MAJOR PROJECT REPORT



Major Project Report

NETFLIX Clone Website AT

Meta Scifor Technologies



BMTC Complex, Old Madiwala, Kuvempu Nagar, Stage 2, BTM Layout, Bengaluru, Karnataka 560068

SUBMITTED BY:-

Sarbajit Acharjee

INTERN ID: MST04-0027

GUIDED BY:

Lekha Ma'am

(Instructor At Meta Scifor Technologies)

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ABSTRACT

This project presents a functional Netflix Clone website, developed with HTML, CSS, JavaScript, and the Bootstrap framework, featuring a jQuery carousel for smooth content browsing. Aiming to replicate the Netflix interface, the design emphasizes responsiveness, ensuring optimal performance across various devices and screen sizes.

The current version provides a static viewing experience, but it can be expanded to support dynamic data integration through APIs. While the TMDB API would be an ideal choice for providing real-time movie and show data, its usage is currently restricted in India, encouraging exploration of alternative APIs for further development. Created as part of the major project requirement for the Meta SciFor training program, this Netflix Clone demonstrates proficiency in web development fundamentals and showcases the potential for interactive, data-driven applications in future iterations

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INTRODUCTION

The Netflix Clone project is a web-based application designed to replicate the core user interface and functionality of the popular streaming platform, Netflix. Developed as a major project for the Meta SciFor training program, this clone leverages front-end web development technologies to deliver a visually engaging and responsive user experience. The project demonstrates fundamental skills in HTML, CSS, JavaScript, Bootstrap, and jQuery, while providing a solid foundation for future dynamic data integration through APIs.

1.1.Project Overview :-

1.1.1. Project Goals: -

- ❖ Interface Simulation: Replicate the essential design and layout of Netflix, including the homepage, carousels, and navigation structure.
- * Responsive Design: Ensure the website adapts seamlessly to various devices and screen sizes, delivering a consistent viewing experience.
- ❖ User Engagement: Implement interactive elements, such as carousels, to allow users to browse through content categories intuitively.
- ❖ API Integration: Plan for future integration of APIs like TMDB (not currently accessible in India), to enable dynamic content updates and provide real-time movie and show data.
- ❖ **Project Completion for Training**: Fulfill the requirements of the Meta SciFor training program by completing a major web development project showcasing practical front-end skills.

1.1.2 Technical Approach:

- **HTML, CSS, and Bootstrap for Structure & Styling:**
 - Used HTML for the structural foundation, CSS for styling, and Bootstrap for a responsive layout that adapts to different screen sizes.
 - Styled elements to closely mimic Netflix's interface, focusing on clean lines, spacing, and visual hierarchy.
- JavaScript and jQuery for Interactivity:
 - Incorporated JavaScript to handle user interactions and dynamically update content.
 - Used jQuery for the carousel feature, creating smooth transitions and enhancing user engagement.

A Responsive Design Practices:

• Applied Bootstrap's responsive grid system and CSS media queries to ensure that all components, including images, text, and carousels, adjust smoothly across devices.

This technical approach allows for a well-structured, interactive Netflix clone that serves as both a practical demonstration of web development skills and a scalable foundation for dynamic content in future upgrades.

1.2. Objectives:-

The main objective of the Netflix Clone project is to develop a functional and visually accurate web application that replicates the core interface and user experience of Netflix. The project aims to showcase proficiency in front-end development and responsiveness while providing a scalable base for future dynamic content integration through APIs. Key objectives include:

- * Replicate Netflix's User Interface: Accurately mimic Netflix's design, layout, and style elements to create an authentic streaming platform experience for users.
- Responsive and Cross-Device Compatibility: Ensure the website functions seamlessly on desktops, tablets, and mobile devices, providing a consistent and engaging experience across screen sizes.
- ❖ Interactive and Engaging User Experience: Implement interactive features, like carousels, to allow users to browse through content categories, simulating the real Netflix browsing experience.
- ❖ Foundation for Dynamic Data Integration: Design the website with the flexibility to integrate APIs in the future, enabling real-time updates of movie and TV show data, using the TMDB API or alternatives, if accessible.
- Practical Application of Front-End Skills: Complete the project as part of the Meta SciFor training program, demonstrating proficiency in HTML, CSS, JavaScript, Bootstrap, and jQuery.
- Scalability for Future Enhancements: Build a scalable structure that allows for easy expansion, whether through new features, additional pages, or dynamic content sources.

