MOVIES RECOMMENDATION SYSTEM

Project report

SUBMITTED IN THE PARTIAL FULFILMENT FOR THE AWARD OF THE DEGREE OF

BACHELOR OF ENGINEERING

IN

Big Data and Analytics

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DECLARATION

I **undersigned solemnly declare that the project synopsis based on my own work carried out during the course of our study under the supervision of teacher suhail javed quarishi. I assert the statements made and conclusions drawn are an outcome of my work. I further certify that the work contained in the report is original and has been done by me under the general supervision of my supervisor.**

II. The work has not been submitted to any other Institution for any other degree/ diploma/certificate in this university or any other University of India or abroad.

III. I have followed the guidelines provided by the university in writing the report.
IV. Whenever we have used materials (data, theoretical analysis, and text) from other sources.

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ACKNOWLEDGEMENT

I have taken efforts in this project. However, it would not have been possible without the kindsupport and help of many individuals and organizations. I would like to extend my sincere thanks to all of them.

I am highly indebted to teachers for their guidance and constantsupervision as well as for providing necessary information regarding the project & also for their support in completing the project.

I would like to express my gratitude towards my parents and my department and teachers fortheir kind co-operation and encouragement which help me in completion of this project.

THANKS AGAIN TO ALL WHO HELPED

ABSTRACT

Goal of this project is making a movies recommendation system. Movie recommendation system is probably the most trending data science application today. They can be used to predict user preference for any particular items like comedy, romantic, action, top rated, trending now and Netflix original contents. I use TMDB API key for movies database which provide us to programmatically fetch and use data. So in our movie recommendationsystem you can see all the movies is recommended in different categories.
Movie recommendation system provide a mechanism to assist users in classifying users withSimilar interests. This make recommender system essentially and useful.

As the data quality and quantities increases, in future to provide a new perspective to the whole idea Of supporting users in developing, exploring and understanding their unique personal preferences. All of the major tech companies are using recommendation system insome form or other.

Like amazon is using it to suggest frequently bought together or customer who viewed this item also viewed. YouTube is using it to create an auto playlist based on your preferences. Infact, for entire business model and its success revolves around how good their recommendation system is.

Recommender System is a tool helping users find content and overcome information overload. It predicts interests of users and makes recommendation according to the interest model of users. The original content-based recommender system is the continuation and development of collaborative filtering, which doesn't need the user's evaluation for items. Instead, the similarity is calculated based on the information of items that are chose by users, and then make the recommendation accordingly. With the improvement of machine learning, current content-based recommender system can build profile for users and products respectively.

Building or updating the profile according to the analysis of items that are bought or visited by users. The system can compare the user and the profile of items and then recommend the most similar products. So this recommender method that compare user and product directly cannot be brought into collaborative filtering model. The foundation of content-based algorithm is acquisition and quantitative analysis of the content. As the research of acquisition and filtering of text information are mature, many current content-based recommender systems make recommendation according to the analysis of text information. This paper introduces content-based recommender system for the movie website of VionLabs. There are a lot of features extracted from the movie, they are diversity and unique, which is also the difference from other recommender systems. We use these features to construct movie model and calculate similarity. We introduce a new approach for setting weight of features, which improves the representative of movies. Finally we evaluate the approach to illustrate the improvement.

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BACKGROUND

In the era of information overload, it is very difficult for users to get information that they are really interested in. And for the content provider, it is also very hard for them to make their content stand out from the crowd. That is why many researchers and companies develop Recommender System to solve the contradiction. The mission of Recommender System is to connect users and information, which in one way helps users to find information valuable to them and in another way push the information to specific users. This is the win-win situation for both customers and content providers. VionLabs is a media-tech startup company. The company provides a new way on how consumers are given access to good and suitable content. The mission of VionLabs is to increase needs of its digital user base. Vionel is the movie website developed by VionLabs, which is a place for people who love movies can gather all the information about films in one place[5]. This thesis report will present a more practical recommendation method that can be used on a movie website that does not have enough users.

PROBLEM DEFINITION

According to survey there find that people sometimes facing many different kinds of problemswhile watching and selecting movies and it's kill a lots of time while selecting or choosing which are top rated movies, which are trending movies similarly which are comedy, action, romance, horror, documentaries. So for solving these kinds of problems and people easily access their preferences, this movies recommendation system provide a good user interface so that people find their choices. and in this movie recommendation system I use TMDB API key for movie database which fetch data similar to Netflix contents and with the help of this API key we get recommendation of movies in different categories. This kind of recommendation system sort out the problem of people who find difficulties in selecting movies with their preferences.

