

MINI PROJECT - 2

(2020-21)

Movie Mania

Project Report

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Declaration

We hereby declare that the work which is being presented in the Mini Project “**Movie Mania**”, in partial fulfillment of the requirements for Mini project is an authentic record of our own work carried under the supervision of **Mr. Vinay Agrawal, Technical Trainer.**

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I also extend our sincere thanks to all other faculty members of the Computer Science & Engineering Department.

Last but not the least, we acknowledge our friends for their contribution in the completion of the project

ABSTRACT

In this project we are going to build a website in which we can watch movies and series for the purpose of entertainment .We can save the entertaining programmes which are most liked by the people to watch later. Also, we can remove the movie or series from our favourite list. So, basically in this website people can login with their credentials and watch their favourite movie.

INTRODUCTION

Whenever a new movie comes people find out where they can watch the movie or look for the reviews of the movie to check whether they should watch that movie or not by seeing the ratings and reviews of people about it.

People nowadays love watching movies for entertainment purposes and also there are movies which motivates us and teaches us many lessons. So having a website which will help in the refreshment of people is a good idea. So on our website we are going to add the latest movies for the viewers and give them a chance to read and write their review about the same.

Motivation

Nowadays, the demand of taking everything online has become a need of modern times as there is no certainty of being physically available every time because of hectic schedules and busy lifestyles. Therefore, Web Development has become the most basic need, because nowadays during the time of pandemic no movie theaters or cinema halls are opened. So to overcome this drawback and to gain knowledge in the field of web development we developed this project .

Problem Statement

In this project we have to make a website in which we viewers of our website will be able to watch movies or save it to watch later on. We have to make a login page so that users can add the movies in their favourites section. Also we have to provide the details about the movie so that the viewer can decide whether he wants to watch the movie of that particular genre or not. We have to add like or dislike button so that viewers can tell whether they liked it or not. We will also add a comment section so that people can tell about the movie and can also tell what they liked about the movie and what they disliked about it.

Objective

Objective of this project is to make a full stack web application based on MERN technology which will help users to get details of latest movies (like run time ,rating ,category and their star cast etc.).

TECHNOLOGIES USED

MERN Stack

What is Mern Stack ?

MERN Stack is a Javascript Stack

that is used for easier and faster deployment of

full-stack web applications. MERN Stack comprises

4 technologies namely: MongoDB, Express,
React

and Node.js. It is designed to make the development

process smoother and easier. Each of these 4 powerful

technologies provides an end-to-end framework for

The developers to workin and each of these technologies

play a big part in the development of web applications



MongoDB

MongoDB is a NoSQL database where each record is a document consisting of key-value pairs that are similar to JSON (JavaScript Object Notation) objects. MongoDB is flexible and allows its users to create schema, databases, tables, etc. Documents that are identifiable by a primary key make up the basic unit of MongoDB. Once MongoDB is installed, users can make use of Mongo Shell as well. Mongo shell provides a JavaScript interface through which the users can interact and carry out operations (eg: querying, updating records, deleting records).

Advantages of MongoDB

- Fast – Being a document-oriented database, easy to index documents.
Therefore a faster response.
- Scalability – Large data can be handled by dividing it into several machines.
- Use of JavaScript – MongoDB uses JavaScript which is the biggest advantage.
- Schema Less – Any type of data in a separate document. •

Data stored in the form of JSON –

1. Objects, Object Members, Arrays, Values and Strings
2. JSON syntax is very easy to use.
3. JSON has a wide range of browser compatibility.
4. Sharing Data: Data of any size and type(video, audio) can be shared easily.

- Simple Environment Setup – It's really simple to set up MongoDB.

- Flexible Document Model – MongoDB supports document-model(tables, schemas, columns & SQL) which is faster and easier.
- Creating a database: Simply done using a “**use**” command: 10

Express JS

Express is a Node.js framework. Rather than writing the code using Node.js and creating loads of Node modules, Express makes it simpler and easier to write the back-end code. Express helps in designing great web applications and APIs. Express supports many middlewares which makes the code shorter and easier to write

Advantages Of Express JS

- Asynchronous and Single-threaded.
- Efficient, fast & scalable
- Has the biggest community for Node.js
- Express promotes code reusability with its built-in router.
- Robust API
- Create a new folder to start your express project and type below command in the command prompt to initialize a package.json file. Accept the default settings and continue.

