

Cross Platform Recommendation System

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Existing Problem

- ⦿ OTT platforms like Netflix or Hulu recommend new content to the users based on the content we've finished watching
- ⦿ **Problem:** The recommended content is only limited to its respective platform
- ⦿ Too much effort/research for the user to find such content cross OTT platforms





Landscape of the Project

- ❖ The data relating to the shows available on the OTT platforms will be available in one place
- ❖ The user can set their preferences
- ❖ Customized recommendations will be provided to the user
- ❖ Recommendations won't be limited to one platform

Languages and Tools

Languages:

Front-end - HTML, CSS, Javascript

Backend - PHP

Machine Learning - Python

Database: MySQL

Server: Apache



Data Sources

Kaggle
(Datasets):

Shows Information in Netflix
Shows Information in Prime
Shows Information in Hulu
Shows Information in Disney+
IMDB User Ratings

IMDb API:

User Ratings

TMDb API:

Languages and Poster URLs

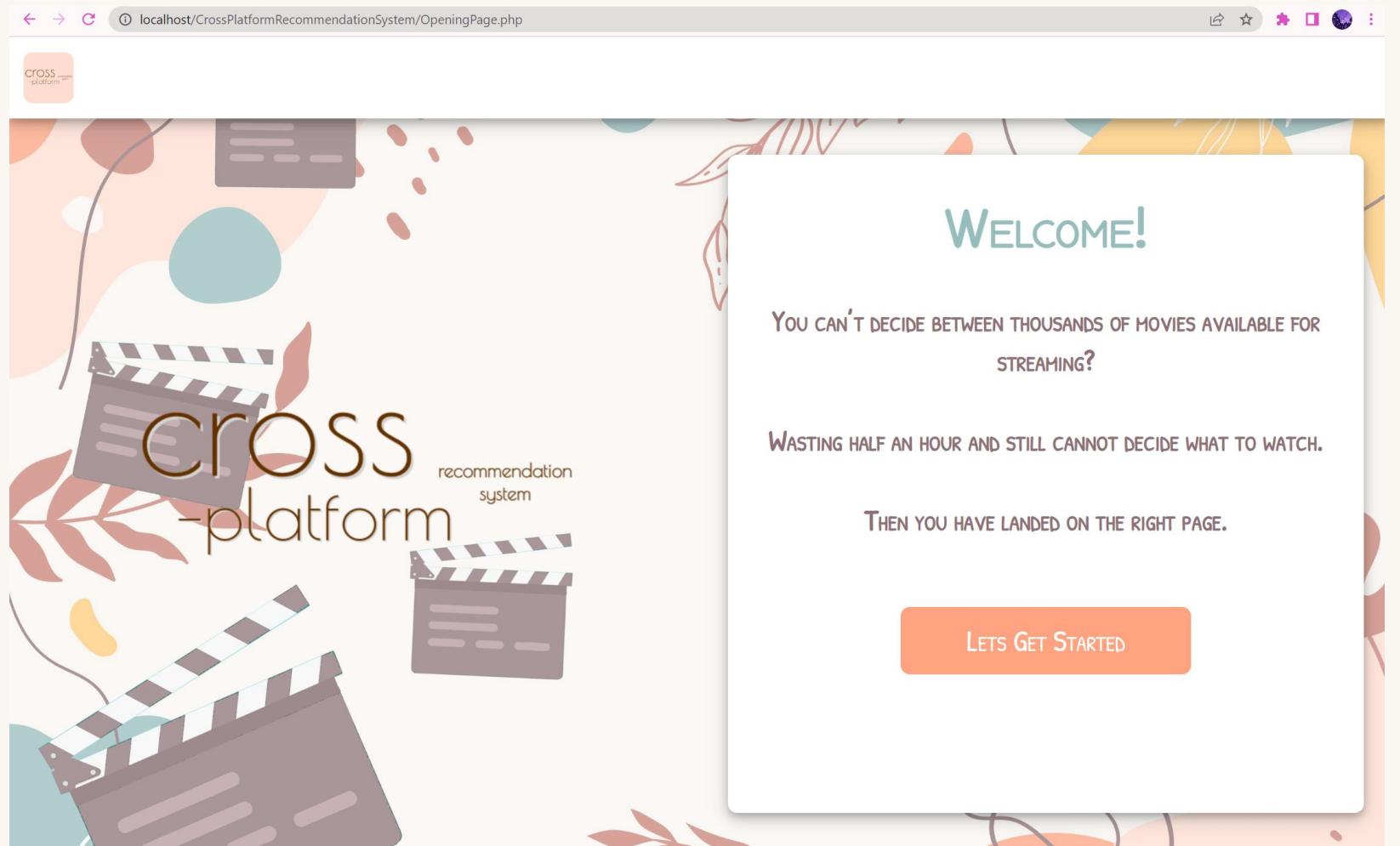
Data Preprocessing

- ⦿ Merging the datasets (Netflix, Prime, Hulu, and Disney+)
- ⦿ Data cleaning
- ⦿ Data transformation
- ⦿ Data reduction