For building a recommender system from scratch, we face several different problems. Currently there are a lot of recommender systems based on the user information, so what should we do if the website has not gotten enough users. After that, we will solve the representation of a movie, which is how a system can understand a movie. That is the precondition for comparing similarity between two movies. Movie features such as genre, actor and director is a way that can categorize movies. But for each feature of the movie, there should be different weight for them and each of them plays a different role for recommendation.

the first thing that we should always do is define the problem, or translate the business problem into a data science problem. It's not only about dividing the big project into small parts, but also representing how to think about the problem, which may have varying performance in our final solution.
The recommendation system is because of information overload, and we can call it an information filter system. It greatly influences what we interact with the world: shopping (Amazon, Best Buy), music(Spotify), video(Youtube, Netflix), etc. To build a recommendation system providing recommendations to millions of users with millions of items, the first thing is, define the problem.

PROJECT OVERVIEW

Main aim for making this project is to solve above problems mentions so that peoples easily able to select their movies with their preferences that if anyone want to know which aretop rated movies, which are Netflix original, which are trending movies in Netflix and others different categories like horror, comedy, romance etc. about our project we make our movies recommendation system with the help of web development concepts and for movies database we use TMDB API key and that's provide us a Netflix user interface so people find this as a friendly user recommendation system.

The goals of this thesis project is to do the research of Recommender Systems and find a suitable way to implement it. There are many kinds of Recommender Systems but not all of them are suitable for one specific problem and situation. Our goal is to find a new way to improve the classification of movies, which is the requirement of improving content-based recommender systems.

For developing part of this project, I use react a javascript library for frontend development.
And I use node js for backend development.
about react a java script library:

REACT

React is a JavaScript library created by Facebook
React is a User Interface (UI) library
React is a tool for building UI components

ReactJS tutorial provides basic and advanced concepts of ReactJS. Currently, ReactJS is one of the most popular JavaScript front-end libraries which has a strong foundation and a large community.
ReactJS is a declarative, efficient, and flexible JavaScript library for building reusable UI components. It is an open-source, component-based front end library which is responsible only for the view layer of the application. It was initially developed and maintained by Facebook and later used in its products like WhatsApp & Instagram.

The main objective of ReactJS is to develop User Interfaces (UI) that improves the speed of the apps. It uses virtual DOM (JavaScript object), which improves the performance of the app. The JavaScript virtual DOM is faster than the regular DOM. We can use ReactJS on the client and server-side as well as with other frameworks. It uses component and data patterns that improve readability and helps to maintain larger apps

React create-react-app

Starting a new React project is very complicated, with so many build tools. It uses many dependencies, configuration files, and other requirements such as Babel, Webpack, ESLint before writing a single line of React code. Create React App CLI tool removes all that complexities and makes React app simple. For this, you need to install the package using NPM, and then run a few simple commands to get a new React project.
The create-react-app is an excellent tool for beginners, which allows you to create and run React project very quickly. It does not take any configuration manually. This tool is wrapping all of the required dependencies like Webpack, Babel for React project itself and then you need to focus on writing React code only. This tool sets up the development environment, provides an excellent developer experience, and optimizes the app for production.

Requirements

The Create React App is maintained by Facebook and can works on any platform, for example, macOS, Windows, Linux, etc. To create a React Project using create-react-app, you need to have installed the following things in your system.

1. **Node version >= 8.10**
2. **NPM version >= 5.6**

Install React

We can install React using npm package manager by using the following command. There is no need to worry about the complexity of React installation. The create-react-app npm package manager will manage everything, which needed for React project.

