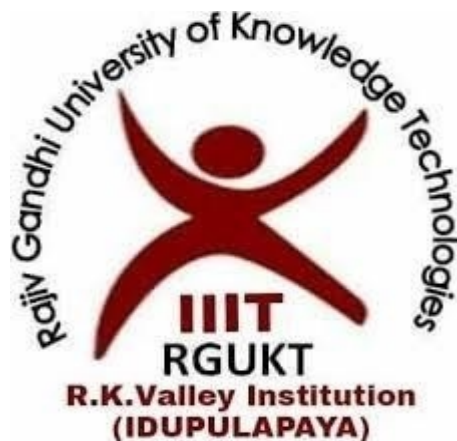


A Project Report on
Netflix Clone

Submitted by
Perumalla Vinay Kumar (R171214)
Derangula Subramanyam (R161227)

Submitted to



Under the supervision of
Mr. M Munibabu

Lecturer
Computer Science and Engineering
as a part of
Partial fulfillment of the degree of Bachelor of Technology in
Computer Science and Engineering
Date: __-__-2023



CERTIFICATE OF EXAMINER

This is to certify that the report entitled **Netflix Clone** submitted by **Perumalla Vinay Kumar(R171214)** & **Derangula Subramanyam(R161227)** in partial fulfillment of the requirement for the award of Bachelor of Technology in Computer Science and Engineering is a bonafide work carried out by her under my supervision and guidance.

I am ineffably indebted to **Mr. M Munibabu (M.Tech)(Ph.D)**, my project internal guide for conscientious guidance and encouragement to accomplish this project.

I am extremely thankful and pay my gratitude to **Mr. N Satyanandaram MSIT (IIIT- Hyd), HOD CSE**, for his valuable guidance and support on the completion of this project.

The report hasn't been submitted previously in part or in full to this or any other university or institution for the award of any degree.

Project Guide,
Mr. M Munibabu ,
CSE,
RGUKT, R.K Valley.

Head of Department,
Mr. N Satyanandaram,
HOD OF CSE,
RGUKT, R.K Valley.



CERTIFICATE OF PROJECT COMPLETION

This is to certify that the report entitled **Netflix Clone** submitted by **Perumalla Vinay Kumar(R171214) & Derangula Subramanyam(R161227)** in partial fulfillment of the requirement for the award of Bachelor of Technology in Computer Science and Engineering is a bonafide work carried out by her under my supervision and guidance.

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Mr. M Munibabu,
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Head of Department,
Mr. N Satyanandaram,
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Declaration

We **Perumalla Vinay Kumar & Derangula Subramanyam** here declare that this report entitled “**Netflix Clone**” submitted by us under the guidance and supervision of **Mr. M Munibabu (M.Tech) (Ph.D)**, is a bonafide work. I also declare that it has not been submitted previously in part or in full to this University or Institution for the award of any degree.

Date: __ – April – 2023

Place: RK Valley.

Perumalla Vinay Kumar(R171214)

Derangula Subramanyam(R161227)

Acknowledgement

I would like to express my sincere gratitude to **Mr. M Munibabu (M.Tech) (Ph.D)**, my project internal guide for valuable suggestions and keen interest throughout the progress of my course of research.

I would also like to extend my gratitude to **Mr. N Satyanandaram (MSIT – IIIT Hyd)**, HOD of CSE, for providing extraordinary support in this process.

At the outset, I would like to thank **Rajiv Gandhi University of Knowledge Technologies, R.K Valley** for providing all the necessary resources for the successful completion of my course work.

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Abstract

This paper ventures to explain the impact that video streaming technology and how the video streaming service offered by Netflix have made an impact in today's consumers as well as the entertainment industry (television and movies).

By taking Netflix as a case study I seek to understand how the technology works and how it has turned into such a success among users. The service offered by this website has reshaped the way users consume media as well as how the entertainment industry approaches its intended market.

1. Introduction

a. What is Netflix?

Netflix is a streaming service that offers a wide variety of award- winning TV shows, movies, anime, documentaries, and more on thousands of internet- connected devices. You can watch as much as you want, whenever you want – all for one low monthly price.

b. About Netflix

Netflix Inc. is an American media-services provider and production company headquartered in Los Gatos, California, founded in 1997 by Reed Hastings and Marc Randolph in Scotts Valley, California. The company's primary business is its subscription-based streaming service which offers online streaming service of a library of films and television programs, including those produced in-house.

As of April 2019, Netflix had over 148 million paid subscriptions worldwide, including 60 million in the United States, and over 154 million subscriptions total including free trials. It is available worldwide except in mainland China (due to local restrictions), Syria, North Korea, and Crimea (due to U.S. sanctions). The company also has offices in the Netherlands, Brazil, India, Japan, and South Korea. Netflix is a member of the Motion Picture Association (MPA).

Netflix's initial business model included DVD sales and rental by mail, but Hastings abandoned the sales about a year after the company's founding to focus on the initial DVD rental business. Netflix expanded its business in 2010 with the introduction of streaming media while retaining the DVD and Blu-ray rental business. The company expanded internationally in 2010 with streaming available in Canada, followed by Latin America and the Caribbean. Netflix entered the content-production industry in 2012, debuting its first series Lilyhammer.

Since 2012, Netflix has taken more of an active role as producer and distributor for both film and television series, and to that end, it offers a variety of "Netflix mOriginal" content through its online library. By January 2016, Netflix services operated in more than 190 countries. Netflix released an estimated 126 original series and films in 2016, more than any other network or cable channel. Their efforts to produce new content, secure the rights for additional content, and diversify through 190 countries have resulted in the company racking up billions in debt: \$21.9 billion as of September 2017, up from \$16.8 billion from the previous year. \$6.5 billion of this is long-term debt, while the remaining is in long-term obligations. In October 2018, Netflix announced it would raise another \$2 billion in debt to help fund new content.

c. History of Netflix

Netflix was founded on August 29, 1997, in Scotts Valley, California, by Marc Randolph and Reed Hastings. Randolph worked as a marketing director for Hastings' company, Pure Atria. Randolph was a co-founder of Micro Warehouse, a computer mail order company, and was later employed by Borland International as vice president of marketing. Hastings, a computer scientist and mathematician, sold Pure Atria to Rational Software Corporation in 1997 for \$700 million in what was then the biggest acquisition in Silicon Valley history. They came up with the idea for Netflix while commuting between their homes in Santa Cruz and Pure Atria's headquarters in

Sunnyvale while waiting for government regulators to approve the merger, although Hastings has given several different explanations for how the idea was created.

Hastings invested \$2.5 million in start-up cash for Netflix. Randolph admired the fledgling e-commerce company Amazon and wanted to find a large category of portable items to sell over the Internet using a similar model. They considered and rejected VHS tapes as too expensive and too delicate to ship. When they heard about DVD's, which were first introduced in the United States on March 31, 1997, they tested the concept of selling or renting DVD's by mail, by mailing a compact disc to Hastings' house in Santa Cruz. When the disk arrived intact, they decided to take on the \$16 billion home video sales and rental industry. Hastings is often quoted saying that he decided to start Netflix after being fined \$40 at a Blockbuster store for being late to return a copy of Apollo 13.

