



Edinburgh College – Sighthill Campus

Software Development: Graded Unit 2

H84W35/016

WebFlix Project – Planning Stage

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Stage 1 - Planning

Problem analysis

A company in Edinburgh are aiming to launch a new online steaming service under the name “WebFlix”. This service will be host to a wide variety of TV programmes, movies and documentaries for users to watch.

The service will have two different subscription paths, one being the free ‘Basic’ subscription or the paid ‘Premium’ subscription where users will be charged £99.99 for the year.

The free subscription will allow users to access basic functions of the application and will allow users to view the trailers and details about the movies, shows and documentaries. The premium subscription will allow the users to access the movies, shows and documentaries in their entirety and watch the content on offer.

In addition to this, the system requires a back-end administration system that allows administrators to read, update and delete information that is stored in the system from registered users as well as allowing them to create, read, update and delete genres, movies and TV shows that are on show on the front end of the website.

Aims of the project assignment

During this project, there are multiple things that should be achieved:

The Webflix brand should be built and expanded, this can be done by creating a recognisable colour scheme. This should be backed up with the use of professional graphics and branding techniques to make the site stand out above others.

Secondly, the system should actively attempt to entice users to upgrade from the free service to the premium service by displaying the benefits of subscription alongside encouragement in the form of locked content. Payment should also be done in a safe and secure manner (such as the use of PayPal) to include peace of mind for the user.

In addition, the service should provide a seamless streaming experience. The service should offer streaming at a high bitrate at different resolution levels to ensure the quality is as high as possible.

Finally, the system should be easily accessible and user friendly. This should be done by creating an easy to follow and well thought out navigation structure with easy to read fonts (with appropriate

sizing) on each page. Considerations should be taken for those with disabilities to allow easier access.

Requirements

Functional Requirements

A functioning front-end site / application that includes:

- Login / Registration system with forgotten password feature
- Payment processing
- Landing page, movies page and TV show page
- Single TV / Movie page (Options to: Play Now / Review / View Trailer)

A functioning Administrator back-end CMS that includes:

- Admin login / registration system with forgotten password feature
- Access to all front-end pages of the site
- User management system that allows admins to:
 - View all registered users details (Name, D.O.B, Age, etc...)
 - Edit existing users data
 - Delete users
- Content Management System that allows admins to:
 - Show a categories list

- Add / Delete genres
- Show a movies list
- Add / Delete movies
- Show a TV show list
- Add / Delete TV shows

Non-functional Requirements

- The website should have a fluid UI over a range of different devices
- The website should look sleek and professional in design
- The website should be responsive under various levels of stress
- The website should adhere to both web and mobile design principles
- The website should be able to cope with high amounts of users
- The website should comply with GDPR and other data / security standards
- The website should have encrypted password storage
- The website should have a privacy statement to reassure users that their data is safe
- The website should adhere to international copyright laws

Constraints

Constraints Include:

- Tight 3-month deadline for full delivery
- Free project means that there is a budgetary burden on the project
- PayPal being the sole payment method may narrow down the customer base in future

Key factors

Economic Feasibility

The system will have to be hosted on a server during testing and development, naturally, this will incur costs. As the project isn't being handed to an actual client after development, the costs for maintaining and servers after release will be null. As such, this is a very economically feasible project.

Technical Feasibility

As we have already worked on a similar project and as such already have a framework upon which to build, the technical challenges are lessened greatly. This head start will also help with the 3-month deadline as it will reduce the amount of work needed to finish the project. In addition to this, the PayPal payment framework is readily available and will not need to be designed, only implemented.

Operational Feasibility

Given that steaming services such as the one being developed are very common around the world, there seem to be very little in the way of operational barriers that crop up during the project. There should be very little corporate challenge from other existing streaming services. Given events around the world with Coronavirus, digital media consumption is at an all-time high – especially in an online streaming format.

The Webflix system will have to adhere to international and domestic licensing laws and restrictions – this could prove to be the largest challenge when developing the Webflix service should the system reach a global audience. Assuming the service reaches a global audience, a solution to the difference in laws and restrictions would be to provide different content based on region. Given the short project deadline this could provide a large challenge, however, it should be perfectly feasible given the nature of the project to develop this in a prototype form.

Scheduling Feasibility

Given that the framework is already in place from previous projects and readily available adaptations for the PayPal feature, the project should be completed well within the 3-month time frame if the plan is followed and deadlines are met.

Organisational Feasibility

As this project is not being implanted in an actual organisation, organisational feasibility is not very relevant here

Resources and Materials

Hardware and Software Guidelines

SOFTWARE	HARDWARE
<ul style="list-style-type: none">• Windows 10• Text editor such as Brackets (HTML, CSS, PHP)• Local test server (Uwamp, USBW, etc...)• Video / Graphic editing software• Java IDE	<p>A Laptop / PC to develop on (Rough guideline below):</p> <p>Lenovo V155</p> <p>CPU: Ryzen 3200U (2x 2.6GHz)</p> <p>RAM: 8GB</p> <p>Memory: 256GB SDD</p> <p>Internet Access</p>
<ul style="list-style-type: none">• Mobile / Desktop Internet Browser (Chrome, Safari, etc...)• Up to date Operating System (Android, iOS etc...)	<p>An up to date smartphone (below is a rough example):</p> <p>Samsung Galaxy A10</p> <p>CPU: Octa-core (2x1.6 GHz Cortex-A73 & 6x1.35 GHz Cortex-A53)</p>

	<p>RAM: 2GB</p> <p>Memory: 32GB</p> <p>Internet Data Plan or WiFi access</p>
--	--

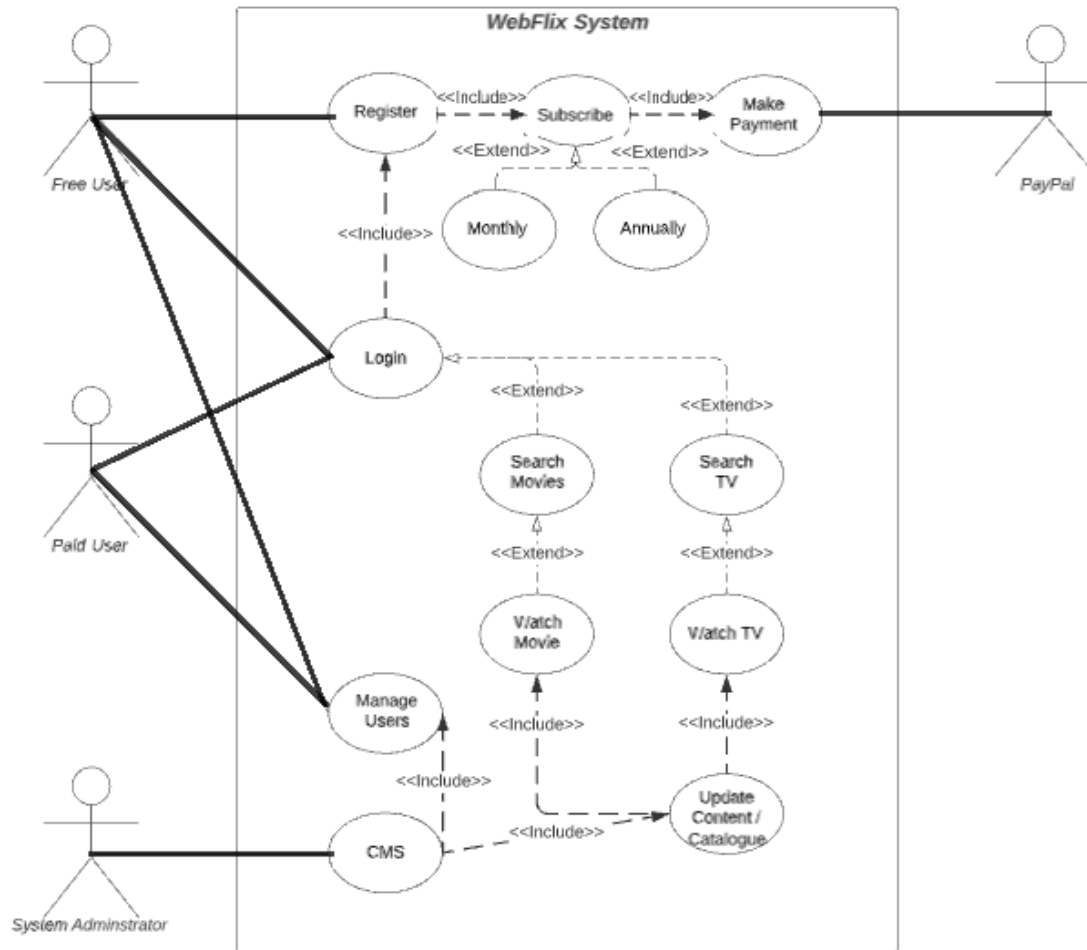
Other Resources

As a freelance programmer, it is likely for the costs to add up – on top of software and hardware costs, it is important to consider the following and bill the client as needed:

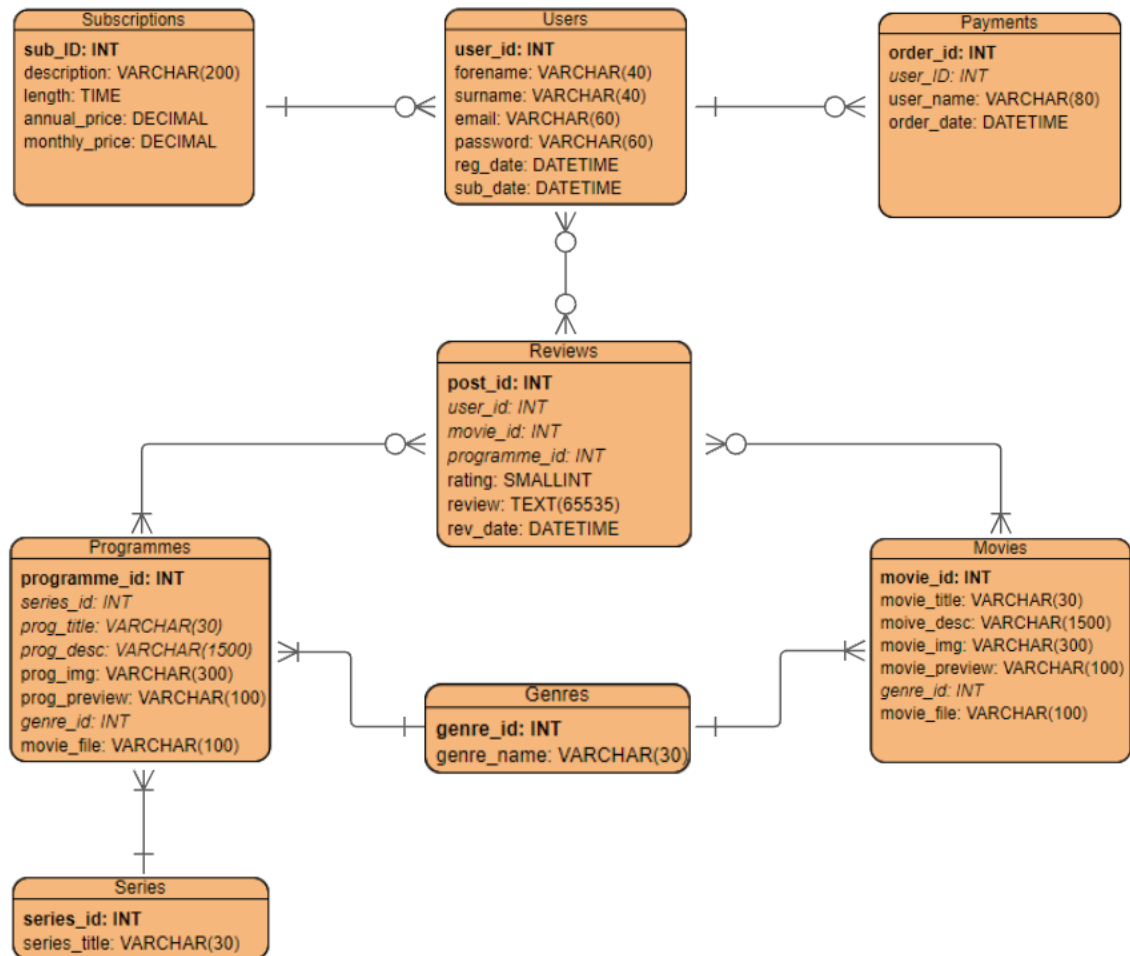
- Electricity Costs
- Heating Costs
- Office / Workspace Leasing
- Paper (Physical Documentation)
- Printer / Ink Costs
- Broadband
- Anti-virus (AVG, Norton)
- Anti-Malware
- Test Server Hosting