1. **C:\Users\javatpoint> npm install -g create-react-app**

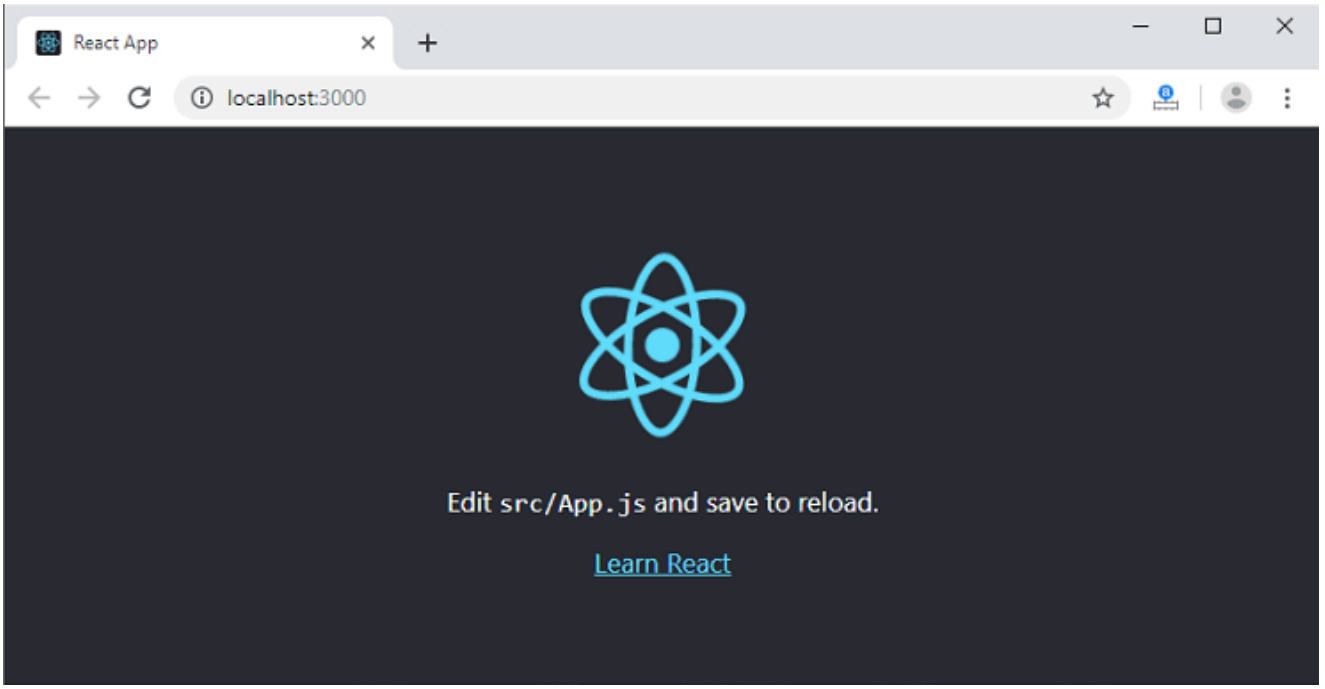
Create a new React project

Once the React installation is successful, we can create a new React project using create-react-app command. Here, I choose "reactproject" name for my project.

1. **C:\Users\javatpoint> create-react-app reactproject**
2. **C:\Users\javatpoint> npx create-react-app reactproject**

The above command will take some time to install the React and create a new project with the name "reactproject." Now, we can see the terminal as like below.

NPM is a package manager which starts the server and access the application at default server localhost:3000



In React application, there are several files and folders in the root directory. Some of them are as follows:

1. **node_modules: It contains the React library and any other third party libraries needed.**
2. **public: It holds the public assets of the application. It contains the index.html where React will mount the application by default on the element.**
3. **src: It contains the App.css, App.js, App.test.js, index.css, index.js, and serviceWorker.js files. Here, the App.js file always responsible for displaying the output screen in React.**
4. **package-lock.json: It is generated automatically for any operations where npm package modifies either the node_modules tree or package.json. It cannot be published. It will be ignored if it finds any other place rather than the top-level package.**
5. **package.json: It holds various metadata required for the project. It gives information to npm, which allows to identify the project as well as handle the project?s dependencies.**
6. **README.md: It provides the documentation to read about React topics.**

Now, open the src >> App.js file and make changes which you want to display on the screen. After making desired changes, save the file. As soon as we save the file, Webpack recompiles the code, and the page will refresh automatically, and changes are reflected on the browser screen. Now, we can create as many components as we want, import the newly created component inside the App.js file and that file will be included in our main index.html file after compiling by Webpack.

Advantage of ReactJS

1. Easy to Learn and USe

ReactJS is much easier to learn and use. It comes with a good supply of documentation, tutorials, and training resources. Any developer who comes from a JavaScript background can easily understand and start creating web apps using React in a few days. It is the V(view part) in the MVC (Model-View-Controller) model, and referred to as ?one of the JavaScript frameworks.? It is not fully featured but has the advantage of open-source JavaScript User Interface(UI) library, which helps to execute the task in a better manner.