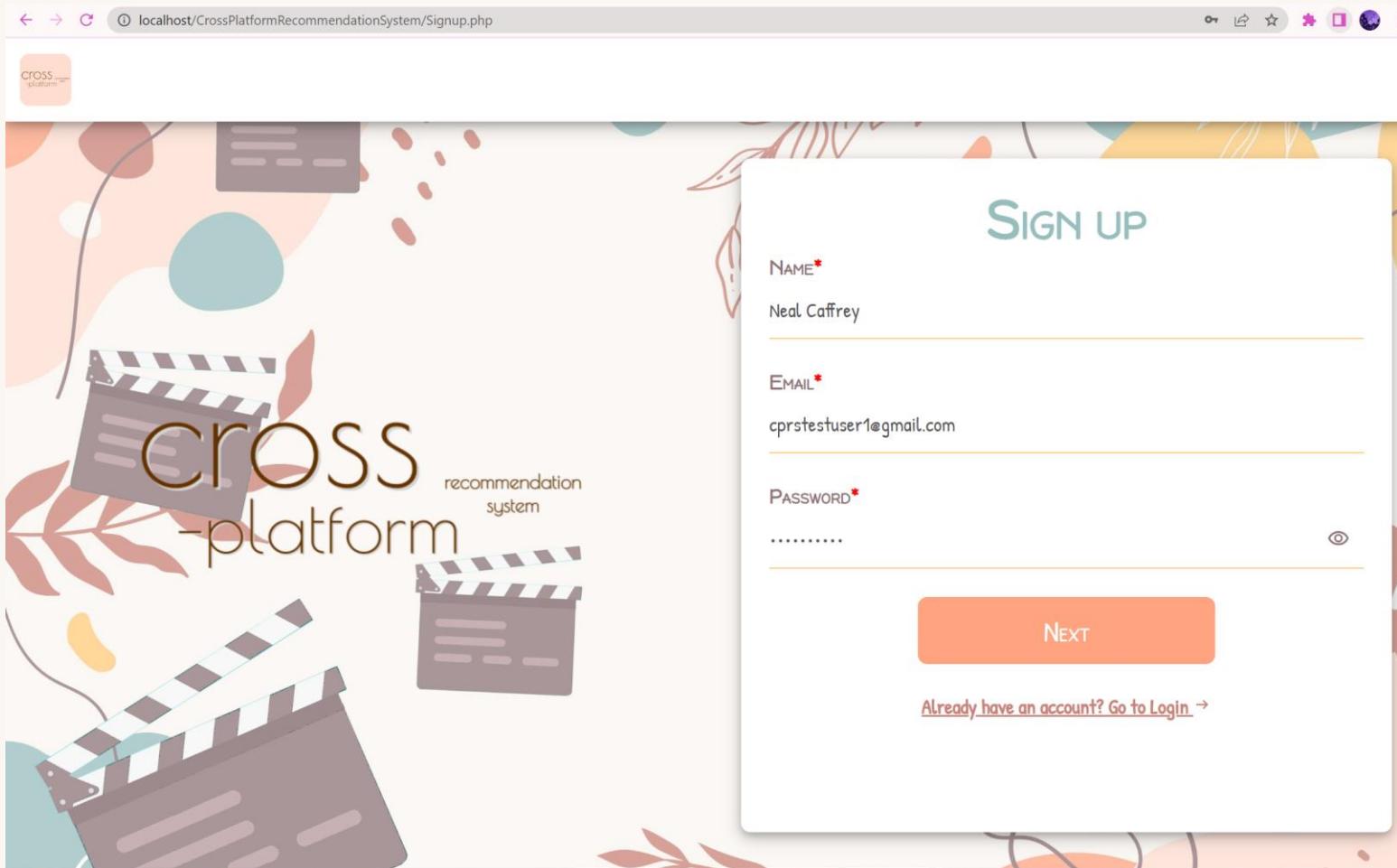


Opening Page

- ❶ Landing page of the website

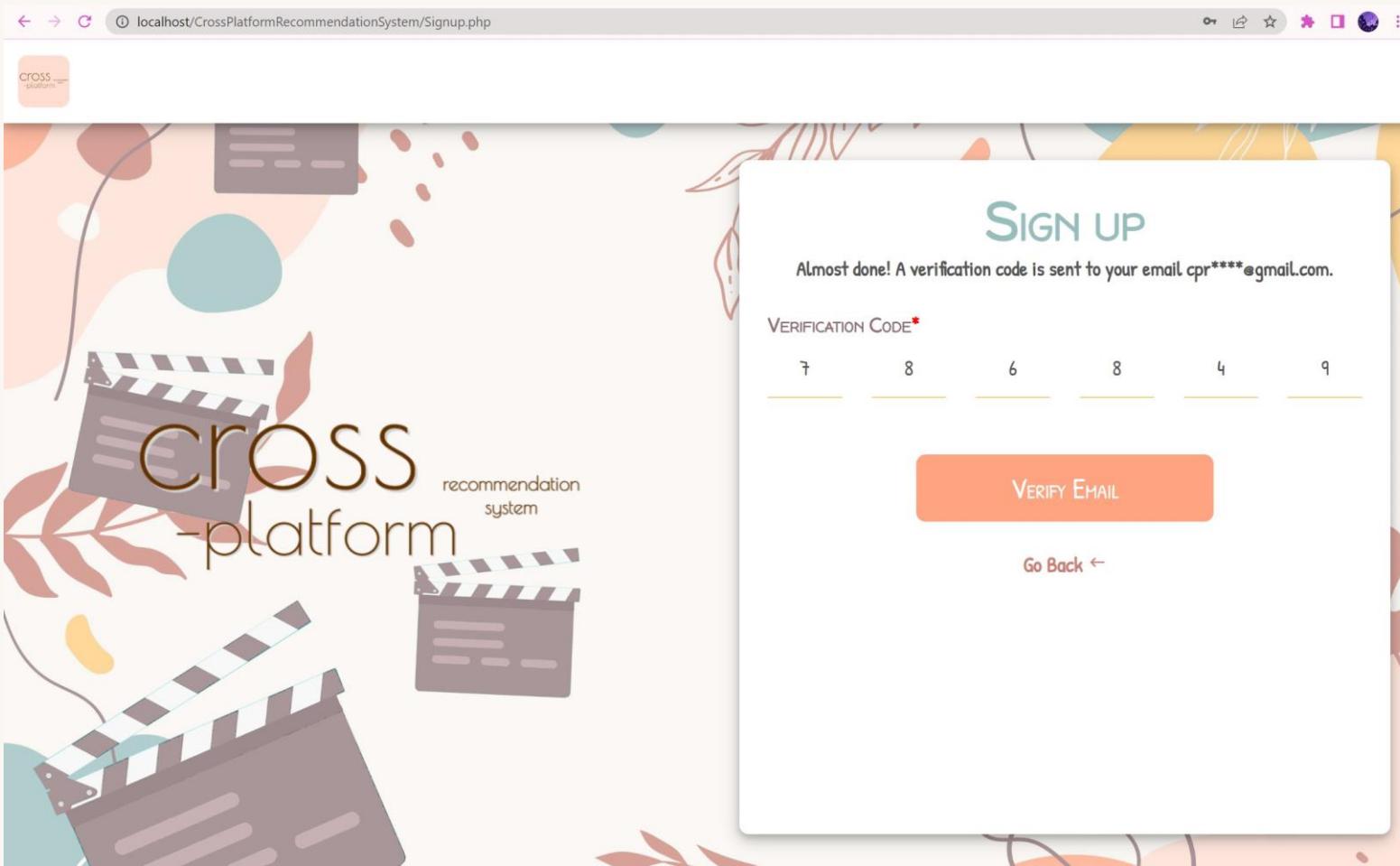


