



CS 353 Database Systems

Final Report

Media Services Data Management System

Group 8

Ahmet Emre Zengin | 21400527

Ali Kemal Özkan | 21302087

Osman Can Yıldız | 21302616

Hasan Doğan | 21402109

4th January, 2021

Project Website

<https://aliekemalozkan.github.io/MediaOnline/>

Table of Contents

Description of the System	3
E-R Diagram	4
List of Tables	5
Member	5
User	5
Company	5
Episode	5
Series	5
Movie	5
Genre	5
Comment	5
Channel	5
Message	5
Wishlist	5
Publish Movie	6
Publish Series	6
Watch Series	6
Watch movie	6
User has channel	6
User send message	6
User receive message	6
Series has episode	6
Channel has series	6
Channel has movie	6
Movie has comment	7
Series has comment	7
Episode has comment	7
User make comment	7
Reply comment	7
Genre belongs to movie	7
Genre belongs to series	7
Friend	7
Implementation Details	7
ASP.NET & POSTMAN	7
Web Design	8
User's Manual	9
Register	9
Login	9

Profile	10
Channels	10
Homepage	11
Genre	11
Watch	12
Add/Delete/Update Movie	13
Add/Delete/Update Series	14
Add/Delete/Update Episodes	15
Message	17
Wall	18
Wishlist	18

1. Description of the System

Media services data management system will provide media services to users. With this platform, users will be able to watch movies and series. The platform enables users to make choices for both movies and series in the different genres. Users can also create some channels for themselves to follow different movies and series. Users can comment under the movies or series which are provided in the platform. These comments can be in the form of both likes/dislikes and written. These likes/dislikes given to a movie by a user will also be considered as preferences of the same user and the suggestions will be made accordingly. Thus, users can see comments of a movie or series before watching it. Users will have their walls as a profile page. They will be able to add friends and follow their activities thanks to a system that will keep track of activities of users. There is a message system that enables users to send and receive messages from their friends.

This report is prepared for the final structure of the project. Final E-R diagram, final tables, implementation details and user's manual are explained in this report.

2. E-R Diagram

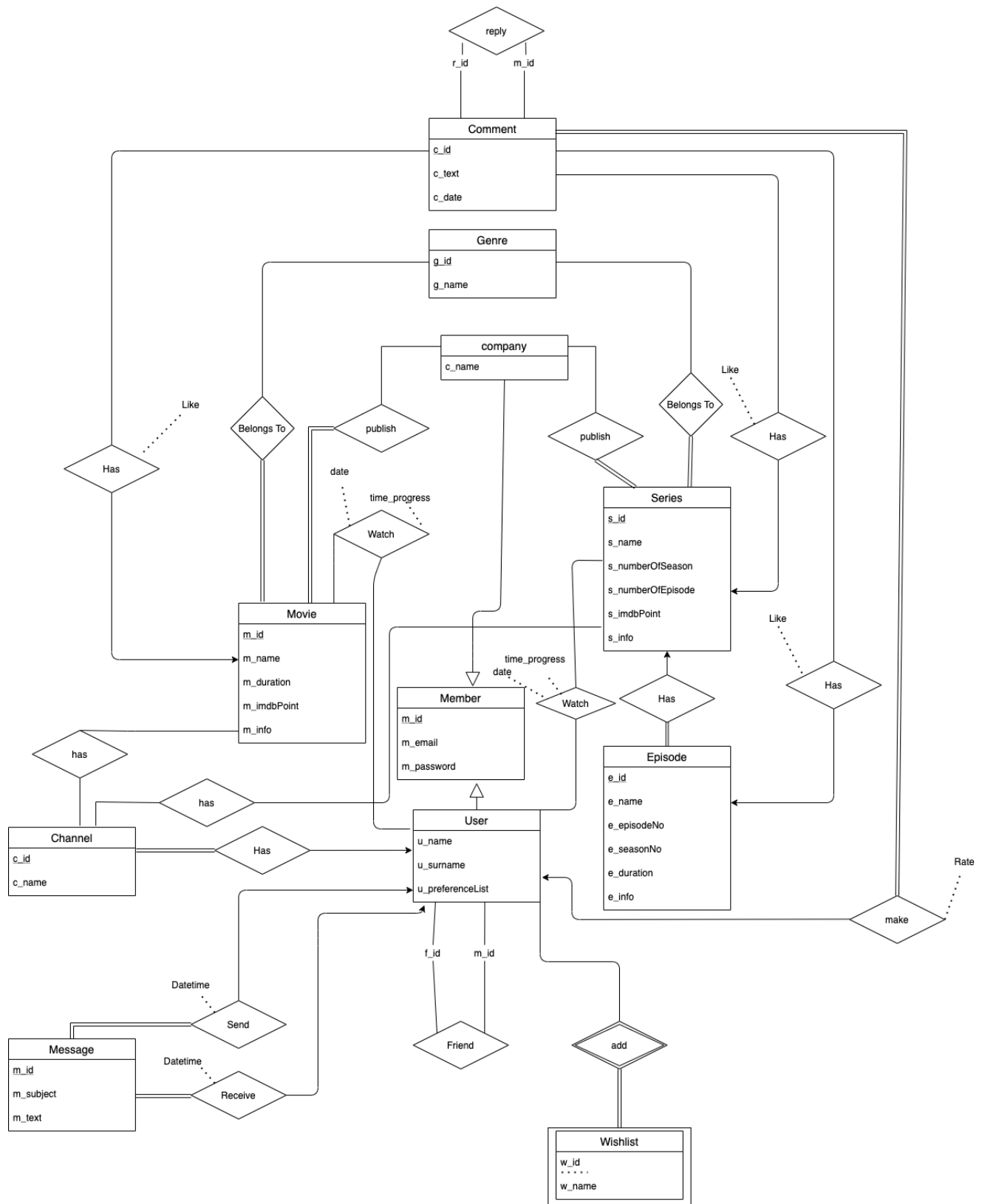


Figure 1: E-R Diagram

3. List of Tables

3.1. Member

Relational Model: member(m_id, m_email, m_password)