2. Creating Dynamic Web Applications Becomes Easier

To create a dynamic web application specifically with HTML strings was tricky because it requires a complex coding, but React JS solved that issue and makes it easier. It provides less coding and gives more functionality. It makes use of the JSX(JavaScript Extension), which is a particular syntax letting HTML quotes and HTML tag syntax to render particular subcomponents. It also supports the building of machine-readable codes.

3. Reusable Components

A ReactJS web application is made up of multiple components, and each component has its own logic and controls. These components are responsible for outputting a small, reusable piece of HTML code which can be reused wherever you need them. The reusable code helps to make your apps easier to develop and maintain. These Components can be nested with other components to allow complex applications to be built of simple building blocks. ReactJS uses virtual DOM based mechanism to fill data in HTML DOM. The virtual DOM works fast as it only changes individual DOM elements instead of reloading complete DOM every time.

4. Performance Enhancement

ReactJS improves performance due to virtual DOM. The DOM is a cross-platform and programming API which deals with HTML, XML or XHTML. Most of the developers faced the problem when the DOM was updated, which slowed down the performance of the application. ReactJS solved this problem by introducing virtual DOM. The React Virtual DOM exists entirely in memory and is a representation of the web browser's DOM. Due to this, when we write a React component, we did not write directly to the DOM. Instead, we are writing virtual components that react will turn into the DOM, leading to smoother and faster performance.

5. The Support of Handy Tools

React JS has also gained popularity due to the presence of a handy set of tools. These tools make the task of the developers understandable and easier. The React Developer Tools have been designed as Chrome and Firefox dev extension and allow you to inspect the React component hierarchies in the virtual DOM. It also allows you to select particular components and examine and edit their current props and state.

6. Known to be SEO Friendly

Traditional JavaScript frameworks have an issue in dealing with SEO. The search engines generally having trouble in reading JavaScript-heavy applications. Many web developers have often complained about this problem. ReactJS overcomes this problem that helps developers to be easily navigated on various search engines. It is because React.js applications can run on the server, and the virtual DOM will be rendering and returning to the browser as a regular web page.

7. The Benefit of Having JavaScript Library

Today, ReactJS is choosing by most of the web developers. It is because it is offering a very rich JavaScript library. The JavaScript library provides more flexibility to the web developers to choose the way they want.

8. Scope for Testing the Codes

ReactJS applications are extremely easy to test. It offers a scope where the developer can test and debug their codes with the help of native tools.

Disadvantage of ReactJS

1. The high pace of development

The high pace of development has an advantage and disadvantage both. In case of disadvantage, since the environment continually changes so fast, some of the developers not feeling comfortable to relearn the new ways of doing things regularly. It may be hard for them to adopt all these changes with all the continuous updates. They need to be always updated with their skills and learn new ways of doing things.

2. Poor Documentation

It is another cons which are common for constantly updating technologies. React technologies updating and accelerating so fast that there is no time to make proper documentation. To overcome this, developers write instructions on their own with the evolving of new releases and tools in their current projects.

3. View Part

ReactJS Covers only the UI Layers of the app and nothing else. So you still need to choose some other technologies to get a complete tooling set for development in the project.

4. JSX as a barrier

ReactJS uses JSX. It's a syntax extension that allows HTML with JavaScript mixed together. This approach has its own benefits, but some members of the development community consider JSX as a barrier, especially for new developers. Developers complain about its complexity in the learning curve.

Google firebase

Google Firebase is a Google-backed application development software that enables developers to develop iOS, Android and web apps. Firebase provides tools for tracking analytics, reporting and fixing app crashes, creating marketing and product experiment.

Firebase is an extremely useful platform for rapidly creating serverless applications. Apart from that, Firebase is also used alongside end-to-end systems to solve several production-grade issues, such as config management and push notifications. Firebase Realtime Database is one of the most popular services offered by the platform. It gives a quick database and a backend for web apps that need to be built and scaled fast.
Connecting a Firebase database to a React app is, unfortunately, not straightforward. There are some confusing things about the way data sync in Firebase integrates with how React handles state. To get the most out of Firebase, it's best to integrate it in a manner that complements the uni-directional data flow pattern of React.