Sign-up Page

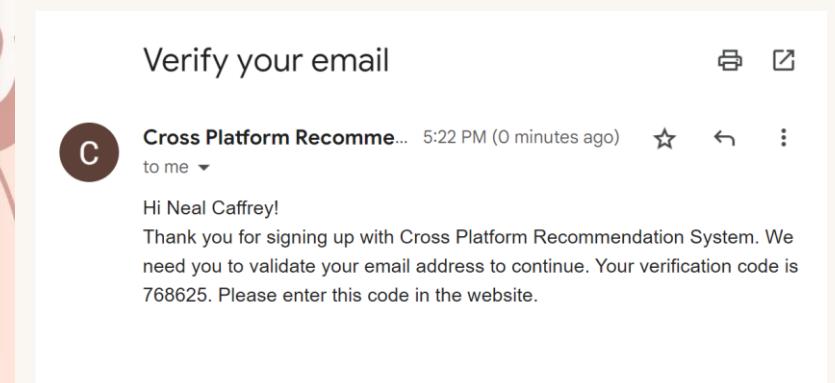


- ❸ A user can create an account by providing his
 - Name
 - Email
 - Password

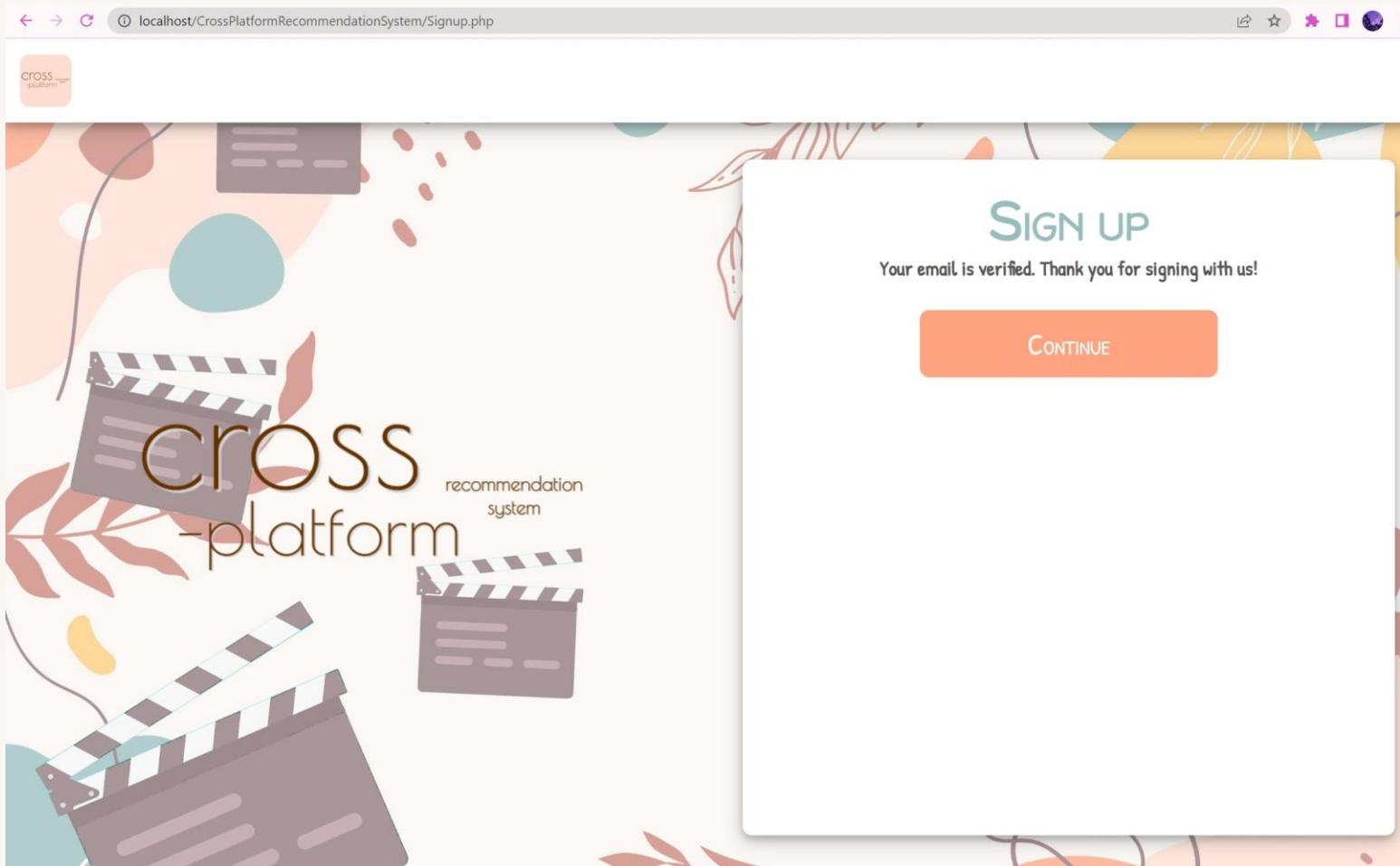
Sign-up Page (cont.)



