DEVELOPMENT OF CINEVERSE FILM WEBSITE UTILIZING THEMOVIEDB'S API FOR DYNAMIC CONTENT MANAGEMENT

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Abstract—*The development of websites in this digital era is crucial to creating captivating and relevant online experiences. The combination of server-side programming and client-side technologies along with MySQL database management forms the foundation for a dynamic user interface emphasizes the significance of integrating various technologies to achieve this goal. This project involves the use of PHP, HTML, CSS, JavaScript, and MySQL, with the integration of The Movie Database (TMDB) API, showcasing the intricate fusion of creativity, technical prowess, and data integration. The resulting website offers a comprehensive list of films with detailed information and posters, enhancing the user experience and making it an essential read for those interested in crafting immersive online experiences. The abstract of this research aims to explore the process of website development using diverse technologies and data integration and to analyze its impact on user experience. By examining aspects such as security, performance, and routine maintenance, this study aims to provide in-depth insights into producing captivating and relevant online experiences in the context of modern web development.*

Keywords: *movies, PHP, the movie database API, websites.*

Abstrak—*Pengembangan situs web di era digital ini sangat penting untuk menciptakan pengalaman online yang menarik dan relevan. Gabungan pemrograman sisi server dan teknologi sisi klien bersama dengan manajemen database MySQL membentuk dasar antarmuka pengguna yang dinamis menekankan pentingnya mengintegrasikan berbagai teknologi untuk mencapai tujuan ini. Proyek ini melibatkan penggunaan PHP, HTML, CSS, JavaScript, dan MySQL, dengan integrasi API The Movie Database (TMDB), yang menampilkan perpaduan rumit antara kreativitas, kecakapan teknis, dan integrasi data. Situs web yang dihasilkan menawarkan daftar film yang komprehensif dengan informasi dan poster yang detail, meningkatkan pengalaman pengguna dan membuatnya menjadi bacaan penting bagi mereka yang tertarik dalam menciptakan pengalaman online yang mendalam. Abstrak penelitian ini bertujuan untuk mengeksplorasi proses pengembangan situs web menggunakan teknologi dan integrasi data yang beragam serta menganalisis dampaknya terhadap pengalaman pengguna. Dengan meneliti aspek-aspek seperti keamanan, performa, dan pemeliharaan rutin, penelitian ini bertujuan untuk memberikan wawasan yang mendalam tentang bagaimana menghasilkan pengalaman online yang menarik dan relevan dalam konteks pengembangan web modern.*

Kata Kunci*:* film, *PHP, the movie database API,* website.

INTRODUCTION

Film industry is experiencing a significant surge, creating new enthusiasm for filmmakers across the country. This growth has also resulted in a growing variety of film genres , including comedy, politics, drama, musicals, and works that raise national themes (Karolina et al., 2020)**.** The term "film" typically refers to a motion picture or movie, which consists of a sequence of static images that, when projected onto a screen, create the illusion of continuous motion, thanks to the phenomenon known as persistence of vision (Hjort, 2019). As a mass communication medium, film is considered effective because of its ability to present messages

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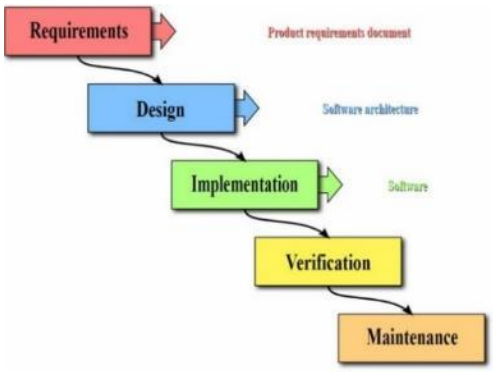
audio-visually, allowing complex stories to be conveyed in a relatively short time. Through the experience of watching a film, viewers feel the ability to cross the boundaries of time and space, allowing them to connect with the lives depicted in the film and perhaps be influenced by the message conveyed to the audience (Prima, 2022). Films have various themes that function as a means to entertain and convey messages to the audience. The advantage of the audio-visual format in films is that it is able to access and influence the emotions and morality of the audience. Many filmmakers use this medium as a way to convey implicit moral messages to their intended audience. Certain messages in a film are communicated for the viewer to read, or decode, and subsequently influence the viewer's individual understanding. A website is a compilation of web pages and associated content distinguished by a shared domain name and hosted on one or more web servers. Websites are commonly reachable through the Internet or a restricted local area network (Vargas et al., 2020). As time goes by, film websites are becoming more and more interested. However, the problem is that almost all film websites require users to pay before wanting to watch a film.

