



**Bachelor of IT (Computer Science)**  
**Assignment 2 - Client-Side React Application**  
**CAB230 - Web Computing**

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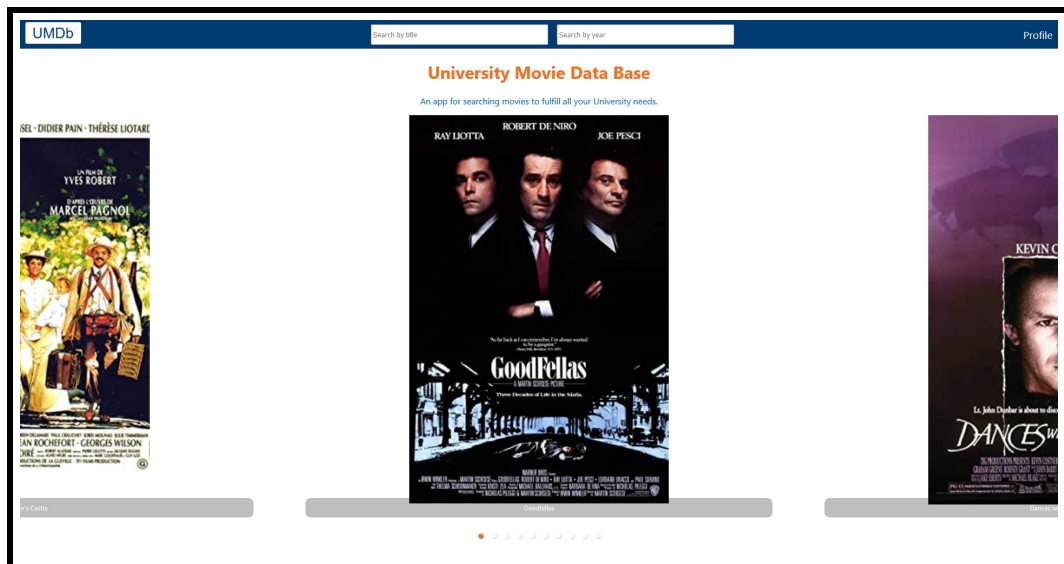
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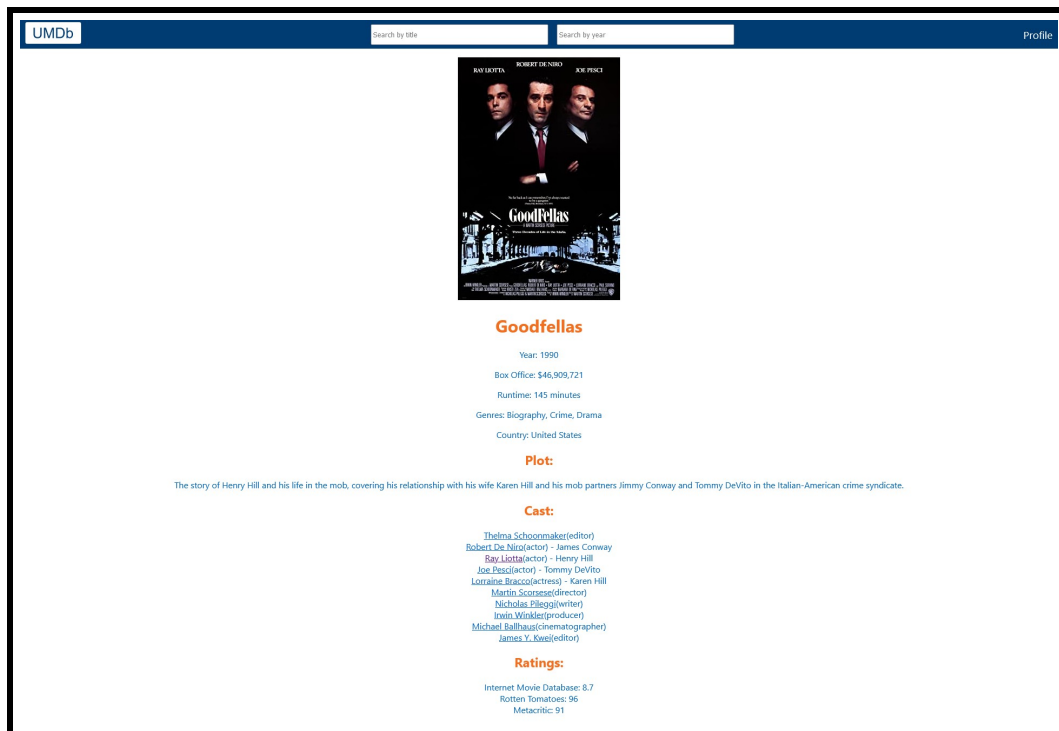
# 1 Introduction