Netflix was launched on April 14, 1998, as the world's first online DVD rental store, with only 30 employees and 925 titles available, which was almost the entire catalogue of DVD's in print at the time, through the pay-per-rent model with rates and due dates that were similar to its bricks-and-mortar rival, Blockbuster.

d. Membership Fee, Blockbuster Acquisition, Growth start

Netflix introduced the monthly subscription concept in September 1999, and then dropped the single-rental model in early 2000. Since that time, the company has built its reputation on the business model of flat-fee unlimited rentals without due dates, late fees, shipping and handling fees, or per-title rental fees.

While they experienced fast growth in early 2001, both the dot-com bubble burst and the September 11 attacks would occur later that year, affecting the company badly and forcing them to lay off one-third of their 120 employees. However, sales of DVD players finally took off as they became more affordable, selling for about \$200 around Thanksgiving time, becoming one of that year's most popular Christmas gifts. By early 2002, Netflix saw a huge increase in their subscription business.

Netflix initiated an initial public offering (IPO) on May 29, 2002, selling 5.5 million shares of common stock at the price of US\$ 15.00 per share. On June 14, 2002, the company sold an additional 825,000 shares of common stock at the same price. After incurring substantial losses during its first few years, Netflix posted its first profit during fiscal year 2003, earning US\$ 6.5 million profit on revenues of US\$ 272 million. In 2005, 35,000 different films were available, and Netflix shipped 1 million DVD's out every day.

Randolph, a dominant producer and board member for Netflix, retired from the company in 2004.

Netflix was sued in 2004 for false advertising in relation to claims of "unlimited rentals" with "one-day delivery".

e. Video on demand introduction, Declining DVD sales, Global Expansion

For some time, the company had considered offering movies online, but it was, only in the mid-2000s that data speeds and bandwidth costs had improved sufficiently to allow customers to download movies from the net. The original idea was a "Netflix box" that could download movies

overnight, and be ready to watch the next day. By 2005, they had acquired movie rights and designed the box and service, and were ready to go public with it. But after discovering YouTube, and witnessing how popular streaming services were despite the lack of high-definition content, the concept of using a hardware device was scrapped and replaced with a streaming concept instead, a project that was completed in 2007.

In February 2007, the company delivered its billionth DVD, and began to move away from its original core business model of DVDs, by introducing video on demand via the Internet. Netflix grew as DVD sales fell from 2006 to 2011.

Another contributing factor for the company's online DVD rental success was that they could offer a much larger selection of movie titles to choose from than Blockbuster's rental outlets. But when they started to offer streaming content for free to its subscribers in 2007, it could offer no more than about 1000 movies and TV-shows, just 1% compared to its more than 100,000 different DVD titles. Yet as the popularity kept growing, the number of titles available for streaming was increasing as well and had reached 12,000 movies and shows in June 2009. One of the key things about Netflix was that it had a recommendation system known as cinematch, which not only got viewers to remain attached to the service, by creating a switching cost, but it also brought out those movies which were underrated so that customers could view those movies too from their recommendations. This was an attribute that not only benefited Netflix but also benefited its viewers and those studios which were minor compared to others.

In January 2013, Netflix reported that it had added two million United States customers during the fourth quarter of 2012, with a total of 27.1 million United States streaming customers, and 29.4 million total streaming customers. In addition, revenue was up 8% to \$945 million for the same period. That number increased to 36.3 million subscribers (29.2 million in the United States) in April 2013. As of September 2013, for that year's third quarter report, Netflix reported its total of global streaming subscribers at 40.4 million (31.2 million in the United States). By the fourth quarter of 2013, Netflix reported 33.1 million United States subscribers. By September 2014, Netflix had subscribers in over 40 countries, with intentions of expanding their services in unreached countries. By October 2018, Netflix's customer base reached 137 million worldwide, confirming its rank as by far the world's biggest online subscription video service.

f. Early Netflix original content

Netflix has played a prominent role in independent film distribution. Through its division Red Envelope Entertainment, Netflix licensed and distributed independent films such as *Born into Brothels* and *Sherrybaby*. As of late 2006, Red Envelope Entertainment also expanded into producing original content with filmmakers such as John Waters. Netflix closed Red Envelope Entertainment in 2008, in part to avoid competition with its studio partners.

g. Entry of Netflix into India

American streaming service Netflix entered India in January 2016. In April 2017, it was registered as a limited liability partnership (LLP) and started commissioning content. It earned a net profit of ₹ 2020,000 (₹ 2.02 million) for fiscal year 2017. In fiscal year 2018, Netflix earned revenues of ₹ 580 million.[4] According to Morgan Stanley Research, Netflix had the highest

average watch time of more than 120 minutes but viewer counts of around 20 million in July 2018. As of 2018, Netflix has six million subscribers, of which 5–6% are paid members.

India was not affected by Netflix's July 2018 increase in subscription rates for the US and Latin America. Netflix has stated its intent to invest ₹ 600 Crore in the production of Indian original programming.

2. Tools and Technologies used

2.1 HTML :



HTML stands for **Hyper Text Markup Language**. HTML is the standard markup language for Web pages.

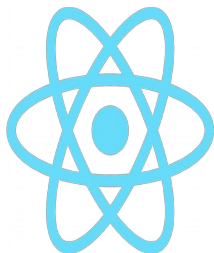
HTML elements are the building blocks of the HTML Markup. HTML elements consist of start tag, end tag and content in between them.

2.2 CSS :



CSS stands for **Cascading Style Sheets**. It describes how HTML elements are to be displayed on screen, paper, or in other media. CSS saves a lot of work. It can control the layout of multiple web pages all at once.

2.3 React :



React is a free and open-source front-end JavaScript library for building user interfaces based on components. It is maintained by meta and a community of individual developers and companies.

2.4 Redux :



Redux is an open-source JavaScript library for managing and centralizing application state. It is most commonly used with libraries such as React or Angular for building user interfaces. Similar to Facebook's Flux architecture, it was created by Dan Abramov and Andrew Clark.

2.5 Firebase :



Firebase is a set of backend cloud computing services and application development platforms provided by Google. It hosts databases, services, authentication and integration for a variety of applications including Android, iOS, Javascript, Node.js, Java, Unity, PHP & C++.

Firebase is a platform developed by Google for creating mobile and web applications. Firebase provides different developer tools like backend infrastructure, performance monitoring, analytics, testing and messaging, etc.

Firebase provides two kinds of databases one is **Firestore Database** and **Realtime Database**.

2.6 TMDB API :



TMDB API **allows us to programmatically fetch and use data provided by TMDB**. The TMDB API service is for those interested in using the movie, TV show/season, or actor data and, if required, images in their application.