React JS

React is a JavaScript library that is used for building user interfaces. React is used for the development of single-page applications and mobile applications because of its ability to handle rapidly changing data. React allows users to code in JavaScript and create UI components

Advantages of React

- Virtual DOM – A virtual DOM object is a representation of a DOM object. Virtual DOM is actually a copy of the original DOM. Any modification in the web application causes the entire UI to re-render the virtual DOM. Then the difference between the original DOM and this virtual DOM is compared and the changes are made accordingly to the original DOM.
- JSX – Stands for JavaScript XML. It is an HTML/XML JavaScript Extension which is used in React. Makes it easier and simpler to write React components.
- Components – ReactJS supports Components. Components are the building blocks of UI wherein each component has a logic and contributes to the overall UI. These components also promote code reusability and make the overall web application easier to understand.
- High Performance – Features like Virtual DOM, JSX and Components makes it much faster than the rest of the frameworks out there.
- Developing Android/Ios Apps – With React Native you can easily code Android-based or IOS-Based apps with just the knowledge of JavaScript and ReactJS.
- You can start your react application by first installing “create-react-app” using npm or yarn.

Node.js

Node.js provides a JavaScript Environment which allows the user to run their code on the server (outside the browser). Node pack manager i.e. npm allows the user to choose from thousands of free packages (node modules) to download.

Advantages Of Node.js

- Open source JavaScript Runtime Environment
- Single threading – Follows a single threaded model.
- Data Streaming
- Fast – Built on Google Chrome's JavaScript Engine, Node.js has a fast code execution.
- Highly Scalable
- Initialize a Node.js application by typing running the below command in the command window. Accept the standard settings.

“npm init”

Why MERN Stack ?

- The speed of design and development of websites and web applications,
- Reducing server costs,
- The performance of greatly optimized web applications and software,
- The ease of transposing a web application to a mobile application or software, thanks in particular to React Native,
- The luxury of designing a website using a single HTML document, 13
- The development of a computer application using a single language, JavaScript.

SOME OTHER TECHNOLOGIES USED

HTML

Hypertext Markup Language (HTML) is the standard markup language for documents designed to be displayed in a web browser. It can be assisted by technologies such as Cascading Style Sheets (CSS) and scripting languages such as JavaScript.

Web browsers receive HTML documents from a web server or from local storage and render the documents into multimedia web pages. HTML describes the structure of a web page semantically and originally included cues for the appearance of the document.

HTML elements are the building blocks of HTML pages. With HTML constructs, images and other objects such as interactive forms may be embedded into the rendered page. HTML provides a means to create structured documents by denoting structural semantics for text such as headings, paragraphs, lists, links, quotes and other items. HTML elements are delineated by tags, written using angle brackets. Tags such as `` and `<input />` directly introduce content into the page. Other tags such as `<p>` surround and provide information about document text and may include other tags as sub-elements. Browsers do not display the HTML tags, but use them to interpret the content of the page.

HTML can embed programs written in a scripting language such as JavaScript, which affects the behavior and content of web pages. Inclusion of CSS defines the look and layout of content. The World Wide Web Consortium (W3C), former maintainer of the HTML and current maintainer of the CSS standards, has encouraged the use of CSS over explicit presentational HTML since 1997

The JSX components in our Application also returns HTML as the final output

CSS

Cascading Style Sheets, fondly referred to as CSS, is a simple design language intended to simplify the process of making web pages presentable.

CSS handles the look and feel part of a web page. Using CSS, you can control the color of the text, the style of fonts, the spacing between paragraphs, how columns are sized and laid out, what background images or colors are used, layout designs, variations in display for different devices and screen sizes as well as a variety of other effects.

CSS is easy to learn and understand but it provides powerful control over the presentation of an HTML document. Most commonly, CSS is combined with the markup languages HTML or XHTML.

JavaScript

JavaScript is the **base technology** of our whole project. Whole Backend as well as some part frontend is developed using Javascript

JavaScript often abbreviated as JS, is a high-level, interpreted programming language that conforms to the ECMAScript specification. It is a programming language that is characterized as dynamic, weakly typed, prototype-based and multi-paradigm.