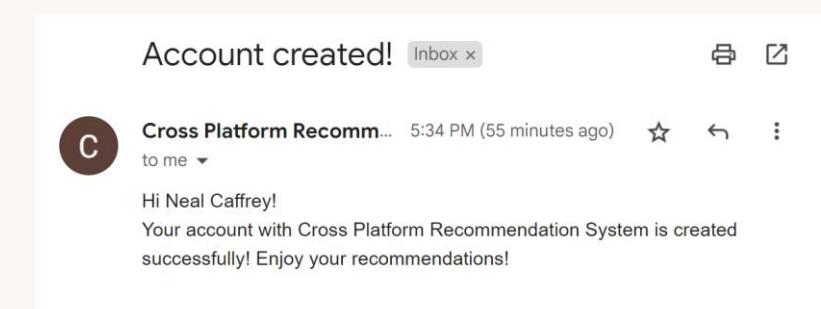
- ❸ A verification code will be sent to the user



Sign-up Page (cont.)

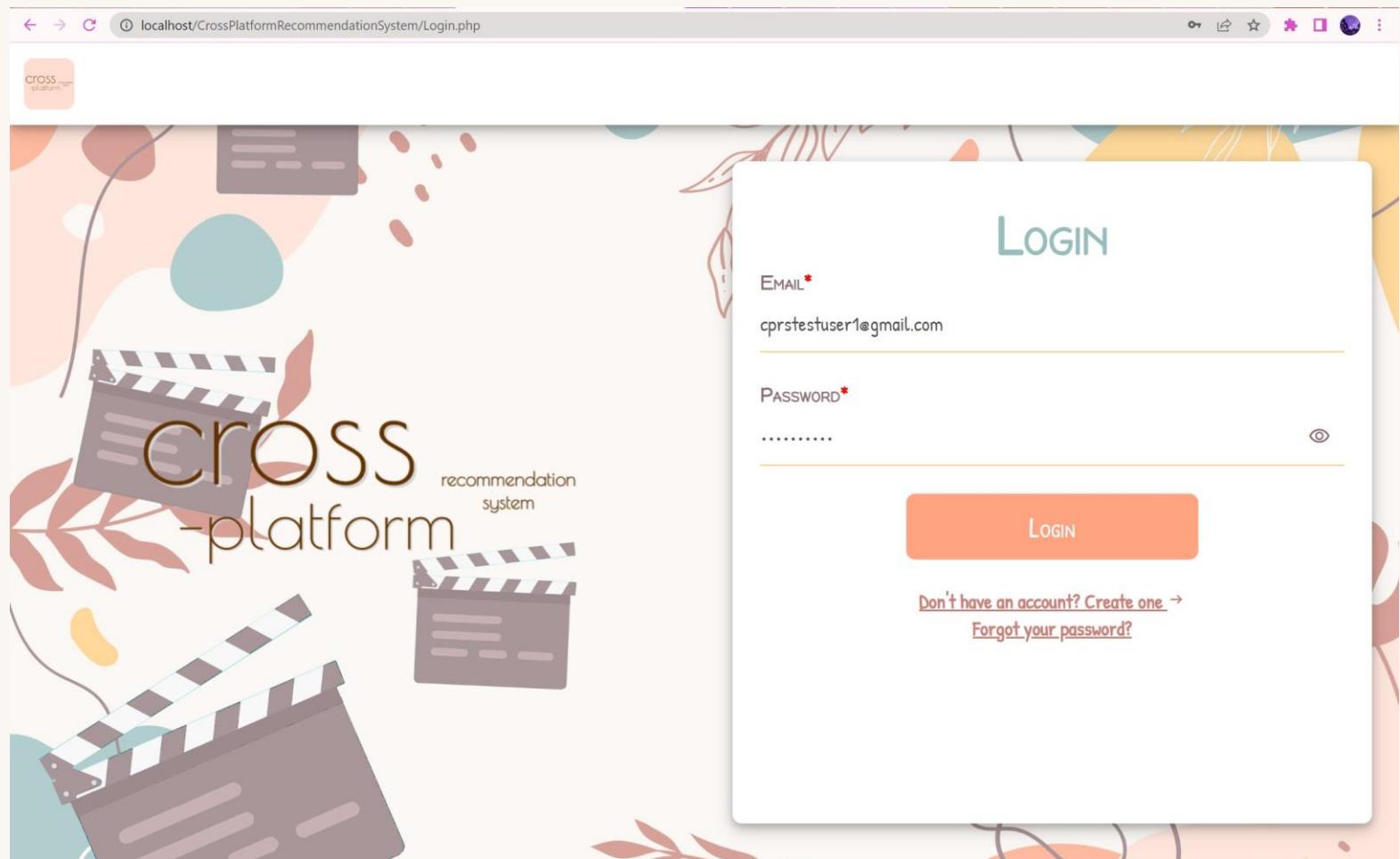


- ➊ An account for the user will be created

