HACETTEPE UNIVERSITY
COMPUTER ENGINEERING DEPARTMENT

UNDERGRADUATE PROJECT FINAL REPORT

Project Name	Report Date
Keyword-based Movie Suggestion Application	

Student Number(s)	Student Name(s)
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Supervisor(s)	**Company Representative(s)**
Murat AYDOS	

Project Coordinator	Report Approval
Date: _____	☐ Yes ☐ No If no, rational of rejection: _____

Project Video Youtube Link
https://youtu.be/e_6yCYUtUo8

A. TECHNICAL RESULTS

ABSTRACT

The main goals we tried to archive at the end of the project are understanding the process of developing a web application, working with databases, API's and working with servers. The movie suggestion web application especially helped us learn about database managements.

Keywords: Data management, web application development, full-stack development

I. INTRODUCTION

We tried to develop a web application where movie search and rating is the main attribute, this product is using databases and APIs to get the movies and the web application has rating system where the user rates the movies, is be able to see where to reach the movie and is able to search movies with specific keywords like "war movies" etc.

The basic features we developed are; logging in, logging out, searching movies, being able to see where to watch the movie. The search system we implemented searches the movies from their names, categories, actors/ actresses and their specific attributes. Also the user can see where to watch the movie for example; this movie can be watched on Netflix etc.

II. BACKGROUND

Our primary focus during this project was to implement the website and to do this; getting the dataset needed. The reason to choose this project was mostly to learnt new information and use what we learn and gain experiences.

To run this project, we only had Intellij IDEA community edition, developer edition of IDEA would have been ideal because of the tools provided.

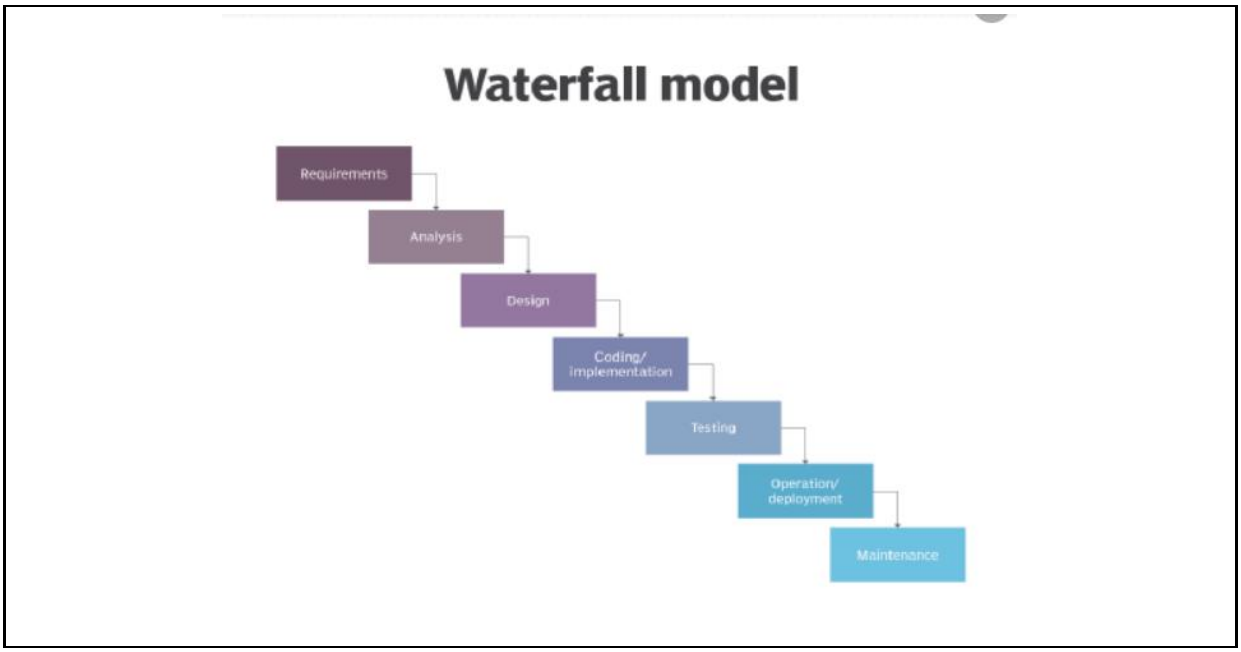
The desired outcome is to have a working web application.