Alongside HTML and CSS, JavaScript is one of the core technologies of the World Wide Web.[9] JavaScript enables interactive web pages and is an essential part of web applications. The vast majority of websites use it,[10] and major web browsers have a dedicated JavaScript engine to execute it.

As a multi-paradigm language, JavaScript supports event-driven, functional, and imperative (including object-oriented and prototype-based) programming styles. It has APIs for working with text, arrays, dates, regular expressions, and the DOM, but the language itself does not include any I/O, such as networking, storage, or graphics facilities. It relies upon the host environment in which it is embedded to provide these features.

Initially only implemented client-side in web browsers, JavaScript engines are now embedded in many other types of host software, including server-side in web servers and databases, and in non-web programs such as word processors and PDF software, and in runtime environments that make JavaScript available for writing mobile and desktop applications, including desktop widgets.

The terms Vanilla JavaScript and Vanilla JS refer to JavaScript not extended by any frameworks or additional libraries. Scripts written in Vanilla JS are plain JavaScript code.

Although there are similarities between JavaScript and Java, including language name, syntax, and respective standard libraries, the two languages are distinct and differ greatly in design. JavaScript was influenced by programming languages such as Self and Scheme.

- Express JS

We will be using express to build the web server that Socket.IO will work with. Any other node-server-side framework or even node HTTP server can be used. However, ExpressJS makes it easy to define routes and other things.

- Optimization with React

Socket io is widely used with MERN stack for achieving Real-Time Goodness. Because of its Optimization and high Compatibility with it Which is why it makes it the best choice for implementing Real time Connections

REDUX

Redux is a predictable state container for JavaScript apps.

It helps you write applications that behave consistently, run in different environments (client, server, and native), and are easy to test. On top of that, it provides a great developer experience, such as live code editing combined with a time traveling debugger.

You can use Redux together with React, or with any other view library. It is tiny (2kB, including dependencies), but has a large ecosystem of addons available.

Principles of Redux

Predictability of Redux is determined by three most important principles as given below –

Single Source of Truth

The state of your whole application is stored in an object tree within a single store. As whole application state is stored in a single tree, it makes debugging easy, and development faster.

State is Read-only

The only way to change the state is to emit an action, an object describing what happened. This means nobody can directly change the state of your application.

Changes are made with pure functions

To specify how the state tree is transformed by actions, you write pure reducers. A reducer is a central place where state modification takes place. Reducer is a function which takes state and action as arguments, and returns a newly updated state.

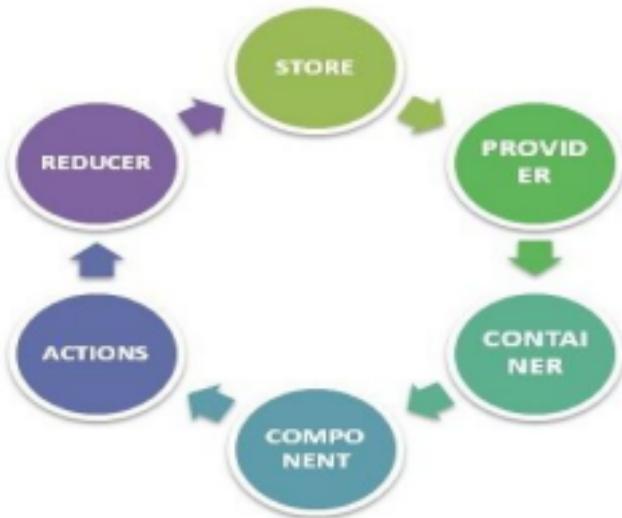
Redux Integration With Redux

Let us say if various react components need to display the same data in different ways without passing it as a prop to all the components from top-level component to the way down. It would be ideal to store it outside the react components. Because it helps in faster data retrieval as you need not pass data all the way down to different components.

When using Redux with React, **states will no longer need to be lifted up**; thus, it makes it easier for you to trace which action causes any change. As seen above, the component does not need to provide any state or method

for its children components to share data among themselves. Everything is handled by Redux.

Redux Workflow



STORE – Stores all your application state as a JavaScript object

PROVIDER – Makes stores available

CONTAINER – Get apps state & provide it as a prop to components

COMPONENT – User interacts through view component

ACTIONS – Causes a change in store, it may or may not change the state of your app

REDUCER – Only way to change app state, accept state and action, and return updated state.