Analysis

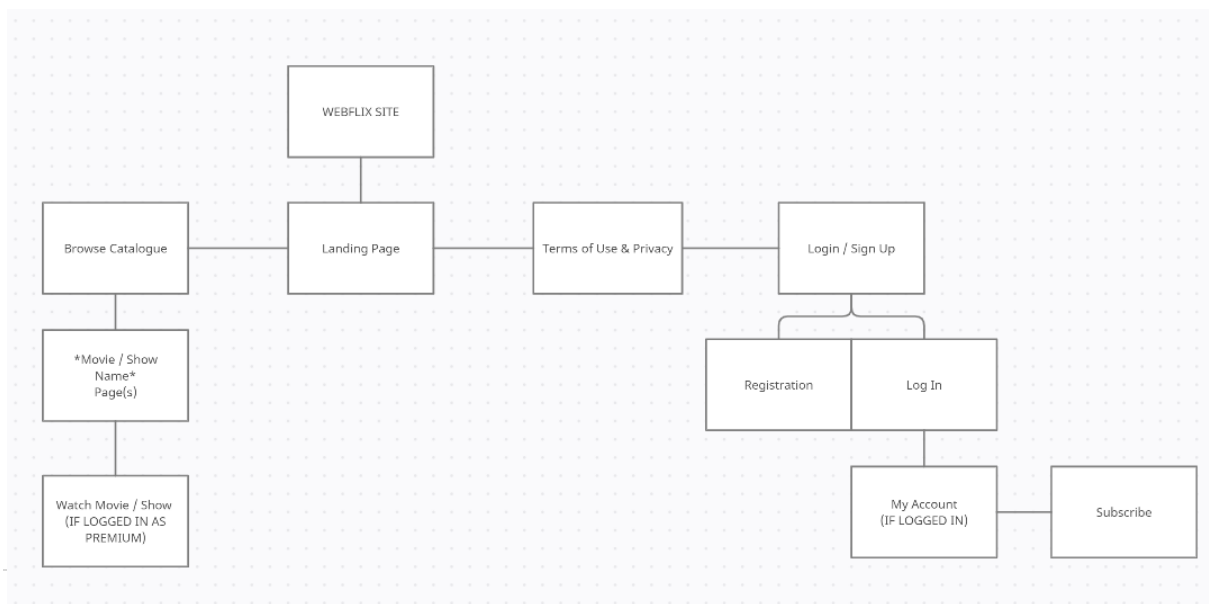
Use Case Diagram



Entity Relationship Diagram

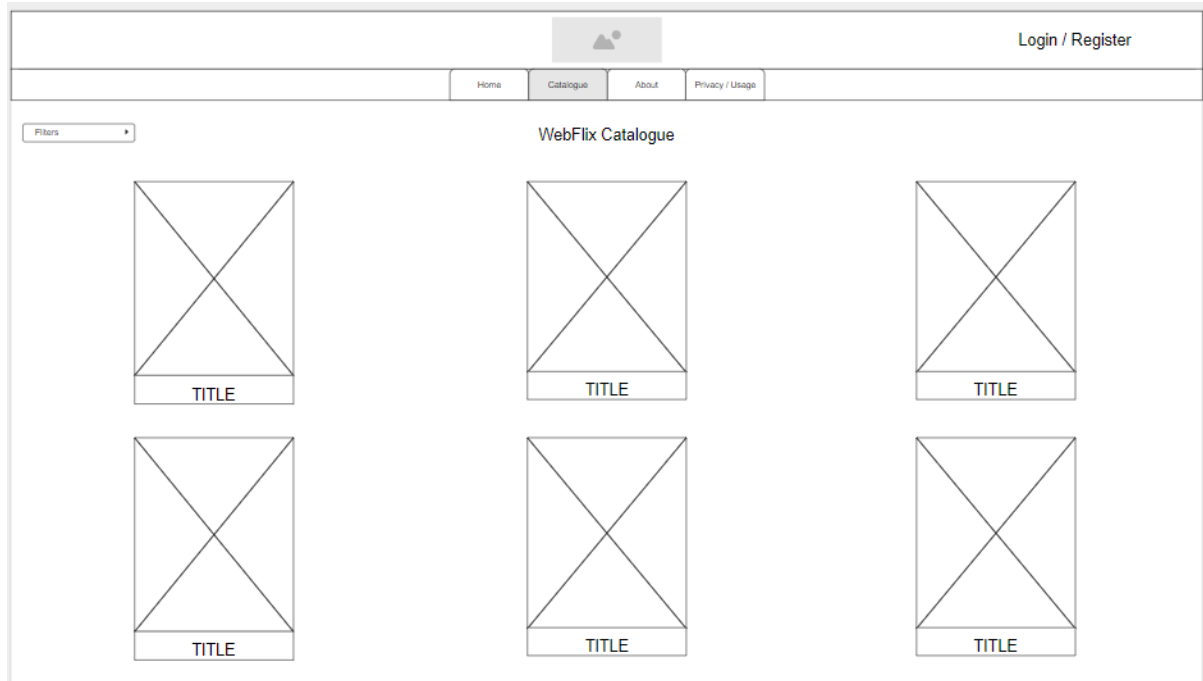


Nav Map

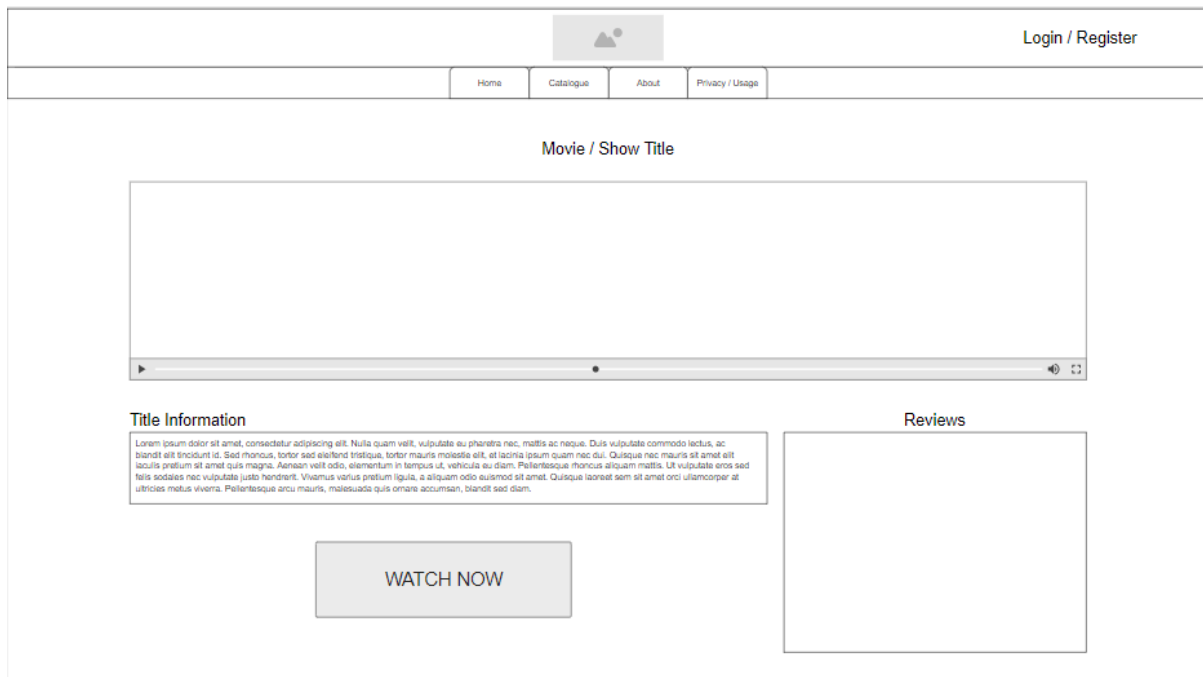


Wireframes


Catalogue Page



Movie / Show Page



Account Page

				Hi, *USERNAME*	
Home		Catalogue	About	Privacy / Usage	
Welcome *USERNAME*!					
PayPal Details			Change Password Change Email		
Watch History					
<input type="text"/>					
<input type="text"/>					
Reviews Left					
<input type="text"/>					
<input type="text"/>					

Persona Analysis



Tony works in IT for a growing games studio based in Dundee – in his free time he indulges in movies, video games and sport.

DESCRIPTION

Name: Tony Stank

Age: 39

Education: University

Marital / Family: Long term relationship, 1 child

Location: Dundee

Employment: Senior Developer

Professional, logical, laid back and fun. Interested in games, movies and all things SCI-FI.

REASONS FOR VISITING WEBSITE

Watch movies to unwind during the weekend.

LIMITATIONS

Due to working in IT, Mark uses many professional applications and websites. As such, he expects high quality and easy to navigate interface in order to make watching movies as quick and as easy as possible.



Mark is in college studying health and fitness. He spends a lot of time with his friends and treasures time spent making memories.

DESCRIPTION

Name: Mark Helman

Age: 18

Education: College

Marital / Family: Single, no children

Location: Edinburgh

Employment: Youth football coach

Easy going, life of the party, loves a challenge.

REASONS FOR VISITING WEBSITE

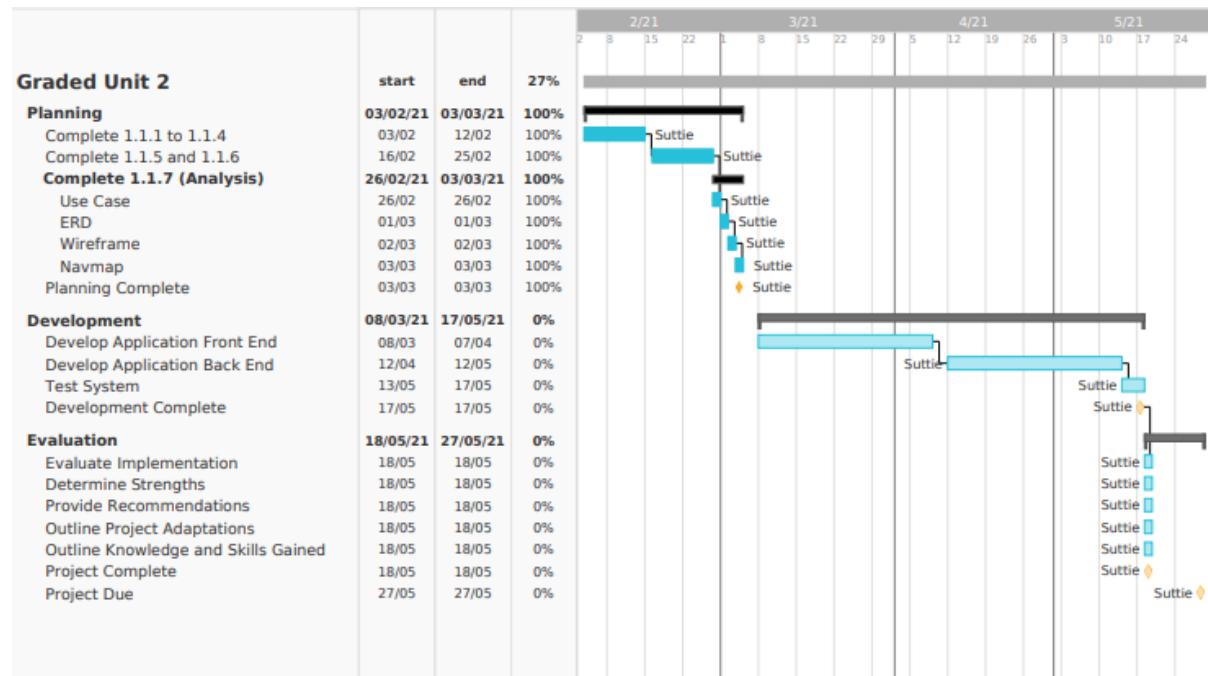
Look for upcoming movies to watch with friends.

LIMITATIONS

Tony is not the most tech savvy, however, he has an average grasp of most things. He expects the interface to be intuitive and easy to use with well set out navigation

Project Plan

Gantt Chart





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Stage 2 - Developing

Implementing the Planned Solution

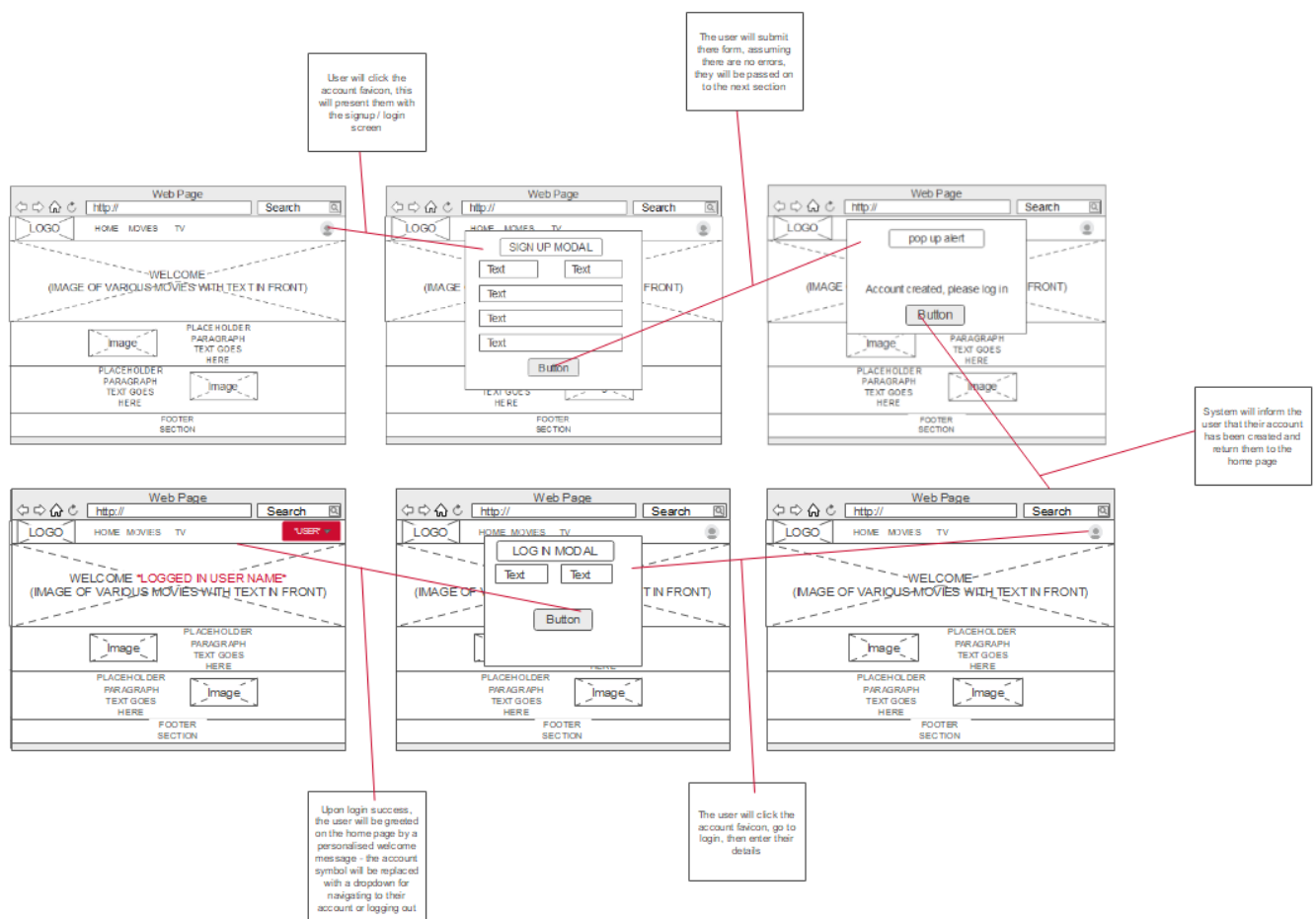
The source code for this project would be far too long to post in a piece of documentation, as such, the source code can be found in the .zip file attached alongside this documentation. This code listing will include the full website, the full admin backend, and the SQL creation queries for the databases that drive the site.

UI Design

It should be noted that the pages here may differ in design from the wireframes, this is due to a slight change in design direction. These designs are final and reflect the final product more accurately.