Key Features:

Accurate Netflix Interface Design

 A clean and minimalist layout that mirrors the Netflix user interface, including key elements like the homepage layout, search bar, and navigation structure.

Responsive Design

 Ensures that the website adapts fluidly to different screen sizes, offering a consistent user experience on desktops, tablets, and mobile devices.

Interactive Carousel for Content Browsing

 A jQuery-powered carousel that allows users to smoothly browse through categories of content, closely replicating Netflix's scrollable content rows.

Engaging Hero Section

• A visually striking hero section that features popular or recommended content, making the landing experience engaging and dynamic.

Navigation and Search Functionality

• A navigation bar for seamless access to different sections of the website, with the potential to incorporate search functionality for content exploration.

Scalability for API Integration

 Built to support future integration with APIs like TMDB (or alternatives), allowing for real-time movie and show data updates when accessible.

Optimized for Fast Load Times

• Efficient use of HTML, CSS, JavaScript, and Bootstrap for quick loading times, even with rich media, enhancing the overall user experience.

Comprehensive CSS Styling with Bootstrap Support

 Customized CSS for accurate styling, supplemented by Bootstrap's responsive grid and components to streamline development and ensure a cohesive look and feel.

Project-based Learning

 Demonstrates real-world web development skills and techniques required for building responsive, interactive web applications.

Technologies Used

HTML

 Used to structure the webpage elements, providing the backbone for the Netflix-like layout and defining key sections like the navigation bar, carousel, hero section, and footer.

CSS

• Employed for styling and layout customization, creating a visually engaging and Netflixinspired design. CSS is used to fine-tune the color scheme, fonts, spacing, and responsiveness of the application.

JavaScript

 Adds interactivity to the website, allowing for dynamic updates, smooth transitions, and engaging user interactions. JavaScript controls various interactive elements like the carousel and enhances the overall user experience.

Bootstrap

This CSS framework helps achieve responsive design with ease by using its grid system
and pre-defined components. Bootstrap simplifies the layout and ensures compatibility
across different screen sizes, maintaining a consistent look and feel.

❖ jQuery

A JavaScript library that simplifies DOM manipulation, event handling, and AJAX calls.
 jQuery powers interactive components like the carousel, providing smooth animations and transitions.

Owl Carousel

 A responsive jQuery plugin specifically used for creating smooth and customizable carousels. Owl Carousel provides a Netflix-style scrolling interface, allowing users to easily browse through content categories with swipe support on mobile devices.

Project Setup & File Structure

4.1. Project Setup for Netflix Clone

4.1.1. Project Folder Structure:

Create a project folder to organize all files.

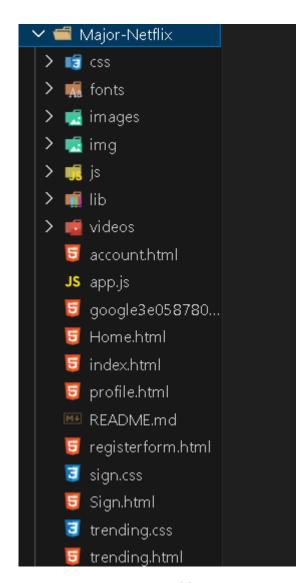


Figure 1: Project Folder Structure

4.1.2. Folder Structure Breakdown

1. css/

o Contains all the CSS files that style the different components and pages of the website.

 Example files: sign.css, trending.css which likely contain styling for the sign-in page and trending section, respectively.

2. fonts/

Holds font files used in the project to ensure consistent typography across the website.
 This include custom fonts or web fonts required for the Netflix-style look.

3. images/

 Contains all image assets, such as logos, icons, and thumbnails, used throughout the website.

4. img/

 Another folder for images, used to separate specific types of images (e.g., profile images or cover images).

5. **js/**

- o Holds JavaScript files used to add interactivity to the website.
- o Includes app.js, which might be the main JavaScript file controlling the overall site logic and interactive features.