III. RELATED WORK

There are already movie rating websites available like IMDB.com[1] but the difference is that the search system of our application is able to search movies with specific keywords rather than only the name of the movie. Also we are added a feature that would show where the movie is available to watch and the trailer of the movie is shown to user.

IV. METHOD

We used waterfall model for our development which is a sequential life cycle model is a model that separates the work load into phases. These phases are; requirement gathering and analysis which researches the possible necessities for the system to be developed, we worked on this as a team. System design is the second step and in this step systems overall architecture is decided and again we all worked in this step as a team. Implementation is the third step and in this step we divided the team into backend and frontend workers and this step was all throughout development until the end. Integration and testing was done by developers also and went all throughout development as improvements are made we are planning to keep testing the system. Deployment was the step in which in the last week with our presentations we gave our systems to Task Maintenance step is to keep the system updated.



V. TECHNICAL DESIGN AND CONFIGURATION

In this project, we used tmdb.com' s API to get our data. We requested our own API key to use the API service. One important thing that there was a warning about the API which is "API registration process is not optimized for mobile devices so you should access these pages on a desktop computer and browser". We implemented a search bar that takes a query string to request from server in the background by using this API. The search bar is used to search by keywords, movie name or actor name. So many results are returning about something queried because of TMDB uses the most current lists about movies, tv shows, actors etc. Therefore, we eliminated the returned results based on whether the search string is movie or actor or keyword.

We used ReactJS, NodeJS. We developed our application by using Visual Studio and it runs in the terminal in the project folder by writing the command 'npm start'. After running this command, page will be opened in Google Chrome's new tab. Then, searching, logging in can be made.

VI. PROJECT IMPLEMENTATION

Firstly, we requested our own API key to use the service. Then, we extracted the main components to show in the page. We created an home page which has search bar at the top, login / sign up buttons at the upper right corner and also home button -clickable logo- at the upper left corner of the page. Our main feature in this project is the search bar. It was designed to searching by both movie name, actor name and also keywords.

In the opening of the page, current trending movies of the week are shown. It can be changed to daily trending movies. But we chose to show weekly. It makes a quick request to server and then gets the movies. Every time that logo is clicked, page returns to the home page.

When user writes something to the search bar and hits the enter, related results are shown in a while. Movies in the home page and search page are shown on grid view. Each movie is represented by its poster, original title and rating. If user clicks the poster of a movie, a pop-up page is opened. In the pop-up page, English title of the movie, its overview, a YouTube player to watch its trailer and the streaming services buttons (Netflix and Amazon Prime Video) are placed.

movie.

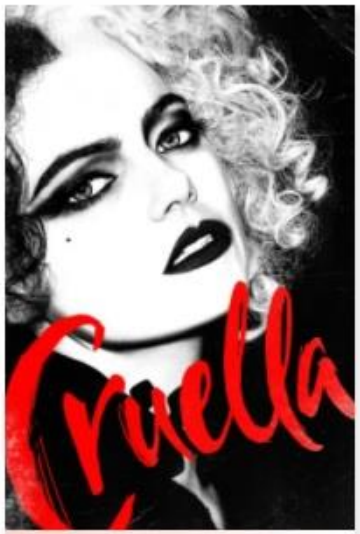
localhost:3000

movie.