## 1.1 Purpose and Description

The purpose of this react application is to collate and display information regarding movies, and cast members to the user in a responsive and accessible manner. The application should allow the user to search for movies by year or title and display the results in a list. When a movie is selected, the application should display all the details of the movie, including the year the movie was made, the plot of the movie and all the cast members involved with the movie. The application should also allow the user to visit individual pages of cast members where the user can view that cast members details, including their birth year, death year and all the movies they have been involved with.

It achieve this goal and to provide the user with the best experience I can, i have used a number of advanced react features, including the use of react router, IntesectionObserver and react-responsive-carousel. The use of these features has allowed me to create a professional looking application that is both easy to use and responsive for the user.





## 1.2 Completeness and Limitations

This implementation covers all the requirements of the assignment specification. Navigation is handled using react router, controlled forms are used for all user input, and every 10 minutes the refresh token is used to get a new access token. In addition to this, the application uses ag-grid to display the search results in an infinitely scrolling grid and react-responsive-carousel to display the highest scoring movies of all time on the home (landing) page. On the person page the movies the person is involved in are displayed in a grid with the IMDb Rating.

## 2 Use of End Points

The functionality for all the API endpoints is handled in API.js. This file contains all the functions that are used to make requests to the API. By containing all the API functionality in one file, it makes it easier to maintain and potentially update the application in the future.

### 2.1 /movies/search

This endpoint is implemented as the getMovies function and is utilised by two search forms at the top of the application. The first search form is for the user to search for movies by title, and the second is for the user to search for movies by year. Both of these forms are controlled forms and can be accessed from any page in the application. Doing it this way removes an extra layer of complexity for the user and allows them to get into the function of the application right from the start of the application.

UMDb	good		Search by year		Profile
Title	Year	IMDb Rating	Rotten Tomatoes Rating	Metacritic Rating	Classification
Goodfellas	1990	8.7	96	91	R
A Few Good Men	1992	7.7	84	62	R
The Good Son	1993	6.4	25	45	R
The Long Kiss Goodnight	1996	6.8	68	44	R
Good Burger	1997	5.7	33	41	PG
Good Will Hunting	1997	8.3	97	70	R
Midnight in the Garden of Good and Evil	1997	6.6	50	57	R
As Good as It Gets	1997	7.7	86	67	PG-13
Good Advice	2001	6.2	33		R
The Good Girl	2002	6.4		71	R
The Good Thief	2002	6.5	77	68	R
No Good Deed	2002	5.4	25		R
Good Bye Lenin!	2003	7.7	90	68	R
The Good Shepherd	2006	6.7	56	61	R
Goodbye, Dragon Inn	2003	7.1	81	83	N/A
A Good Woman	2004	6.5	37	53	PG
In Good Company	2004	6.5	82	66	PG-13
A Good Year	2006	6.9	26	47	PG-13

## 2.2 /movies/data/{imdbID}


This endpoint is implemented as the `getMovie` function and is utilised by the movie page to get the details of the movie the user has selected. The movie page is accessed by clicking on any of the movies in the search results. The movie page displays all the details of the movie, including the title, year, box office earnings, runtime, genre, country of origin, plot, cast and ratings. each cast member is a clickable link that will lead to that cast members respective page.

UMDb

Fight C

Search by year

Profile



### Fight Club

Year: 1999

Box Office: \$37,030,102

Runtime: 139 minutes

Genres: Drama

Country: Germany, United States

**Plot:**

An insomniac office worker and a devil-may-care soap maker form an underground fight club that evolves into much more.