2.7 MongoDB :

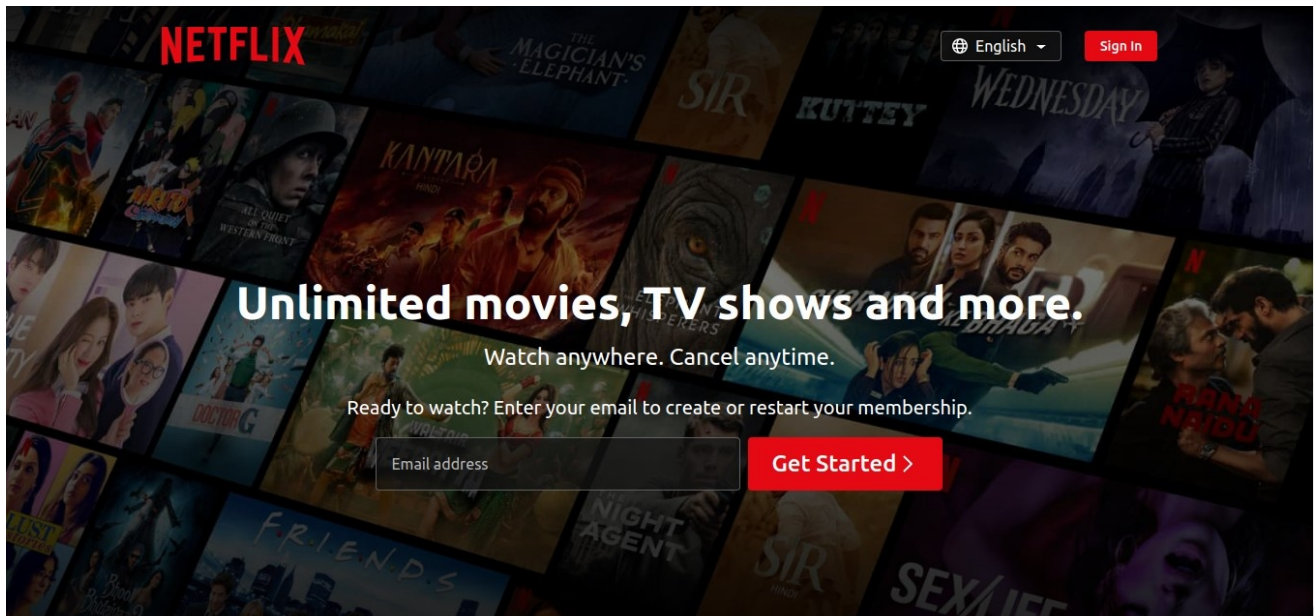


MongoDB is a document database used to build highly available and scalable internet applications. With its flexible schema approach, it's popular with development teams using agile methodologies.

3. Features of the Project

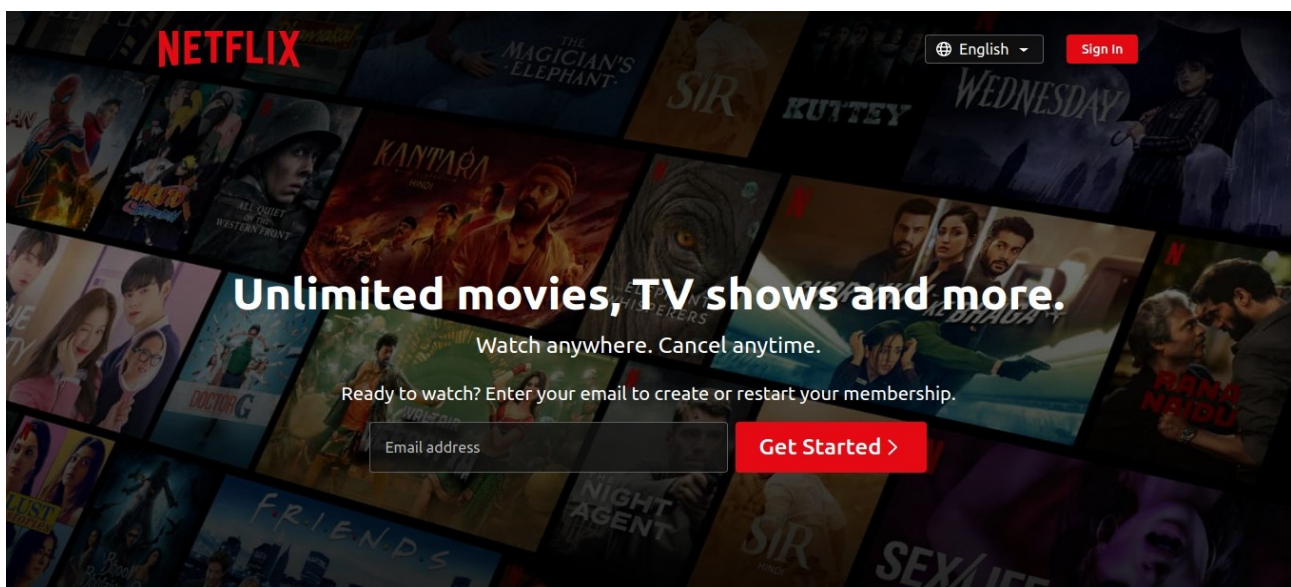
1. Home Page

A home page is the main page of a website. The term may also refer to the start page shown in a web browser when the application first opens. Usually, the home page is located at the root of the website's domain or subdomain.



2. Register :

New users can register in the website by using social media logins like Facebook, Email and Phone number to use the services of the Netflix.



Here, User has to enter his email address in the dialouge given & click on get started to progress to furthur process.

User has to choose a strong password to set up his profile as shown in below.

NETFLIX

Sign In

STEP 1 OF 3

Create a password to start your membership

Just a few more steps and you're done!

We hate paperwork, too.