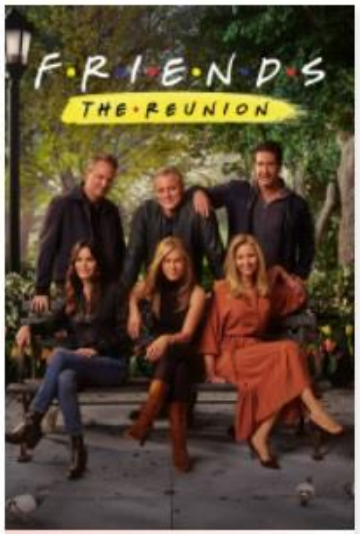
Login Sign Up

Search

Army of the Dead 6.7



Cruella 8.7

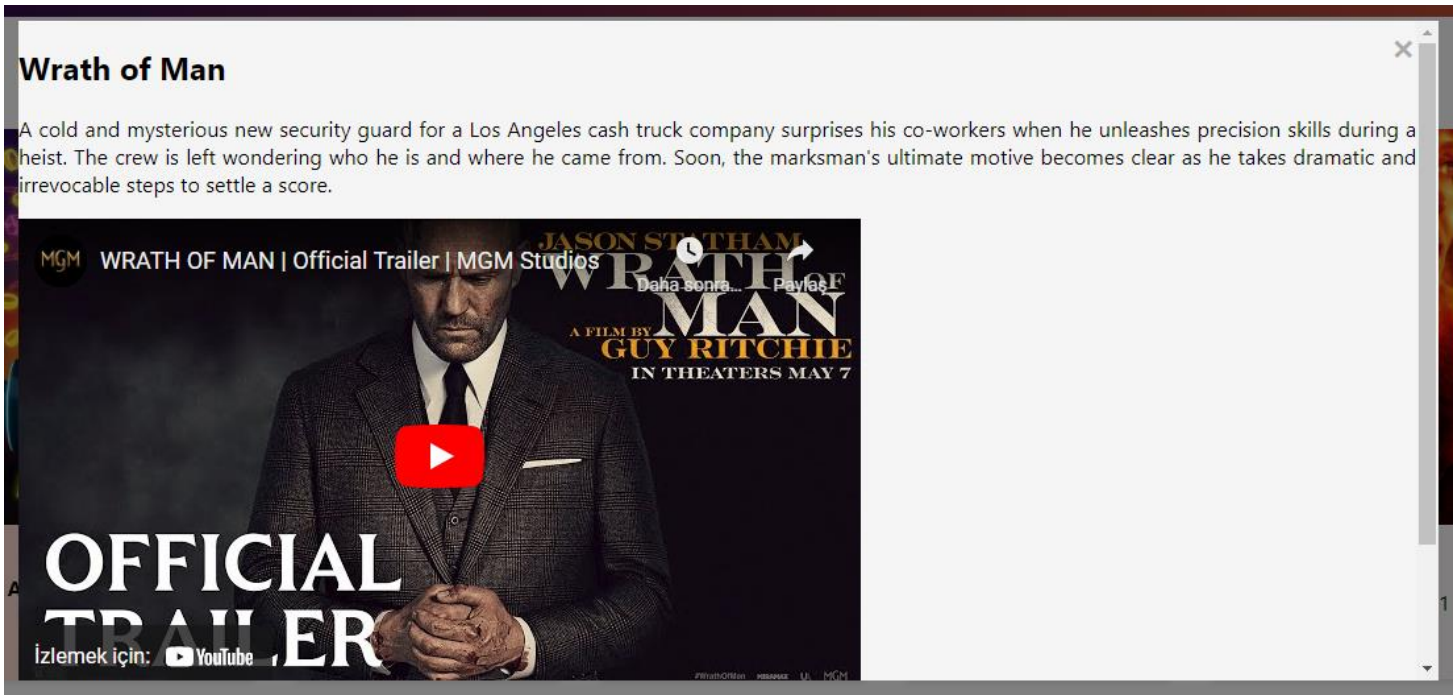