Storyboard – User Registration

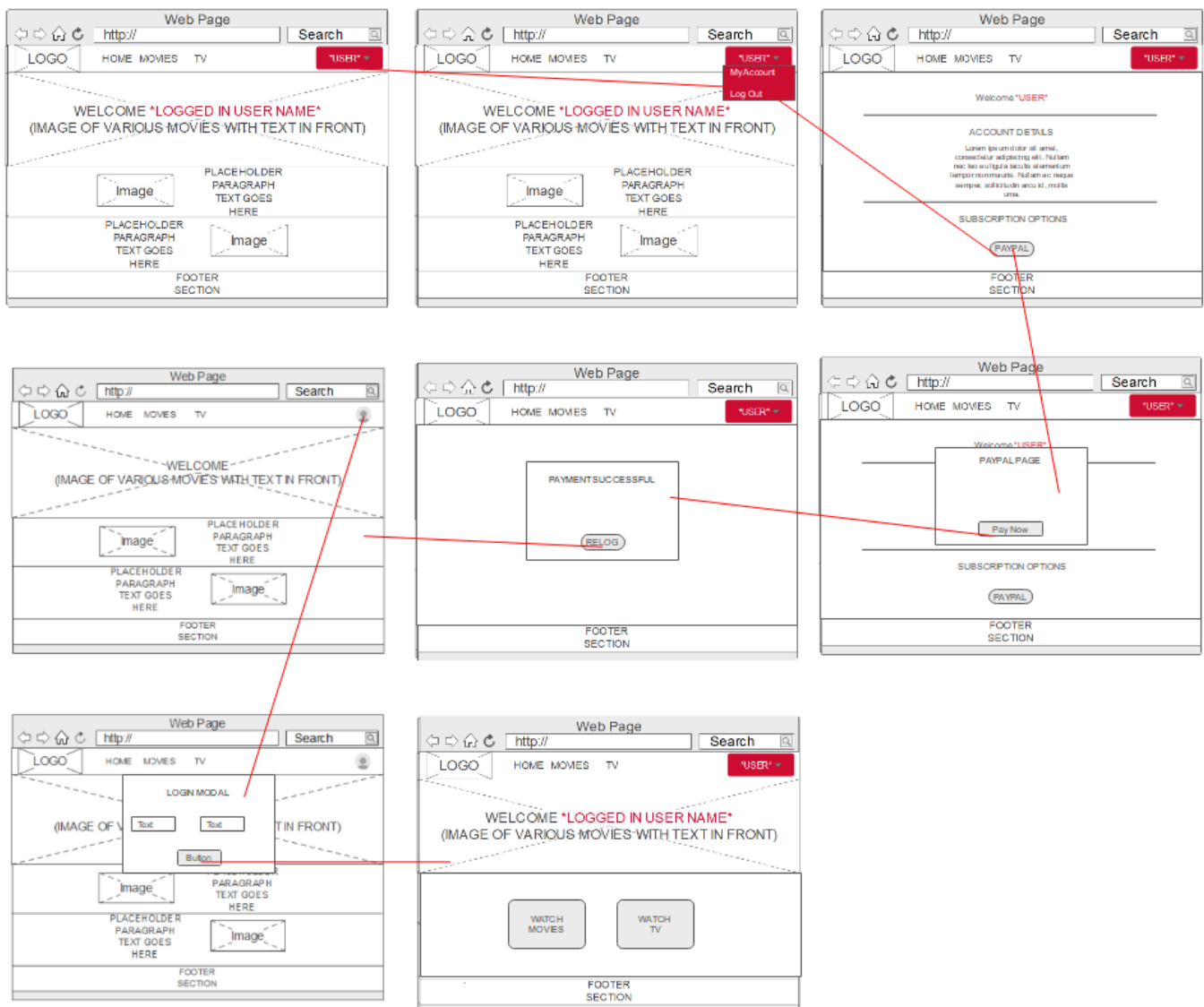
Storyboard for registering a user.



Storyboard – User Subscription

Storyboard for subscribing to Webflix – in order to do this, the user must have completed the registration and login from the previous board.

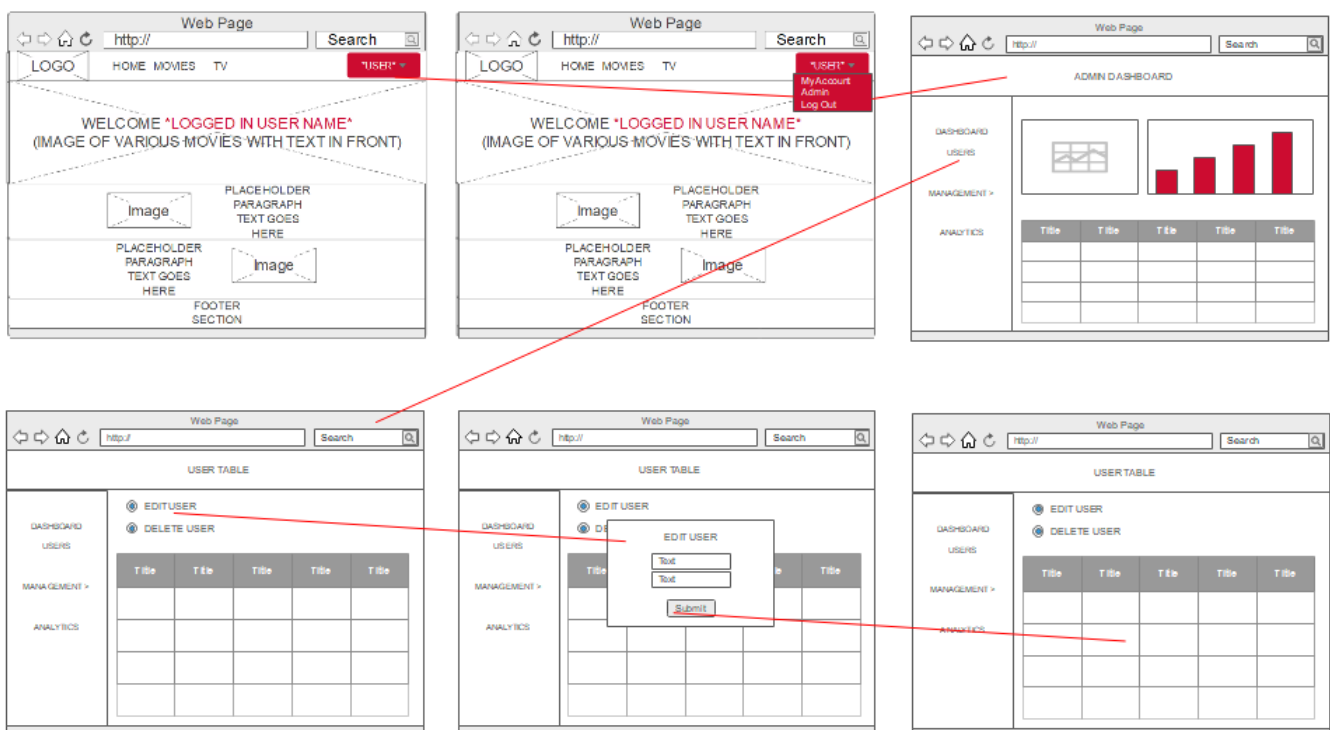
The user will click their dropdown, go to their account. From their account, they can pay with paypal. Once the user has completed their transaction they will be notified that they must relog for the change to take effect – once the user has logged back in their home page will have changed to display two buttons; Watch Movies and Watch TV



Storyboard – Admin Edit User

Storyboard for an admin editing a user on the back end. To do this, the admin must be logged in and have their account granted access.

The Admin will navigate to their user dropdown, where they will have an admin button. This will take them to the Admin dashboard. If the admin clicks on the user then they will be presented with a table of users – here they can click on edit user. The admin will be presented with an edit modal. When submitted, the table will update with the new details.

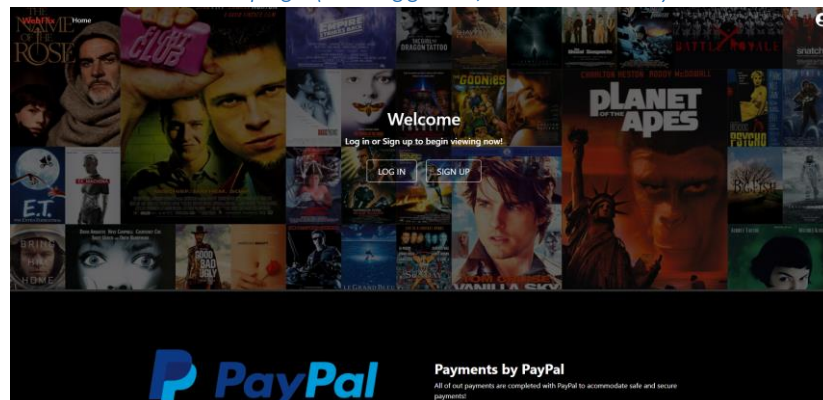


Prototype Screenshots

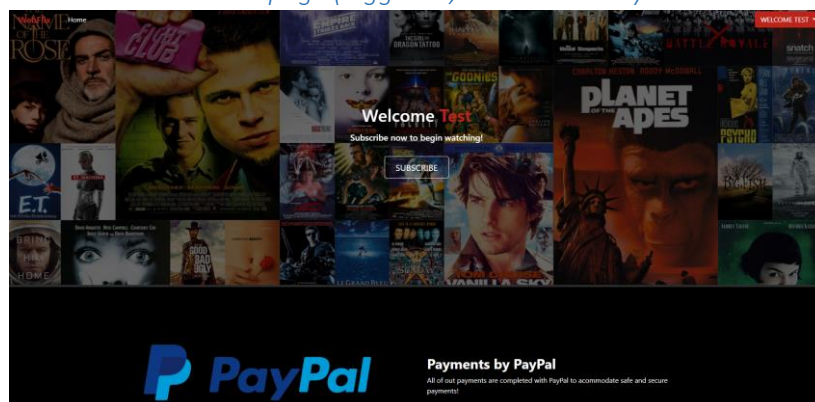
The following is the result of the wireframe design, and the later storyboard design – these pages are the final UI design for the finished product.

User (frontend) Screenshots

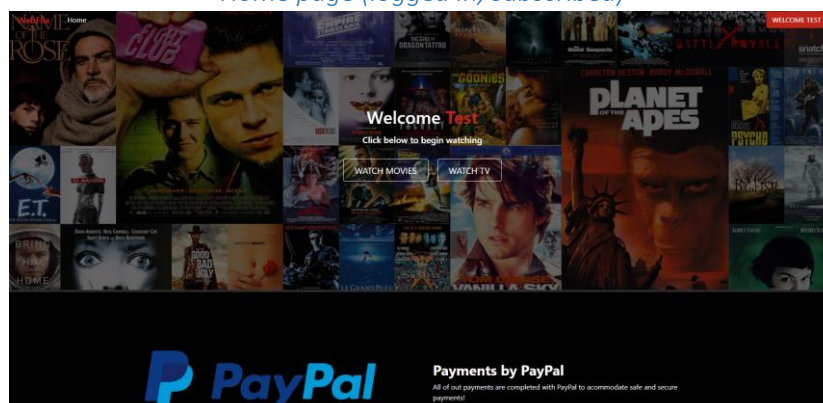
Home page (not logged in, not subscribed)



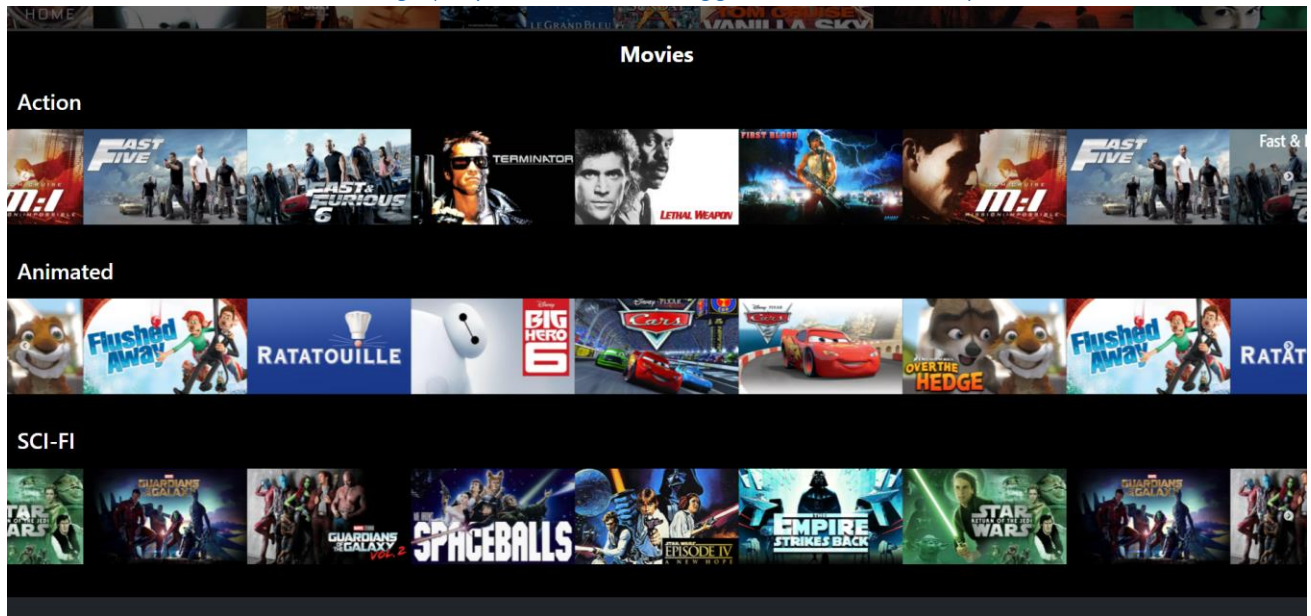
Home page (logged in, not subscribed)