Email

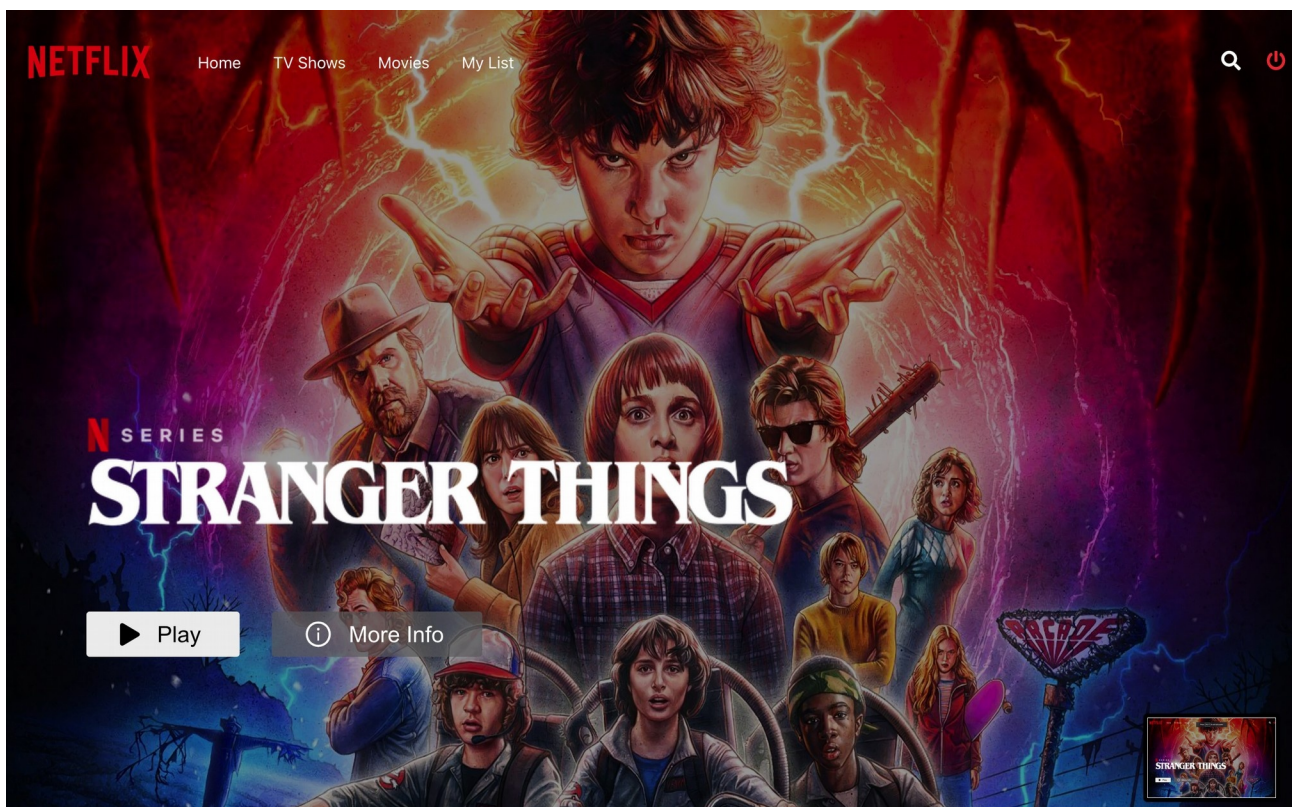
Email is required.

Add a password

Next

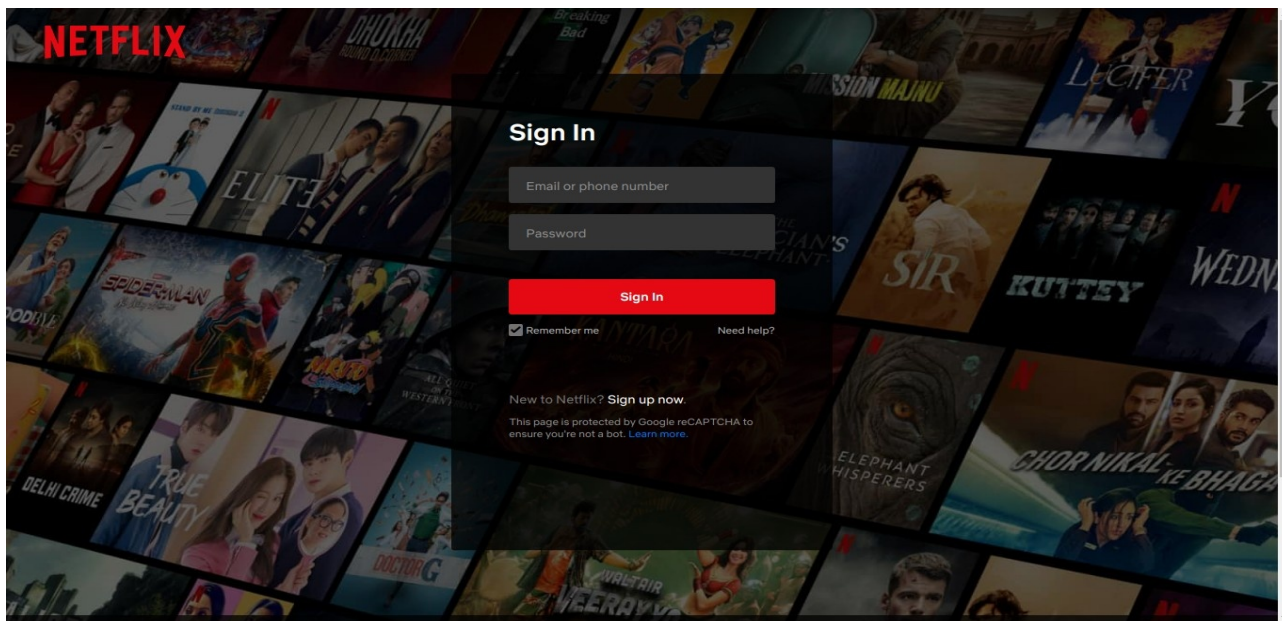
Click to switch to "Workspace 4"

After choosing a Strong password, User will be created with an account of Netflix.



3. Login :

Already existed user can login into the website by using his login credentials like email Id & password.