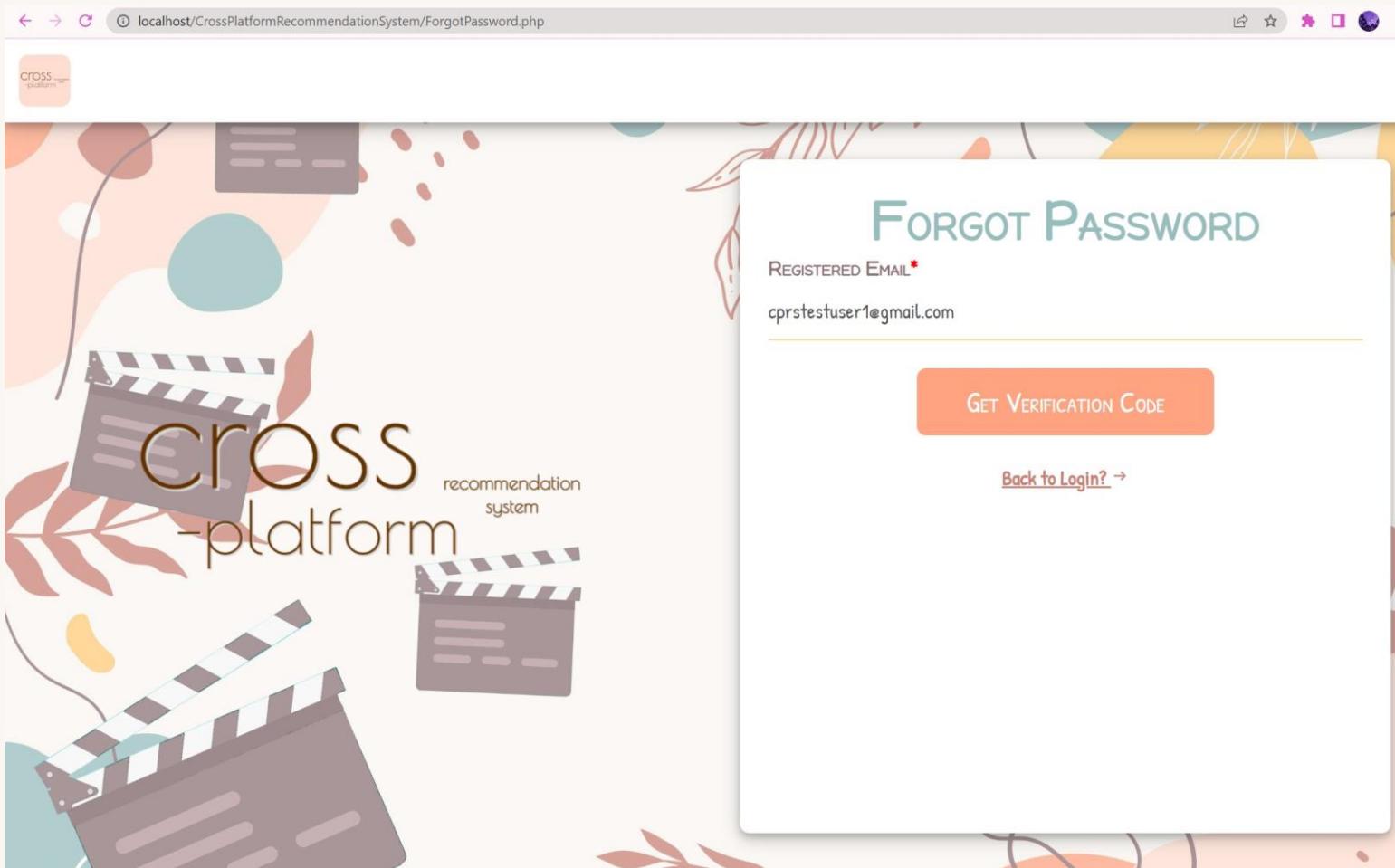


Login Page

- >User will enter email and password to Login
- Can navigate to Sign-up or Forgot password pages
- Sets **cprs_token** cookie to keep the user logged in