First, create a Firebase project using the Firebase Console. The setup is quite easy to follow with the console app. Follow these steps:

1. **Goto Add Project from the console.**
2. **Enter a project name and continue.**
3. **You can opt in to include Google Analytics in the project. Opt out for now.**
4. **Once the setup is done, you will be redirected to the project dashboard. Go to Project Settings.**
5. **Under Your Apps, select the Web icon.**
6. **Enter a name for the app and click Register App.**
7. **Copy the config details that come under the firebaseConfig variable. You will need it later to set up communication between your app and Firebase.**
8. **Press Continue to Console to complete web app registration.**

The React Context you implement for Firebase connectivity will have the following functions:

1. **It will initiate a connection with Firebase at the app init.**
2. **It will make sure that only one connection per app instance will exist with Firebase.**
3. **It will be available to be used in any component once injected as a Provider to the App.**
4. **It will interface all read/write operations to the real-time database.**
5. **It will integrate with Redux directly.**

Add Firebase to your React project using npm install --save firebase or yarn add firebase.

Firebase offers a number of services, including:

- **Analytics – Google Analytics for Firebase offers free, unlimited reporting on as many as 500 separate events. Analytics presents data about user behavior in iOS and Android apps, enabling better decision-making about improving performance and app marketing.**
- **Authentication – Firebase Authentication makes it easy for developers to build secure authentication systems and enhances the sign-in and onboarding experience for users. This feature offers a complete identity solution, supporting email and password accounts, phone auth, as well as Google, Facebook, GitHub, Twitter login and more.**
- **Cloud messaging – Firebase Cloud Messaging (FCM) is a cross-platform messaging tool that lets companies reliably receive and deliver messages on iOS, Android and the web at no cost.**
- **Realtime database – the Firebase Realtime Database is a cloud-hosted NoSQL database that enables data to be stored and synced between users in real time. The data is synced across all clients in real time and is still available when an app goes offline.**
- **Crashlytics – Firebase Crashlytics is a real-time crash reporter that helps developers track, prioritize and fix stability issues that reduce the quality of their apps. With crashlytics, developers spend less time organizing and troubleshooting crashes and more time building features for their apps.**
- **Performance – Firebase Performance Monitoring service gives developers insight into the performance characteristics of their iOS and Android apps to help them determine where and when the performance of their apps can be improved.**
- **Test lab – Firebase Test Lab is a cloud-based app-testing infrastructure. With one operation, developers can test their iOS or Android apps across a variety of devices and device configurations. They can see the results, including videos, screenshots and logs, in the Firebase console.**

Node js

Node.js is a platform built on Chrome's JavaScript runtime for easily building fast and scalable network applications. Node.js uses an event-driven, non-blocking I/O model that makes it lightweight and efficient, perfect for data-intensive real-time applications that run across distributed devices.

Node.js is an open source, cross-platform runtime environment for developing server-side and networking applications. Node.js applications are written in JavaScript, and can be run within the Node.js runtime on OS X, Microsoft Windows, and Linux.
Node.js also provides a rich library of various JavaScript modules which simplifies the development of web applications using Node.js to a great extent.

Node.js = Runtime Environment + JavaScript Library

Features of Node.js

Following are some of the important features that make Node.js the first choice of software architects.

- **Asynchronous and Event Driven − All APIs of Node.js library are asynchronous, that is, non-blocking. It essentially means a Node.js based server never waits for an API to return data. The server moves to the next API after calling it and a notification mechanism of Events of Node.js helps the server to get a response from the previous API call.**
- **Very Fast − Being built on Google Chrome's V8 JavaScript Engine, Node.js library is very fast in code execution.**
- **Single Threaded but Highly Scalable − Node.js uses a single threaded model with event looping. Event mechanism helps the server to respond in a non-blocking way and makes the server highly scalable as opposed to traditional servers which create limited threads to handle requests. Node.js uses a single threaded program and the same program can provide service to a much larger number of requests than traditional servers like Apache HTTP Server.**
- **No Buffering − Node.js applications never buffer any data. These applications simply output the data in chunks.**

Local Environment Setup

If you want to set up your environment for Node.js, you need the following two softwares available on your computer, (a) Text Editor and (b) The Node.js binary installables.

Text Editor

This will be used to type your program. Examples of few editors include Windows Notepad, OS Edit command, Brief, Epsilon, EMACS, and vim or vi.

Name and version of text editor can vary on different operating systems. For example, Notepad will be used on Windows, and vim or vi can be used on windows as well as Linux or UNIX.