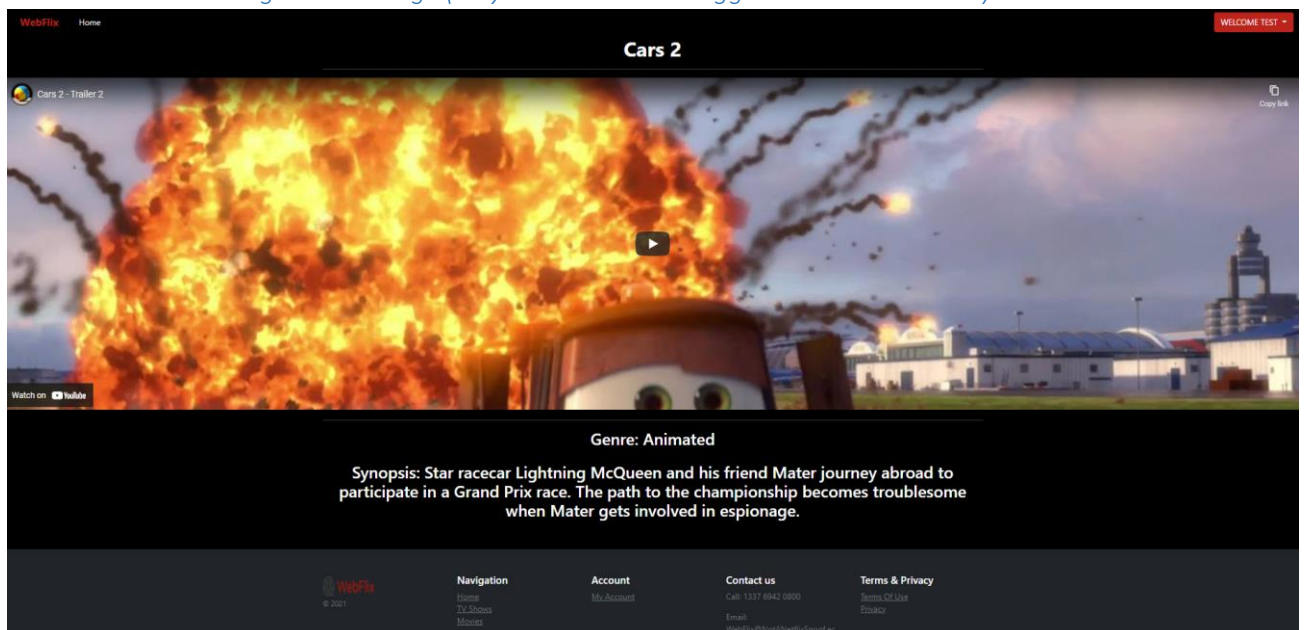
Home page (logged in, subscribed)



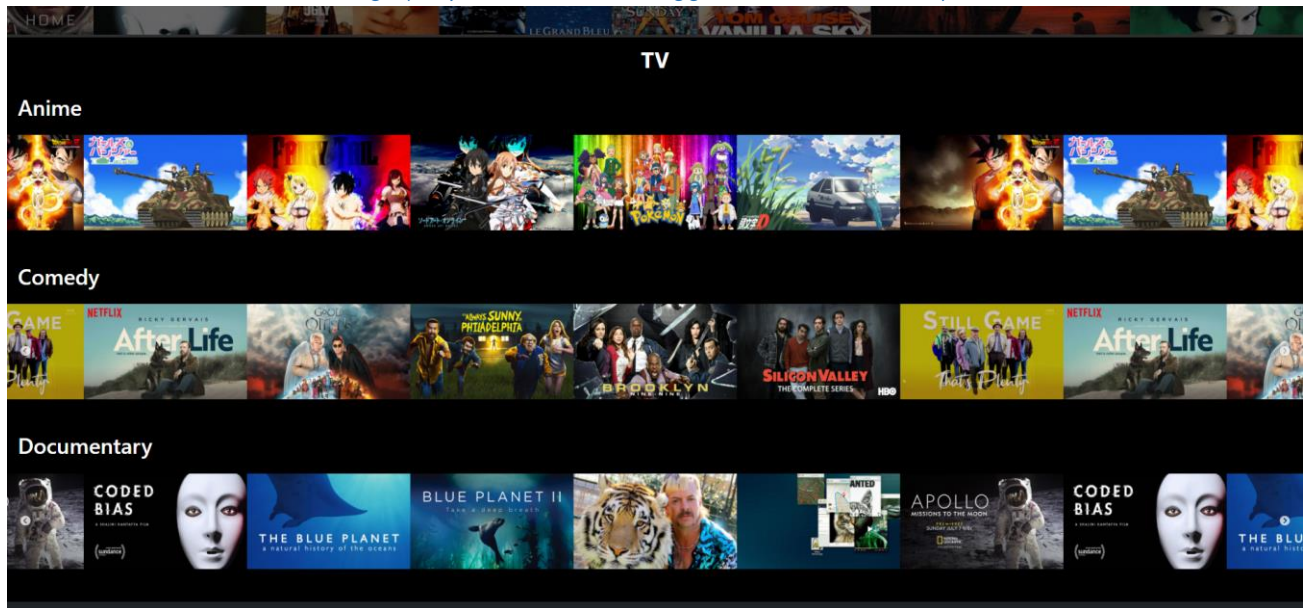
All Movies Page (only available when logged in and subscribed)



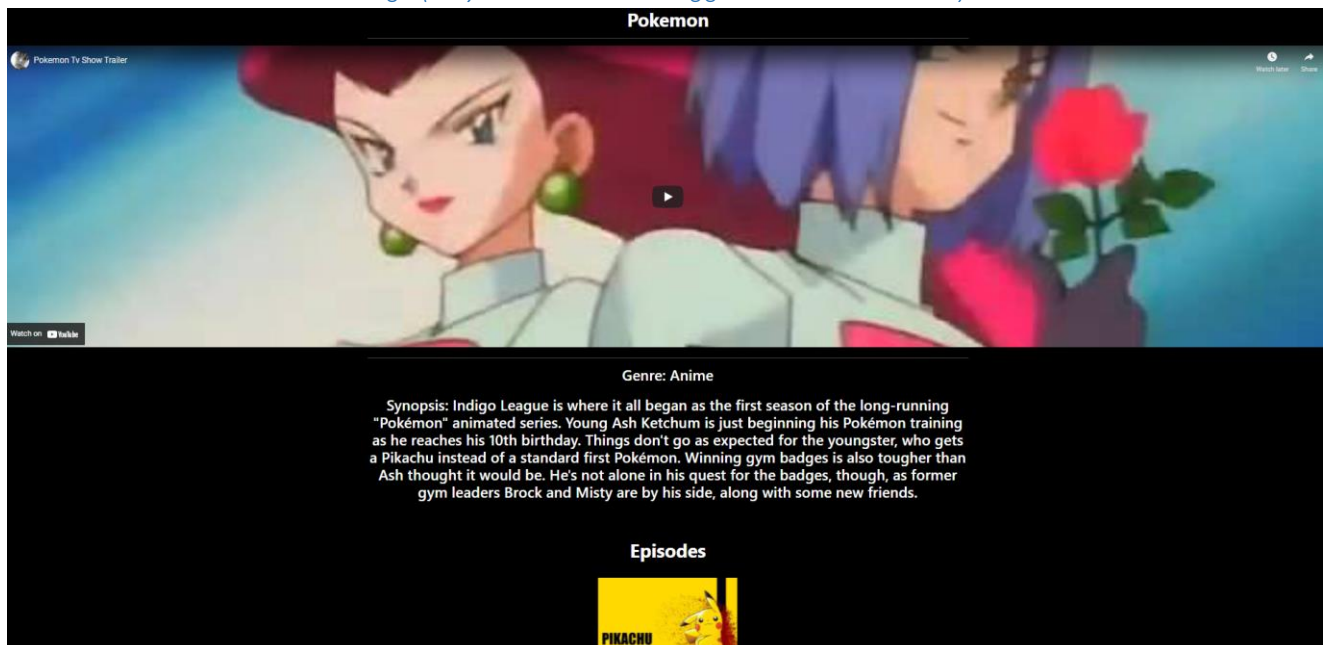
Single Movie Page (only available when logged in and subscribed)



All TV Page (only available when logged in and subscribed)



TV Show Page (only available when logged in and subscribed)



Account Page (subscribed)

WebFlix

Home

WELCOME TEST ▾

Welcome **Test**

Account Details

Forename: Test

Surname: Testerson

Email: test@testerson.com

Contact Number: 0323 4435656

Password: *****

Date Of Birth: 2021-05-01

Registration Date: 2021-05-13 12:45:38

[Change Password](#)

Subscription Type

You are a subscribed member of Webflix!

Account Page (non-subscribed)

WebFlix

Home

WELCOME TEST ▾

Welcome **Test**

Account Details

Forename: Test

Surname: Testerson

Email: test@testerson.com

Contact Number: 0323 4435656

Password: *****

Date Of Birth: 2021-05-01

Registration Date: 2021-05-13 12:45:38

[Change Password](#)

Subscription Options

PayPal


Safaricom

Debit or Credit Card

Powered by **PayPal**

User Sign Up Modal

Sign Up

Enter First Name	Enter Last Name
Enter Email	
dd/mm/yyyy 	
Enter Contact Number	
Create Password	
Confirm Password	
SIGN UP	

or log in [here](#)

CLOSE

User Login Modal

Login

Email	Password
SIGN IN NOW	
Forgot your Password? Recover Password	
Don't Have an account? Register here	

CLOSE

User Recover Password Modal

Recover Password

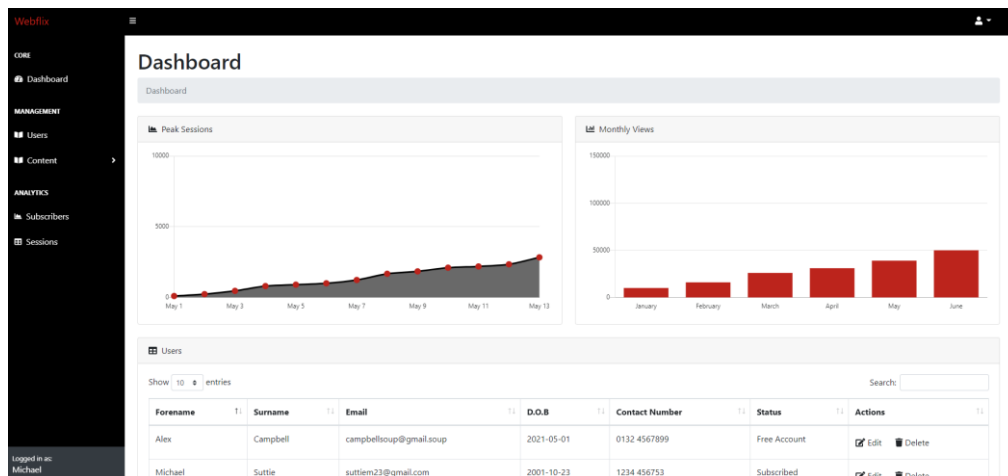
Please enter your email address. We will send you an email to help recover your password.

Email
RECOVER PASSWORD

CLOSE

Admin (backend) Screenshots

Dashboard



Users Table

The Users Table displays a list of users with columns for Forename, Surname, Email, D.O.B, Contact Number, Status, and Actions. It includes a search bar and pagination controls.

Forename	Surname	Email	D.O.B	Contact Number	Status	Actions
Alex	Campbell	campbellsoup@gmail.soup	2021-05-01	0132 4567899	Free Account	Edit Delete
Michael	Suttie	suttie23@gmail.com	2001-10-23	1234 456753	Subscribed	Edit Delete
Test	Testerson	test@testerson.com	2021-05-01	0323 4435656	Free Account	Edit Delete

Genre Table

The Genre Table displays a list of genres with columns for Genre Name, Total Titles, and Actions. It includes a search bar and pagination controls.

Genre Name	Total Titles	Actions
Action	6	Delete
Animated	6	Delete
Anime	6	Delete
Comedy	6	Delete
Documentary	6	Delete
Sci-Fi	6	Delete

Movie Table

Webflux

Tables

Dashboard / Content / Genres

DataTables is a third party plugin that is used to generate the demo table below. For more information about DataTables, please visit the [official DataTables documentation](#).

Series Table

+ Add New Movie

Show 10 entries

Search:

Movie ID	Movie Title	Genre	Actions
1	Star Wars: A New Hope	Sci-Fi	Edit Delete
2	Star Wars: The Empire Strikes Back	Sci-Fi	Edit Delete
3	Star Wars: Return of the Jedi	Sci-Fi	Edit Delete
4	Guardians of the Galaxy: Vol 1	Sci-Fi	Edit Delete
5	Guardians of the Galaxy: Vol 2	Sci-Fi	Edit Delete
6	Spaceballs	Sci-Fi	Edit Delete

logged in as: Michael

TV table

Webflux

Tables

Dashboard / Content / TV

DataTables is a third party plugin that is used to generate the demo table below. For more information about DataTables, please visit the [official DataTables documentation](#).

Series Table

+ Add New Series

Show 10 entries

Search:

Program ID	Program Title	Genre	Episodes	Actions
7	Pokemon	Anime	1	Edit Delete
8	Initial D	Anime	1	Edit Delete
9	DragonBall Z Abridged	Anime	1	Edit Delete
10	Girls Und Panzer	Anime	0	Edit Delete
11	Fairy Tail	Anime	0	Edit Delete
12	Sword Art Online	Anime	0	Edit Delete

logged in as: Michael

Episode table (at bottom of TV table)

Episode Table

+ Add New Episode

Show 10 entries

Search:

Episode Number	Episode Name	Program	Actions
1	Episode 1	DragonBall Z Abridged	Edit Delete
1	ENTER PIKACHU!	Pokemon	Edit Delete
1	Stage 1	Initial D	Edit Delete
Episode Number	Episode Name	Program	Actions

Showing 1 to 3 of 3 entries

Previous 1 Next

Edit Series modal (Each table that has an 'edit' feature will use a modal similar to this)

Change Details



Save Changes

Add Movie modal (Each table that has an 'add' feature will use a modal similar to this)

New Movie

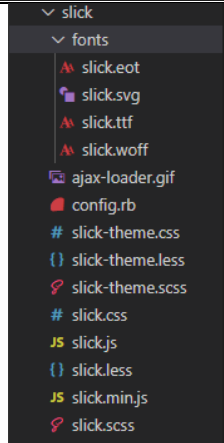


Save Changes

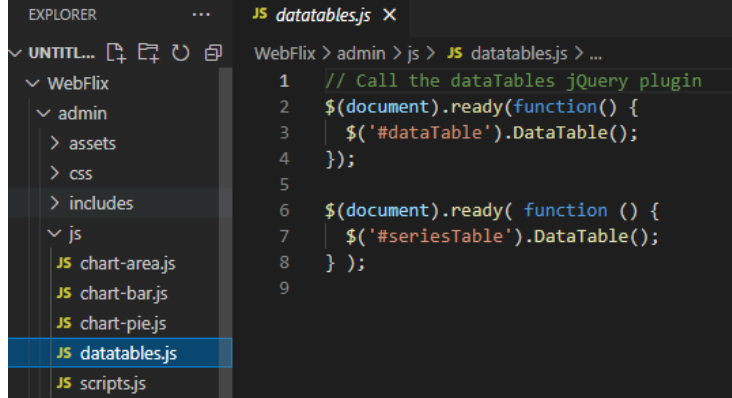
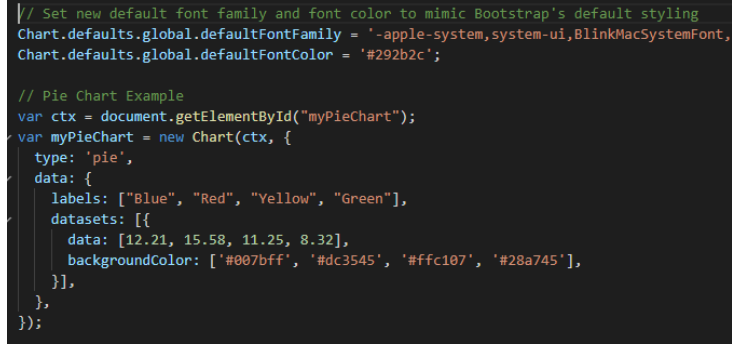

Unfamiliar Libraries Used

During the development of this project, there were multiple libraries used that were unfamiliar to the developer. These were used to achieve functionality ranging from payment to simple styling.