Writer do research that can help overcome the problem above with make a free movie website. Study it also uses an API that can accessed for free. API, abbreviation from Application Programming Interface, Historically, API, which stands for Application Programming Interface, has been used since the early days of personal computers for exchanging data between two or more programs. APIs have become increasingly vital in the modern software ecosystem for building large-scale software solutions on top of common technology platforms (Ofoeda et al., 2019). APIs facilitate swift and inventive app development by enabling applications to engage with external systems. They are pivotal in crafting diverse application platforms like IoT, mobile apps, and web applications (Idris et al., 2022). An API is an interface that connects various application systems, allowing simultaneous access to some or all of the functions of these systems (Paramitha et al., 2022).

The previous research cited in the passage involves two relevant studies pertaining to the topic of creating a free movie streaming website. Firstly, the study conducted by Adam Adhitama in 2022, focused on the successful creation of a user interface (UI) using Figma for streaming websites. The results of this research indicated that the UI created was effective in providing a good user experience (Adhitama et al., 2022). Secondly, the study by Estu Prayoga in 2023, discussed the use of the Waterfall method in booking cinema tickets, with results showing that this method could shorten the time required for ticket purchasing and booking. Both of these studies provide crucial groundwork for the current research in developing the Cineverse website. The author utilized the Waterfall method supported by system design using UML, with the primary goal of providing assistance to users who wish to watch films with easy access and without requiring prior payment (Prayoga et al., 2023).

MATERIALS AND METHODS

In this research, system development was carried out using the waterfall system development model with the application of the Unified Modeling Language (UML). Model Waterfall has a series of stages consisting of requirements analysis, system design, system implementation, testing, and maintenance (Muni & Ihwan 2021) . Look at Figure 1 below:



Source: (Ridoh & Putra, 2021)
Figure 1. Waterfall Method

Figure 1 is a brief explanation of the stages of the Waterfall Model. The following is an explanation of the waterfall method (Badrul, 2021).

a. Needs Analysis

This stage is the requirements gathering stage including documents and interfaces for analyze / specifying software requirements so that user needs can be understood in order to determine the software solution that will be used in the system computerization process. Necessary requirements _ in study This is:

a. Hardware
   1. Computer or laptop with at least 2GB RAM
   2. Computer or laptop minimum 128GB Hard Disk
   3. Mouse
   4. Keyboards
b. Software
   1. Windows Operating System
   2. XAMPP
   3. MySQL
   4. Web Browser

c. User
   1. Admin is someone who has the right and obtains several policies to manage the website. Admins can only control several parts, namely, likes, comments, user registration, and managing admin data.
   2. Users is someone who uses this website. The skills you have must also be able to use every device and conditions required to operate the website.

b. Design

During software program creation, the author designs data structures, software architecture, interface representation, and coding procedures. Unified Modeling Language (UML) is utilized to visually illustrate the program's design, including Activity Diagrams, Use Case Diagrams is to identify the various functions in the system and who has the right to use these function (Musthofa & Adiguna 2022), and Sequence Diagrams (Pecoraro and Luzi, 2022). UML serves as a tool or model for designing object-oriented software development (Sonata, 2019). Sequence Diagrams is a sequence of dynamic models that describes the instances of classes participating in a use case and the messages that pass between them over time (Fowler, 2021). For database design, Logical Record Structure (LRS) is employed, outlining record arrangement within tables derived from various entities (Gumelar, 2023). LRS also a description of the structure of records in tables formed from the results between sets of entities to determine the number of tables and foreign keys (FK) (Syafi'i & Fajarita 2019).

1. Program Code (Implementation)
   After do analysis and design device soft, step next is implement in form a given movie website Name Cineverse. It's involving use a number of Language programming for operate desired functions _ on the website, namely:
   a. PHP
      PHP, known as "Hypertext Preprocessor," is widely utilized as a server-side scripting language in web development, facilitating the creation of dynamic web pages. One notable framework built upon PHP, known as "Hypertext Preprocessor," is widely utilized as a server-side scripting language in web development, facilitating the creation of dynamic web pages (Vidal-Silva et al., 2020).
   b. MySQL
      MySQL is software or software that is open or can be accessed by many people. Its function is to create a database. SQL can be called an abbreviation of Structured Query Language (Bintang et al., 2023).
   c. TMDB API
      The Movie Database API is an API service intended for programmers who are interested in using images or data from films, TV shows, or actors in the applications they want to create. TMDB API is a system provided for programmers to programmatically retrieve and use data and/or images in the API (https://developer.themoviedb.org/docs/faq).