3.2. User

Relational Model: user(m_id, u_name, u_surname, u_preferencelist)

Foreign Keys: m_id to Member

3.3. Company

Relational Model: company(m_id, c_name)

Foreign Keys: m_id to member

3.4. Episode

Relational Model: episode(e_id, e_name, e_episodeNo, e_seasonNo, e_duration, e_info)

3.5. Series

Relational Model: series(s_id, s_name, s_numberofseason, s_numberofepisode, s_imdbpoint, s_info)

3.6. Movie

Relational Model: movie(m_id, m_name, m_duration, m_imdbpoint, m_info)

3.7. Genre

Relational Model: genre(g_id, g_name)

3.8. Comment

Relational Model: comment(c_id, c_text)

3.9. Channel

Relational Model: channel(c_id, c_name)

3.10. Message

Relational Model: message(m_id, m_subject, m_text)

3.11. Wishlist

Relational Model: wishlist(m_id, w_id, w_name)

Foreign Keys: m_id to user

3.12. Publish Movie

Relational Model: publish_movie(member_id, c_name, m_id)

Foreign Keys: member_id to company, c_name to company, m_id to movie

3.13. Publish Series

Relational Model: publish_series(member_id, c_name, s_id)

Foreign Keys: member_id to company, c_name to company, s_id to series

3.14. Watch Series

Relational Model: watch_series(m_id, s_id, time_progress)

Foreign Keys: m_id to user, s_id to series

3.15. Watch movie

Relational Model: watch_movie(m_id, u_id, time_progress)

Foreign Keys: u_id to user, m_id to movie

3.16. User has channel

Relational Model: user_has_channel(c_id, m_id)

Foreign Keys: c_id to channel, m_id to user

3.17. User send message

Relational Model: user_send_message(m_id, u_id, daytime)

Foreign Keys: m_id to message, u_id to user

3.18. User receive message

Relational Model: user_receive_message(m_id, u_id, daytime)

Foreign Keys: m_id to message, u_id to user

3.19. Series has episode

Relational Model: series_has_episode(e_id, s_id)

Foreign Keys: e_id to episode, s_id to series

3.20. Channel has series

Relational Model: channel_has_series(c_id, s_id)

Foreign Keys: c_id to channel, s_id to series

3.21. Channel has movie

Relational Model: channel_has_movie(c_id, m_id)

Foreign Keys: c_id to channel, m_id to movie

3.22. Movie has comment

Relational Model: movie_has_comment(c_id, m_id, like)

Foreign Keys: c_id to comment, m_id to movie

3.23. Series has comment

Relational Model: series_has_comment(c_id, s_id, like)

Foreign Keys: c_id to comment, s_id to series

3.24. Episode has comment

Relational Model: episode_has_comment(c_id, e_id, like)

Foreign Keys: c_id to comment, e_id to episode

3.25. User make comment

Relational Model: user_make_comment(c_id, m_id, rate)

Foreign Keys: c_id to comment, m_id to user

3.26. Reply comment

Relational Model: reply_comment(c_id, r_id, m_id)

Foreign Keys: c_id to comment, m_id to member

3.27. Genre belongs to movie

Relational Model: genre_belongs_to_movie(g_id, m_id)

Foreign Keys: g_id to genre, m_id to movie

3.28. Genre belongs to series

Relational Model: genre_belongs_to_series(g_id, s_id)

Foreign Keys: g_id to genre, s_id to series

3.29. Friend

Relational Model: friend(f_id, m_id)

Foreign Keys: m_id to user, f_id to user

4. Implementation Details

4.1. ASP.NET & POSTMAN

After having created a local host server and tables in it, we needed a connector which connects this database and organizes the data remotely. We created a Visual C# project in Visual Studio. We used the MVC model in that project. In the project, we first created a model of the database by simply connecting to Visual

Studio then we imported my database to the project. POJO class, which means a basic class that has only variables as property and its own getter & setter method but nothing more, are created automatically. After creating POJOs and importing the database, we wrote some methods in controllers to connect MSSQL local server's tables. We wrote controller classes in C# file in controllers category. In controller classes, there are methods for HTTP requests. For instance, if we add a genre to the database like "horror" genre, addGenre method is executed in GenreController.cs file. After writing controller classes, we created a view for necessary methods like POST, GET, etc. For instance, addGenre method is called in addGenre.cshtml file in the frontend. There are lots of view classes for http requests. We wrote all of them but we couldn't test them since we didn't have any frontend. To check whether the request methods work or not, we installed POSTMAN which is used for HTTP requests to test accessing the data in the database. In POSTMAN, we had tried only four requests which are GET for getting data, PUT for inserting data, POST for changing data and REMOVE for removing data. In each test, JSON format entries are written and tested so the result of requests can be detected in MySQL tables like creating data with PUT requests or removing data with REMOVE requests. After having checked all methods we had written for requests, we had done the back-end part.