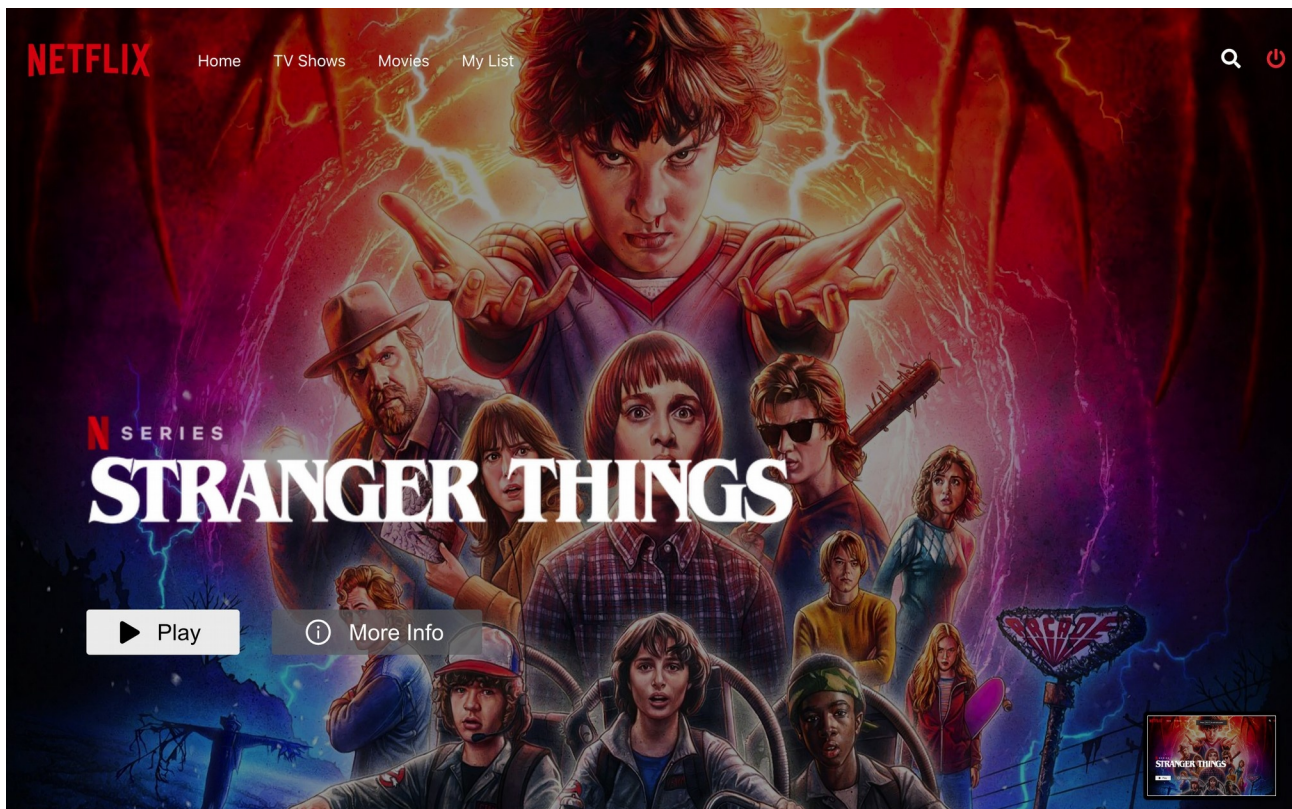


By giving correct login credentials, user will be logged into the website and the user can enjoy the Netflix.

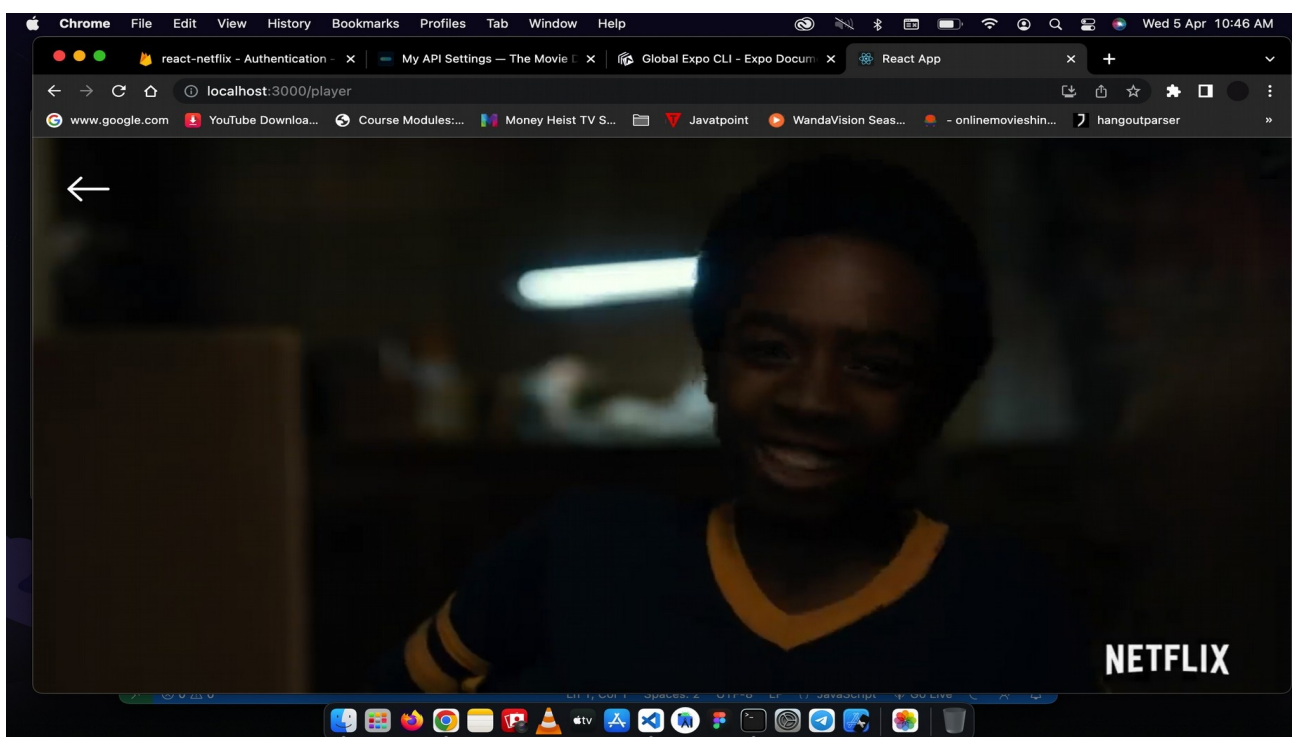


4. Play :

By clicking the play button, the user will be redirected to the current playing video. We can simply use this button to easily access the current playing video without searching it.