c. Testing

Testing focuses on the software from a logical and functional perspective and ensures that all parts have been tested so that the output produced is as desired. At this stage the test was carried out by the author using a black box testing. Blackbox Testing is a software testing method that tests the functionality of an application without peeking into its internal structure or how it works (Dwi & Wardah, 2021). This testing method can be applied to virtually any level of software testing: units, integration, system, and acceptance.

d. Support or Maintenance (Maintenance)

Defining effort - development efforts for the system that is being created to deal with to anticipate developments and changes in the system concerned related to hardware and software. The hardware used is the Windows 11 Home Single Language operating system specifications 64-bit, Intel Core i5-1132H CPU 3.20 G H z, Memory RAM 16 GB.

RESULTS AND DISCUSSION

Research results include all scientific activities and methods used during the research process. In this context, research results are realized in the form of an online web application.

1. UML (Unified Modeling Diagram) Design

Below describe and discuss the results of the design process for creating the Cineverse film website.

2. Use Cases

Figure 2 is a use case diagram from the Cineverse film website. In figure 2 is a brief description of the use case used in this research. It can be seen that every user or admin who wants to access this website is required to log in first. If not, then you will not be able to access all the pages on this website.

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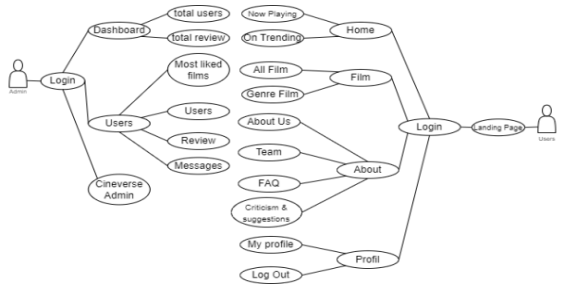


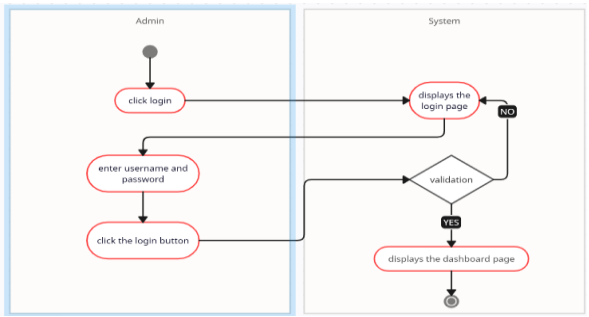
Source: (Research Results, 2024)

Figure 2. Use case diagram

3. Activity Diagrams

The following is an activity diagram from the website proposed Cineverse films.

a. Activity Diagram Admin Login



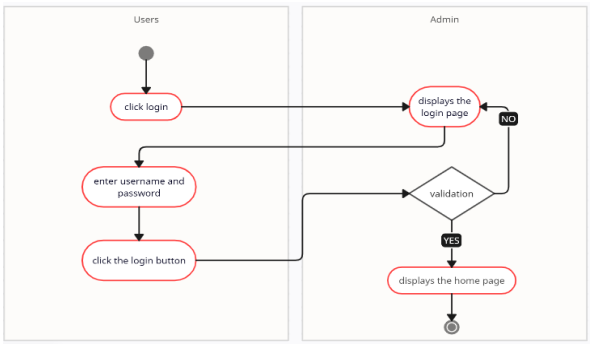
Source: (Research Results, 2024)

Figure 3. Admin login activity diagram

Figure 3 is the admin's way of logging into the website. When the admin enters the admin page, he is required to log in by entering the username and password that was entered previously. Admin does not have a registration page and must go through testing and approval.

b. Activity Diagram User Login

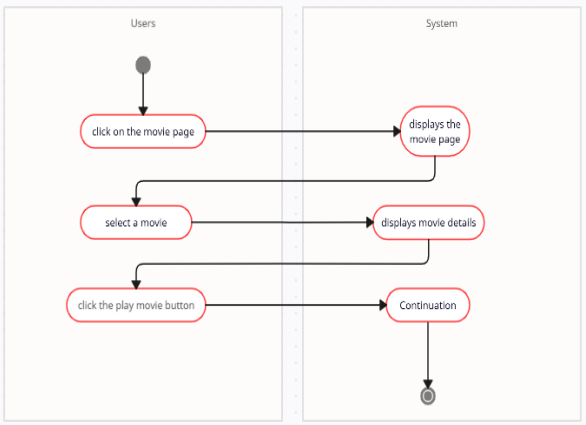
Figure 4 is the login mechanism in the user section. When users enter a website page, they are required to log in first for authentication. If they don't have an account, they can create an account in the registration section.