**Cast:**

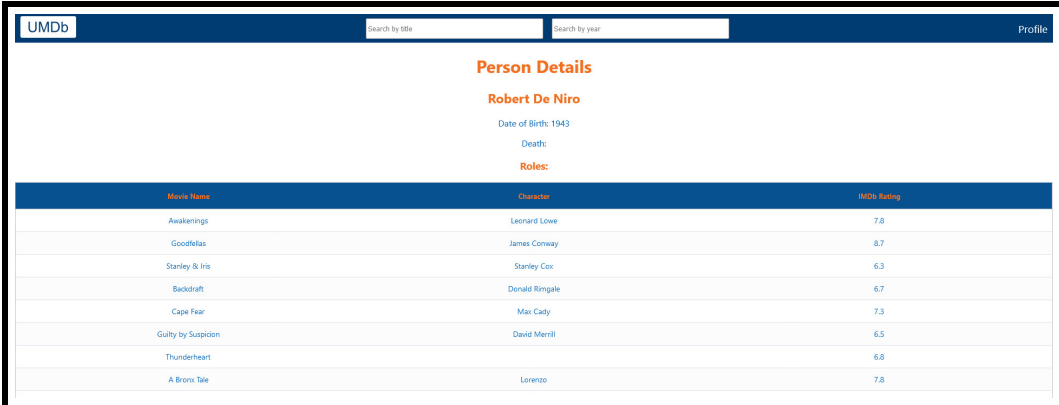
[Art Linson](#)(producer)  
[Brad Pitt](#)(actor) - Tyler Durden  
[Edward Norton](#)(actor) - Narrator  
[Meat Loaf](#)(actor) - Robert Paulsen  
[Zach Grenier](#)(actor) - Richard Chesler (Regional Manager)  
[David Fincher](#)(director)  
[Chuck Palahniuk](#)(writer)  
[Jim Ullrich](#)(writer)  
[Ross Grayson Bell](#)(producer)  
[Cedric Chaffin](#)(producer)

**Ratings:**

Internet Movie Database: 8.8  
Rotten Tomatoes: 79  
Metacritic: 66

## 2.3 /people/{id}

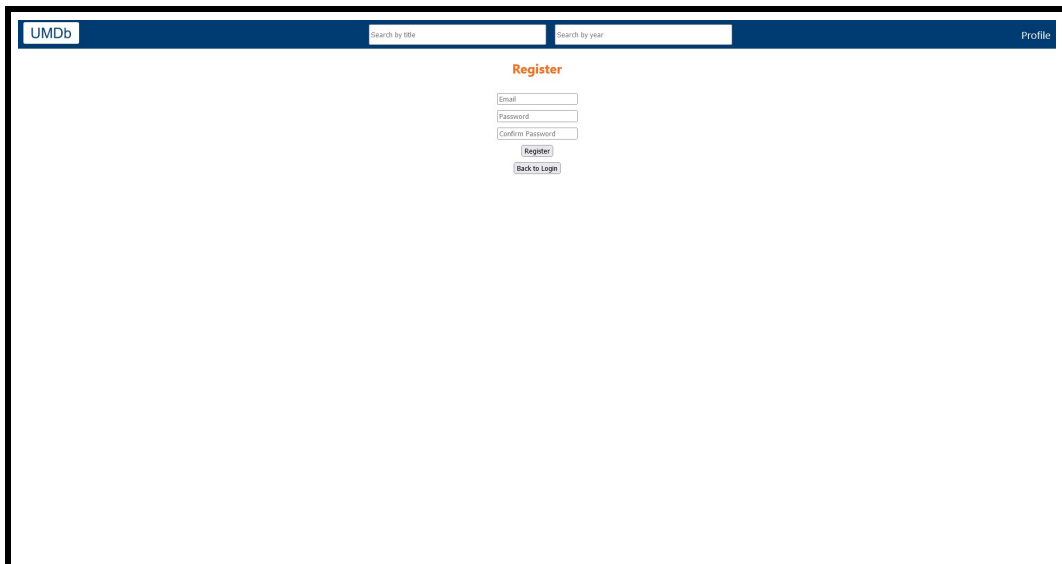
This endpoint is implemented as the `getPerson` function and is utilised by the person page to get the details of the person the user has selected. The person page is accessed by clicking on any of the cast members on the movie page. The person page displays all the details of the person exposed by the API, including their name, birth year, death year, all the movies they have been involved with. In a grid the name of each movie, the name of the character the person played and the IMDb Rating is displayed for the users convenience.