6. **lib/**

Likely contains external libraries or dependencies used in the project, such as jQuery,
 Owl Carousel, or other plugins.

7. videos/

 Contains any video assets for the website, such as previews, trailers, or background videos that are embedded on the website.

HTML Pages

- account.html: Account page where users can view or manage their account details.
- **Home.html**: The main homepage of the Netflix Clone, likely displaying featured content, categories, and carousels.
- **index.html**: Often used as the landing page of the website, redirecting users to the home or login page.
- profile.html: Contains the user profile page, where users can select their profile or customize it.
- registerform.html: A page for new users to sign up for an account.
- **Sign.html**: The sign-in page where existing users can log in.

Additional Files

• **app.js**: The main JavaScript file that may contain global variables and functions to manage the website's interactivity.

- README.md: Documentation file explaining the project, its purpose, setup instructions, and other details.
- **googlee058780...**: This file is a verification file, added for Google Search Console verification purposes.

CSS Files

- **sign.css**: Specific CSS styling for the sign-in page.
- **trending.css**: CSS styling for the trending section.

4.1.3. Install Required Libraries

- ❖ Bootstrap: Download the Bootstrap CSS and JavaScript files, or include them via CDN in the <head> section of index.html:
- link href="https://stackpath.bootstrapcdn.com/bootstrap/4.5.2/css/bootstrap.min.css" rel="stylesheet">
- <script src="https://stackpath.bootstrapcdn.com/bootstrap/4.5.2/js/bootstrap.bundle.min.js"></script >
- ❖ jQuery: Add the jQuery library via CDN or download it to the assets/js/ folder.
- <script src="https://code.jquery.com/jquery-3.5.1.min.js"></script>
- ❖ Owl Carousel: Download Owl Carousel files or include them via CDN for the carousel functionality.
- link rel="stylesheet"
 href="https://cdnjs.cloudflare.com/ajax/libs/OwlCarousel2/2.3.4/assets/owl.carousel.min.css">
- <script src="https://cdnjs.cloudflare.com/ajax/libs/OwlCarousel2/2.3.4/owl.carousel.min.js"></s cript>

4.1.4. Version Control

For the Netflix Clone project, **Git** is used as the version control tool to track changes in the codebase, manage different versions, and maintain a history of the project's development. **GitHub** serves as the remote repository, allowing for easy backup, collaboration, and sharing of the project.

1. **Git**:

 Local Version Control: Tracks all changes made to the project files, enabling reversion to previous versions if needed.

- Commit History: Saves "snapshots" of changes through commits, each with descriptive messages, making it easy to understand the project's progress.
- Branching: Supports the creation of branches to work on new features or bug fixes separately, without affecting the main codebase.

2. GitHub:

- Remote Repository: Provides a cloud-based storage for the project, accessible from any device.
- Collaboration: Allows multiple developers to work on the project simultaneously, with tools for pull requests, code reviews, and issue tracking.
- Backup: Ensures the project is securely stored and backed up, reducing the risk of data loss.

Using Git and GitHub ensures an organized, reliable, and collaborative development process for the Netflix Clone project.

4.2. Core Components of the Netflix Clone Project

1. Header Section

- **Purpose**: The header serves as the primary navigation area, displaying the logo, search bar, and user profile icon.
- **Design**: Styled to resemble the Netflix header, with a dark background and responsive layout that adapts to different screen sizes.
- Features: Includes quick links to popular sections like Home, TV Shows, Movies, and New & Popular.

2. Navigation Section

- **Purpose**: Provides access to different categories and sections of the website.
- Design: Organized with easy-to-navigate links, including dropdown menus for accessing subcategories.
- Features: Dropdown functionality for categories like Genres and Languages, making it easier for users to find content.

3. Hero Section (Image and Video)

Purpose: The hero section is the first thing users see upon loading the page, featuring a
prominent movie/show.

- **Design**: Includes a large background image or video for a popular or recommended title, with options to play the trailer or add to the watchlist.
- Features: Video autoplay on larger screens, with a responsive image for mobile devices.