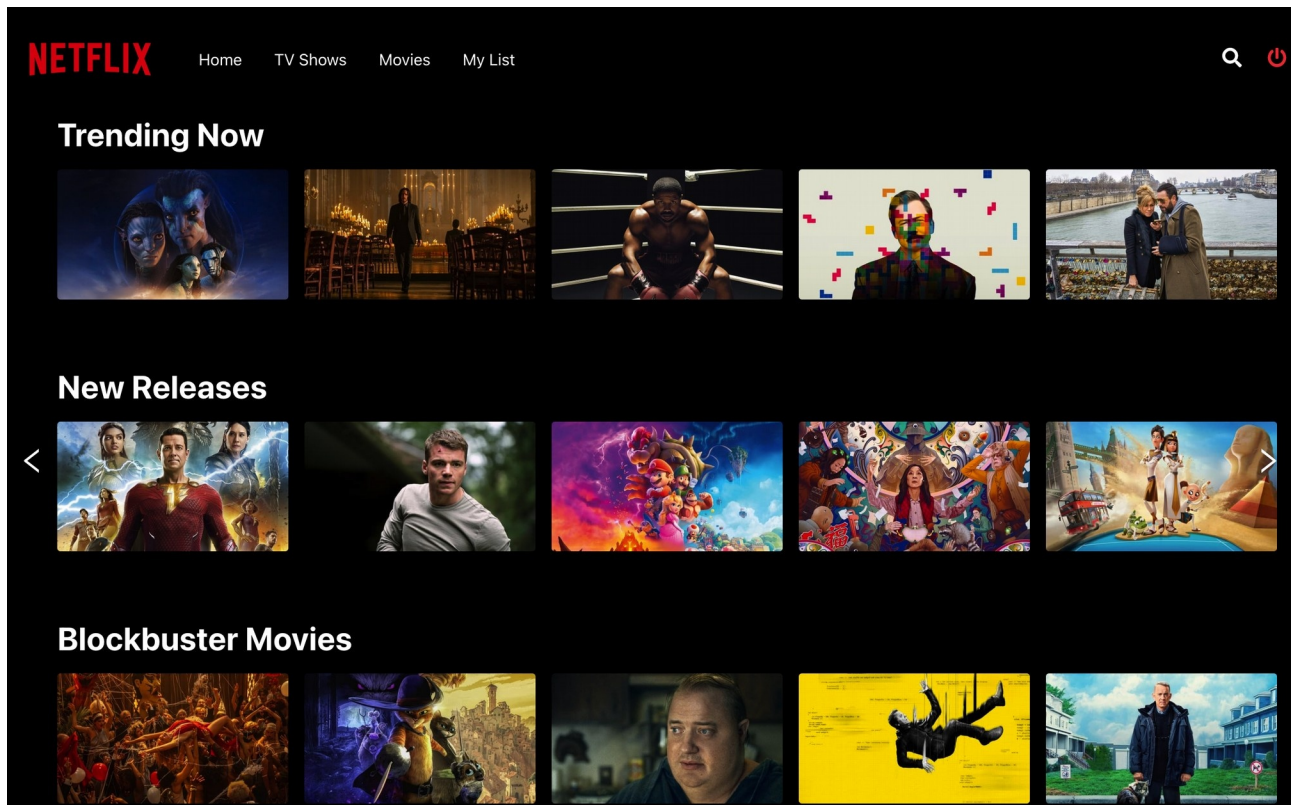


By clicking the Play button, the user will be redirected to the video as shown in the below image.



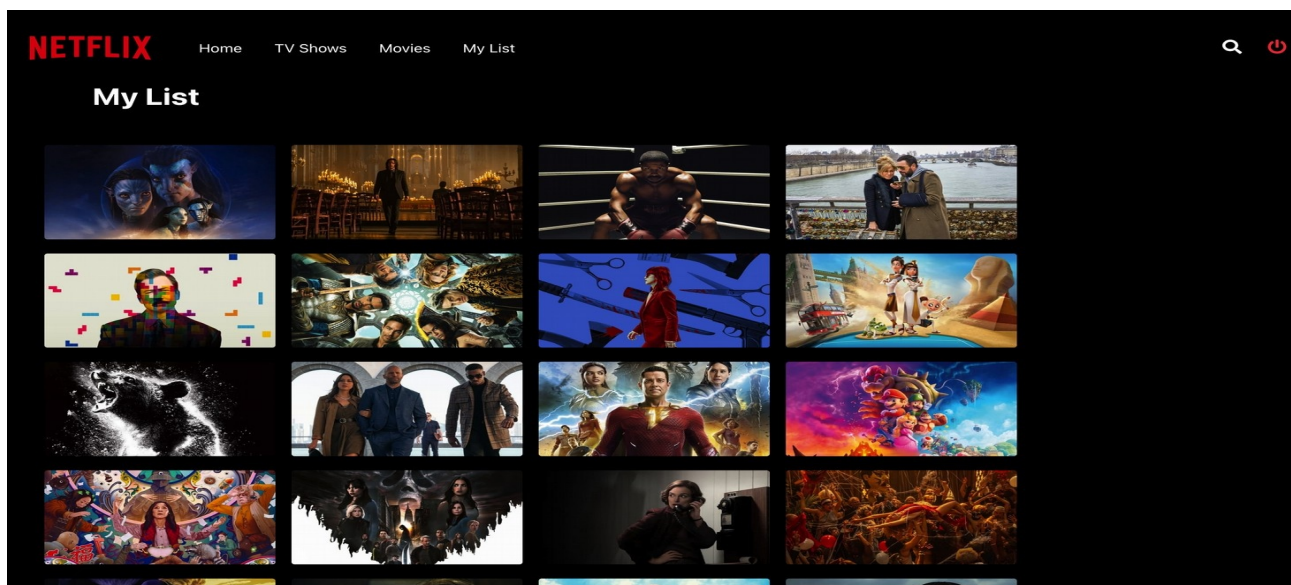
5. TV shows & Movies :

This TV Shows & Movies options will displays TV shows and movies which are recommended by the Netflix.



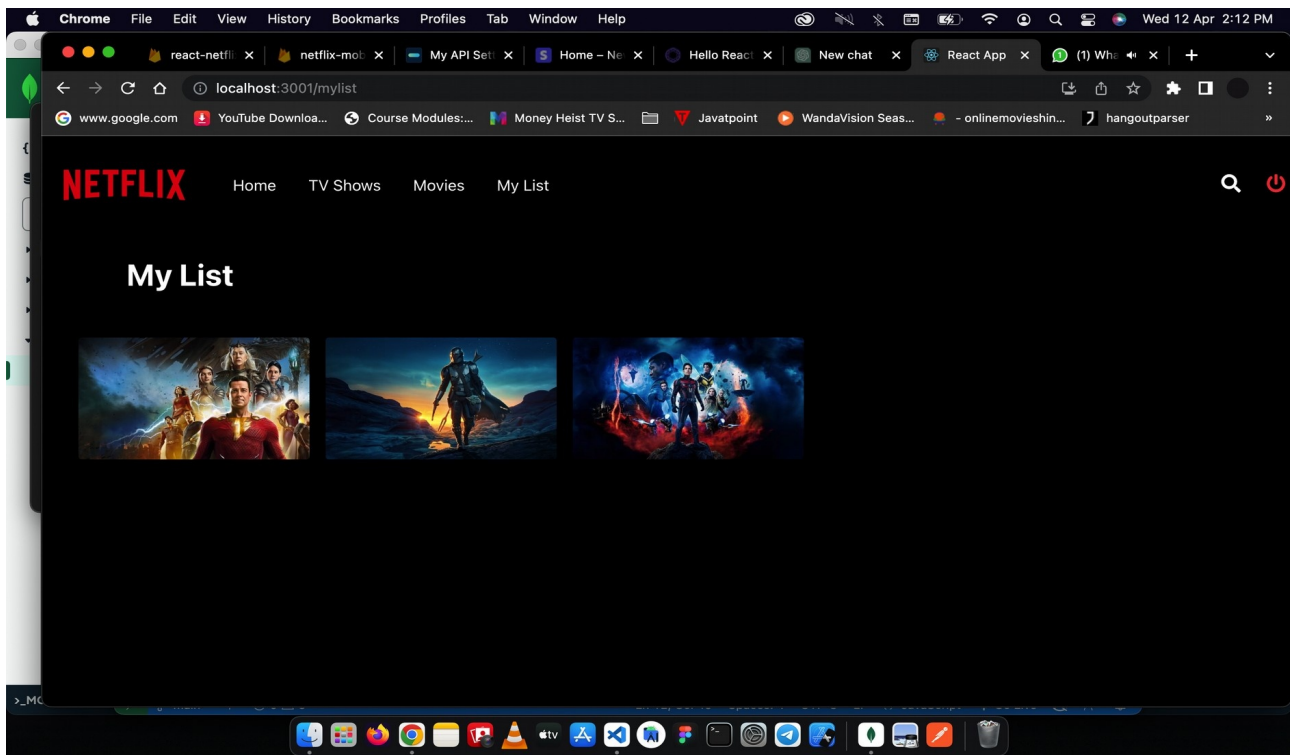
6. My List :

My list is a library which will holds the content/movies which are selected by the users. This list clearly determines the likings of the user.