The files you create with your editor are called source files and contain program source code. The source files for Node.js programs are typically named with the extension ".js".

Before starting your programming, make sure you have one text editor in place and you have enough experience to write a computer program, save it in a file, and finally execute it.

The Node.js Runtime

The source code written in source file is simply javascript. The Node.js interpreter will be used to interpret and execute your javascript code.

Node.js distribution comes as a binary installable for SunOS , Linux, Mac OS X, and Windows operating systems with the 32-bit (386) and 64-bit (amd64) x86 processor architectures.

Following section guides you on how to install Node.js binary distribution on various OS.

Install Node.js and NPM from Browser

1. Once the installer finishes downloading, launch it. Open the downloads link in your browser and click the file. Or, browse to the location where you have saved the file and double-click it to launch.
2. The system will ask if you want to run the software – click Run.
3. You will be welcomed to the Node.js Setup Wizard – click Next.
4. On the next screen, review the license agreement. Click Next if you agree to the terms and install the software.
5. The installer will prompt you for the installation location. Leave the default location, unless you have a specific need to install it somewhere else – then click Next.
6. The wizard will let you select components to include or remove from the installation. Again, unless you have a specific need, accept the defaults by clicking Next.
7. Finally, click the Install button to run the installer. When it finishes, click Finish.

Download latest version of Node.js installable archive file from Node.js Downloads. At the time of writing this tutorial, following are the versions available on different OS.

Based on your OS architecture, download and extract the archive node-v6.3.1-osname.tar.gz into /tmp, and then finally move extracted files into /usr/local/nodejs directory. For example:

```
$ cd /tmp
$ wget http://nodejs.org/dist/v6.3.1/node-v6.3.1-linux-x64.tar.gz
$ tar xvfz node-v6.3.1-linux-x64.tar.gz
$ mkdir -p /usr/local/nodejs
$ mv node-v6.3.1-linux-x64/* /usr/local/nodejs
```

Node Package Manager (NPM) provides two main functionalities

- **Online repositories for node.js packages/modules which are searchable on search.nodejs.org**
- **Command line utility to install Node.js packages, do version management and dependency management of Node.js packages.**

NPM comes bundled with Node.js installables after v0.6.3 version. To verify the same, open console and type the following command and see the result

```
$ npm --version
2.7.1
```

If you are running an old version of NPM then it is quite easy to update it to the latest version. Just use the following command from root

```
$ sudo npm install npm -g
/usr/bin/npm -> /usr/lib/node_modules/npm/bin/npm-cli.js
npm@2.7.1 /usr/lib/node_modules/npm
```

Installing Modules using NPM

There is a simple syntax to install any Node.js module

```
$ npm install <Module Name>
```

For example, following is the command to install a famous Node.js web framework module called express

```
$ npm install express
```

Now you can use this module in your js file as following

```
var express = require('express');
```

HIGHLIGHTS

REACT

For frontend single page development we use react a javascript library with port number local host 3000. React work on html/css/javascript. It is a kind of java script library. React is aopen source frontend javascript library. It use for building user interfaces. It is maintained byfacebook. React can be used as base in the development of single page.

NODE JS

For development and working both frontend and backend parts we use node js package manager. Node.js is a runtime environment, which let users choose how to use, whether frontend or backend, and one common language can be used as backend and front end.This environment is entirely based on V8 JavaScript engine so it work on javascript. It is a serverside language use in http module, server side programming.

Node js work through two ways first is asynchronous which have a call back functions andsecond is non blocking I/O which tell different worker in server no need to wait.

NPM

Npm is a node package manager for node js package. It put modules in place so that node canfind them and manage. It is extremely configurable to support a wide variety of use cases. It use in backend development.

HTML

HTML is the language for describing the structure of Web pages. HTML gives authors themeans to: Publish online documents with headings, text, tables, lists, photos, etc. Retrieve online information via hypertext links, at the click of a button.

CSS

Cascading Style Sheets (CSS) use a separate language from HTML. CSS allows you to applyconsistent styling of elements across all pages on your site, so that all headings, lists, and paragraphs look and act the same on every page of a site.

Javascript

JavaScript is a text-based programming language used both on the client-side and server-side that allows you to make web pages interactive. Where HTML and CSS are languages that givestructure and style to web pages, JavaScript gives web pages interactive elements that engage a user.