Source: (Research Results, 2024)

Figure 4. User Login Activity Diagram

c. Activity Diagram Watching Movies User



Source: (Research Results, 2024)

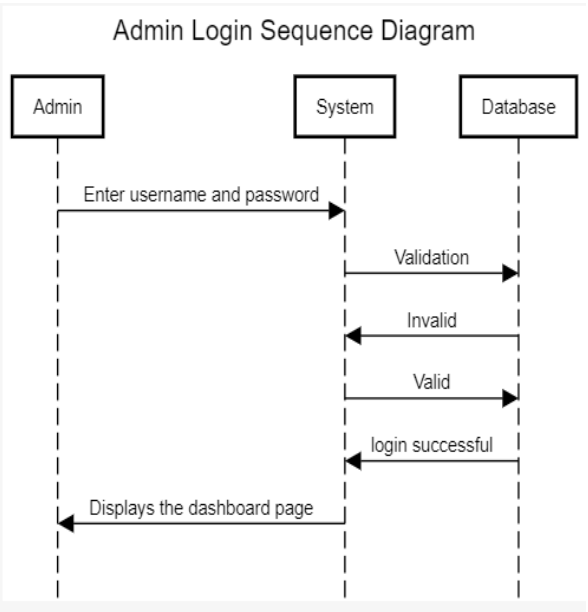
Figure 5. User Movie Watching Activity Diagram

Figure 5 is the mechanism when a user selects a film and wants to watch the film. When the user selects a film, the details of the film will be displayed and when pressing the play button, the system will play the film.

4. Sequence Diagrams

Following is the sequence diagram from the website proposed Cineverse films.

a. Admin Login Sequence Diagram

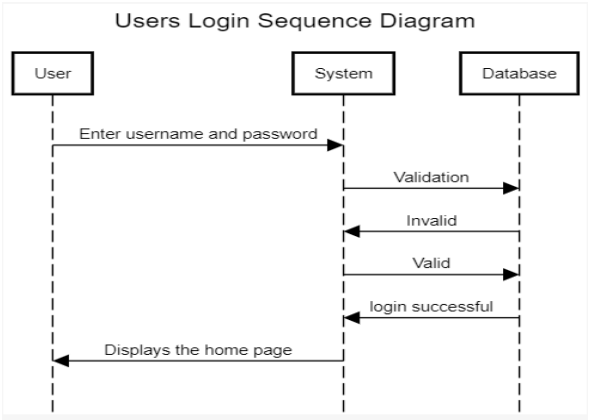


Source: (Research Results, 2024)

Figure 6. Admin Login Sequence Diagram

Figure 6 is how the system and database collaborate to verify and ensure that the username and password entered by the admin are correct with those in the database or not.

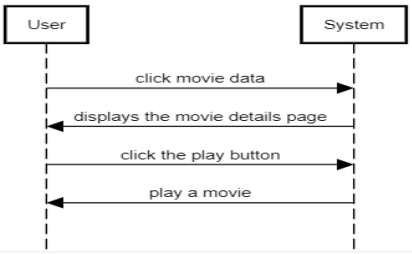
b. User Login Sequence Diagram



Source: (Research Results, 2024)
Figure 7. User Login Sequence Diagram

Figure 7 is how the system and database collaborate to verify and ensure that the username and password used by the user are correct with those in the database or not.

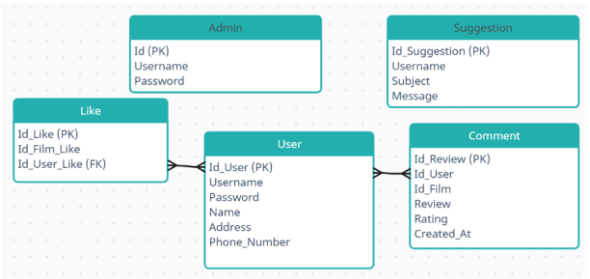
c. User Movie Playback Sequence Diagram



Source: (Research Results, 2024)
Figure 8. Sequence Diagram for Film Screening Users

Figure 8 depicts the system flow that occurs when a user selects a movie and plans to play it. In the initial stage, users can explore the list of films presented with detailed information and attractive posters. After the user selects the film of interest, the next step is to clicking the play button to start movie playback, ensuring a smooth and enjoyable viewing experience.