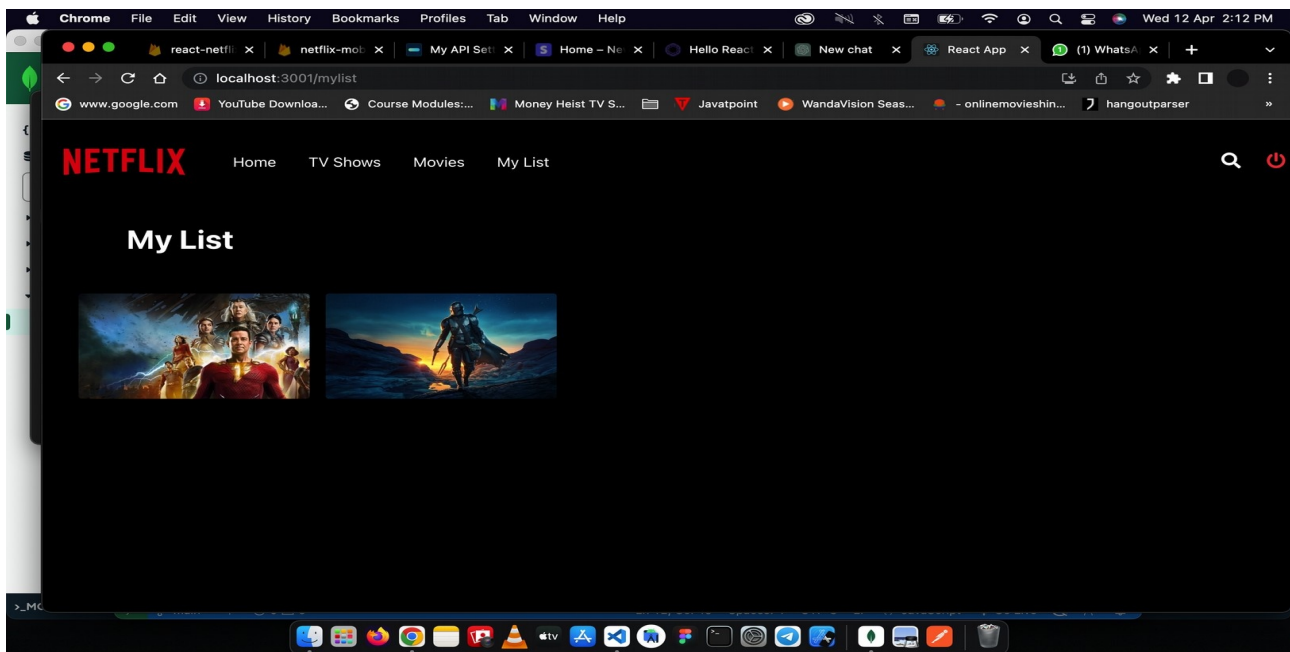


7. Adding & Removing of Movie Content :

This feature gives us the favourability to add and remove the movie content from the list.

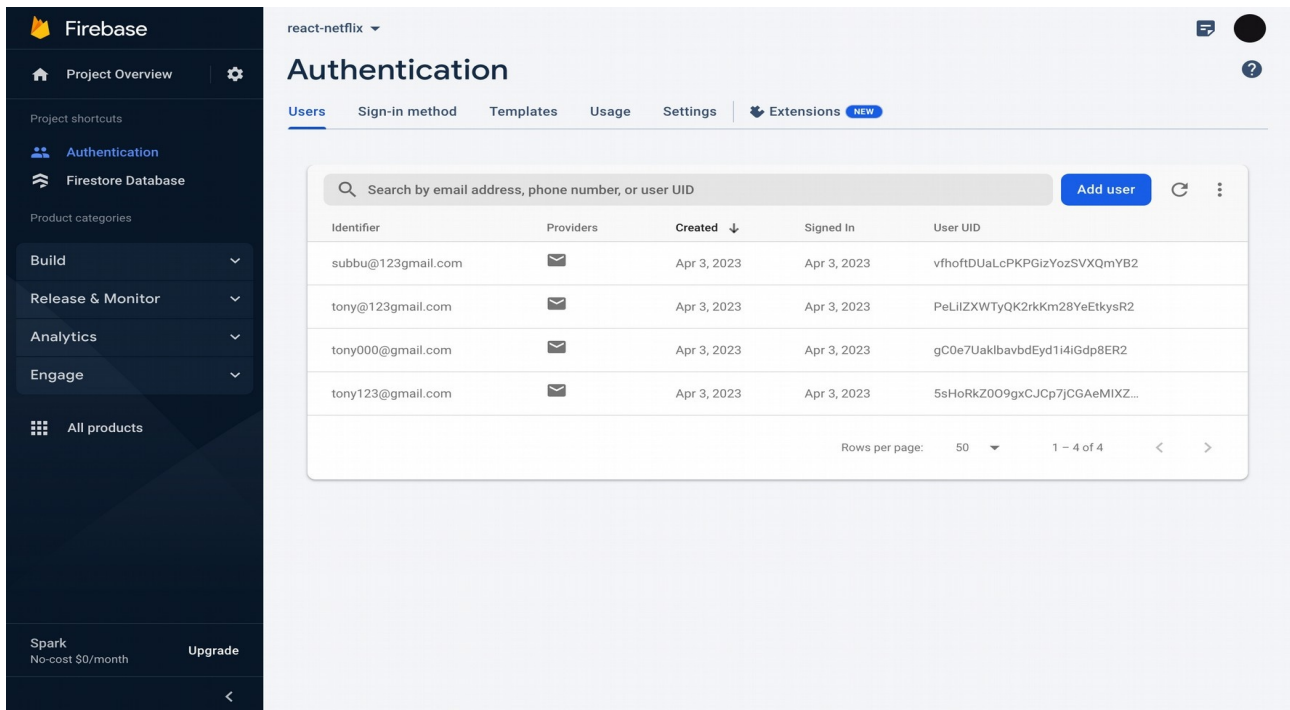


We can remove the content which we didn't want.