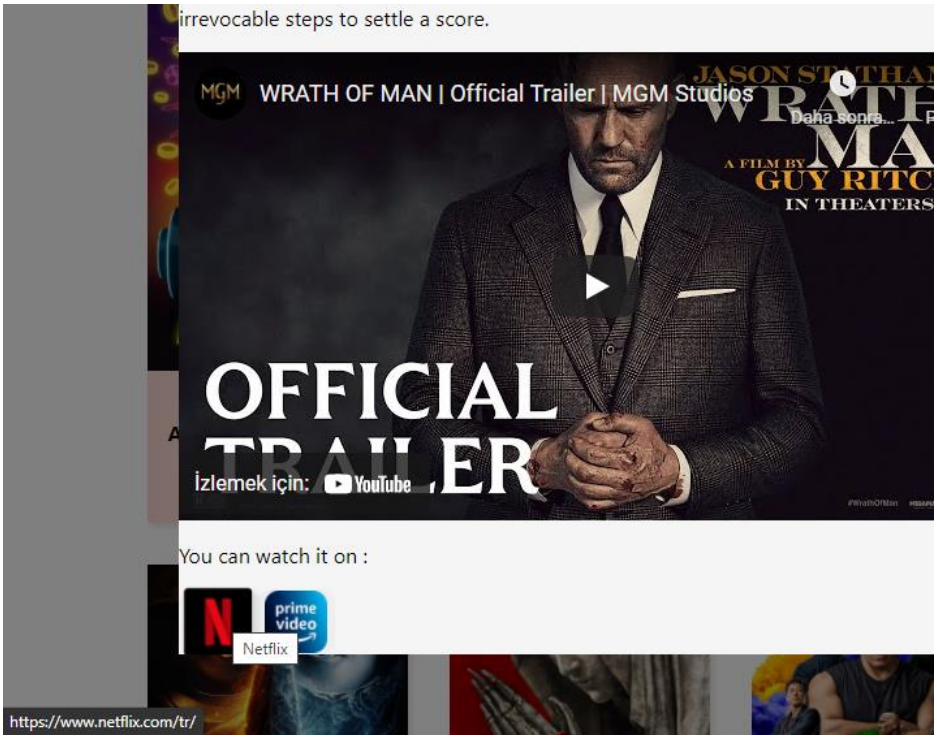
Friends: The Reunion 8.6

Wrath of Man 8

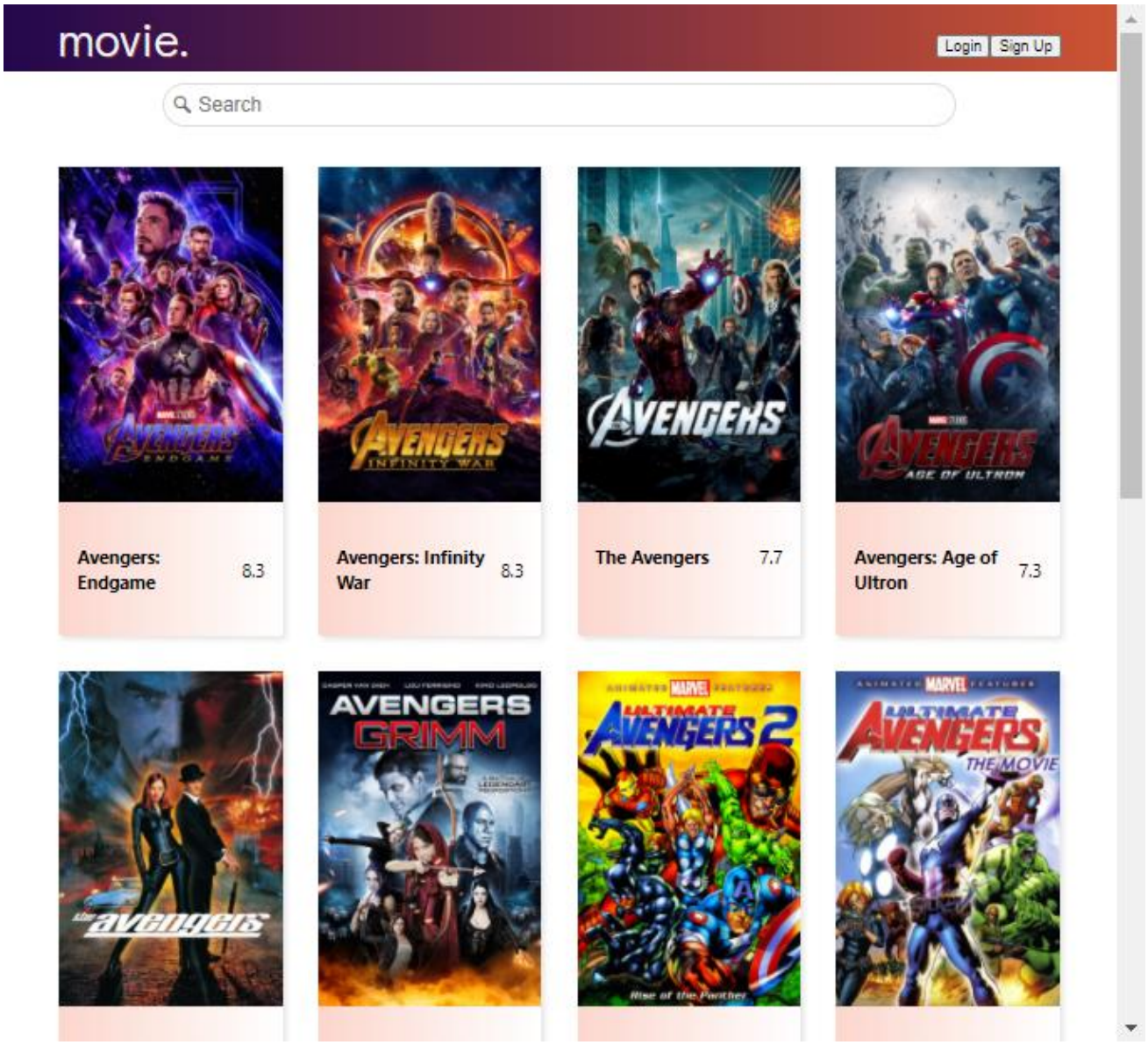
Those Who Wish Me Dead 7.1

Pop-up page :