5. LRS (Logical Record Structure) Design



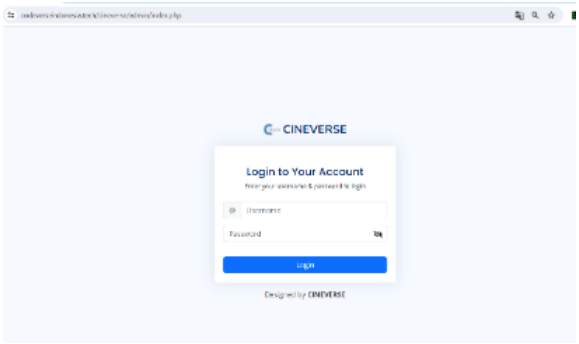
Source: (Research Results, 2024)
Figure 9. Design of LRS (Logical Record Structure)

Figure 9 shows that the user table is related to the likes and comments table, while the admin and suggestions table is not related to any table.

6. Implementation

After analyzing and designing the system, the next step is to implement it as a test of the program that has been created, which becomes a benchmark for further development, so that this implementation becomes a representation of all activities and scientific methods used in this research. At stage it also displays results from implementation of The Movie Database API. In this research, the author used several services provided by The Movie Database API, including:

1. Admin Login Page



Source : Source: (Research Results, 2024)
Figure 10. Admin Login Page

Figure 10 is an implementation of the login display for admin. This page contains 2 text fields and you are required to enter the correct username and password. If it is wrong, it will return to this page until the username and password provided are correct.

2. Admin Dashboard Page

Source : Source: (Research Results, 2024)
Figure 11. Admin Dashboard Page

Figure 11 is the page when the admin has entered the correct username and password. This page displays the number of visitor reviews of films

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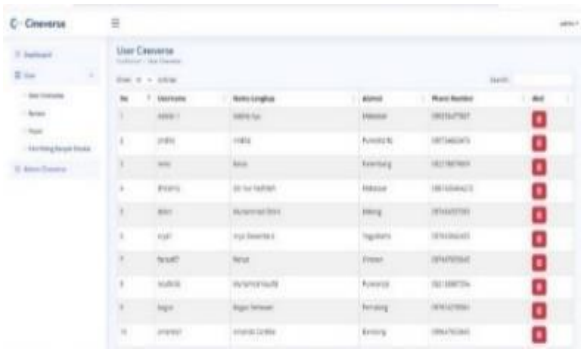
shown and watched, the number of likes or preferences for films, and the total number of users.

3. Cineverse Admin User Data Page



Source : Source: (Research Results, 2024)
Figure 12. Cineverse Admin User Data Page

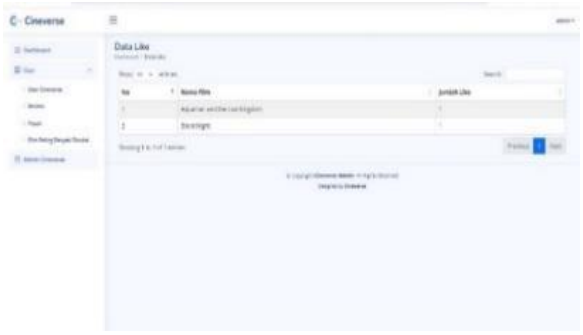
Figures 12 are pages for managing users or website visitors. On this page, the admin can only delete the user and cannot create or edit users.

4. Admin Review Data Page

Source : Source: (Research Results, 2024)
Figure 13. Admin Review Data Page

Figure 1 3 is a page where the admin views or manages reviews from viewers. Admin can only delete the review if necessary.

5. Admin Like Data Page



Source : Source: (Research Results, 2024)
Figure 14. Admin Like Data Page

Figure 14 is a page where the admin manages likes given by users to a film that he thinks is good.