The link to each of these libraries will be listed in the references section, these are simply a short description of what they are, why they were used and how they were used. See references for further details.

NAME	USE	EXAMPLE
Bootstrap 5 (Bootstrap, n.d.)	Bootstrap 5 was used to create the responsive UI for the user frontend and admin backend.	<pre> main> <div class="container-fluid"> <h1 class="mt-4">Tables</h1> <ol class="breadcrumb mb-4"> <li class="breadcrumb-item">Dashboard <li class="breadcrumb-item">Content <li class="breadcrumb-item active">Genres <div class="card mb-4"> <div class="card-body"> DataTables is a third party plugin that is used to generate the official DataT </div> </div> </div> <?php include('includes/genre-table.php'); ?> </div> /main> </pre>
Slick Carousel (Wheeler, n.d.)	<p>Slick Carousel is a plugin that assists developers with the creation of responsive and accessible image carousels.</p> <p>This was used to display the films, shows and episodes on the site</p>	
Material Design Bootstrap Free (Material Design Bootstrap, n.d.)	<p>Material Design Bootstrap works with Bootstrap 5&4 to help developers create responsive websites with ease. MDB has many components that can be taken as is and modified to the needs of the user. On the website, MDB was used for the navbar and image jumbotron on the home page.</p>	

The libraries below were used for the main functionalities outlined in the project specification, the Admin backend, and the PayPal payment system. It would have been possible to complete the project without Datatables.js and Charts.js, however, these allow for improved functionality and a better aesthetic.

NAME	USE	EXAMPLE
Datatables.JS (SpryMedia LTD, n.d.)	Datatables.js was used for the backend data tables such as movies, genre, tv, and episodes.	 <pre> 1 // Call the dataTables jQuery plugin 2 \$(document).ready(function() { 3 \$('#dataTable').DataTable(); 4 }); 5 6 \$(document).ready(function () { 7 \$('#seriesTable').DataTable(); 8 }); 9 </pre>
Chart.JS (al., n.d.)	Charts.js was used for the backend charts – these are only placeholders and don't function with real-time data – but were used nonetheless.	 <pre> // Set new default font family and font color to mimic Bootstrap's default styling Chart.defaults.global.defaultFontFamily = '-apple-system,system-ui,BlinkMacSystemFont'; Chart.defaults.global.defaultFontColor = '#292b2c'; // Pie Chart Example var ctx = document.getElementById("myPieChart"); var myPieChart = new Chart(ctx, { type: 'pie', data: { labels: ["Blue", "Red", "Yellow", "Green"], datasets: [{ data: [12.21, 15.58, 11.25, 8.32], backgroundColor: ['#007bff', '#dc3545', '#ffc107', '#28a745'], }], }, }); </pre>
PayPal JS & Sandbox (PayPal, n.d.)	Process user payments so that they may view movies. Sandbox was used to test payment functionality.	 <pre> paypal.Buttons({ style: { color: "silver", shape: "pill", }, createOrder: function(data, actions) { // Set up the transaction return actions.order.create({ purchase_units: [{ amount: { currency_code: "GBP", value: "99", }, description: "Webflix Premium", custom_id: "69420", }], }); }, onApprove: function(data, actions) { // Capture order after payment approved return actions.order.capture().then(function(details) { paid(); }); }, onError: function(err) { errorText = err; error = true; }, }).render("#paypal-button-container"); // Renders the PayPal button </pre>

Error Handling

Naturally, as the project deals with user information as well as allowing admins to edit and change this information – errors should be caught and handled depending on each possible scenario. Aside from errors that could be thrown by the server itself, the site will handle errors defined by the user.

An example of this could be caused during the sign-up of a user. If a user were to enter their password, followed by their confirmation password, the system should check whether these passwords match or not. If the system finds that the passwords do not match, an error message should be posted to the user to inform them that there was an issue with their input. This is useful for two reasons; stopping incorrect data from being injected into the database that could cause an issue in the future, and informing the user of their blunder so that they can resubmit their details with the knowledge of what they had done wrong.

In practice, this scenario is handled like this in the Webflix system:

```
# Check for a password and matching input passwords.
if (!empty($_POST['pass1'])) {
    if ($_POST['pass1'] != $_POST['pass2']) {
        $errors[] = 'Passwords do not match.';
    } else {
        $p = mysqli_real_escape_string($link, trim($_POST['pass1']));
    }
} else {
    $errors[] = 'Enter your password.';
}
```

This block of code will check that the first password input submission is not null, it will then check if it does not match the value of the second password submission. If this is the case, an errors array will be populated with the relevant error message.

```
# Or report errors.
else {
    foreach ($errors as $msg) {
        alert("$msg");
    }
    header("Refresh:0; url=../index.php");

    # Close database connection.
    mysqli_close($link);
}

function alert($msg)
{
    echo "<script type='text/javascript'>alert('$msg');
```

After the errors have been caught, they are passed into another if statement that will output the errors as a message in a javascript alert box. In short, the error criteria has been set, the error has been identified, the error has been stored, and finally, the error has been reported.

Data Dictionary

The following is a data dictionary that shows the information and specifics of each table within the database. It is clear that the final database differed slightly from the ERD shown in the planning stage – most obviously, the final version of the database did not include a reviews, payments, or subscription table.

The new structure allows PayPal to handle the payments of users, and stores subscribed user details within the user table. In addition, programme has been renamed to 'TV' and series has been renamed to 'episodes'.

The episodes table has been expanded upon to store more information about specific episodes that may be on show.

Episode Table

Field Name	Data Type	Field Size	Description	Example Data
episode_id	INT	10	Unsigned auto Incrementing int, primary key for identifying episodes.	1
episode_number	INT	10	Episode number in series.	23
episode_name	VARCHAR	50	Name of episode.	Colonial Day
tv_id	INT	10	Foreign key, used to match episode to tv show.	3
episode_file	VARCHAR	300	Would be the episode file, however, a youtube embed link is stored here for copyright reasons.	https://www.youtube.com/embed/exampledata
episode_img	VARCHAR	300	Thumbnail image for display on site.	https://i.imgur.com/exampladata

Movie Table

Field Name	Data Type	Field Size	Description	Example Data
mov_id	INT	10	Unsigned auto Incrementing int, primary key for identifying movies.	43
mov_title	VARCHAR	100	Name of movie.	Cars.
mov_desc	VARCHAR	2000	Description of movie.	A movie about sentient cars.
mov_genre	VARCHAR	100	Genre of movie.	Horror
mov_img	VARCHAR	300	Thumbnail image for display on site.	https://i.imgur.com/exampladata
mov_trailer	VARCHAR	100	Youtube embed link for movie trailer	https://www.youtube.com/embed/exampledata
mov_file	VARCHAR	300	Would be the episode file, however, a youtube embed link is stored here for copyright reasons.	https://www.youtube.com/embed/exampledata

Genres Table

Field Name	Data Type	Field Size	Description	Example Data
genre_name	VARCHAR	100	No default, utf8_general_ci collation to ensure case sensitivity. Primary key for identifying genres	Action

TV Table

Field Name	Data Type	Field Size	Description	Example Data
tv_id	INT	10	Unsigned auto Incrementing int, primary key for identifying tv shows.	56
tv_title	VARCHAR	100	Title of TV show.	Initial D
tv_desc	VARCHAR	2000	Description of TV show.	A show about deliver tofu in an AE86
genre	VARCHAR	100	Genre of TV show.	Anime
tv_img	VARCHAR	300	Thumbnail image for display on site.	https://i.imgur.com/exampledata
tv_trailer	VARCHAR	300	Youtube embed link for movie trailer	https://www.youtube.com/embed/exampledata
Tv_file	VARCHAR	300	Would be the episode file, however, a youtube embed link is stored here for copyright reasons.	https://www.youtube.com/embed/exampledata

User Table

Field Name	Data Type	Field Size	Description	Example Data
user_id	INT	10	Unsigned auto Incrementing int, primary key for identifying users.	666
first_name	VARCHAR	20	First name of user.	John
last_name	VARCHAR	40	Surname of user.	Hoboson
email	VARCHAR	60	User email.	J.Hoboson@speedco.com
date_of_birth	VARCHAR	50	User date of birth.	23/08/1998
contact_number	VARCHAR	20	User contact number.	0143 5543432
pass	VARCHAR	256	User password (encrypted)	03aaa5443ghfmdel...
reg_date	DATETIME		User registration date and time, assigned upon account creation.	
subscribed	INT	10	Default = "0", used to identify whether a user has subscribed or not.	1
account_type	INT	10	Default = "0", used to identify whether a user is an admin or not.	0

Advanced Data Structures

Arrays

Arrays were implemented to catch errors in MySQL queries. This was done to potentially store multiple errors when users enter information during registration, login or password reset as well as when an admin edits users or adds/edits movies, tv shows, episodes or genres.

The following code snippet of code is from a section that allows admins to add a new tv show – here, an error array is initialised and any errors encountered are stored should something go wrong during the query.

```
$errors = array();

$e = trim($_POST['new_episode']);
$en = trim($_POST['episode_name']);
$si = trim($_POST['series_id']);
$ef = trim($_POST['episode_file']);
$ei = trim($_POST['episode_img']);

if (empty($_POST['new_episode'])) {
    $q = "INSERT INTO episode (episode_number, episode_name, tv_id, episode_file, episode_img) VALUES ('$e', '$en', '$si', '$ef', '$ei')";
    $r = @mysqli_query($link, $q);
} else {
    $errors[] = "There was an unexpected error";
}
```

Loops

Loops were implemented in several ways, the most prominent however is populating sections of the site using data pulled from the database. One such example of this is the slick carousels on the movie, moviepage, tv, tvpage and episode pages.

The following code snippet implements a nested loop and is directly from the tv page. The query prior to the while loop selects everything from the genres table and loops while the row is equal to the query. It then performs a second query to select everything from the tv table where the genre is equal to the genre name from the previous query (row). If the number of rows (r) is greater than 0, then the PHP will generate the HTML for the slick carousel and populate the sections of the carousel with data pulled from the database using prior queries.

```
$g = "SELECT * FROM genres";
$n = mysqli_query($link, $g);
if (mysqli_num_rows($n) > 0) {
    while ($row = mysqli_fetch_array($n, MYSQLI_ASSOC)) {
        $r = mysqli_query($link, "SELECT * FROM tv WHERE genre = '{$row['genre_name']}'");
        if (mysqli_num_rows($r) > 0) {
            # Display body section.
        }

        <div style="margin-bottom: 40px;">
            <h1 class="text-white" style="margin-left: 20px;"><?php echo "{$row['genre_name']}"; ?></h1>
            <div class="responsive-slick">
                <?php
                while ($mov = mysqli_fetch_array($r, MYSQLI_ASSOC)) {
                    <div class="slider-image">
                        <a href="tvpage.php?id=<?php echo $mov['tv_id']; ?>">
                            " class="slider-img" alt="<?php echo "{$mov['tv_title']}"; ?>" />
                            <div class="info">
                                <h2 class="slider-heading"><?php echo "{$mov['tv_title']}"; ?></h2>
                            </div>
                        </a>
                    </div>
                </div>
                <?php
                }
            </div>
        </div>
    }
}

mysqli_close($link);
}
```

Decisions

Decisions were implemented in a number of ways, once such way was to hide certain content based on account type or subscription type. Due to the nature of the site, non-subscribers should not be able to access premium pages (any form of media) and non-admin users should not be able to access the admin backend.