Person Details		
Robert De Niro		
Date of Birth: 1943		
Death:		
Roles:		
Movie Name	Character	IMDb Rating
Awakenings	Leonard Lowe	7.8
Goodfellas	James Conway	8.7
Stanley & Iris	Stanley Cox	6.3
Backdraft	Donald Rimgale	6.7
Cape Fear	Max Cady	7.3
Guilty by Suspicion	David Merrill	6.5
Thunderheart		6.8
A Bronx Tale	Lorenzo	7.8

## 2.4 /user/register

This endpoint is implemented as the `postRegister` function and is utilised by the profile page to register new users. The profile page is accessed by clicking on the profile button in the navigation bar at the top of the page. When first launched, if the user isn't logged in the profile page will be in the login state, if the user presses the register button the profile page will be transitioned into the register state. The register state contains fields for the user to enter their email, password and confirm password. If the user presses the register button the `/user/register` endpoint will be utilised to register the user and the tokens will be stored in local storage. If the user presses back to login the page will be transitioned back into the login state.

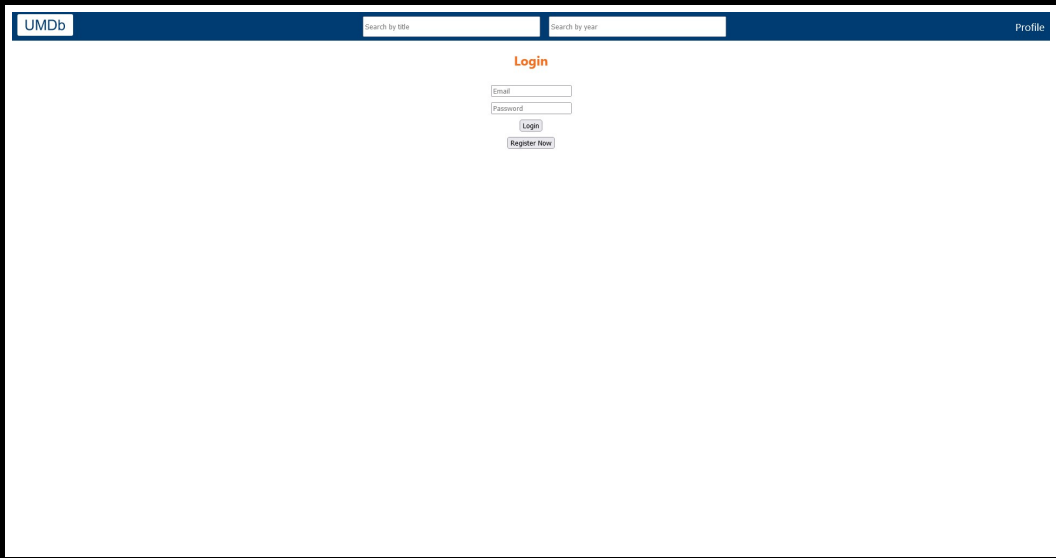


The screenshot shows a web application interface for registering a user. At the top, there is a dark blue navigation bar with the 'UMDb' logo on the left, two search input fields labeled 'Search by title' and 'Search by year' in the center, and a 'Profile' link on the right. Below the navigation bar, the main content area is white. In the center of this area, the word 'Register' is displayed in orange. Underneath, there are three input fields: 'Email', 'Password', and 'Confirm Password'. Below these fields are two buttons: a blue 'Register' button and a grey 'Back to Login' button.



## 2.5 /user/login

This endpoint is implemented as the postLogin function and is utilised by the profile page to login existing users. If the user accesses the the profile page while logged out they will be greeted with a login prompt with an email and password field, button to login and a button to register. If the user presses the register button the page will be transitioned into the register state. If the user presses the login button the /user/login endpoint will be utilised to login the user and the tokens will be stored in local storage.