4. Dropdown Notifications

- Purpose: Displays updates or notifications related to new content, recommendations, or account-related information.
- **Design**: Styled to look like a notification center, accessible from the header.
- Features: Shows a list of new releases, messages, or other alerts for the user.

5. Background Poster

- **Purpose**: Adds a cinematic look to each section, using high-quality images as background posters for different genres or categories.
- **Design**: Posters typically feature a dark overlay to make text and buttons stand out, enhancing the user experience.
- **Features**: Changes dynamically based on the content displayed (e.g., featured title, trending section).

6. Continue Watching Section

- **Purpose**: Allows users to pick up where they left off in a series or movie.
- **Design**: Displayed as a horizontal carousel, showing thumbnails of titles the user has partially watched.
- Features: Includes a progress bar under each title to indicate how far the user has watched.

7. Genre Sections (Movies, TV Shows, Thriller, Horror)

- **Purpose**: Organizes content by genre, making it easy for users to browse specific categories.
- **Design**: Each section displays titles in a row format with scrollable carousels for browsing.
- **Features**: Customizable categories like **Movies**, **TV Shows**, **Thriller**, and **Horror** with unique styling and filters for each genre.

8. Account Component

- **Purpose**: Allows users to view and edit account details, manage profiles, and view subscription information.
- Design: Simple and intuitive layout that includes options like Edit Profile, Subscription Details, and Sign Out.
- Features: User settings and personalization options, such as setting up multiple profiles.

9. Sign-in and Register Components

Purpose: Enables users to log in or create a new account to access personalized content.

- **Design**: Separate pages for **Sign In** and **Register**, with forms for entering email, password, and other details.
- **Features**: Form validation, "Remember Me" option for sign-in, and error messages for incorrect credentials.

10. Homepage Section

- **Purpose**: Acts as the main landing page, displaying a variety of content rows organized by genre, trending titles, and personalized recommendations.
- **Design**: Includes the **Hero Section** at the top, followed by rows of categorized content.
- Features: Dynamic and personalized layout with trending, popular, and recently added sections.

11. Footer Section

- **Purpose**: Provides additional links and information about the website, such as contact information, policies, and social media links.
- **Design**: A minimalist design with a dark background and subtle text links, maintaining the visual style of the site.
- Features: Links to sections like Help Center, Privacy Policy, Terms of Use, and social media icons.

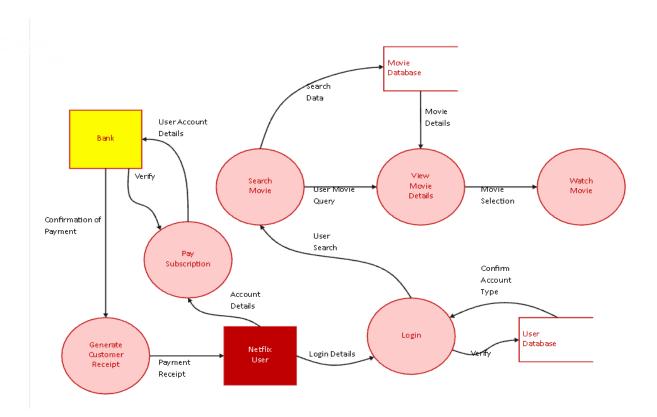


Figure 2 : Netflix Data Flow Diagram

Implementation(Output/Results)

5.1. Landing Page

The homepage of the Netflix Clone serves as the central hub for showcasing popular content and providing new users with information about Netflix's plans, features, and frequently asked questions (FAQ). This section aims to engage both potential subscribers and returning users by highlighting the core benefits of the platform, available subscription plans, and answers to common questions.

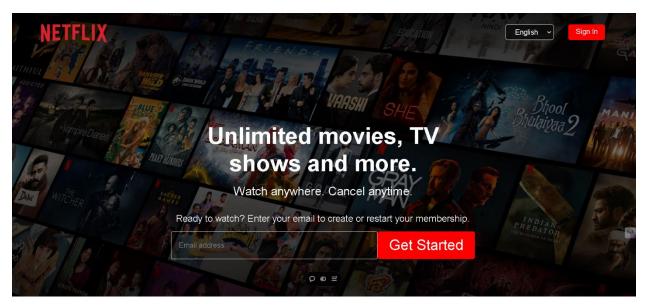


Figure 3: Landing Home Page



Figure 4:Homepage Premium Content



Figure 5: FAQ Section

5.2. Sign In Page

The **Sign-In Page** of the Netflix Clone is designed to provide users with a secure and straightforward way to log into their accounts. This page has a minimalistic, user-friendly interface that closely resembles Netflix's original sign-in page, focusing on simplicity and accessibility.