The following code snippet implements a decision in order to decide whether a user can access the admin dashboard or not. This is done by checking the session account type, specifically, checking whether it is equals to 1 (admin) or not. If the user IS an admin, then the page will display the admin header and continue loading the rest of the page as normal. If the user is NOT an admin then it will simply send the user back to the homepage.

```
<?php if ($_SESSION['account_type'] == "1") {  
    include('includes/admin-header.php');  
} else {  
    header("Location: ../index.php");  
} ?>
```

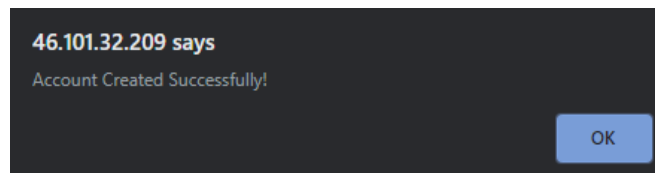
Testing the Planned Solution

Testing USER functionality – Account creation

Test 1

Description	Input	Expected Output	Notes
Account creation – all data entered is normal and expected	First Name: Spongebob Surname: Testpants Email: Spongebob@Testpants.com Date of birth: 10/05/2021 Contact Number: 0123 45678910 Pass: 1234 Pass2: 1234	Javascript alert to inform the user that the account has been created. Data is inserted into the database	Test Passed, registration system accepts normal data

Actual Output



user_id	first_name	last_name	email	date_of_birth	contact_number	pass	reg_date	subscribed	account_type
1	Michael	Suttie	suttiem23@gmail.com	2001-10-23	1234 456753	7aaa57f04ed452accf58e1dccc981b9c5dd6d7092b34d...	2021-05-12 20:28:35	1	1
3	Test	Testerson	test@testerson.com	2021-05-01	0323 4435656	03ac674216f3e15c761ee1a5e255f067953623c8b388b4...	2021-05-13 12:45:38	0	0
4	Alex	Campbell	campbellsoup@gmail.soup	2021-05-01	0132 4567899	03ac674216f3e15c761ee1a5e255f067953623c8b388b4...	2021-05-13 15:08:04	0	0
5	Spongebob	Testpants	Spongebob@Testpants.com	2021-05-10	0123 45678910	03ac674216f3e15c761ee1a5e255f067953623c8b388b4...	2021-05-14 02:14:09	0	0

Test 2

Description	Input	Expected Output	Notes
Account creation – all data entered is normal and expected however passwords do not match	First Name: John Surname: Doe Email: JohnDoe@gmail.com Date of birth: 10/05/2021 Contact Number: 0123 45678910 Pass: 1234 Pass2: 4321	Javascript alert to inform the user that the passwords do not match. Data is not inserted into the database	Test Passed, registration system flags error

Actual Output



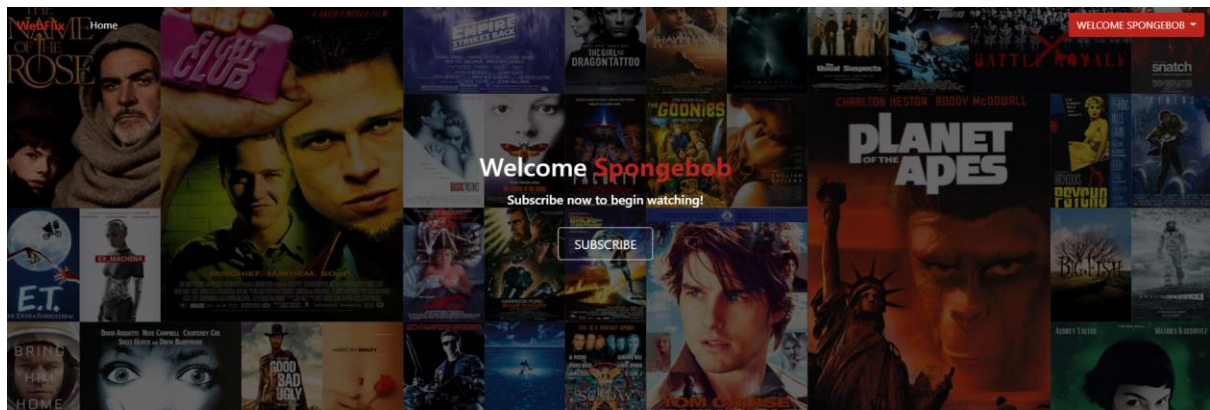
user_id	first_name	last_name	email	date_of_birth	contact_number	pass	reg_date	subscribed	account_type
1	Michael	Suttie	suttiem23@gmail.com	2001-10-23	1234 456753	7aaa57f04ed452accf58e1dccc981b9c5dd6d7092b34d...	2021-05-12 20:28:35	1	1
3	Test	Testerson	test@testerson.com	2021-05-01	0323 4435656	03ac674216f3e15c761ee1a5e255f067953623c8b388b4...	2021-05-13 12:45:38	0	0
4	Alex	Campbell	campbellsoup@gmail.soup	2021-05-01	0132 4567899	03ac674216f3e15c761ee1a5e255f067953623c8b388b4...	2021-05-13 15:08:04	0	0
5	Spongebob	Testpants	Spongebob@Testpants.com	2021-05-10	0123 45678910	03ac674216f3e15c761ee1a5e255f067953623c8b388b4...	2021-05-14 02:14:09	0	0

Testing USER functionality – Log in

Test 1

Description	Input	Expected Output	Notes
Account login – all data entered is normal and expected	Email: Spongebob@Testpants.com Pass: 1234	The page redirects to the home page, however, the welcome and account nav section is customised to match the users first name	Test Passed, login system accepts normal data

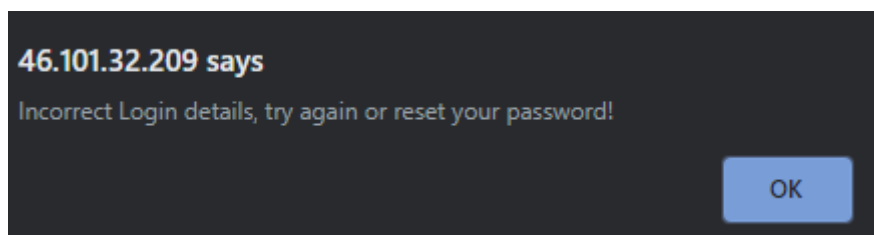
Actual Output



Test 2

Description	Input	Expected Output	Notes
Account login – data entered does not match any registered user	Email: JerrySmith@testmail.com Pass: 1234	Javascript alert to inform the user that the login details are incorrect	Test Passed, login system flags errors on login

Actual Output



user_id	first_name	last_name	email	date_of_birth	contact_number	pass	reg_date	subscribed	account_type
1	Michael	Suttie	suttiem23@gmail.com	2001-10-23	1234 456753	7aaa57f04ed452accf58e1dccc981b9c5dd6d7092b34d...	2021-05-12 20:28:35	1	1
3	Test	Testerson	test@testerson.com	2021-05-01	0323 4435656	03ac674216f3e15c761ee1a5e255f067953623c8b388b4...	2021-05-13 12:45:38	0	0
4	Alex	Campbell	campbellsoup@gmail.soup	2021-05-01	0132 4567899	03ac674216f3e15c761ee1a5e255f067953623c8b388b4...	2021-05-13 15:08:04	0	0
5	Spongebob	Testpants	Spongebob@Testpants.com	2021-05-10	0123 45678910	03ac674216f3e15c761ee1a5e255f067953623c8b388b4...	2021-05-14 02:14:09	0	0

Testing USER functionality – Subscribe

Test 1

Description	Input	Expected Output	Notes
Subscribe – PayPal subscription is completed successfully	Spongebob Testpants has Valid payment details	The page redirects to the successful payment page and user 'subscribed' changes from 0 to 1	Test Passed, PayPal subscription accepted

Actual Output

Webflix Home

WELCOME SPONGEBOB

Successfully Subscribed!

Welcome to **Webflix!**

Please click below and log back in!

RE-LOG

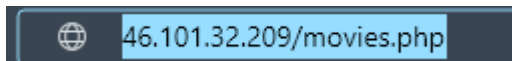
user_id	first_name	last_name	email	date_of_birth	contact_number	pass	reg_date	subscribed	account_type
1	Michael	Suttie	suttiem23@gmail.com	2001-10-23	1234 456753	7aaa57f04ed452acccf58e1dcc981b9c5dd6d7092b34d...	2021-05-12 20:28:35	1	1
5	Spongebob	Testpants	Spongebob@Testpants.com	2021-05-10	0123 45678910	03ac674216f3e15c761ee1a5e25f067953623c8b388b4...	2021-05-14 02:14:09	1	0
3	Test	Testerson	test@testerson.com	2021-05-01	0323 4435656	03ac674216f3e15c761ee1a5e25f067953623c8b388b4...	2021-05-13 12:45:38	0	0
4	Alex	Campbell	campbellsoup@gmail.soup	2021-05-01	0132 4567899	03ac674216f3e15c761ee1a5e25f067953623c8b388b4...	2021-05-13 15:08:04	0	0

Testing USER functionality – Access movies

Test 1

Description	Input	Expected Output	Notes
Movies Page – test if a non-logged in user can force their way into the movie page using URL	URL is manipulated to: “46.101.32.209/movies.php” when not logged in	The page redirects the user back to the home page	Test Passed, page redirected

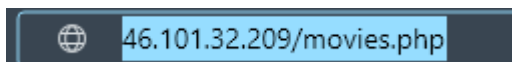
Actual Output



Test 2

Description	Input	Expected Output	Notes
Movies Page – test if a logged in but non subscribed user can force their way into the movie page using URL	URL is manipulated to: “46.101.32.209/movies.php” when logged in but not subscribed	The page redirects the user back to the home page	Test Passed, page redirected

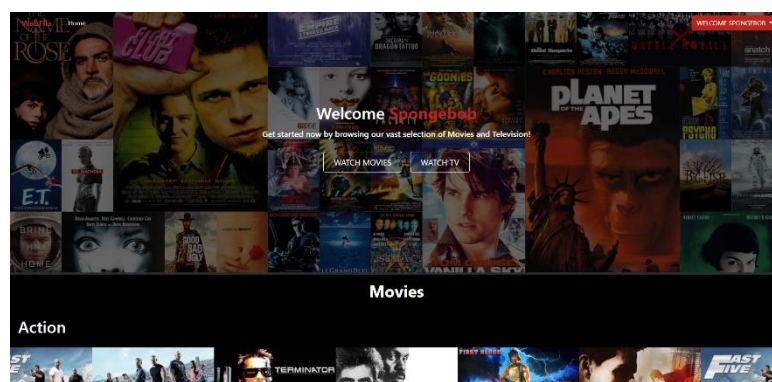
Actual Output



Test 3

Description	Input	Expected Output	Notes
Movies Page – test if a logged in and subscribed user can access the movies page using the URL (note that a subscribed user has access via buttons, but URL will be manipulated for test consistency)	URL is manipulated to: “46.101.32.209/movies.php” when logged in but not subscribed	The user is taken to the movies page and can view movies	Test Passed, user can access page.

Actual Output



Testing ADMIN functionality – Admin delete user

Test 1

Description	Input	Expected Output	Notes
Delete – an admin deletes a user from the database	Admin account presses delete on Spongebob Testpants in the user table	The table updates with the deleted user, as does the database. Spongebob Testpants has been removed from the users table	Test Passed, user deleted from table

Actual Output

Users

Showing 10 entries

Search:

Forename	Surname	Email	D.O.B	Contact Number	Status	Actions
Alex	Campbell	campbellsoup@gmail.soup	2021-05-01	0132 4567899	Free Account	<a>Edit <a>Delete
Michael	Suttie	suttiem23@gmail.com	2001-10-23	1234 456753	Subscribed	<a>Edit <a>Delete
Test	Testerson	test@testerson.com	2021-05-01	0323 4435656	Free Account	<a>Edit <a>Delete
Forename	Surname	Email	D.O.B	Contact Number	Status	Actions

Showing 1 to 3 of 3 entries

Previous1Next

user_id	first_name	last_name	email	date_of_birth	contact_number	pass	reg_date	subscribed	account_type
1	Michael	Suttie	suttiem23@gmail.com	2001-10-23	1234 456753	7aaa57f04ed452acccf58e1dcc981b9c5dd6d7092b34d...	2021-05-12 20:28:35	1	1
3	Test	Testerson	test@testerson.com	2021-05-01	0323 4435656	03ac674216f3e15c761ee1a5e259f067953623c8b388b4...	2021-05-13 12:45:38	0	0
4	Alex	Campbell	campbellsoup@gmail.soup	2021-05-01	0132 4567899	03ac674216f3e15c761ee1a5e259f067953623c8b388b4...	2021-05-13 15:08:04	0	0

Testing ADMIN functionality – Admin edit user

Test 1

Description	Input	Expected Output	Notes
Edit – an admin edits a user with all normal and expected data	Admin account edits the account of 'test testerson' First Name: Testerson Surname: Test	The table updates with the edited user, as does the database. Test testerson is now testerson test.	Test Passed, test testerson is now called testerson test.

Actual Output

Users

Show10entries

Search:

Forename	Surname	Email	D.O.B	Contact Number	Status	Actions
Alex	Campbell	campbellsoup@gmail.soup	2021-05-01	0132 4567899	Free Account	<div><div>Edit</div><div>Delete</div></div>
Michael	Suttie	suttiem23@gmail.com	2001-10-23	1234 456753	Subscribed	<div><div>Edit</div><div>Delete</div></div>
Testerson	Test	test@testerson.com	2021-05-01	0323 4435656	Free Account	<div><div>Edit</div><div>Delete</div></div>
Forename	Surname	Email	D.O.B	Contact Number	Status	Actions

Showing 1 to 3 of 3 entries

Previous

1

Next

user_id	first_name	last_name	email	date_of_birth	contact_number	pass	reg_date	subscribed	account_type
1	Michael	Suttie	suttiem23@gmail.com	2001-10-23	1234 456753	7aaa57f04ed452acccf58e1dcc981b9c5dd6d7092b34d...	2021-05-12 20:28:35	1	1
3	Testerson	Test	test@testerson.com	2021-05-01	0323 4435656	03ac674216f3e15c761ee1a5e255f067953623c8b388b4...	2021-05-13 12:45:38	0	0
4	Alex	Campbell	campbellsoup@gmail.soup	2021-05-01	0132 4567899	03ac674216f3e15c761ee1a5e255f067953623c8b388b4...	2021-05-13 15:08:04	0	0

Test 2

Description	Input	Expected Output	Notes
Edit – an admin edits a user with all normal and expected data, however, the email is changed so that it matches another users	Admin account edits the account of 'testerson test' Email: suttiem23@gmail.com	Javascript alert to inform the admin that the email already exists	Test Passed, email is unaltered and alert is sent

Actual Output



Users

Show 10 entries

Search:

Forename	Surname	Email	D.O.B	Contact Number	Status	Actions
Alex	Campbell	campbellsoup@gmail.soup	2021-05-01	0132 4567899	Free Account	Edit Delete
Michael	Suttie	suttiem23@gmail.com	2001-10-23	1234 456753	Subscribed	Edit Delete
Testerson	Test	test@testerson.com	2021-05-01	0323 4435656	Free Account	Edit Delete
Forename	Surname	Email	D.O.B	Contact Number	Status	Actions

Showing 1 to 3 of 3 entries

Previous1Next

Testing ADMIN functionality – Admin delete genre

Test 1

Description	Input	Expected Output	Notes
Delete – an admin deletes a genre from the database	Admin account presses delete on Action in the genre table	The table updates with the deleted genre, as does the database. Action has been removed from the genre table	Test Passed, genre deleted from table

Actual Output

Genres

+ Add New Genre

Show 10 entries

Search:

Genre Name	Total Titles	Actions
Animated	6	Delete
Anime	6	Delete
Comedy	6	Delete
Documentary	6	Delete
SCI-FI	6	Delete
Genre Name	Total Titles	Actions

Showing 1 to 5 of 5 entries

Previous 1 Next

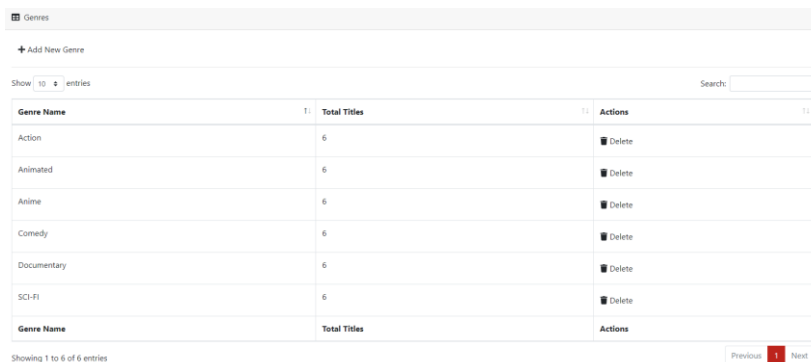
genre_name
Animated
Anime
Comedy
Documentary
SCI-FI