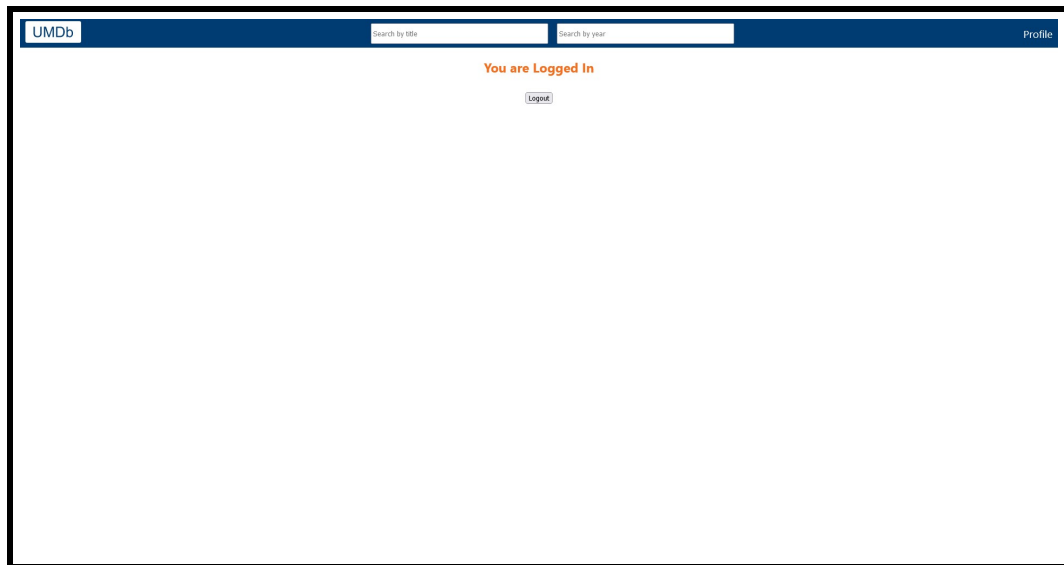
The screenshot shows a web application interface for UMDb. At the top, there is a dark blue header bar. On the left of the header is the 'UMDb' logo. In the center of the header are two search input fields: 'Search by title' and 'Search by year'. On the right of the header is a 'Profile' link. Below the header, the main content area is white. In the center of this area, the word 'Login' is displayed in orange. Below 'Login' are two input fields: 'Email' and 'Password'. Below these fields are two buttons: a 'Login' button and a 'Register Now' button.

## 2.6 /user/refresh

This endpoint is implemented as the postRefresh function and is utilised in the back end in App.js to refresh the tokens when the app first starts and every 10 minutes after. This is done to ensure the user does not have to login every 10 minutes.

## 2.7 /user/logout

This endpoint is implemented as the postLogout function and is utilised by the profile page to logout the user. If the user accesses the the profile page while logged in they will be greeted with a message telling them they are logged in accompanied with a button to logout, if the user presses the logout button the /user/logout endpoint will be utilised to logout the user and the tokens will be deleted.



## **3 Modules Used**

### **3.1 react-router-dom**

This module was used to handle navigation within the application. It was used to create the navigation bar at the top of the page and to create the routes for the different pages in the application.

<https://www.npmjs.com/package/react-router-dom>

### **3.2 react-responsive-carousel**

This module was used to create a carousel on the home page to display the movies with the highest IMDb Rating.

<https://www.npmjs.com/package/react-responsive-carousel>

### **3.3 ag-grid-react**

This module was used in MoviesPage to create a grid to display the search results in an infinitely scrolling grid, and in PersonPage it is used to display the movies the person stars in.

<https://www.npmjs.com/package/ag-grid-react>

### **3.4 ag-grid-community**

This module was used in both MoviesPage and PersonPage to utilise the CSS for the respective grids.

<https://www.npmjs.com/package/ag-grid-community>

## 4 Application Design

### 4.1 Navigation and Layout

The application has been designed to be as simple to use as possible. The ultimate goal of the design was to develop a user experience that the user can understand and use without having to think about it.

A few design choices were made to achieve this goal. The first major choice i made was to move the search bars to the navigation bar at the top of the page. This was done to make the search functionality more accessible to the user by allowing them to search from any page in the application. Moving the search bars to the navigation also freed up space on the MoviesPage allowing me to display more search results at once.