However, Redux is an independent library and can be used with any UI layer. React-redux is the official Redux, UI binding with the react. Moreover, it encourages a good react Redux app structure. React-redux internally implements performance optimization, so that component re-render occurs only when it is needed.

To sum up, Redux is not designed to write the shortest and fastest code. It is intended to provide a predictable state management container. It helps us understand when a certain state changed, or where the data came from.

HARDWARE REQUIREMENTS AND SOFTWARE USED

Hardware Requirements:

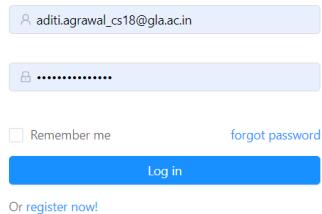
- RAM:- 4.00GB .
- Processor:- Intel(R)Core(TM) i3-4005U CPU @ 1.70GHz

Software Used :

- VSCode text editor for creating API. .
- Insomnia Designer for handling and testing http requests
- Chrome and Edge Browsers for testing
- React and Redux DevTools Extensions for Chrome and Edge
- Node js for hosting server on localhost .
- RoboMongo 3T for visual representation of Database

SUMMARY OF MODULES/PAGES

Log In

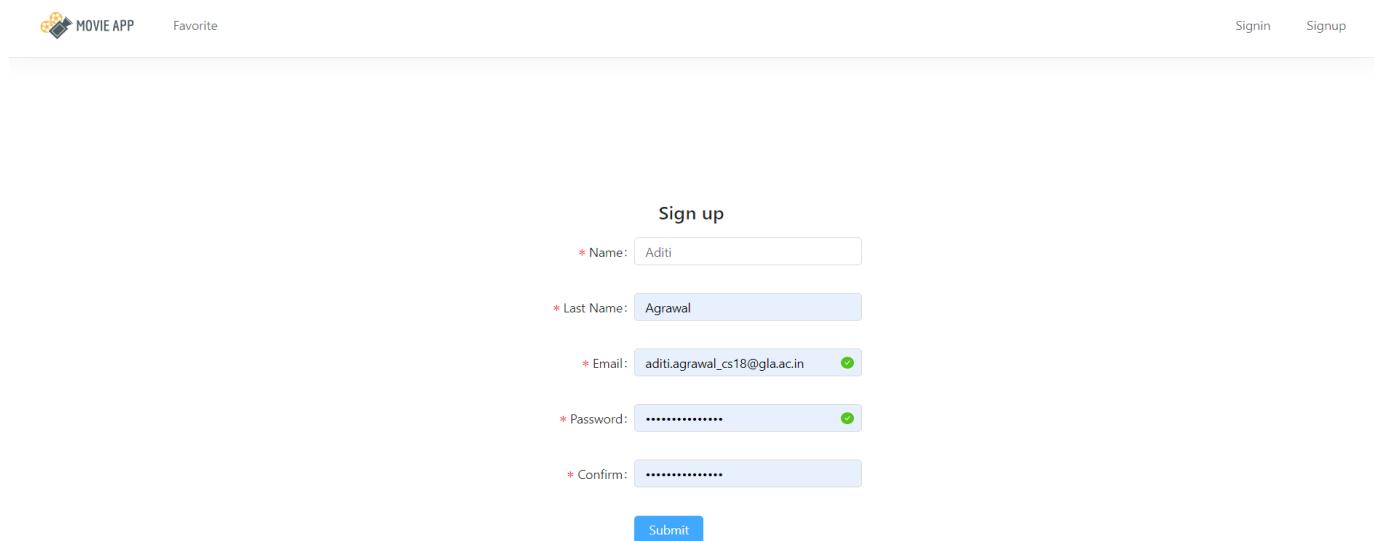


The image shows a login form with the following fields and controls:

- Email input field: aditi.agrawal_cs18@gl.a.ac.in
- Password input field: (redacted)
- Remember me checkbox
- [forgot password](#)
- [Log in](#)
- [Or register now!](#)

This is our login page in which users will login using their credentials. If user has not registered earlier then they can sign up by clicking on register me.Then a sign up page will appear.