Testing ADMIN functionality – Admin add genre

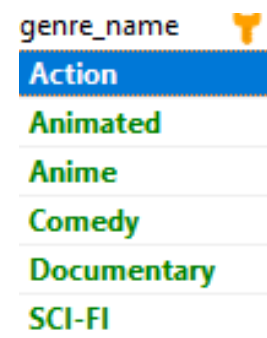
Test 1

Description	Input	Expected Output	Notes
Add – an admin adds a genre to the database	Admin account presses add genre in the genre table “Action” is input back into the database	The table updates with the added genre, as does the database. Action has been added back to the database.	Test Passed, genre added to table

Actual Output



Genre Name	Total Titles	Actions
Action	6	Delete
Animated	6	Delete
Anime	6	Delete
Comedy	6	Delete
Documentary	6	Delete
SCI-FI	6	Delete
Genre Name	Total Titles	Actions

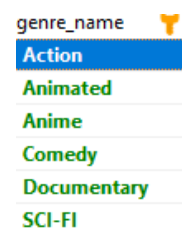


genre_name
Action
Animated
Anime
Comedy
Documentary
SCI-FI

Test 2

Description	Input	Expected Output	Notes
Add – an admin adds a genre to the database, but it already exists	Admin account presses add genre in the genre table “Anime” is input back into the database	Javascript error alert informing the admin that the genre already exists. Data not inserted into database.	Test Passed, error thrown, no database changes

Actual Output

genre_name
Action
Animated
Anime
Comedy
Documentary
SCI-FI

Testing ADMIN functionality – Admin delete movie

Test 1

Description	Input	Expected Output	Notes
Delete – an admin deletes a movie from the database	Admin account presses delete on Fast 5 in the movie table	The table updates with the deleted movie, as does the database. Fast 5 has been removed from the movie table	Test Passed, movie deleted from table

Actual Output

Show10entries

Search:

Movie ID	Movie Title	Genre	Actions
1	Star Wars: A New Hope	SCI-FI	Edit Delete
2	Star Wars: The Empire Strikes Back	SCI-FI	Edit Delete
3	Star Wars: Return of the Jedi	SCI-FI	Edit Delete
4	Guardians of the Galaxy: Vol 1	SCI-FI	Edit Delete
5	Guardians of the Galaxy: Vol 2	SCI-FI	Edit Delete
6	Spaceballs	SCI-FI	Edit Delete
7	Lethal Weapon	Action	Edit Delete
8	Rambo: First Blood	Action	Edit Delete
9	Mission: Impossible	Action	Edit Delete
11	Fast & Furious 6	Action	Edit Delete
Movie ID	Movie Title	Genre	Actions

Showing 1 to 10 of 17 entries

Previous

1

2

Next

mov_id	mov_title	mov_desc	mov_genre	mov_img	mov_trailer
1	Star Wars: A New Hope	After Princess Leia, the leader of the Rebel Alliance, i...	SCI-FI	https://i.imgur.com/WYtwBgS.png	https://www.youtube.com/embed/vZ734NwnAHA
2	Star Wars: The Empire Strikes Back	Darth Vader is adamant about turning Luke Skywalk...	SCI-FI	https://i.imgur.com/vK2opzH.png	https://www.youtube.com/embed/JNwNXf9Y6kY
3	Star Wars: Return of the Jedi	Luke Skywalker attempts to bring his father back to t...	SCI-FI	https://images3.alphacoders.com/111/thumb-1920-...	https://www.youtube.com/embed/7L8p7_SLzvU
4	Guardians of the Galaxy: Vol 1	After a successful mission, Quill and his team of gal...	SCI-FI	https://images.squarespace-cdn.com/content/v1/5...	https://www.youtube.com/embed/d96cjlhvIMA
5	Guardians of the Galaxy: Vol 2	Peter escapes from the planet Morag with a valuable...	SCI-FI	https://occ-0-1723-1722.1.nflxso.net/dnm/api/v6/0...	https://www.youtube.com/embed/dW1BIld8Osg
6	Spaceballs	A hero and his trusty half-man, half-dog set out to r...	SCI-FI	https://miro.medium.com/max/1838/1*lozMX4X8HD...	https://www.youtube.com/embed/RK0yd4LTLdg
7	Lethal Weapon	Following the death of his wife, Los Angeles police d...	Action	https://images8.alphacoders.com/616/thumb-1920-...	https://www.youtube.com/embed/bKeW-MGu-qQ
8	Rambo: First Blood	John Rambo, a former US soldier traumatised by me...	Action	https://www.teahub.io/photos/full/224-2244713_ra...	https://www.youtube.com/embed/dW1BIld8Osg
9	Mission: Impossible	Ethan Hunt, an American special agent, struggles to ...	Action	https://images-eu.ssl-images-amazon.com/images...	https://www.youtube.com/embed/Ohws8y572KE
11	Fast & Furious 6	Hobbs is tasked with catching a team of mercenary ...	Action	https://cdn.hipwallpaper.com/i/71/41/T03f15.jpg	https://www.youtube.com/embed/dK3XoeTN0k
12	The Terminator	A cyborg assassin is sent back in time to kill Sarah, a ...	Action	https://vistapointe.net/images/the-terminator-2.jpg	https://www.youtube.com/embed/k64P4l2Wmeg
13	Cars	Lightning McQueen, a racing car, learns a hard lesso...	Animated	https://i.imgur.com/TF9Kfpf.jpg	https://www.youtube.com/embed/SbXij2T-uk
14	Cars 2	Star racecar Lightning McQueen and his friend Mate...	Animated	https://www.tl.cat/pngfile/big/96-967119_-12-cars-...	https://www.youtube.com/embed/ofTAdauCOo
15	Over the Hedge	When a group of forest animals discover a housing ...	Animated	https://occ-0-2954-2568.1.nflxso.net/dnm/api/v6/X...	https://www.youtube.com/embed/ikrGBHvGK4I
16	Flushed Away	Roddy, a rat, lives a luxurious lifestyle in a furnished ...	Animated	https://hbomax-images.warnermediacdn.com/ima...	https://www.youtube.com/embed/RLxoiIM_ZbY
17	Ratatouille	Remy, a rat, aspires to become a renowned French c...	Animated	https://www.highresdwallpapers.com/wp-content...	https://www.youtube.com/embed/NgsQ8mVkn8w
18	Big Hero 6	Hiro, a robotics prodigy, joins hands with Baymax in...	Animated	https://www.wallpapertip.com/wmimgs/34-346289-...	https://www.youtube.com/embed/z3biFxZlUOQ

Testing ADMIN functionality – Admin edit movie

Test 1

Description	Input	Expected Output	Notes
Edit – an admin edits a movie from the database	Admin account presses edit on Star Wars: A new hope in the movie table New Input Movie Name: Star Wars Episode IV: A New Hope	The table updates with the edited movie, as does the database. Star Wars: a new hope is now ‘Star Wars Episode IV: A New Hope’	Test Passed, movie edited.

Actual Output

[+ Add New Movie](#)

Show entries Search:

Movie ID	Movie Title	Genre	Actions
1	Star Wars Episode IV: A New Hope	SCI-FI	Edit Delete
2	Star Wars: The Empire Strikes Back	SCI-FI	Edit Delete
3	Star Wars: Return of the Jedi	SCI-FI	Edit Delete
4	Guardians of the Galaxy: Vol 1	SCI-FI	Edit Delete
5	Guardians of the Galaxy: Vol 2	SCI-FI	Edit Delete
6	Spaceballs	SCI-FI	Edit Delete
7	Lethal Weapon	Action	Edit Delete
8	Rambo: First Blood	Action	Edit Delete

mov_id	mov_title	mov_desc	mov_genre	mov_img	mov_trailer	mov_file
1	Star Wars Episode IV: A New Hope	After Princess Leia, the leader of the Rebel Alliance, is...	SCI-FI	https://i.imgur.com/WYtwBgS.png	https://www.youtube.com/embed/vZ734NWinAHA	
2	Star Wars: The Empire Strikes Back	Darth Vader is adamant about turning Luke Skywalker...	SCI-FI	https://i.imgur.com/vK2opzH.png	https://www.youtube.com/embed/JNwNXF9Y6kY	
3	Star Wars: Return of the Jedi	Luke Skywalker attempts to bring his father back to t...	SCI-FI	https://images3.alphacoders.com/111/thumb-1920-...	https://www.youtube.com/embed/7L8p7_SLzvU	
4	Guardians of the Galaxy: Vol 1	After a successful mission, Quill and his team of gal...	SCI-FI	https://images.squarespace-cdn.com/content/v1/5...	https://www.youtube.com/embed/d96cjhvIMMA	
5	Guardians of the Galaxy: Vol 2	Peter escapes from the planet Morag with a valuable...	SCI-FI	https://occ-0-1723-1722-1.nflxso.net/dnm/api/v6/0...	https://www.youtube.com/embed/dW1Bld8Osg	
6	Spaceballs	A hero and his trusty half-man, half-dog set out to r...	SCI-FI	https://miro.medium.com/max/1838/1*lozM4X8HD...	https://www.youtube.com/embed/RK0yd4Ltl.dg	
7	Lethal Weapon	Following the death of his wife, Los Angeles police d...	Action	https://images8.alphacoders.com/616/thumb-1920-...	https://www.youtube.com/embed/bKeW-MGu-qQ	
8	Rambo: First Blood	John Rambo, a former US soldier traumatised by me...	Action	https://www.teahub.io/photos/full/224-2244713_ra...	https://www.youtube.com/embed/IAqLKkY3Eo	
9	Mission: Impossible	Ethan Hunt, an American special agent, struggles to ...	Action	https://images-eu.ssl-images-amazon.com/images...	https://www.youtube.com/embed/Ohws8y572KE	
11	Fast & Furious 6	Hobbs is tasked with catching a team of mercenary ...	Action	https://cdn.hipwallpaper.com/i/71/41/TO3fIS.jpg	https://www.youtube.com/embed/dK5XoeTN0k	
12	The Terminator	A cyborg assassin is sent back in time to kill Sarah, a ...	Action	https://vistapointe.net/images/the-terminator-2.jpg	https://www.youtube.com/embed/x64P4l2Wmeg	
13	Cars	Lightning McQueen, a racing car, learns a hard lesso...	Animated	https://i.imgur.com/TF9Kfpp.jpg	https://www.youtube.com/embed/SbXjZT-uk	
14	Cars 2	Star racecar Lightning McQueen and his friend Mate...	Animated	https://www.itl.cat/pngfile/big/96-967119_-12-cars-...	https://www.youtube.com/embed/oFTAdauCOo	
15	Over the Hedge	When a group of forest animals discover a housing ...	Animated	https://occ-0-2954-2568-1.nflxso.net/dnm/api/v6/X...	https://www.youtube.com/embed/krGBlvGK4I	
16	Flushed Away	Roddy, a rat, lives a luxurious lifestyle in a furnished ...	Animated	https://hbomax-images.warnermediacdn.com/ima...	https://www.youtube.com/embed/RLxolJM_ZbY	
17	Ratatouille	Remy, a rat, aspires to become a renowned French c...	Animated	https://www.highreshdwallpapers.com/wp-content...	https://www.youtube.com/embed/NgsQ8mVkn8w	
18	Big Hero 6	Hiro, a robotics prodigy, joins hands with Baymax in...	Animated	https://www.wallpapertip.com/wmimgs/34-346289_...	https://www.youtube.com/embed/z3bifxZlJQO	

Testing ADMIN functionality – Admin add movie

Test 1

Description	Input	Expected Output	Notes
Add – an admin adds a movie to the database	Admin account presses add on the movies table New Input All previously deleted data for “Fast 5” are added back into the system	The table updates with the added movie, as does the database.	Test Passed, movie added.

Actual Output

⬆ Add New Movie

Show 10 entries Search:

Movie ID	Movie Title	Genre	Actions
12	The Terminator	Action	Edit Delete
13	Cars	Animated	Edit Delete
14	Cars 2	Animated	Edit Delete
15	Over the Hedge	Animated	Edit Delete
16	Flushed Away	Animated	Edit Delete
17	Ratatouille	Animated	Edit Delete
18	Big Hero 6	Animated	Edit Delete
19	Fast Five	Action	Edit Delete
Movie ID	Movie Title	Genre	Actions