Title	Year	IMDb Rating	Rotten Tomatoes Rating	Metacritic Rating	Classification
<a href="#">The Pillow Book</a>	1996	6.5	67	64	Not Rated
<a href="#">Poison by II</a>	1996	4.4	14		R
<a href="#">Tromeo and Juliet</a>	1996	6			R
<a href="#">101 Dalmatians</a>	1996	5.7	41	49	G
<a href="#">2 Days in the Valley</a>	1996	6.5	62	56	R
<a href="#">The Adventures of Pinocchio</a>	1996	5.2	35		G
<a href="#">Alaska</a>	1996	5.7	23		PG
<a href="#">Albino Alligator</a>	1996	6.1	50	48	R
<a href="#">All Dogs Go to Heaven 2</a>	1996	5.5	20		G
<a href="#">The Apartment</a>	1996	7.4			R
<a href="#">The Arrival</a>	1996	6.2	66	56	PG-13
<a href="#">The Associate</a>	1996	6.1	28		PG-13
<a href="#">Bad Moon</a>	1996	5.8	30		R
<a href="#">Barb Wire</a>	1996	3.5	28	40	R
<a href="#">Basquiat</a>	1996	6.9		65	R
<a href="#">Beautiful Girls</a>	1996	7.1	78	64	R
<a href="#">Beautiful Thing</a>	1996	7.6	91		R
<a href="#">Beavis and Butt-Head Do America</a>	1996	6.8	71	64	PG-13
<a href="#">Bed of Roses</a>	1996	6	19		PG

During development i also investigated the possibility of having the poster image for each movie displayed in the search results. I decided against this as it excessively queries the API and often resulted in a rate limit. It also increased the complexity of being able to sort the search results which was something I wanted to implement.

UMDb

Search by title

Search by year

Profile

<p><b>Goodfellas</b></p> <p>1990</p>	<p><b>A Few Good Men</b></p> <p>1992</p>	<p><b>The Good Son</b></p> <p>1993</p>	<p><b>The Long Kiss Goodnight</b></p> <p>1996</p>	<p><b>Good Burger</b></p> <p>1997</p>	<p><b>Good Will Hunting</b></p> <p>1997</p>	<p><b>Midnight in the Garden of Good and Evil</b></p> <p>1997</p>	<p><b>As Good as It Gets</b></p> <p>1997</p>
<p><b>Good Advice</b></p> <p>2001</p>	<p><b>The Good Girl</b></p> <p>2002</p>	<p><b>The Good Thief</b></p> <p>2002</p>	<p><b>No Good Deed</b></p> <p>2002</p>	<p><b>Good Bye Lenin!</b></p> <p>2003</p>	<p><b>The Good Shepherd</b></p> <p>2006</p>	<p><b>Goodbye, Dragon Inn</b></p> <p>2003</p>	<p><b>A Good Woman</b></p> <p>2004</p>