After signing up then home page will appear as shown below:



The image shows a mobile application interface with the following elements:

- Top navigation bar: MOVIE APP (with a movie camera icon), Favorite, Signin, Signup
- Content area: Sign up form with the following fields:
 - * Name: Aditi
 - * Last Name: Agrawal
 - * Email: aditi.agrawal_cs18@gl.a.ac.in (green checkmark)
 - * Password: (red asterisks)
 - * Confirm: (red asterisks)
- Bottom button: Submit

After signing up there comes our home page where many movies to watch are there as shown.

MOVIE APP Favorite Logout

Movies by latest

The image shows a screenshot of a movie app interface. At the top, there are navigation links: 'MOVIE APP', 'Favorite', and 'Logout'. Below this, the text 'Movies by latest' is displayed. A 2x4 grid of movie posters is shown. The top row contains 'GODZILLA vs. KONG', 'JUSTICE LEAGUE', 'CHAOS WALKING', and 'MORTAL KOMBAT'. The bottom row contains 'RAYA', 'THUNDER', 'MONSTER HUNTER', and 'MORTAL KOMBAT LEGENDS: SCORPION'S REVENGE'. Each poster is a square image representing a different movie.

The image shown below shows the functionality that by clicking on load more it will show us more options for the movies.

MOVIE APP Favorite Logout

localhost:3000/movie/632357 Load More

Now by clicking on one particular movie the page showing the details of the movie will appear as shown .

MOVIE APP Favorite Logout

Godzilla vs. Kong

In a time when monsters walk the Earth, humanity's fight for its future sets Godzilla and Kong on a collision course that will see the two most powerful forces of nature on the planet collide in a spectacular battle for the ages.

Not Favorite 1

Movie Info					
Title	Godzilla vs. Kong	release_date	2021-03-24	revenue	390215000
runtime	113	vote_average	8.3		

The image shown below is showing the details of the toggle actors of that particular movie.

The screenshot shows a movie application interface. At the top, there's a navigation bar with a logo, 'MOVIE APP', 'Favorite', 'Logout', and a 'Not Favorite 1' button. Below the navigation is a section titled 'Movie Info' containing a table with movie details:

Title	Godzilla vs. Kong	release_date	2021-03-24	revenue	390215000
runtime	113	vote_average	8.3		
vote_count	4650	status	Released	popularity	6914.198

Below the table is a 'Toggle Actor View' button. Underneath the button are four actor portraits: Alexander Skarsgård, Millie Bobby Brown, Gina Carano, and Winston Duke.

Here is one more functionality to like or dislike the movie. Also we can comment over there about the movie or share our views about it.

The screenshot shows the same movie application interface, but now with a 'Share your opinions about Godzilla vs. Kong' section. It includes a comment from a user named Aditi:

Aditi
GODZILLA VS KONG is laced with a great story and buildup and the climax battle between the monsters is amazing...

Below the comment are interaction buttons: a thumbs up icon with '1', a thumbs down icon with '0', and a 'Reply to' link. At the bottom, there's a text input field with placeholder 'write some comments' and a 'Submit' button.

Now here are some snippets of the database in which our data is going to store as shown below.

The screenshot shows the MongoDB Atlas interface for the 'Cluster0' cluster. On the left, the 'Clusters' sidebar lists 'movie mania' as the selected cluster. Under 'Collections', it shows 'moviemania.favorites' with a collection size of 419B, 2 documents, and 36KB total index size. A query result table displays two documents:

```

_id:ObjectId("607c1d6c47e5081660f26013")
movieId:"544401"
userFrom:ObjectId("607c1d2647e5081660f26011")
movieTitle:"Cherry"
moviePost:"/uQtr1au2u80lokqj1URVLEha6zoi.jpg"
movieRuntime:"140"
createdAt:2021-04-18T11:52:12.174+00:00
updatedAt:2021-04-18T11:52:12.174+00:00
__v:0

```

The screenshot shows a browser window with the URL localhost:3000/favorite. The page title is 'MOVIE APP' and the sub-page title is 'Favorite'. It displays a table titled 'Favorite Movies By Me' with two rows of data:

Movie Title	Movie RunTime	Remove from favorites
Zack Snyder's Justice League	242 mins	Remove
Thunder Force	107 mins	Remove



References

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THANK YOU