4.2. Web Design

Web Design was the front-end part of our project. In this part, we used cshtml, css, JavaScript, bootstraps and Photoshop CC. Although we used bootstraps, we created a website from scratch since we changed bootstraps a lot. So we used a website template then added CSS to organize and JavaScript to add some effects. View classes are working on "https://localhost:44332/". If we had changed code in the project, the website would also be changed at the same time like they are synchronized. By using MVC, we connected the backend to the frontend.

5. User's Manual

5.1. Register

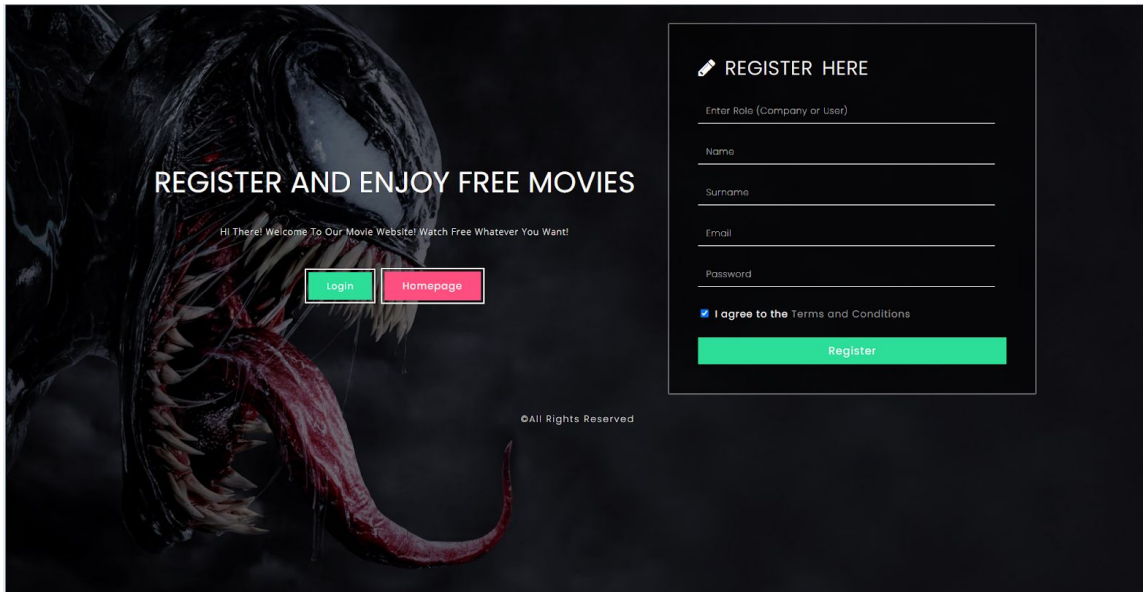
The screenshot shows a dark-themed registration page. On the left, there is a large, menacing image of a creature with sharp teeth and a long, red tongue. Overlaid on this image is the text "REGISTER AND ENJOY FREE MOVIES" in white, followed by a smaller line "Hi There! Welcome To Our Movie Website! Watch Free Whatever You Want!". Below this text are two buttons: a green "Login" button and a red "Homepage" button. At the bottom right of the image area, it says "©All Rights Reserved". On the right side of the page, there is a white registration form titled "REGISTER HERE" with a pencil icon. The form contains input fields for "Enter Role (Company or User)", "Name", "Surname", "Email", and "Password". Below these fields is a checkbox labeled "I agree to the Terms and Conditions" and a large red "Register" button.

Figure 2: Register Page

Companies or users can register using name, e-mail and password. Surname part is not essential to register.

5.2. Login

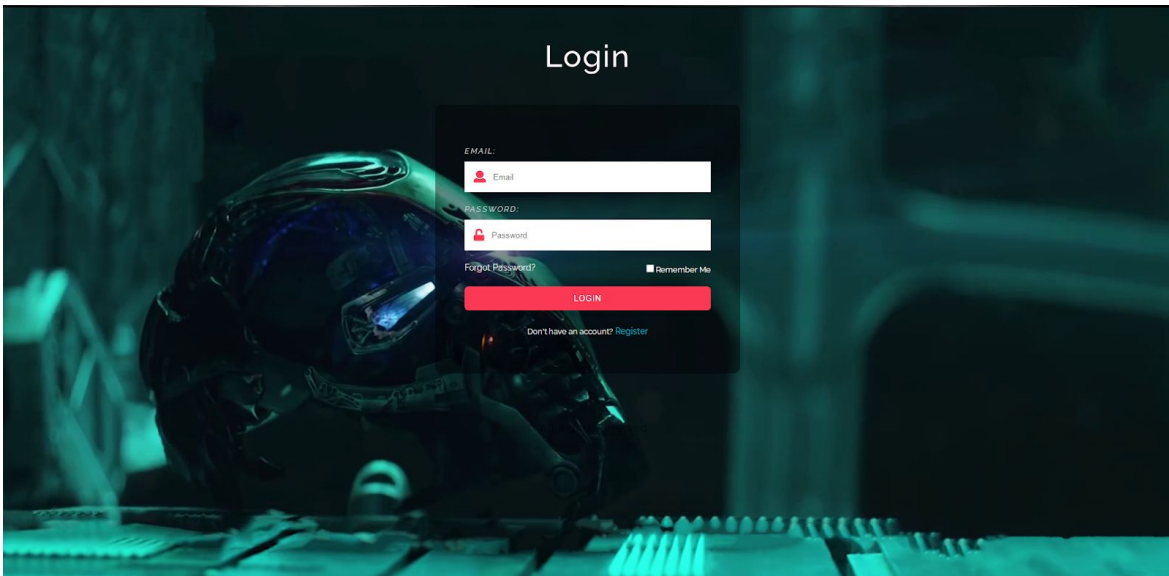
The screenshot shows a login page with a dark background. On the left, there is a large, menacing image of a creature with sharp teeth and a long, red tongue. Overlaid on this image is the text "LOGIN" in white. Below this text is a white login form with input fields for "EMAIL:" and "PASSWORD:". Below these fields are links for "Forgot Password?" and "Remember Me". At the bottom of the form is a red "LOGIN" button. Below the button, it says "Don't have an account? Register".