UMDb

Search by year

Profile

<p><b>The Other Side of the Wind</b></p> <p>2018</p> <p>IMDb Rating: 6.7</p> <p>Rotten Tomatoes Rating:</p> <p>Metacritic Rating: 78</p> <p>Classification: R</p>	<p><b>A Tale of Springtime</b></p> <p>1990</p> <p>IMDb Rating: 7.1</p> <p>Rotten Tomatoes Rating:</p> <p>Metacritic Rating:</p> <p>Classification: PG</p>	<p><b>The Adventures of Ford Fairlane</b></p> <p>1990</p> <p>IMDb Rating: 6.4</p> <p>Rotten Tomatoes Rating:</p> <p>Metacritic Rating: 24</p> <p>Classification: R</p>	<p><b>Another 48 Hrs.</b></p> <p>1990</p> <p>IMDb Rating: 5.9</p> <p>Rotten Tomatoes Rating:</p> <p>Metacritic Rating: 23</p> <p>Classification: R</p>	<p><b>Awakenings</b></p> <p>1990</p> <p>IMDb Rating: 7.8</p> <p>Rotten Tomatoes Rating:</p> <p>Metacritic Rating: 74</p> <p>Classification: PG-13</p>	<p><b>Basket Case 2</b></p> <p>1990</p> <p>IMDb Rating: 5.4</p> <p>Rotten Tomatoes Rating:</p> <p>Metacritic Rating:</p> <p>Classification: R</p>	<p><b>Blue Steel</b></p> <p>1990</p> <p>IMDb Rating: 5.7</p> <p>Rotten Tomatoes Rating:</p> <p>Metacritic Rating: 54</p> <p>Classification: R</p>	<p><b>The Bonfire of the Vanities</b></p> <p>1990</p> <p>IMDb Rating: 5.6</p> <p>Rotten Tomatoes Rating:</p> <p>Metacritic Rating: 27</p> <p>Classification: R</p>
<p><b>Child's Play 2</b></p> <p>1990</p> <p>IMDb Rating: 5.9</p> <p>Rotten Tomatoes Rating:</p> <p>Metacritic Rating: 37</p> <p>Classification: R</p>	<p><b>My Mother's Castle</b></p> <p>1990</p> <p>IMDb Rating: 7.6</p> <p>Rotten Tomatoes Rating:</p> <p>Metacritic Rating:</p> <p>Classification: PG</p>	<p><b>Class of 1999</b></p> <p>1990</p> <p>IMDb Rating: 5.9</p> <p>Rotten Tomatoes Rating:</p> <p>Metacritic Rating: 33</p> <p>Classification: R</p>	<p><b>The Comfort of Strangers</b></p> <p>1990</p> <p>IMDb Rating: 6.3</p> <p>Rotten Tomatoes Rating:</p> <p>Metacritic Rating: 61</p> <p>Classification: R</p>	<p><b>Dances with Wolves</b></p> <p>1990</p> <p>IMDb Rating: 8</p> <p>Rotten Tomatoes Rating:</p> <p>Metacritic Rating: 72</p> <p>Classification: PG-13</p>	<p><b>Days of Thunder</b></p> <p>1990</p> <p>IMDb Rating: 6.1</p> <p>Rotten Tomatoes Rating:</p> <p>Metacritic Rating: 60</p> <p>Classification: PG-13</p>	<p><b>Desperate Hours</b></p> <p>1990</p> <p>IMDb Rating: 5.4</p> <p>Rotten Tomatoes Rating:</p> <p>Metacritic Rating: 33</p> <p>Classification: R</p>	<p><b>DuckTales the Movie: Treasure of the Lost Lamp</b></p> <p>1990</p> <p>IMDb Rating: 6.6</p> <p>Rotten Tomatoes Rating:</p> <p>Metacritic Rating:</p> <p>Classification: G</p>
<p><b>Edward Scissorhands</b></p> <p>1990</p>	<p><b>Ernest Goes to Jail</b></p> <p>1990</p>	<p><b>The Exorcist III</b></p> <p>1990</p>	<p><b>Fire Birds</b></p> <p>1990</p>	<p><b>Flashback</b></p> <p>1990</p>	<p><b>Flatliners</b></p> <p>1990</p>	<p><b>The Freshman</b></p> <p>1990</p>	<p><b>Ghost</b></p> <p>1990</p>

## 4.2 Usability and Quality of Design

As the application was designed with simplicity in mind, the usability of the application is very high. The application is very easy to use and the user can navigate the application with ease. The application is layed out in a way that is very clean, the only page that can at all be considered cluttered is the LandingPage because of the carousel but even then the carousel is very clean, easy to use and it doesnt seems to distract the user from the rest of the page.

The navigation of the app is very simple and easy for the user to understand. As previously mentioned, by having the search bars within the navigation bar at the top of the page the user can search from anywhere in the application. The only part of the navigation that may confuse the user is the home button using the logo of the application. It may not be clear to the user that this is a button that leads them home. But, this is quite a common design choice in web design and there isnt much use for the user to return to the home page as the user can search from any page in the application.

The design of the application is consistent throughout. The navigation bar is the same on every page, very little colours are used throughout the application and the colours that are used are consistent. Only the standard font is used throughout the application except in the ag-grids where a seperate style is used.

## 4.3 Accessibility

The application has attempted to be as accessible as possible. The application achieve most of the checkpoints of the W3C Web Content Accessibility Guidelines 2.0. The application has achived the following checkpoints:

- 1.1.1 All non-text content such as images have alternative text.
- 1.2.1 Information conveyed in colour can also be conveyed in black and white.
- 1.6.1 Page can be read without CSS.
- 1.6.2 Text equivalent update when content changes.
- 1.7.1 The screen doesnt flicker.
- 1.14.1 The application uses the clearest language appropriate.

## 5 Technical Description

### 5.1 Architecture