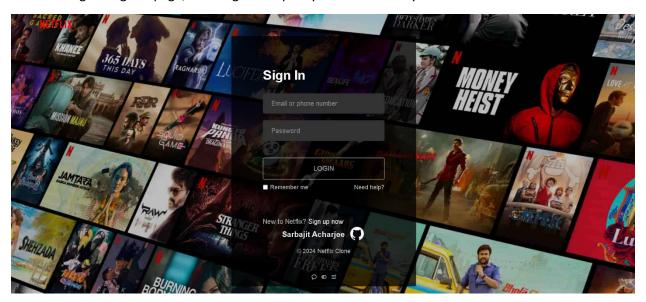


Figure 6: Sign In Page

5.3. Register Page(Sign Up)

The **Sign-Up** (**Register**) **Page** of the Netflix Clone is designed to guide new users through the account creation process smoothly and intuitively. It aims to make registering easy while providing clear information about the benefits of joining, such as access to exclusive content and the variety of available subscription plans

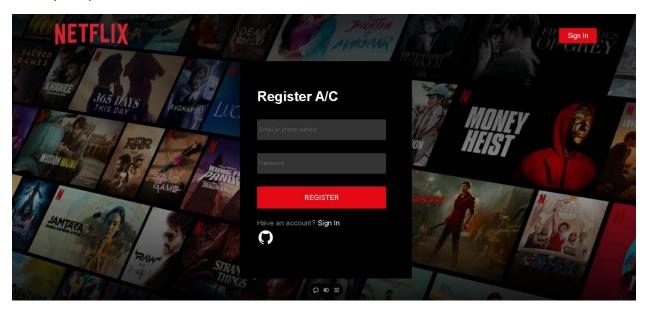


Figure 7: Register Page

5.4. Profile Section

The **Profile Section** of the Netflix Clone allows users to manage their profiles, customize their viewing preferences, and access personalized content. This section is essential for a multi-user experience, where different family members or individuals can have separate profiles on the same account, each with its own recommendations and watch history.

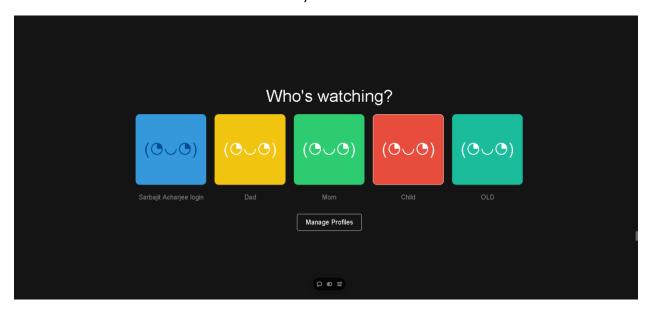


Figure 8: Family Profiles

5.5. Netflix Landing Page

The Netflix hero page, often referred to as the "landing page," serves as the first impression for users visiting the Netflix website or app. It plays a crucial role in engaging visitors and encouraging them to explore the platform's extensive content library. Here are the key features and design elements that define the Netflix hero page:

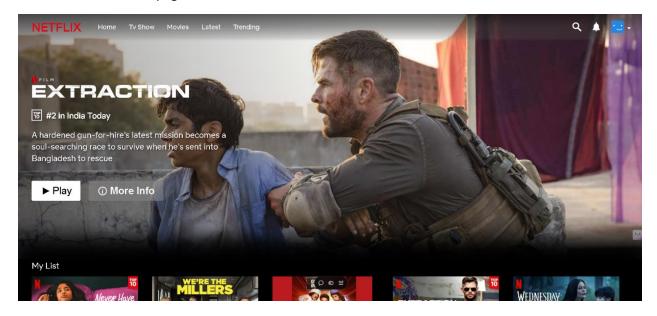


Figure 9: Hero Section

5.6. Genre Sections (Movies, Tv Shows, Thriller ,Horror)

The genre sections on the Netflix hero page help users navigate through the vast array of content available, catering to diverse tastes and preferences.