TMDB API KEY

Tmdb is a transfer managment database and it is movies database where millions of movies database available. Api is a application interface key which ia a dataset of movies and it is akind of system which provide us to programmatically fetch and use movies data.

MOVIE TRAILER MODULE LIBRARY

It fetch Youtube trailers for any movies. It return one or many trailer URLs. We use thislibrary for movies trailer data which available in TMDB movies database.

FIREBASE

It is google database use for creating web application and site display. The Firebase RealtimeDatabase lets you build rich, collaborative applications by allowing secure access to the database directly from client-side code. Data is persisted locally, and even while offline, realtime events continue to fire, giving the end user a responsive experience.

HARDWARE SPECIFICATION

A desktop/laptop OS window 10,8,7 or Mac then macOS big sur.

SOFTWARE SPECIFICATION

An IDE (VS CODE)

Node js (runtime

environment)

Npm (node package

manager) React (javascript

library)

TMDB API key

(moviesdatabase)Google

chrome

LITERATURE SURVEY

Movies recommendation system recommend all the movies with their categories that which are top rated. Which are trending in Netflix and other ways. With the help of TMDB movie database which provide a Netflix user interface where all the are arranged with their categories. This movie recommendation system fetch movies data which available in TMDB. One of the work that we have done in our movie recommendation project was to predict the top rating that each user will give to specific movies by doing neural network classification of different rating classes. I tried two approaches while using neural networks for predicting movie ratings.

PROBLEM FORMULATION

Does any similar movies recommendation system exit which provides us this kinds of specifications like selecting movies with our preferences and categories.

Answer : many multimedia platform have their recommendation system in fields of music, shopping etc and similarly this recommendation system provide a movies recommendation which help people in selecting their movies with categories wise. So that people save their timein searching or suffering in internet this recommendation system make work easier for them.

OBJECTIVES

Main objective for this project is making a movies recommendation system with the help of TMDB movie database which help people in selecting the movies and save their time.Recommendation system are probably the most trending data science application today.

They can be used to predict user preference for any particular item.
By continuously generating recommendation suitable for particular individual, engagementOn the platform can be maximized. Content can be recommended based on multiple approaches Based on previous watches, based on searches and rating.

Movie recommendation system provide a mechanism to assist users in classifying users withSimilar interests. This make recommender system essentially a central part of websites and applications.

As the data quality and quantities increases, in future to provide a new perspective to thewhole idea
Of supporting users in developing, exploring and understanding their unique personalpreferences.

The future of recommendation system lie in integrating self actualization to do justice to serendipity While recommending which will also support rather than replace human decisionmaking by understanding preferences.
It would definitely work revolutionary in the field of data science and people would easilyaccess what they prefer.

All of the major tech companies are using recommendation system in some form or other.Like amazon is using it to suggest frequently bought together or customer who viewed thisitem also viewed. YouTube is using it to create an auto playlist based on your preferences.

The goals of this this project is to do the research of Recommender Systems and find a suitable way to implement it. There are many kinds of Recommender Systems but not all of them are suitable for one specific problem and situation. Our goal is to find a new way to improve the classification of movies, which is the requirement of improving content-based recommender systems

METHODOLOGY

The following methodology will be followed to achieve the objectives defined for proposedresearch work:

1. **Detailed study of HTML CSS and JAVASCRIPT for frontend developing part.**
2. **Implementation of node js, npm package manager , react library .**
3. **Use of TMDB API KEY for movie database.**

In order to achieve the goal of the project, the first process is to do enough background study, so the literature study will be conducted. The whole project is based on a big amount of movie data so that we choose quantitative research method. For philosophical assumption, positivism is selected because the project is experimental and testing character. The research approach is deductive approach as the improvement of our research will be tested by deducing and testing a theory. Ex post facto research is our research strategy, the movie data is already collected and we don't change the independent variables. We use experiments to collect movie data. Computational mathematics is used data analysis because the result is based on improvement of algorithm. For the quality assurance, we have a detail explanation of algorithm to ensure test validity. The similar results will be generated when we run the same data multiple times, which is for reliability. We ensure the same data leading to same result by different researchers.

Conclusion and discussion

First I give the introduction of our project in which talk about problem definition, project overview/specification, hardware and software specification.

And its also include the literature survey and review of our project. What are problems andimplementation.

This synopsis also provide instruction of the concept which is important to understand.

This synopsis will cover what are the methodology for this project and what are the objectivesfor this project and last it cover the conclusion and discussion.

REFERENCES

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