Figure 3: Login Page

After registration all members (user or company) can login using e-mail and password. If e-mail and password combination is false, members cannot login.

5.3. Profile

User Profile

Menu

Setting ▾

My Profile

My Profile

Name
Osmancan

Surname
Yildiz

Email: osman@hotmail.com (cannot be changed)

Password
123

Preference List
Jaws , Deney , Warcraft, Thor

Update Account

My Account

Log Out

Figure 4: Profile Page

After login, the user will see the profile page. In that page users can update their profile and can set their preferences. On that page users can reach every part of the website.

5.4. Channels

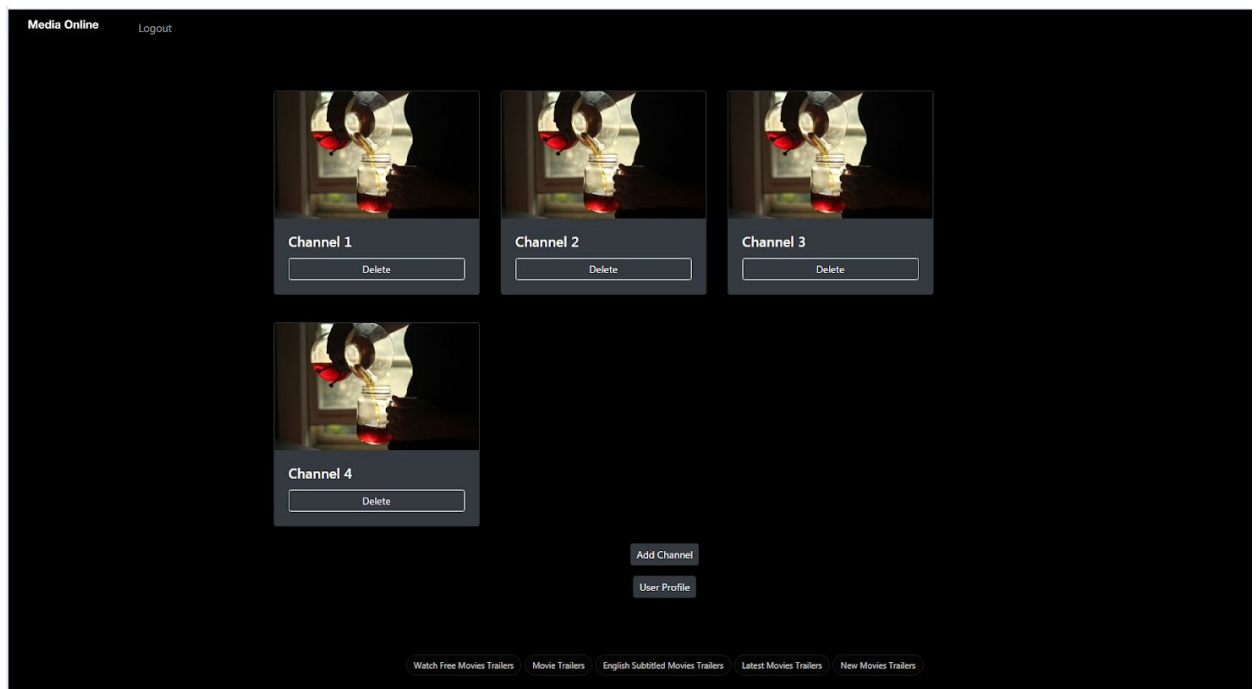


Figure 5: Channel Page

With clicking channels on the menu, users will be able to see their channels. Users can add new channels or delete existing channels.