6. Criticism and Suggestions Data page

Source: (Research Results, 2024)
Figure 15. Criticism and Suggestions Data Page

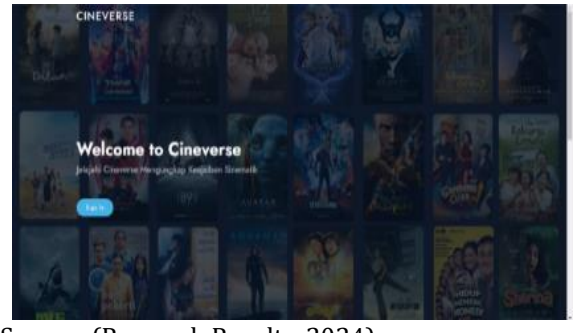
Figure 15 shows the criticism and suggestions page. This page manages all criticism and suggestions given by users via the form provided.

7. Admin Data Page

Source: (Research Results, 2024)
Figure 16. Admin Data Page

Figure 16 shows the admin data page. Here, admins can manage admin data themselves, such as deleting, editing, and even adding new admins.

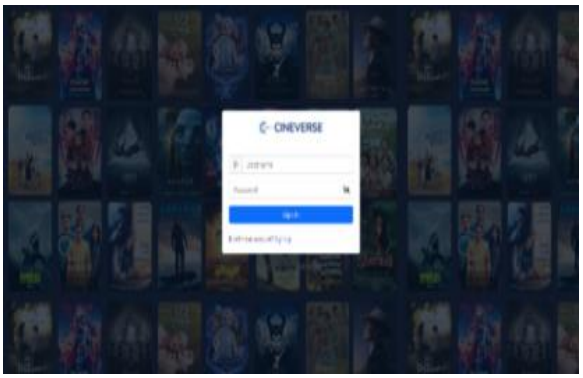
8. Landing Pages



Source: (Research Results, 2024)
Figure 17. User Landing Page

Figure 17 is the first page a user accesses the website. This is a mandatory page that you must go through if you are accessing this website for the first time.

9. User Login Page



Source: (Research Results, 2024)
Figure 18. User Login Page

Figure 18 is the user login page , the page used to access access this website with contains 2 textfields that must be filled in correctly. If you don't have an account, you can register first .

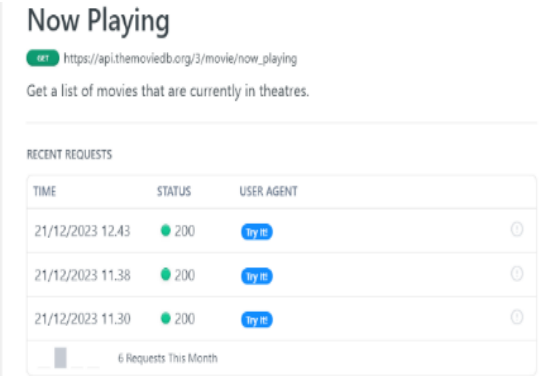
10. Register Page Users

Source: (Research Results, 2024)
Figure 19 . User Registration Page

Figure 19 is the page that the user will go through if they don't have an account to log in. On this page you are required to fill in all the forms provided so that registration can be successful.

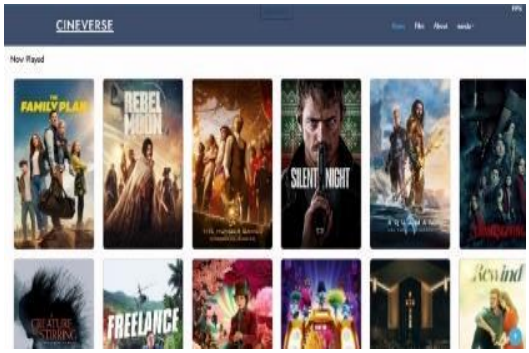
11. User Home Page

On the page Here , there are two parts main screen , namely "Now Playing" which displays the current film played moment this , and "On Trending" which displays current films trend , with both of them uses the TMDB API for serve information in a way dynamic .



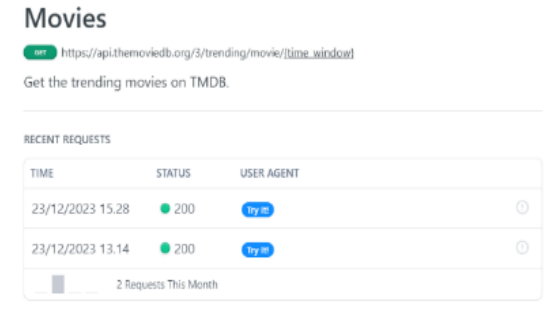
Source: (Research Results, 2024)
Figure 20 . API Now Playing

Figure 20 is an API used to call films that are currently playing in theaters.



Source: (Research Results, 2024)
Figure 21 . Home menu display Now Playing section

Figure 21 is results of API implementation on the website and can be seen by the user after logging in .