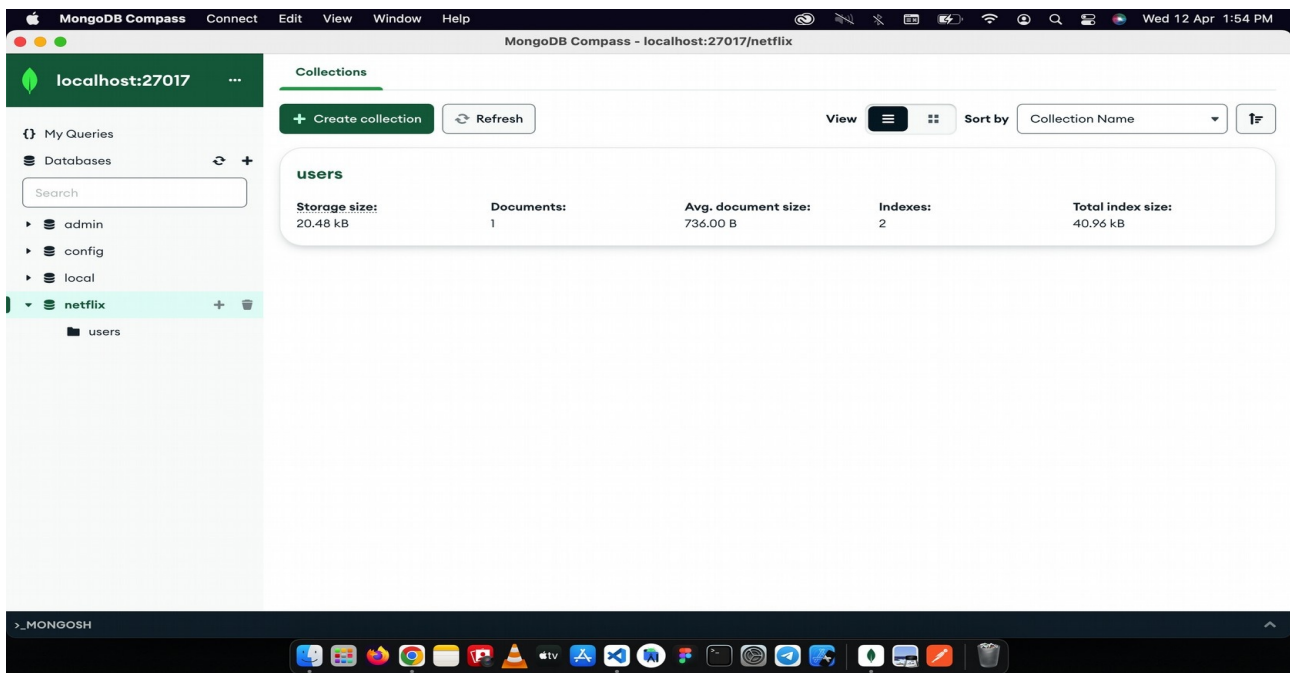


8. Database :

As we are using the Firebase database, the login credentials data will be stored in the Firebase database. Admin can access the data, modify and delete it within in the Firebase.

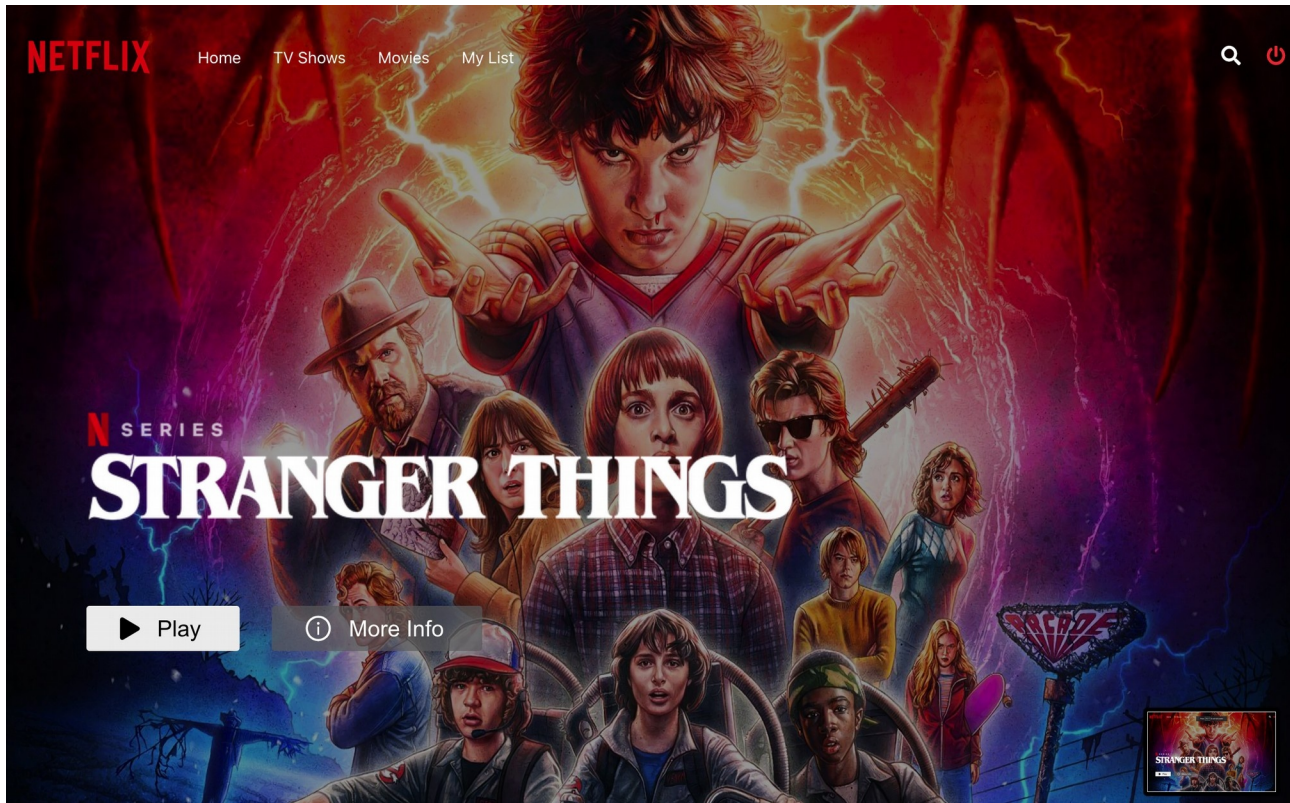


MangoDB Database :



9. Signout :

By clicking the signout button, User will logged out of the Netflix successfully.



4. Future Scope :

1. We can deploy the website in any one of the clouds like AWS, Firebase, Heroku etc.
2. We deploy this website to the users through a public domain.
3. We can add more features like Live Streaming, Live Gaming etc.,

Learning Objectives :

1. we have enhanced our problem solving skills throughout the process of this project development.
2. We realized the importance of software process models and came to know how to organize the code and some best practices of programming.
3. We have observed & got to know how Netflix had been created, structured & functioning effectively.

5. Conclusion :

This is a clone of Netflix website built using React.JS as a Front-end & Firebase as Back-end. It's not a replica and it doesn't have all the features of Netflix website. It's a similar version of Netflix with out team own design touch, showing our abilities in React.JS to build something advanced like Netflix. It contains the home page, sign-in page, sign-up page, browse page and movie player.

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- <https://developers.themoviedb.org/3/getting-started/introduction>
- <https://firebase.google.com/docs/guides>
- <https://stackoverflow.com/>
- <https://www.youtube.com/>