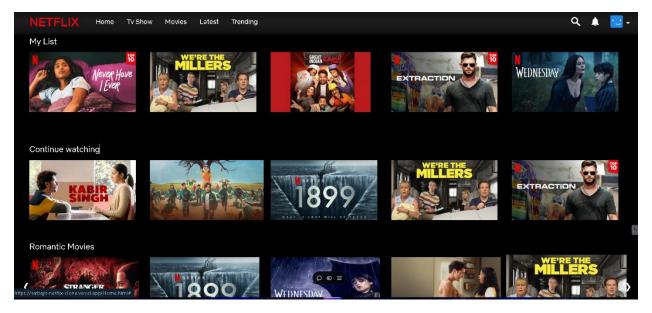


Figure 10: Shows List

5.7. Account Section

The account section on Netflix is a crucial component of the user experience, allowing subscribers to manage their profiles, settings, and preferences. This section is designed to provide users with control over their Netflix account while ensuring a personalized viewing experience. Here's a detailed overview of the key features and functionalities typically found in the account section:

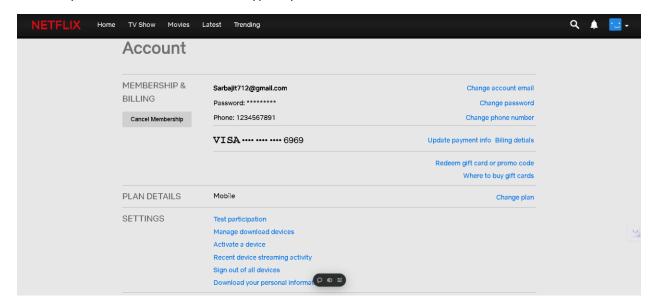


Figure 11: Account Settings

5.8. Footer Section

The footer section of the Netflix website or app plays a crucial role in providing essential information, navigation options, and resources for users. It is typically located at the bottom of the page and offers a consistent and accessible way for users to find important details and links. Here's an overview of the key features and elements commonly found in the footer section:

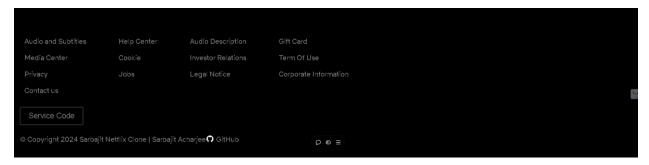


Figure 12: Footer Section For Linking Social Accounts

5.9. Notification Bar

Creating a notification bar for accounts that can display messages for logging out, downloading content, and new show releases is an effective way to keep users informed and engaged on platforms like Netflix. Below is a detailed description of how such a notification bar might be designed and implemented, including key features and best practices.

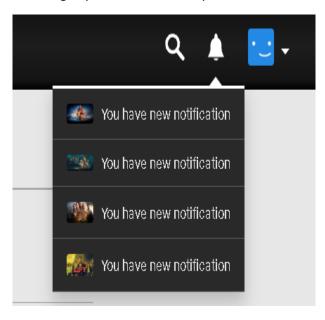


Figure 13: New Show Release

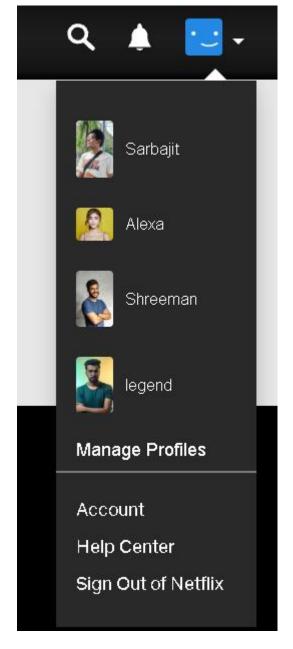


Figure 14: Profiles and Settings

5.10. Responsive Mobile Structure

Creating a responsive Netflix clone website involves ensuring that the layout and elements adapt seamlessly to various screen sizes, including mobile phones, tablets, and laptops/PCs. Below, I'll outline key strategies, best practices, and example code snippets for making a Netflix clone responsive across different devices.