5.5. Homepage

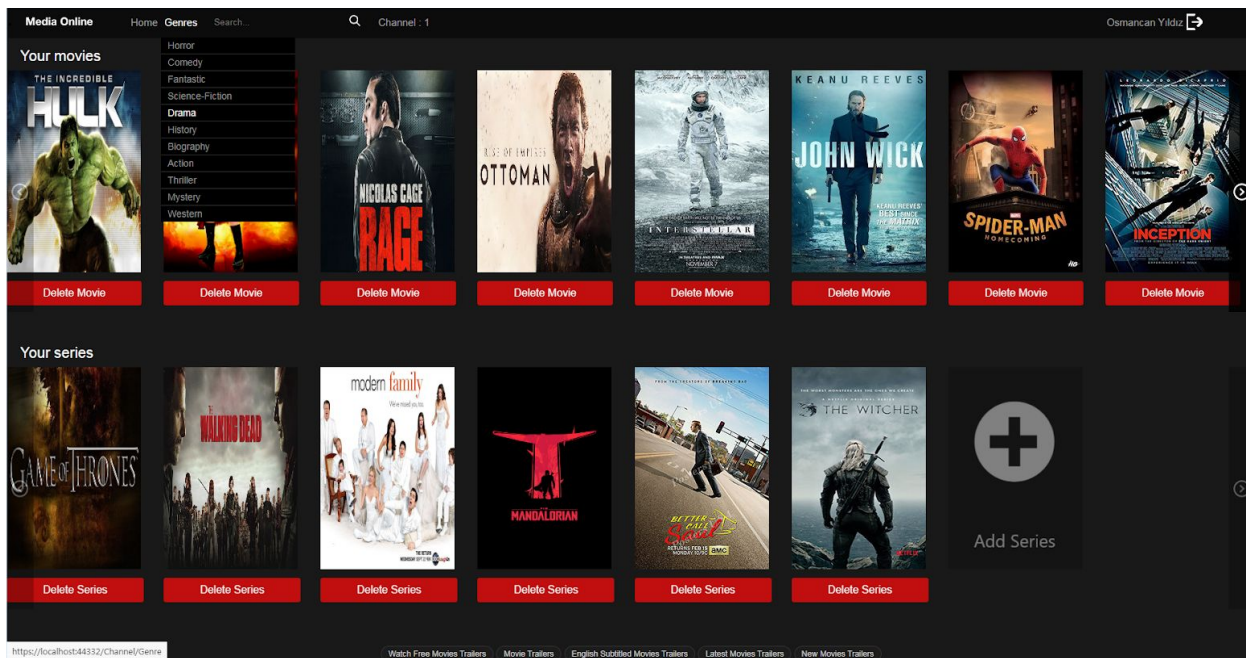


Figure 6: Homepage

With clicking one of the channels, the user will be able to see the homepage which consists of different movies and series. In that page, users can add movies/series to the channel or can delete a movie or a series easily. Users are also able to choose genres to watch media files. They can return their profile or can log out from top right.

5.6. Genre

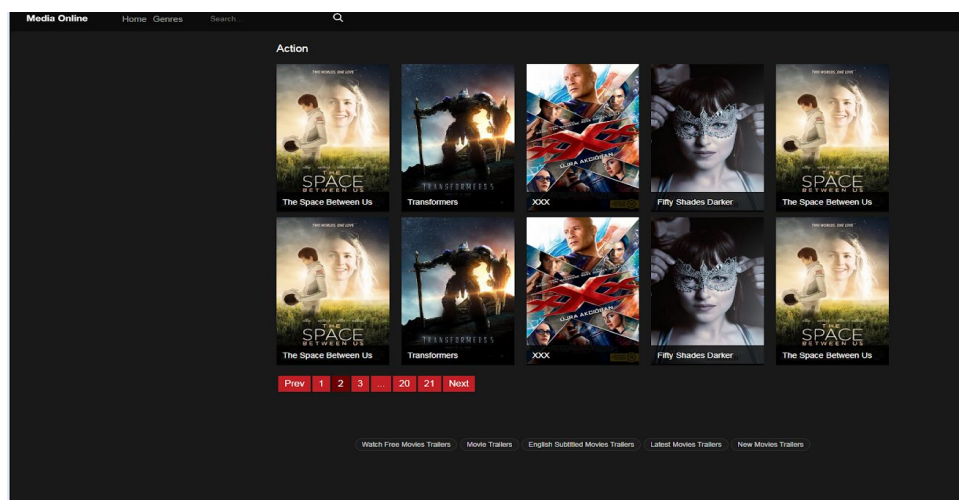


Figure 7: Genre

A genre page will be seen like that. Users can pick any media they want easily.

