (links to the thumbnail pictures) for **admin** (Edit and Delete Option Enabled).



9. GET /movies/shows/{city} - List all shows in all cineplexes in a city to a **admin** (Edit and Delete enabled).



10. GET /movies/catalogue/{name} - displays a movie/documentary by name with detailed info and the media links images, videos to the **admin** (Delete and Edit enabled).

Picture Perfect

← → × 🏠

https://www.pictureperfect.com/movies/catalogue/movie_name

🔍

PicturePerfect Logo Movies Shows Login

Movie Name

A short description about movie

.....

Movie Rating

★ ★ ★ ★ ☆

Submit

Movie documentary/Trailer

Movie Gallery

Reviews

Username

.....

★ ★ ★ ★ ☆

Username

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★ ★ ★ ★ ☆

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Other Technologies:

- **Deployment:** nginx or AWS EC2
- **Code Repository:** Git
- **Server:** go built-in package http

Automation/Testing Strategy:

Tool: reflex

Reflex is a small tool to watch a directory and rerun a command when certain files change. It's great for automatically running compile/lint/test tasks and for reloading your application when the code changes.

Go Packages:

- **testing:** Package testing provides support for automated testing of Go packages.
- **net/http/httptest:** Package httptest provides utilities for HTTP testing.
- **github.com/stretchr/testify:** Package testify is a set of packages that provide many tools for testifying that our code will behave as we intend.

Strategies:

- **Functionality Testing:** The main goal of functional testing is to make sure that all the functions within a web app are working smoothly without any technical glitches. Unit and Integration testing will be done using go testing package. Any changes in the function will let the reflex to call the required test cases to run.
- **Web UI Testing:** Web UI testing will ensure that all the individual components within a web application are connected appropriately. We should check whether the interaction between these servers are executed properly or not with the help of the net/http/httptest testing method.
- **Compatibility Testing:** It will check our website for browser compatibility, operating system compatibility, mobile browsing and printing options. Different browsers and operating system will be used to ensure that the website will work accordingly
- **Security Testing:** This testing method is one of the most important ones for our web application as if data leaks or modifications are tolerable or not. It usually involves whether it is possible to access web directories or files directly or not and so on.