Source: (Research Results, 2024)
Figure 22 . Trending Movies API

The function of this API service is to display films that are currently trending or that have been requested a lot by other users . Figure 22 is the API used to call films that are trending at that time.

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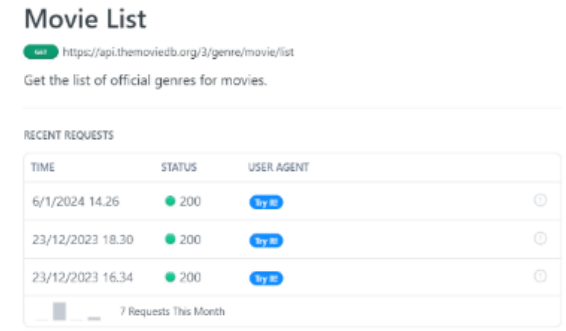
Source: (Research Results, 2024)
Figure 23 . Home menu display On Trending section

Figure 23 is the API implementation on the existing website under “now playing”.

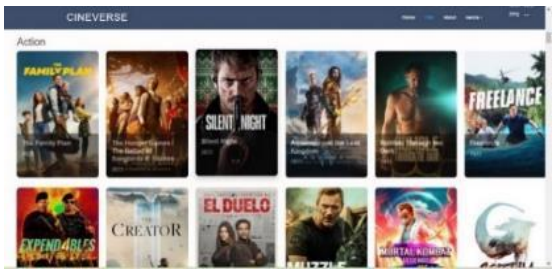
12. User Movie Page

On page here, there is appearance various films grouped based on each genre, where genre information _ obtained in a way dynamic from the TMDB API.



Source: (Research Results, 2024)
Figure 24 . Movie List API

The function of this API service is to display films based on previously entered genres. Figure 24 is the API used to call films based on their genre.

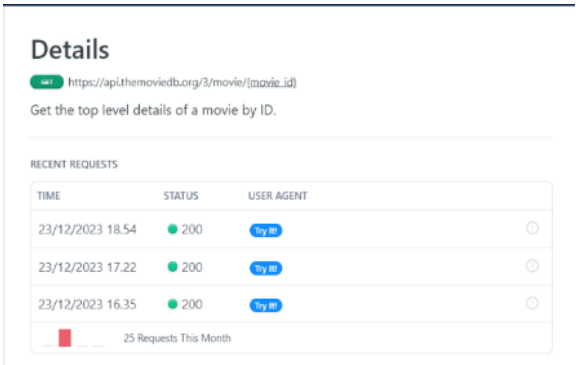


Source: (Research Results, 2024)
Figure 25 . Film Menu Website Display

Figure 25 shows the results of the API implementation derived from Figure 10, which now includes the addition of style elements to increase the attractiveness and aesthetics of the appearance.

13. User Movie Details Page

This page displays film details including banner, poster, title , year release , rating , video, synopsis , cast, film recommendations and comments accessed by users. A number of feature implemented with utilizing the API, except for ratings and comments .

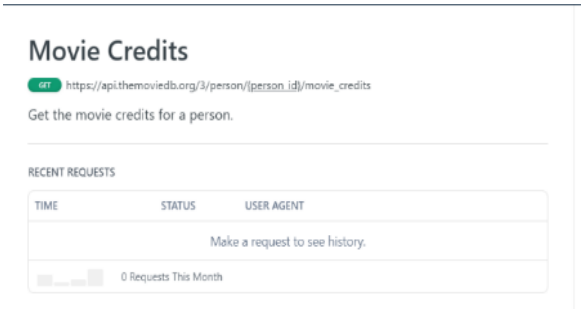


Source: (Research Results, 2024)
Figure 2 6. API Movies Details

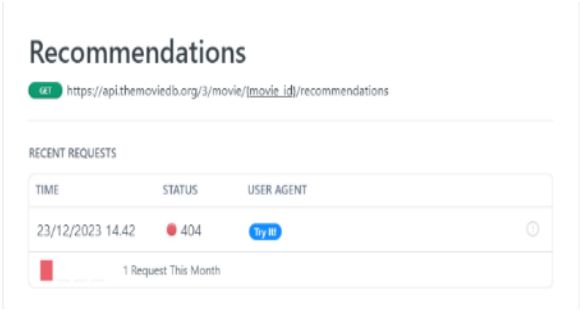
The function of this API service is to display whatever information is needed in a film. Figure 2 6 is an API that is used to display details of a film starting from the title, duration, genre, and so on.