1. Fluid Layout

- **Use Relative Units**: Employ relative units like percentages (%), em, and rem for widths, heights, and font sizes instead of fixed pixel values to allow elements to scale naturally.
- **Flexbox and Grid**: Utilize CSS Flexbox and Grid for layout management. These techniques help create flexible layouts that adjust to the available screen space.

2. Media Queries

• Implement CSS media queries to apply different styles based on the screen size. This allows you to adjust layouts, font sizes, and other design elements for various devices.

3. Responsive Navigation

• For mobile and tablet devices, consider using a hamburger menu for navigation, which can expand or collapse to save screen space.

4. Responsive Images and Videos

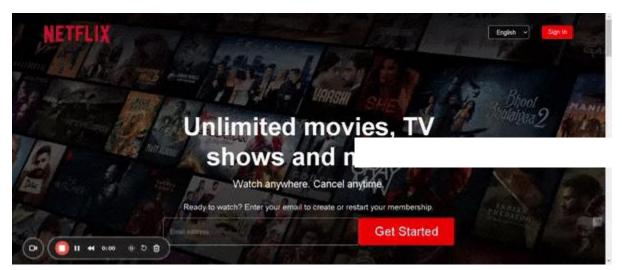
• Use CSS to ensure images and videos scale properly. Set the max-width of images and videos to 100% to prevent overflow.

DEMO Links And Source Code

Website link: Netflix_Clone

Github Source Code: Sarbajit Acharjee

Github Hosted Link: Netflix (If The First Link Doesn't work)



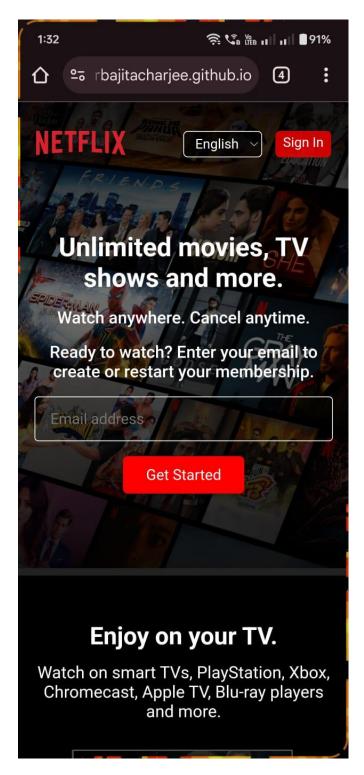


Figure 15: Responsive Homepage

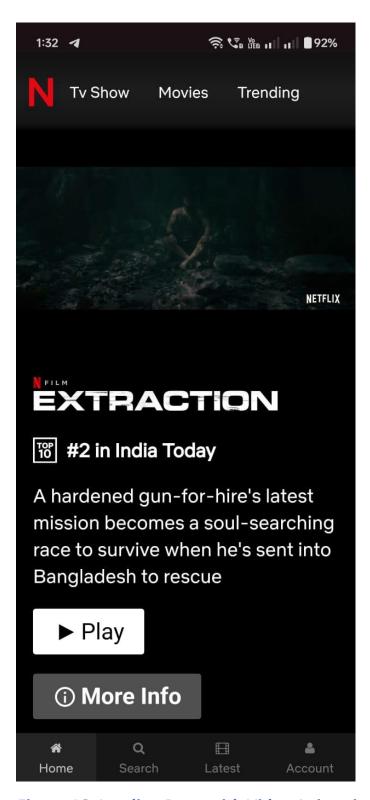


Figure 16: Landing Page with Video Animation

Challenges Faced

Building a Netflix clone project can be a rewarding experience, but it often comes with its own set of challenges. Here are some common challenges:

❖ First of all Tailwind Was Not allowed to Use So I Have to Choose Simple CSS for Building and Didn't chose React To build Netflix Clone as react is easy with tailwind and Vite.