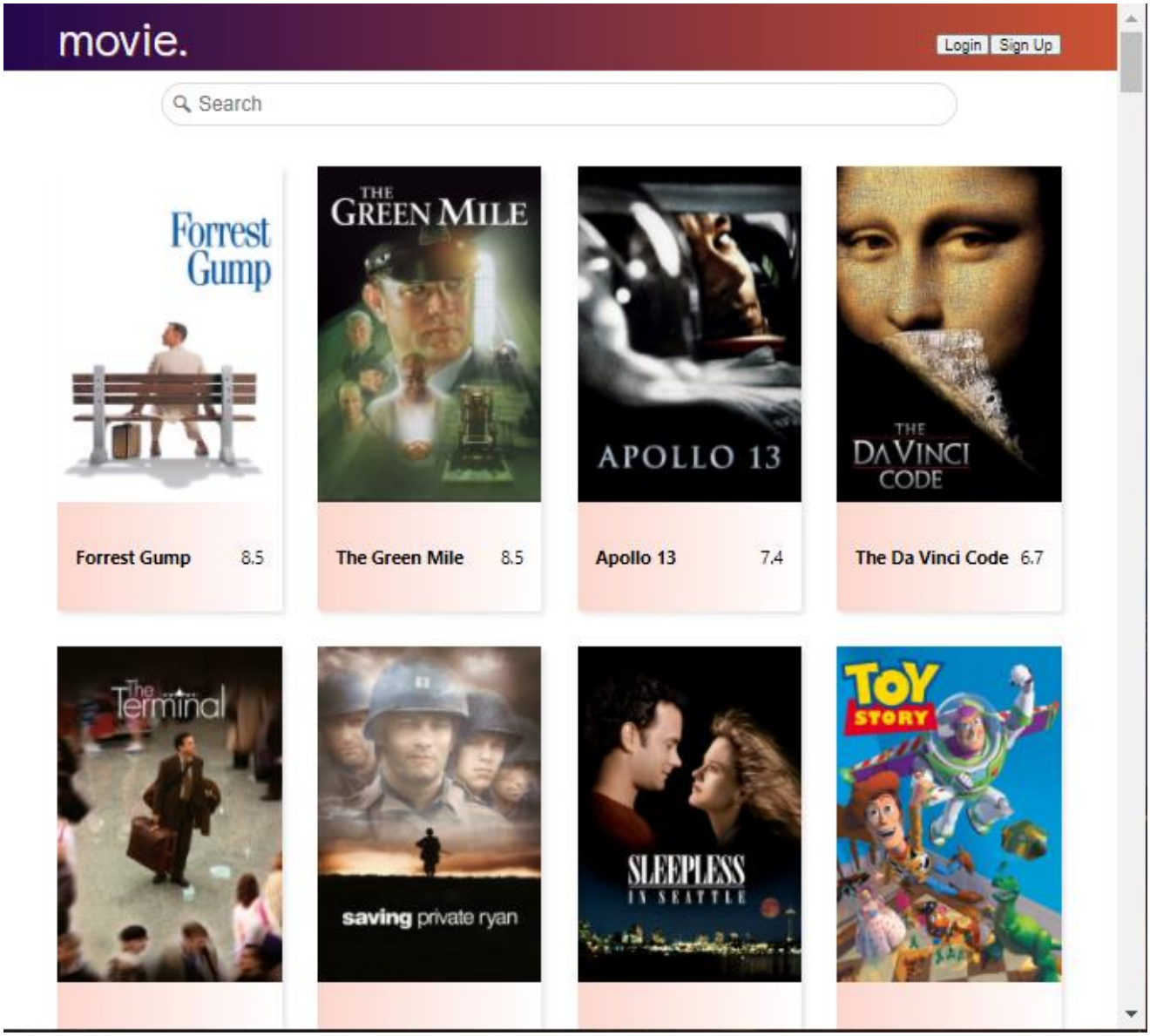

Wrath of Man
A cold and mysterious new security guard for a Los Angeles cash truck company surprises his co-workers when he unleashes precision skills during a heist. The crew is left wondering who he is and where he came from. Soon, the marksman's ultimate motive becomes clear as he takes dramatic and irrevocable steps to settle a score.
WRATH OF MAN | Official Trailer | MGM Studios
Daha sonra...
Paylaş
JASON STATHAM
WRATH OF MAN
A FILM BY GUY RITCHIE
IN THEATERS MAY 7
OFFICIAL TRAILER
İzlemek için: YouTube


irrevocable steps to settle a score.
WRATH OF MAN | Official Trailer | MGM Studios
Daha sonra...
A FILM BY GUY RITC
IN THEATERS
OFFICIAL TRAILER
İzlemek için: YouTube
You can watch it on :
Netflix
https://www.netflix.com/tr/