Source: (Research Results, 2024)
Figure 2 7. View of the film details

Figure 2 7 is API implementation results on the website that will display when the user selects a movie to watch.

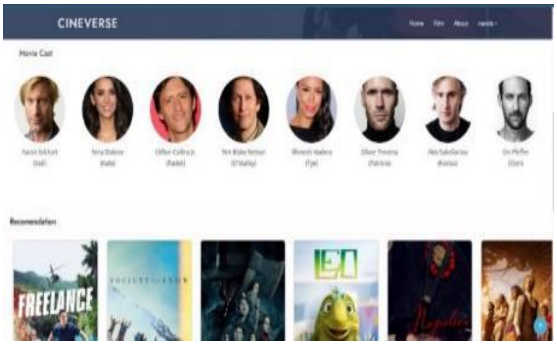


Source: (Research Results, 2024)
Figure 28. Movie Credits



Source: (Research Results, 2024)
Figure 29. Recommendations Movies

The function of this API service is to display information about Who just actor in a film. Figure 28 is the API used to display the player list a film. Figure 29 is the API used for bring up movie recommendations.



Source: (Research Results, 2024)
Figure 30. Detailed view of the film

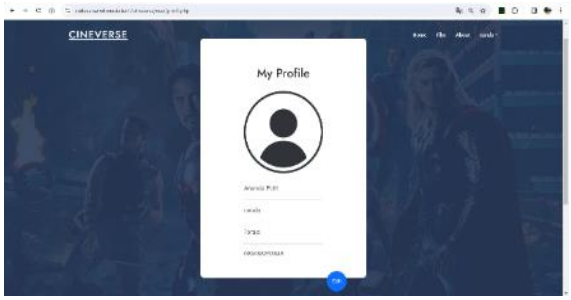
Figure 30 is API implementation results on the website that will display movie cast and recommendations.

14. About User page

Source: (Research Results, 2024)
Figure 31. About User page

Figure 31 is the about page in the about menu in the top navbar which provides at a glance information about the website.

15. User Profile Page



Source: (Research Results, 2024)
Figure 32 . User Profile Page

Figure 32 shows the edit page in the profile menu in the top navbar which can be accessed by clicking on the user's username section.

7. Testing Results with Black Box Testing

The results obtained in experiments using Black Box Testing can be seen in the table 1.

Table 1. Black Box Testing Results

No	Scenario	Expected results	Conclusion
1	Enter the Login page by entering the wrong username and password	A warning or alert appears about an incorrect password and username	Valid
2	Enter the home page	There are 12 films on trending and 12 films now playing	Valid
3	Click on one of the films	Details of the film emerge	Valid
4	Write a comment and click send	Successfully sent to the database and appears above the comments column	Valid
5	Press the love icon below the film poster	The page will reload and the love icon will turn red	Valid
6	Select the movie menu in the navbar	Features 12 films based on genre	Valid
7	Select the About menu in the navbar	The about menu appears	Valid
8	Select a profile in the navbar	A new page appears containing the user profile	Valid

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No	Scenario	Expected results	Conclusion
9	Pressing the change button	Raises capital to change user information	Valid
10	Change the information and press the change button	The user's personal information will be changed on the page and in the database	Valid

Source: (Research Results, 2024)

CONCLUSION

Creating a native website by utilizing a combination of PHP, HTML, CSS, and JavaScript for the client side, as well as MySQL as a database management system, forms a solid foundation for presenting dynamic and responsive content. PHP as a server-side language provides data processing power on the server, while HTML and CSS are responsible for page structure and layout. JavaScript enables enhanced interactivity, creating a more dynamic user experience. One of the important elements of this project is the API integration of The Movie Database (TMDb), which enriches the website content with up-to-date information about films. The use of APIs allows websites to automatically update movie listings, cast information, and reviews, providing a more relevant and dynamic user experience. The main functions of the website include the ability to display movie listings, provide detailed information, and display poster images, thereby providing users with a complete experience. Search and categories help users find films easily, while interactive features, such as ratings and reviews, increase user engagement. However, in implementing this project, attention to security is crucial. It requires measures such as input validation and use of bound parameters to prevent SQL injection attacks and other security measures. Routine maintenance also needs to be carried out, including performance monitoring, bug fixes, and security updates to maintain smooth operations and website security. Thus, the project of creating this website is not just about presenting film information, but also involves aspects of development, security, and maintenance to ensure its long-term success and meet user expectations.

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