Showing 11 to 18 of 18 entries

[Previous](#) [1](#) [2](#) [Next](#)

mov_id	mov_title	mov_desc	mov_genre	mov_img	mov_trailer	mov_file
1	Star Wars: A New Hope	After Princess Leia, the leader of the Rebel Alliance, is captured by the evil Darth Vader, Luke Skywalker begins his journey to become a Jedi.	SCI-FI	https://i.imgur.com/WYtwBg5.png	https://www.youtube.com/embed/vZ734NWNnAHA	
2	Star Wars: The Empire Strikes Back	Darth Vader is adamant about turning Luke Skywalker to the dark side.	SCI-FI	https://i.imgur.com/vK2opstH.png	https://www.youtube.com/embed/JNwNXF9Y6KY	
3	Star Wars: Return of the Jedi	Luke Skywalker attempts to bring his father back to life.	SCI-FI	https://images3.alphacoders.com/111/thumb-1920-...	https://www.youtube.com/embed/7L8p7_SLvU	
4	Guardians of the Galaxy: Vol 1	After a successful mission, Quill and his team of galactic misfits are thrown into space.	SCI-FI	https://images.squarespace-cdn.com/content/v1/5...	https://www.youtube.com/embed/d96cjhvllMA	
5	Guardians of the Galaxy: Vol 2	Peter escapes from the planet Morag with a valuable relic.	SCI-FI	https://occ-0-1723-1722.1.nflxso.net/dnm/api/v6/0...	https://www.youtube.com/embed/dW1Bld8Osg	
6	Spaceballs	A hero and his trusty half-man, half-dog set out to rescue his kidnapped wife.	SCI-FI	https://miro.medium.com/max/1838/1*iozM4X8HD...	https://www.youtube.com/embed/RK0yd4LdLdg	
7	Lethal Weapon	Following the death of his wife, Los Angeles police detective Martin Riggs partners with a former US soldier.	Action	https://images8.alphacoders.com/616/thumb-1920-...	https://www.youtube.com/embed/bKeW-MGu-qQ	
8	Rambo: First Blood	John Rambo, a former US soldier traumatised by war, is recruited by the military.	Action	https://www.teahub.io/photos/full/224-2244713_ra...	https://www.youtube.com/embed/laqLkxY3Eo	
9	Mission: Impossible	Ethan Hunt, an American special agent, struggles to complete a mission that could result in nuclear war.	Action	https://images-eu.ssl-images-amazon.com/images...	https://www.youtube.com/embed/Ohws8y372KE	
11	Fast & Furious 6	Hobbs is tasked with catching a team of mercenaries who have stolen a nuclear warhead.	Action	https://cdn.hipwallpaper.com/i/71/41/T03fIS.jpg	https://www.youtube.com/embed/dK5XoeTN0k	
12	The Terminator	A cyborg assassin is sent back in time to kill Sarah, a woman who will give birth to John Connor.	Action	https://vistapointe.net/images/the-terminator-2.jpg	https://www.youtube.com/embed/k64P4I2Wmeg	
13	Cars	Lightning McQueen, a racing car, learns a hard lesson about teamwork.	Animated	https://i.imgur.com/TF9Kfp.jpg	https://www.youtube.com/embed/SbJj2T-_uk	
14	Cars 2	Star racecar Lightning McQueen and his friend Mater go to Europe.	Animated	https://www.itl.cat/pngfile/big/96-967119_-12-cars-...	https://www.youtube.com/embed/oFTAdauCOo	
15	Over the Hedge	When a group of forest animals discover a housing development, they decide to move in.	Animated	https://occ-0-2954-2568.1.nflxso.net/dnm/api/v6/K...	https://www.youtube.com/embed/kxrG8hGK4I	
16	Flushed Away	Roddy, a rat, lives a luxurious lifestyle in a furnished house.	Animated	https://hbomax-images.warnermediacdn.com/ima...	https://www.youtube.com/embed/RLxoiM_ZbY	
17	Ratatouille	Remy, a rat, aspires to become a renowned French chef.	Animated	https://www.highresdwallpapers.com/wp-content...	https://www.youtube.com/embed/NgsQ8mVnN8w	
18	Big Hero 6	Hiro, a robotics prodigy, joins hands with Baymax in an effort to save his city.	Animated	https://www.wallpaperit.com/wmimgs/34-346289_...	https://www.youtube.com/embed/z3biFXZUOQ	
19	Fast Five	Dom and Brian travel from one country to another, taking on a high-stakes mission.	Action	https://i.pinimg.com/originals/5a/a7/45/5aa7453bef...	https://www.youtube.com/embed/OqeOYeG5_A	

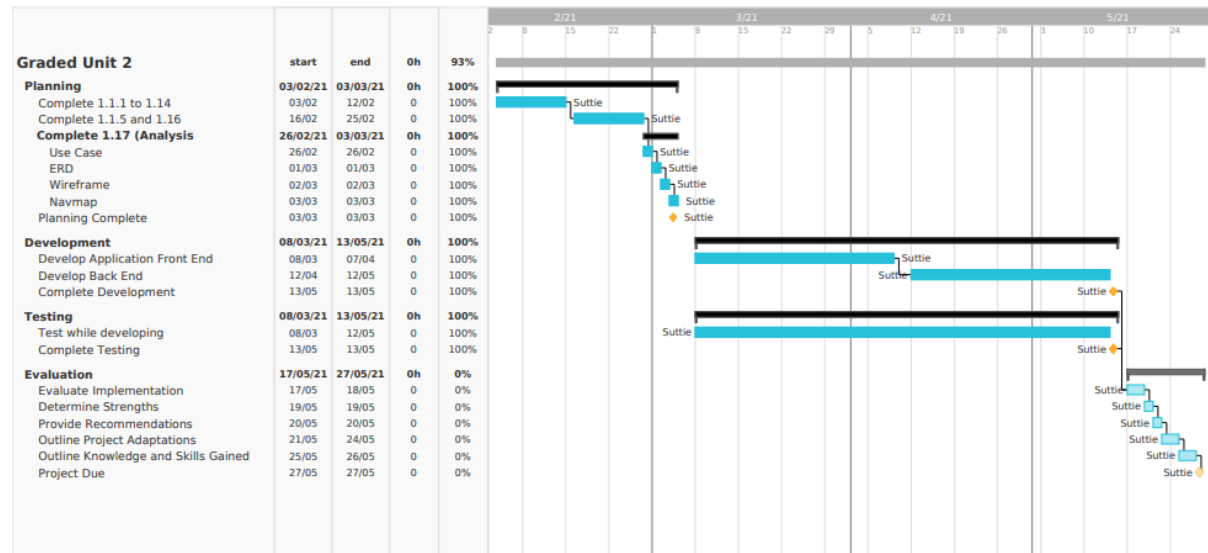
Testing ADMIN functionality – Further Testing

Further testing includes testing the same functionality tested in the previous admin sections, each Create, update and delete functions will yield similar results to the ones shown here – thus, it seems unnecessary to show further testing of these already demonstrated features.

These features will be shown working in the live demonstration.

Managing the Project

During the project, it became clear that testing would be best done alongside development as opposed to after development as initially proposed. This was especially prominent during the development of the backend system as the creation of the CRUD system requires testing alongside development to ensure that the system works as designed and that data edited within the backend does not break the system.





Edinburgh College – Sighthill Campus

Software Development: Graded Unit 2

H84W35/016

WebFlix Project – Evaluation Stage

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Stage 3 – Evaluation

Overall, the planning and development strategies employed during the project were a large success – all of the criteria and more were met with the exception of a ‘user status’ database entry which was deemed to be unnecessary for the system as development continued as well as a slight change to the conditions required for users to view movies / shows.

Assignment Outline

Functional (Front-end)

The application should feature a front end that features:

- Login / Registration system with forgotten password feature
- Payment processing
- Landing page, movies page and TV show page
- Single TV / Movie page (Options to: Play Now / Review / View Trailer)

Login / Registration system with forgotten password feature

The final project does include a login and registration system as well as a forgotten password feature – this allows users to register their account, log in and if needed, reset their password through via their email should they forget their login details. These details are stored in a secure database and all passwords are encrypted.

Payment Processing

The application makes use of a PayPal button using PayPal JS to handle payment processing for the application – this allows users to subscribe to the WebFlix service by using PayPal, Sofot or their debit card.

Landing page, movies page and TV show page

The site includes each of these pages and allows users to view the page respective content – the initial idea was to have unsubscribed users still be able to login to view movies and their trailers, however, this was changed so that access to all media was only permitted to subscribed users.

Single TV / Movie page

Each movie and TV show has its own page that allows subscribed users to view the trailer, play the movie and read the descriptions for the respective media. Review functionality was left out due to time constraints in development as time was spent more heavily in other areas such as the admin back end.

Functional (Back-end)

A functioning Administrator back-end CMS that includes:

- Admin login / registration system with forgotten password feature
- Access to all front-end pages of the site
- User management system that allows admins to:
 - View all registered users details (Name, D.O.B, Age, etc....)
 - Edit existing users data
 - Delete users
- Content Management System that allows admins to:
 - Show a categories list
 - Add / Delete genres
 - Show a movies list
 - Add / Delete movies
 - Show a TV show list
 - Add / Delete TV shows

Admin login / registration system with forgotten password feature

Admins are registered and log in the same way as a normal user. Users are made administrators by a superadmin within the backend system instead of registering as one directly.

Access to all front-end content

Admins have access to all front end content via a button on the admin page – this ensures that the backend panel and the front end are separated but that there is ease of access for admins to switch between user and admin views.

User Management System

The user management system on the back end was implemented using Jtables and SQL queries – these tables and queries allow admins to view each registered user and all of their details in a table. This table also allows admins to edit all existing users data as well as removing them via the use of an edit modal and delete button.

Content Management System

The content management system was also implemented using Jtables and grants similar functionality as the user management system in that it allows admins to view, edit and delete existing movies, genres and TV shows – however, they are also able to add a new entry into each of these tables too. In addition to this, an independent “Episodes” table is featured to allow admins to create, read update and delete potential TV show episodes.

Non-Functional

- The website should have a fluid UI over a range of different devices
- The website should look sleek and professional in design
- The website should be responsive under various levels of stress
- The website should adhere to both web and mobile design principles
- The website should be able to cope with high amounts of users
- The website should comply with GDPR and other data / security standards
- The website should have encrypted password storage
- The website should have a privacy statement to reassure users that their data is safe
- The website should adhere to international copyright laws

The website should have a fluid UI over a range of different devices

The application was developed using bootstrap 5 and MDB bootstrap – this ensured that the design would be responsive and as such, that the UI would scale appropriately onto a range of different devices. The UI was tested frequently on both desktop and mobile to ensure this was the case throughout the project to completion.

The website should look sleek and professional in design

As WebFlix is part of a large group of streaming services, the design was heavily inspired by other larger and more successful streaming services that already have their place within the market. Transitions have been made as smooth as possible and screen clutter has been reduced as far as possible. In addition, elements of the site were strategically placed in order to make them more engaging and noticeable to users.

The website should be responsive under various levels of stress

The WebFlix system will be responsive under various stress levels – this is ensured by first of all minimising initial stress placed on the system. This was achieved by ensuring that most large media elements were hosted externally, meaning that there is less load on the WebFlix system initially. In turn, this should allow maintaining a responsive feel as stress increases. Secondly, this was done by using Digital Ocean as the server provider – Digital Ocean provides a wide range of tools that are highly customisable and secure that allow for affordable, quick and easy server setup. This server hardware provides WebFlix with a far better loading time than most other hosting services. (Digital Ocean, 2021)

The website should cope with high amounts of users

The site will be able to handle a high number of users due to the aforementioned server hardware and setup. This allows the resources to be allocated when needed should there be a need for a higher traffic handling. Once again, the external hosting of most, if not all, media content mentioned previously also helps to reduce bandwidth usage. (Digital Ocean, 2021)

The website should have encrypted password storage

To ensure the security of user accounts, the registration system ensures that passwords are encrypted using the SHA-2 algorithm. This algorithm works by hashing the password to a fixed size and encrypting the password so that it is no longer readable.

The website should have a privacy statement

The site features a privacy statement (generated) to reassure users that their data is safe and to outline what WebFlix will and will not do with their data. This was implemented by dedicating the privacy statement and having a privacy statement generated for use on the site. (Privacy Policy Generator, n.d.)

The website should adhere to international copyright laws

As the site uses hosted on external sites that are heavily moderated for copyright and GDPR, all of the content displayed on the website will have been checked for copyright and GDPR breaches.

Strengths and Weaknesses

The following is a SWOT analysis for the Webflix System;

STRENGTHS	WEAKNESSES
<ul style="list-style-type: none"> • Dynamic Media & Content Display: All content on the website is pulled directly from a database – this means that there is no need for manually editing the codebase as it can added or edited from the backend and be pulled from the database and displayed on the page. • Backend Content Management System: The site features a content management system that allows administrators to manage existing content and add new content when needed. This links perfectly with the dynamic media and content displaying of the website as it means that those with no knowledge of coding can add content to the website. • Secure and fast payments: The WebFlix system utilises PayPal to handle its payments. This ensures that everyone purchasing using this service are protected by the security measures that are in place at PayPal should something go wrong or should someone attempt to acquire details during payment. 	<ul style="list-style-type: none"> • External Content Hosting: While this is a strength in some regards, it also means that WebFlix is relying on these hosts maintaining their own platforms. Failure to do so would cripple WebFlix as it would have no content to display. • Non-secure connection: WebFlix does not feature and SSL based connection type. This is due to it still being in a prototype phase, however, if this is not amended in the future then it could pose a large security risk considering the site hosts personal user information and payment handling.
OPPORTUNITIES	THREATS
<ul style="list-style-type: none"> • Reviews: As something that was in the initial plan for the system, a review page or section for media would be ideal for implementation. This feature could very easily be added using the database and framework already implemented. 	<ul style="list-style-type: none"> • Competitors: WebFlix is entering a very saturated market – not only is the market saturated, but it is dominated by giants such as Amazon Prime, Netflix and Disney Plus. As such, WebFlix will require very strong marketing upon launch as well as consistent updates to ensure that it does not fail or become obsolete. • Cyber Attacks: It is very possible that WebFlix could be targeted in organised DDoS attacks and other similar attacks. This is a further danger due to the lack of an SSL connection as data could be stolen from users resulting in legal implications for WebFlix.

(Mind Tools Content Team, 2021)

Recommendations

Should the prototype be taken into further development, there are a few things that could be changed, added or updated to ensure that the user has the best possible experience when using the website as well as allowing WebFlix to build upon the existing foundations.

External Content Hosting

As the WebFlix system uses external content hosting, it is recommended that this is either changed to local hosting, or that the external hosts are grabbed up by WebFlix to ensure that they are under the wing of the WebFlix brand. In doing this, WebFlix can ensure that the content they have on display will always be available, relevant and up to date with what is needed on the website.

Non-Secure Connection

As WebFlix does not yet feature an SSL based connection, it is advised that this is changed before the system moves from its prototype stage to its live state. In doing this, WebFlix minimises any damage that could be done to its users via hacking attempts.

This can be done by obtaining an SSL certificate from a Certificate Authority. The certificate will have to be configured for the WebFlix server in order to be used, however, after doing so, there will be extra peace of mind both for the user and WebFlix.

Reviews

Considering that it was in the initial plan for the site, a reviews section should be added to the site. In addition, the infrastructure to implement this feature is there and easy to implement.

By adding this section, WebFlix will be adding a little quality of life update to the system that allows users to express their opinions and judge what to watch based on the reviews left on media by other users.

Modifications

Throughout the project there were several changes that were made to both the project plan and implementation.

Project Plan

While much of the project timeline remained the same, it was decided that the initial plan of testing after development would not be the best course of action. As a result of this, testing would be performed alongside development instead of after as initially planned. This was especially useful during the development of the admin backend section, in particular, the numerous CRUD systems in place for adding, reading, editing and removing content.

In testing while developing, any bugs and issues that were found during this stage such as; data not pulling from the database, data not being added to the database or data not updating within the database were found immediately and could be fixed there and then for each part of the CRUD system. This ensured that less time was spent on bug fixes as it meant that the bugs did not pile up and ensured that they did not have to be fixed all at once post-development.

Implementation

Reviews

User Status

Viewership Access

Knowledge and Skills

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