5.7. Watch

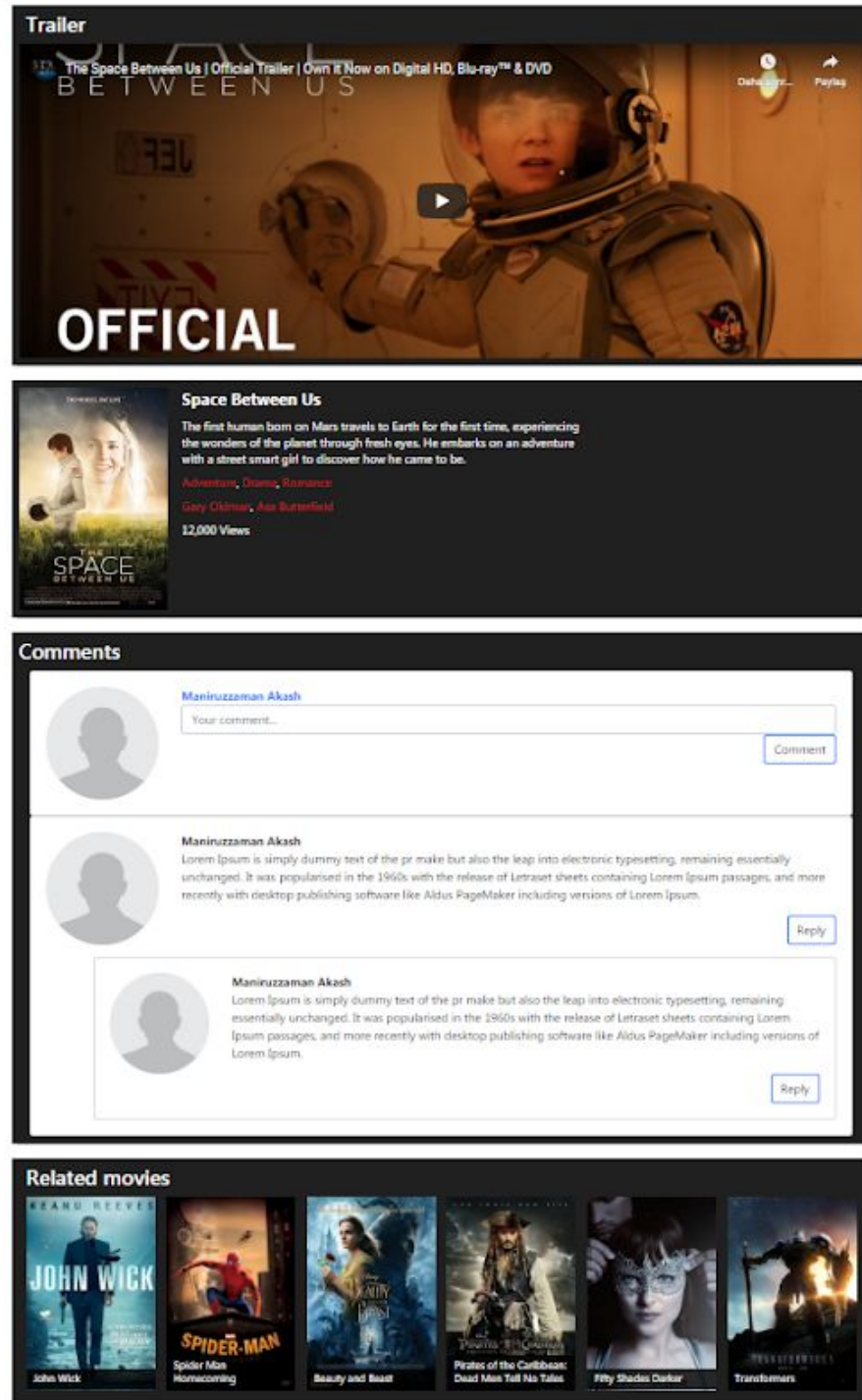


Figure 8: Watch a Movie/Series

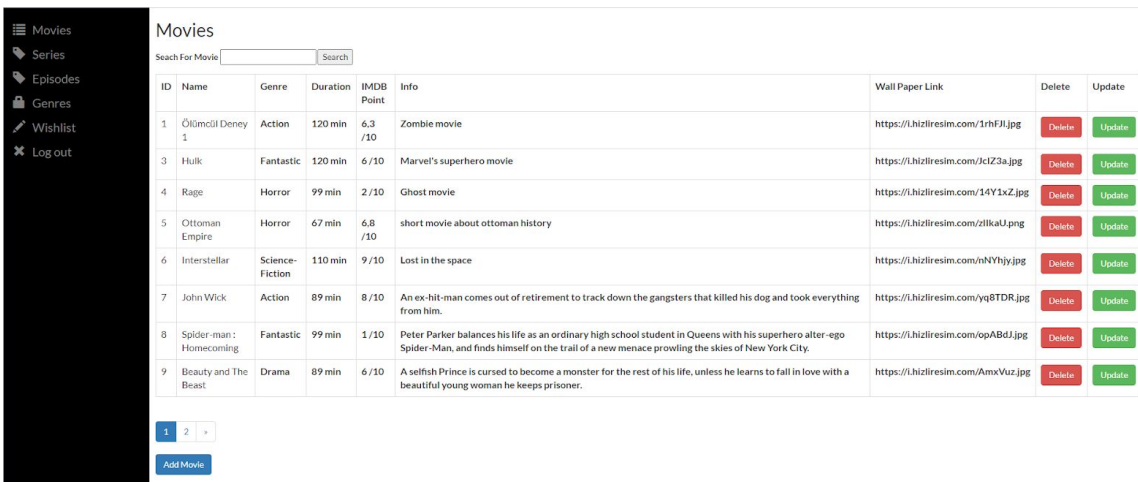
After choosing a movie/series this page will show up. Users can see information about the media and see the comments. At the bottom, related media files can be seen accordingly.

5.8. Add/Delete/Update Movie



Figure 9: Add Movie by Company

After login companies can add movies by using menu/movies/add movie option. After completing all info, the movie will be added to the database.



ID	Name	Genre	Duration	IMDB Point	Info	Wall Paper Link	Delete	Update
1	Ölümçül Deney 1	Action	120 min	6.3 /10	Zombie movie	https://lh3zfiresim.com/1rhFJl.jpg	Delete	Update
3	Hulk	Fantastic	120 min	6 /10	Marvel's superhero movie	https://lh3zfiresim.com/3clZ3a.jpg	Delete	Update
4	Rage	Horror	99 min	2 /10	Ghost movie	https://lh3zfiresim.com/14Y1xZ.jpg	Delete	Update
5	Ottoman Empire	Horror	67 min	6.8 /10	short movie about ottoman history	https://lh3zfiresim.com/2llkaU.png	Delete	Update
6	Interstellar	Science-Fiction	110 min	9 /10	Lost in the space	https://lh3zfiresim.com/nhYhyj.jpg	Delete	Update
7	John Wick	Action	89 min	8 /10	An ex-hit-man comes out of retirement to track down the gangsters that killed his dog and took everything from him.	https://lh3zfiresim.com/yq8TDR.jpg	Delete	Update
8	Spider-man: Homecoming	Fantastic	99 min	1 /10	Peter Parker balances his life as an ordinary high school student in Queens with his superhero alter-ego Spider-Man, and finds himself on the trail of a new menace prowling the skies of New York City.	https://lh3zfiresim.com/opABdJ.jpg	Delete	Update
9	Beauty and The Beast	Drama	89 min	6 /10	A selfish Prince is cursed to become a monster for the rest of his life, unless he learns to fall in love with a beautiful young woman he keeps prisoner.	https://lh3zfiresim.com/AmxVuz.jpg	Delete	Update

Figure 10: Movies List Page

All movies added by the company can be seen from the movies page. Companies can update or delete the movies from that page. All info of a movie can be altered. In that page companies can search to find a movie easily.