Search “Avengers” :

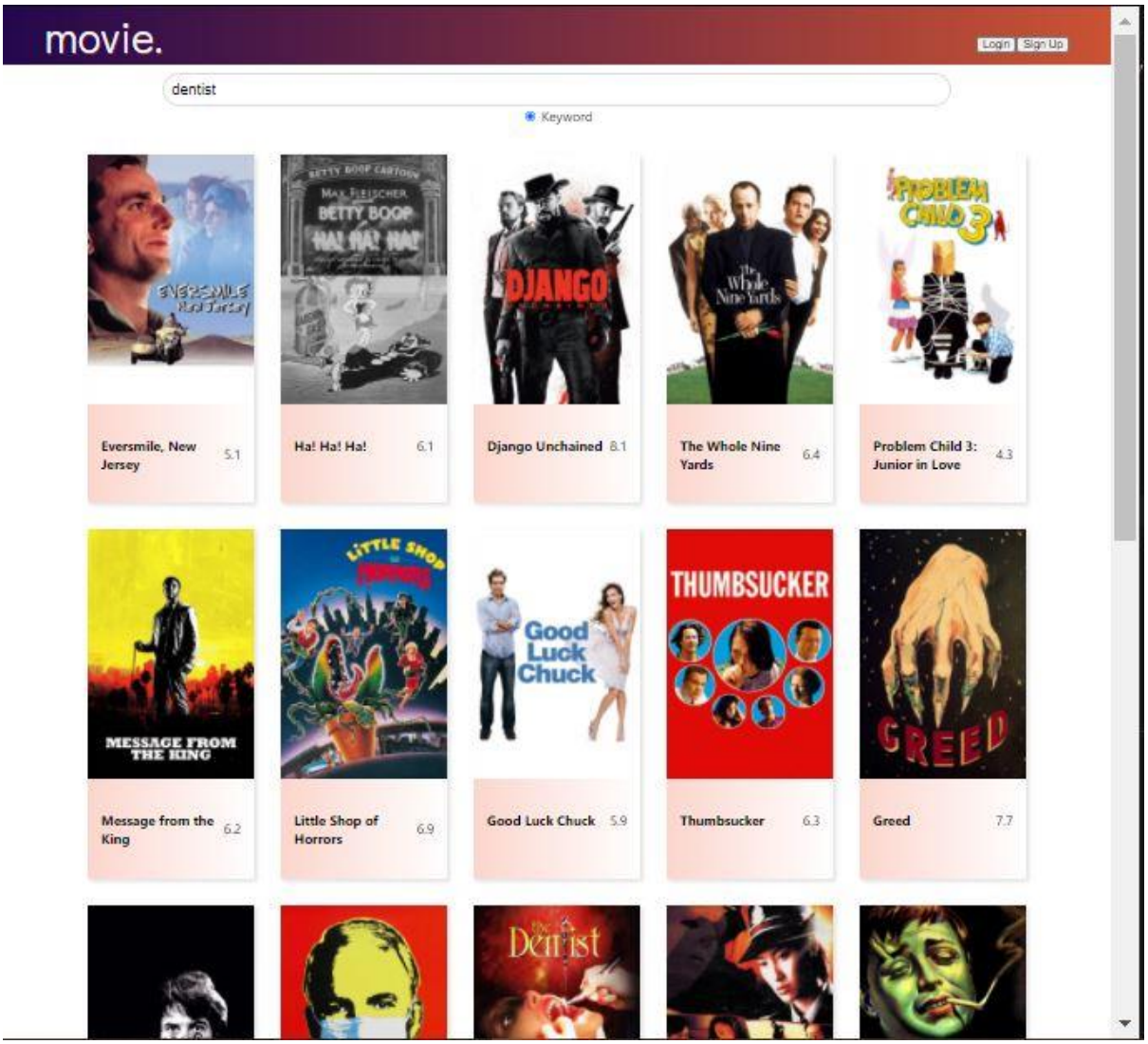


Search “Tom Hanks” :