1. Responsive Design Issues

- Challenge: Ensuring that the layout works seamlessly across various devices (mobile, tablet, and desktop) can be difficult, especially when it comes to different screen sizes and resolutions.
- **Solution**: Utilize CSS Flexbox and Grid for layout management. Employ media queries to adjust styles based on device dimensions. Regularly test on multiple devices and screen sizes to identify and fix responsive issues.

2. Navigation and User Experience

- **Challenge**: Creating an intuitive navigation system that works well on both mobile and desktop can be complex. Users expect a smooth experience while browsing content.
- **Solution**: Implement a hamburger menu for mobile navigation that expands to show links when clicked. Ensure that the menu is easily accessible and provides clear options for users. Use user feedback to refine navigation. But I neglect it as Netflix Don't have This Option.

3. Dynamic Content Loading

 Challenge: Loading and displaying dynamic content from APIs (like movie and show data) can lead to performance issues, especially with large datasets.

4. API Integration

- Challenge: Integrating with third-party APIs (like movie databases) can lead to issues
 with data consistency, rate limits, and error handling. While The Original TMDB Netflix
 main API for Shows were Missing.
- Solution: I Have to make The Full website Static Using Images and Videos.

5. Performance Optimization

- **Challenge**: Ensuring that the website loads quickly and performs well, especially with heavy images or videos, can be difficult.
- **Solution**: Optimize images and videos for web use (e.g., using formats like WebP and compressing media).

Future Improvements

1. Migration to React and Vite

- Component-Based Architecture
- Faster Development
- Modern Features

2. API Integration for Dynamic Data

 Dynamic Data Fetching: Integrate with APIs (e.g., The Movie Database API) to dynamically fetch and display content.

3. Creating Different Sections

 Movies and TV Shows: Create separate sections or routes for movies and TV shows to enhance user navigation.

4. Dedicated Page View for a Single Show

• **Show Details Page**: Create a dedicated page for each movie or TV show that displays detailed information, including a synopsis, cast, trailer, and user ratings.

5. User Authentication and Profiles

 User Accounts: Implement user authentication to allow users to create accounts, save preferences, and maintain personalized profiles.

6. Search and Filter Functionality

• Enhanced User Experience: Implement search and filter options to allow users to easily find specific movies or TV shows based on genres, ratings, or release dates.

7. Performance Optimizations

 Code Splitting: Utilize React's lazy loading features to split code into smaller chunks, improving load times.

Conclusion

The Netflix clone website showcases a comprehensive application of web development principles and practices. It combines responsive design, dynamic content integration, and user-friendly navigation to create a functional and visually appealing platform that mimics the popular Netflix service. By addressing common challenges and implementing future improvements, this project not only enhances technical skills but also prepares the groundwork for building more complex web applications in the future. This project is a testament to the power of modern web technologies and their ability to create engaging, interactive user experiences.

Acknowledgments

I would like to express my heartfelt gratitude to Lekha Savale Ma'am for her invaluable guidance and support throughout this training program. Her mentorship has significantly contributed to my learning experience and has inspired me to strive for excellence in my work.

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Lastly, I would like to thank Meta Scifor for providing me with this incredible opportunity to showcase my abilities. This program has not only enhanced my technical skills but has also allowed me to grow personally and professionally. Thank you all for being a part of this amazing experience!

References

- 1. W3Schools:
- 2. MDN Web Docs:
- 3. **CSS-Tricks**:
 - o A great resource for learning CSS and modern web design techniques: CSS-Tricks
- 4. Bootstrap Documentation:
- 5. **jQuery Documentation**:
 - Official jQuery Documentation: jQuery
- 6. References for Owl Carousel
 - Owl Carousel Documentation:
 - GitHub Repository:
 - Owl Carousel GitHub: <u>Owl Carousel GitHub Repository</u>

Additional Resources

- 1. YouTube Tutorials:
 - Search for YouTube tutorials on building a Netflix clone or using the specific technologies you are interested in. Channels like Traversy Media, Academind, or The Net Ninja often have quality tutorials.
- 2. CodePen:
- Explore CodePen for examples of HTML, CSS, and JavaScript projects that use Bootstrap and jQuery: <u>CodePen</u>