Figure 11: Update Movie Page

Figure 12: Search in Movies Page

5.9. Add/Delete/Update Series

Figure 13: Add Series Page

Companies can add series by menu/series/add series option. After completing all info, the series will be added to the database.

ID	Name	Genre	Number Of Season	Number Of Episode	IMDB Point	Info	Wallpaper Link	Delete	Update
1	Game Of Thrones	Fantastic	8	50	8.7 /10	Khaalesi ruins the kingdom	https://lh3lresim.com/6dt4BA.jpg	Delete	Update
3	Walking Dead	Horror	11	88	7 /10	Popular zombie series	https://lh3lresim.com/tso4Ga.jpg	Delete	Update
4	Modern Family	Comedy	7	150	8 /10	Movie is about funny life of a family	https://lh3lresim.com/ldvkwv.jpg	Delete	Update
5	Mandalorian	Science-Fiction	3	21	9 /10	Starwars' tv series	https://lh3lresim.com/APpBt4.jpg	Delete	Update
6	Better Call Saul	Comedy	66	13	5 /10	The trials and tribulations of criminal lawyer Jimmy McGill in the time before he established his strip-mall law office in Albuquerque, New Mexico.	https://lh3lresim.com/PqTVho.jpg	Delete	Update
7	Dark	Horror	44	13	5 /10	A family saga with a supernatural twist, set in a German town, where the disappearance of two young children exposes the relationships among four families.	https://lh3lresim.com/End8Ab.jpg	Delete	Update
8	How I met your mother	Comedy	11	144	8.3 /10	A father recounts to his children - through a series of flashbacks - the journey he and his four best friends took leading up to him meeting their mother.	https://lh3lresim.com/hH-Hsed.jpg	Delete	Update
9	Mr. Robot	Action	5	155	9 /10	Elliot, a brilliant but highly unstable young cyber-security engineer and vigilante hacker, becomes a key figure in a complex game of global dominance when he and his shadowy allies try to take down the corrupt corporation he works for.	https://lh3lresim.com/k6wQJV.jpg	Delete	Update

Figure 14: Series List Page

All series added by the company can be seen from the series page. Companies can update or delete the series from that page. All info of a series can be altered. On that page companies can search to find a series easily.



The screenshot shows a sidebar with navigation options: Movies, Series, Episodes, Genres, Wishlist, and Log out. The main content area is titled 'Update Series Page' and contains a form with the following fields:

- s_id**: 3
- s_name**: Walking Dead
- s_genreID**: Horror (dropdown menu)
- s_numberOfSeason**: 11
- s_numberOfEpisode**: 88
- s_imdbPoint**: 7
- s_info**: Popular zombie series
- s_wallpaperLink**: https://i.hizlresim.com/tso4Ga.jpg

An orange 'Update' button is located at the bottom right of the form.

Figure 15: Update Series Page



The screenshot shows a sidebar with navigation options: Movies, Series, Episodes, Genres, Wishlist, and Log out. The main content area is titled 'Series' and contains a search bar with the text 'Walking' and a 'Search' button. Below the search bar is a table with the following data:

ID	Name	Genre	Number Of Season	Number Of Episode	IMDB Point	Info	Wallpaper Link	Delete	Update
3	Walking Dead	Horror	11	88	7/10	Popular zombie series	https://i.hizlresim.com/tso4Ga.jpg	Delete	Update

Below the table is a blue 'Add Series' button.

Figure 16: Search in Series Page

5.10. Add/Delete/Update Episodes



The screenshot shows a sidebar with navigation options: Movies, Series, Episodes, Genres, Wishlist, and Log out. The main content area is titled 'Add Episode' and contains a form with the following fields:

- Episode Name**: (empty text field)
- Series**: Game Of Thrones (dropdown menu)
- Season Number**: (empty text field)
- Episode Number**: (empty text field)
- Episode Duration in Minutes**: (empty text field)
- Episode Info**: (empty text field)

A blue 'Add Episode' button is located at the bottom left of the form.

Figure 17: Add Episode

Companies can add episodes by menu/episodes/add episode option. After completing all info, the episode will be added to the database. To add an episode, first of all, its series must be added to the database. After that with using combo box, that series can be chosen from the add episode page.

ID	Name	Series	Season No	Episode No	Duration	Info	Delete	Update
4	Khaalesi	Game Of Thrones	1	1	52 min	Khaalesi introduced	Delete	Update
5	Khal	Game Of Thrones	1	2	42 min	Khal introduced	Delete	Update
6	Kingdoms	Game Of Thrones	1	3	55 min	North kingdoms starts the war	Delete	Update
7	Rage	Game Of Thrones	2	1	44 min	Khaalesi dead	Delete	Update
8	Baby Yoda	Mandalorian	1	1	66 min	long time ago in a galaxy far far away	Delete	Update
9	Mandoo	Mandalorian	1	2	45 min	The first mandalorian shows up	Delete	Update

Figure 18: Episodes List Page

Companies can update or delete episodes with the episodes list page. After updates changes can be seen from the database.

e_id	6
e_name	Kingdoms
e_seasonID	Game Of Thrones
e_seasonNo	1
e_episodeNo	3
e_duration	55
e_info	North kingdoms starts the war
Update	

Figure 19: Update an Episode Page

ID	Name	Series	Season No	Episode No	Duration	Info	Delete	Update
4	Khaalesi	Game Of Thrones	1	1	52 min	Khaalesi introduced	Delete	Update
5	Khal	Game Of Thrones	1	2	42 min	Khal introduced	Delete	Update
6	Kingdoms	Game Of Thrones	1	3	55 min	North kingdoms starts the war	Delete	Update

Figure 20: Search in Episodes Page

In episodes page, companies can find any episode by using the search option easily.