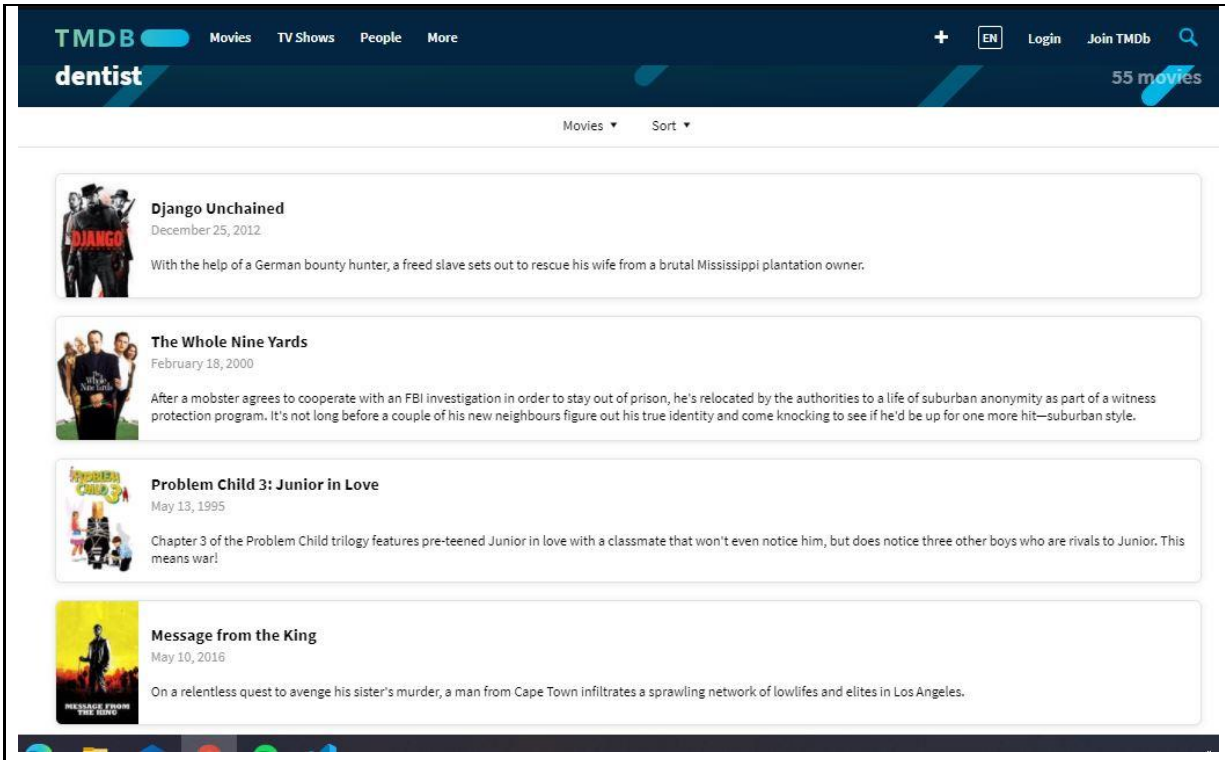
VALIDATION AND RESULTS

When search ‘dentist’ as a keyword, our results are :



It searches the given keyword when "Keyword" button is selected in the already specified keywords of all movies. Then, it returns the related movies.

And TMDB’s results are same as ours:



As a result, our page is working as we expected. Query response time depends on the Internet connection. Therefore, some latencies can be occurred. Besides, there may not be no legal streaming service available to watch some movies in Turkey. Since Netflix and Amazon Prime Video require login to watch something, we cannot provide a direct link of a movie in a streaming service.

CONTRIBUTION(S) TO INDUSTRY AND ECONOMY

The potential contribution to the industry and the economy of our study is that with this web application, if we get enough traffic we can monetize the website and this way we can have economical benefits.

INNOVATIVE ASPECTS

The innovative feature we tried to develop is that the search system of our application is able to search movies with specific keywords rather than only the name of the movie like “movies with reference to video games”etc.

REFERENCES

[1] https://www.imdb.com/?ref_=nv_home
[2] https://developers.themoviedb.org/3/getting-started/introduction

B. PROJECT RESULTS

I. CHANGES TO PROJECT PLAN

The change we made is; we had to delay development and coding part of the project for one month because the website implementation and data collecting researches parts took more time than anticipated.

II. PROJECT MILESTONES AND OBJECTIVES

Milestone #	Primary Objective	Due Date	Project Deliverable (if any)	Milestone Achieved?
1.	Project Proposal Report Delivery	March 2021	Project proposal reports will be submitted.	Yes
2.	To collect the dataset that will be used and do market research.	March 2021	The dataset that will be used will be available	Yes
3.	Research about web application methods like ReactJS and NodeJS and starting the development process.	March 2021	Coding process will start.	Yes
4.	Project process evaluation and project process report delivery	April 2021	Project process reports will be submitted.	Yes
5.	Tests on the developed application will be done and also optimizations will be made.	May 2021	Optimized result is acquired.	Yes
6.	Final project delivery and presentations	June 2021	Final project reports and presentations will be delivered.	Yes

III. PROJECT PRACTICES AND MEASURES

Task #	Task Description	Responsibility	Start Date	Finish Date	Success Criteria	Task Succeeded?
1.	Do market research.	Ece Omurtay Deniz Ece Aktaş Ömer Bilal Yay	March 2021	March 2021	Having unique features.	Yes
2.	To collect the dataset that will be used.	Ömer Bilal Yay	March 2021	April 2021	Having a database that is versatile.	Yes
3.	Research about web application methods like ReactJS and NodeJS.	Ece Omurtay Deniz Ece Aktaş	March 2021	April 2021	Learning how to use necessary software for the development.	Yes

4.	The development of the application.	Ece Omurtay Deniz Ece Aktaş Ömer Bilal Yay	March 2021	May 2021	Having a working website.	Yes
5.	Tests on the developed application will be done and also optimizations will be made.	Ece Omurtay Deniz Ece Aktaş Ömer Bilal Yay	May 2021	June 2021	Optimized application is developed.	Yes

Team Member	**Task # Under Responsibility**	**Description of the Work Done**
Ece Omurtay	1, 3, 4, 5	Did research on the market of movie rating websites and looked for similar applications. Based on the project's requirements; searched dataset examples, researched necessary software such as ReactJS and NodeJS. Learnt how to work on fullstack development. Started to write the coding portion of the project and connected API's used to application. Tested the application.
Deniz Ece Aktaş	1, 3, 4, 5	Did research on the market of movie rating websites and looked for similar applications. Based on the project's requirements; searched dataset examples, researched necessary software such as ReactJS and NodeJS. Learnt how to work on fullstack development. Helped with the coding and implementation process. Tested the application.
Ömer Bilal Yay	1, 2, 4, 5	Did research on the market of movie rating websites and looked for similar applications. Based on the project's requirements; searched dataset examples and connected to the movie databased websites and acquired some API examples to be used on the application. Helped with the implementation of the web application. Tested the application.

IV. PROJECT BUDGET

We are using our own computers that we have and as for software we are using Visual Studio, ReactJS, Google Docs and SQL but we are using the student packets or community editions of these softwares so we will not be doing any expenses and also because of the COVID-19 pandemic we are going to be working remotely so we will not be having any commuting expenses. As for income we don't have any income that is related to design project.

V. PROJECT RISKS

Risk Item #	Description	Probability	Effect	Did It Happen?	How did you (or will you) handle its occurrence? (Plan-B)
1.	If we aren't able to get a strong dataset which contains a good mount of movie options the suggestions may seem not efficient.	Possible	Users wouldn't use the web applicatio n.	No	When we are programming, we used multiple API's to get as much value as possible from the variables we need and also we are expanding the dataset as the application is developing.
2.	If we couldn't finish the application on time, we can't host the application on a server.	Possible	Users wouldn't be able use the web applicatio n.	No	We are following our project plan so we can finish the project on time.

VI. SELF EVALUATION

We worked well as a team in this project. We were always kind to each other. Even everyone in the group had different task to do, we did most of the work together. We have learned a lot of new methods, and topics about web development, front-end and back-end development (like ReactJS, NodeJS) and also database management. We made our project from scratch thus we could not move fast during implementation.

Besides, due to COVID-19 we had some problems especially time management became the problem. We had some issues about API usage, development environment because of limitation of our sources.

VII. LESSONS LEARNED

If I were to start this project again, I would use frontend templates that are available in Tailwind and design the frontend using Figma so we would have a more clear vision. Also, I would prefer to use available materials like Material-UI framework with React. I would add TV shows component in addition to movies. Also, I would add some machine learning implementations to find similar movies of searched one. In addition to them, I would try this on different environment like Google Colab or Linux platform or I would try to develop a mobile application.