5.11. Message

User Profile

My Profile

Inbox

Sent

New Message

Wishlist

Homepage

Menu

Setting

New Message

To:

Subject

Message

Send

Figure 21: New Message

Users can send messages to other users easily. Inbox and sent messages can be seen separately. With the new message button users can send a message to a user.

User Profile

My Profile

Inbox

Sent

New Message

Wishlist

Wall

Channels

Menu

Setting

Inbox

From	Subject	Message	Date
asdasdasd@hotmail.com	film önerisi	bence ghost'u izleyebilirsiniz güzel film	23.11.2020 00:00:00
ahmetemrezenengin@hotmail.com	film hakkında	hulk filmi güzeldi beğendim ama ilki daha güzeldi	23.11.2020 00:00:00

Figure 22: Inbox

User Profile

My Profile

Inbox

Sent

New Message

Wishlist

Wall

Channels

Menu

Setting

Sent Messages

To	Subject	Message	Date
ahmetemrezenengin@hotmail.com	film hakkında	mandalorian hakkındaki gelecek bölümdeki doğru mu?	23.11.2020 00:00:00
ahmetemrezenengin@hotmail.com	selam	Hulk filmini beğendin mi	23.11.2020 00:00:00
asdasdasd@hotmail.com	korku filmi önerisi	başka korku filmi önerin var mı	23.11.2020 00:00:00
asdasdasd@hotmail.com	denem	deneme	29.12.2020 00:00:00

Figure 23: Sent Messages

5.12. Wall

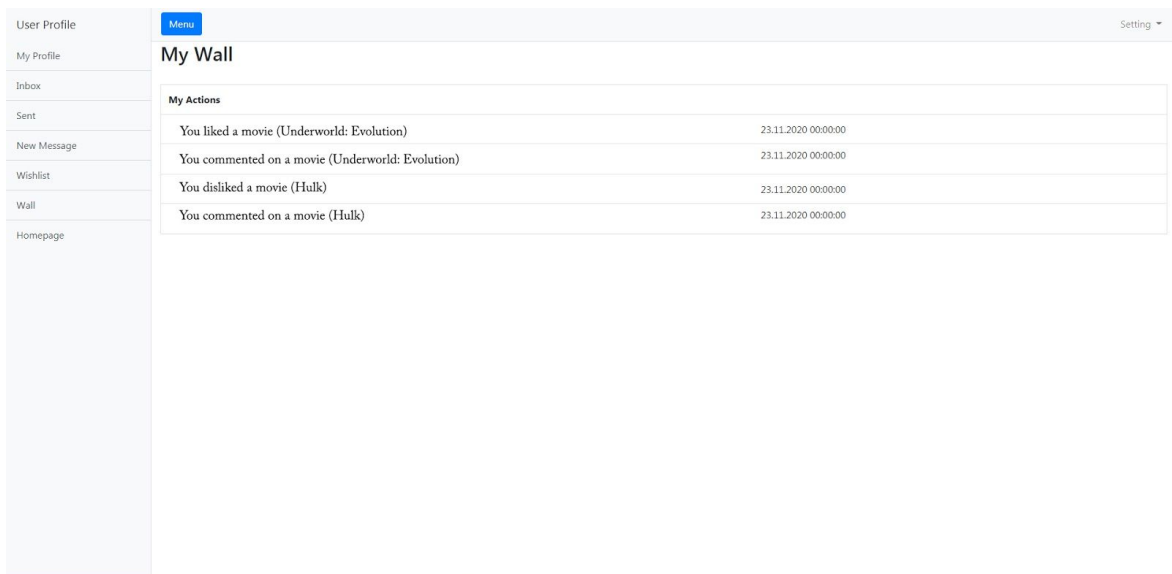


Figure 24: Wall

Users can follow their actions by displaying their walls.

5.13. Wishlist

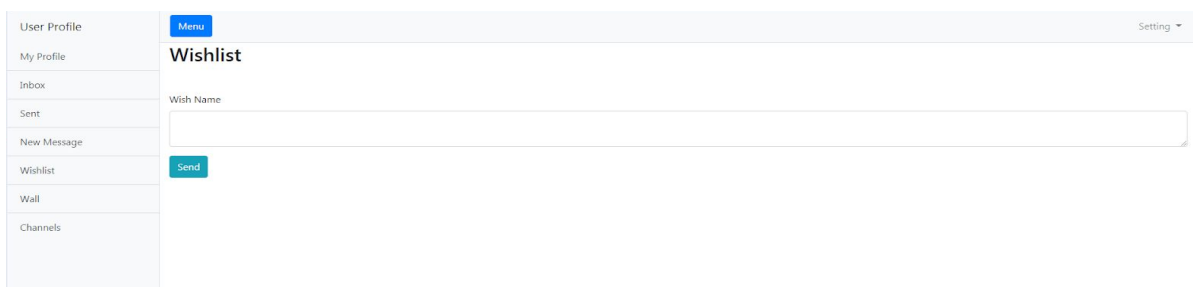


Figure 25: Add new Wish

Users can add media to their wishlist. That wishlist can be seen by the companies.

WISHLIST		
ID	User	Wish Name
1	osman@hotmail.com	Terminatör 3
2	osman@hotmail.com	jaw
1002	ali.kemal@ug.bilkent.edu.tr	Terminatör 2
1003	ali.kemal@ug.bilkent.edu.tr	Deep Blue
1004	ali.kemal@ug.bilkent.edu.tr	World of Warcraft

Figure 26: Wishlist