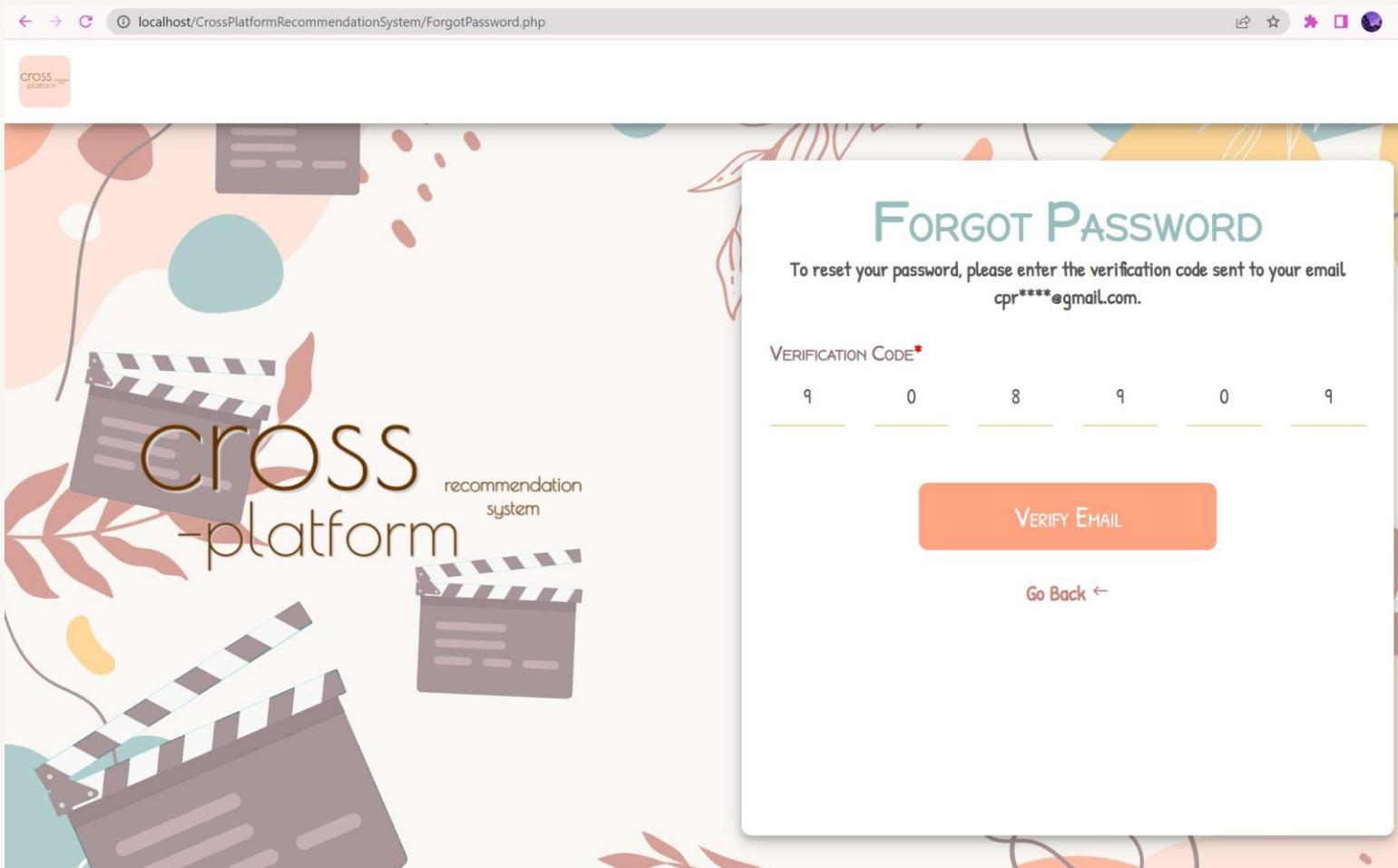


Forgot Password

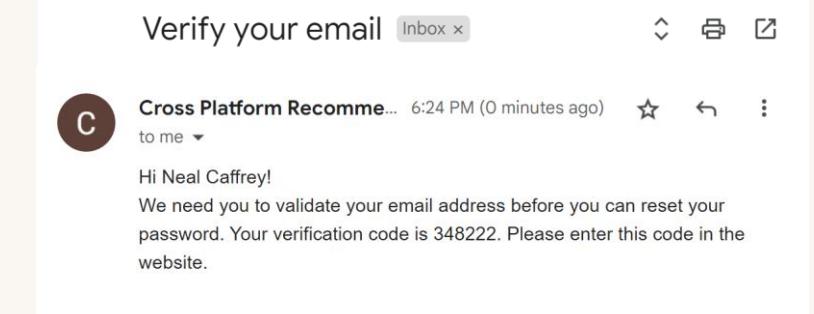


- >User can reset his password

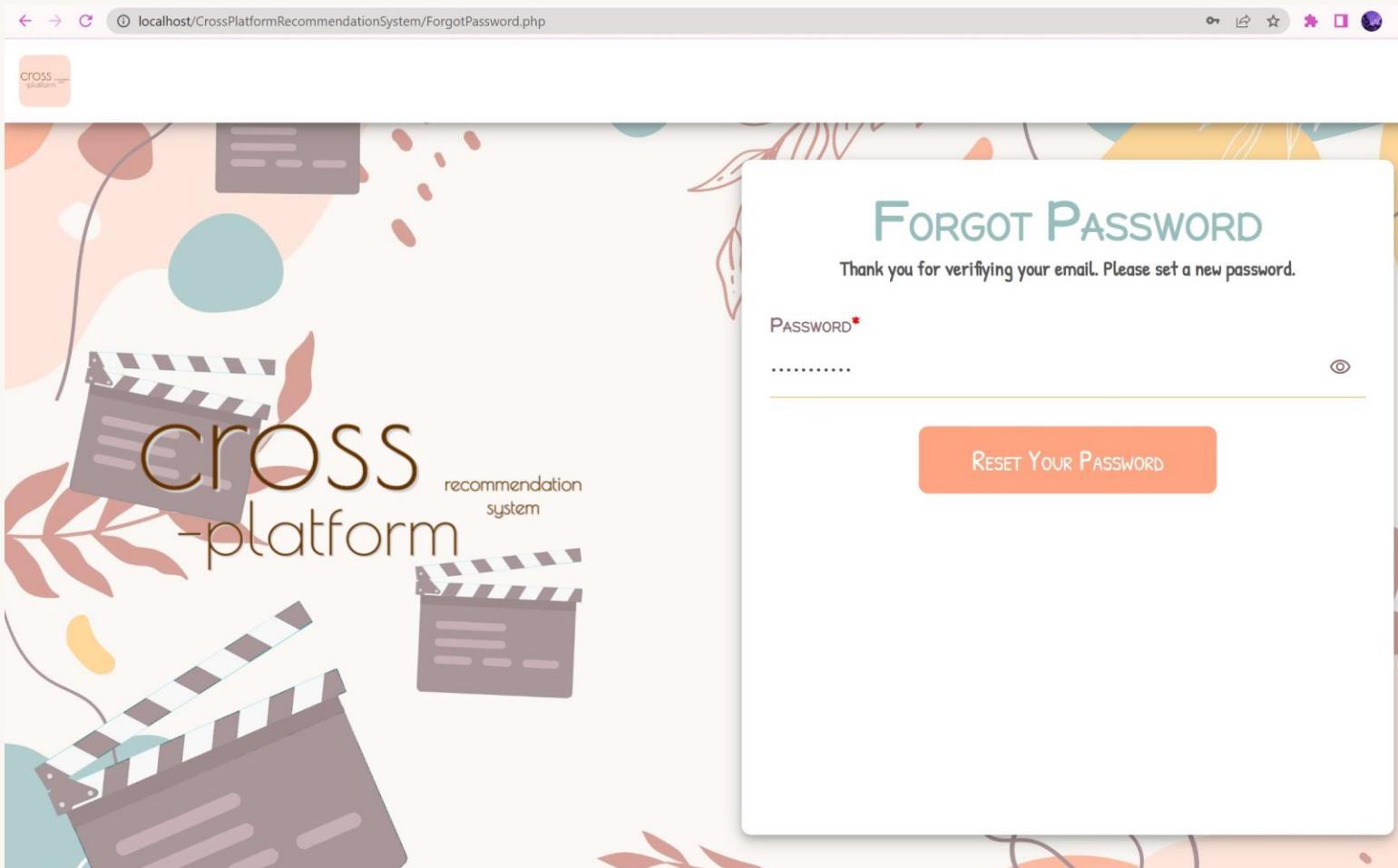
Forgot Password (cont.)



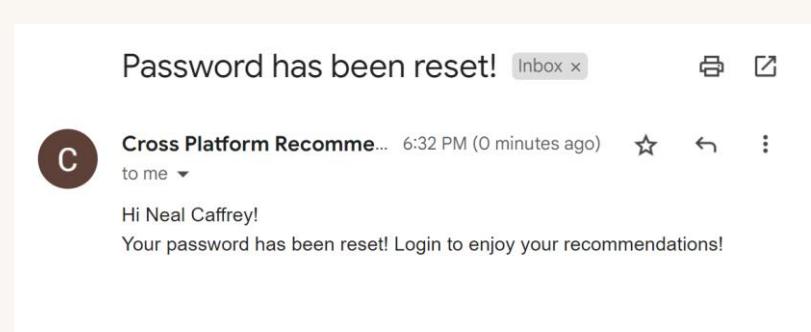
- ❸ A verification code will be sent to the user



Forgot Password

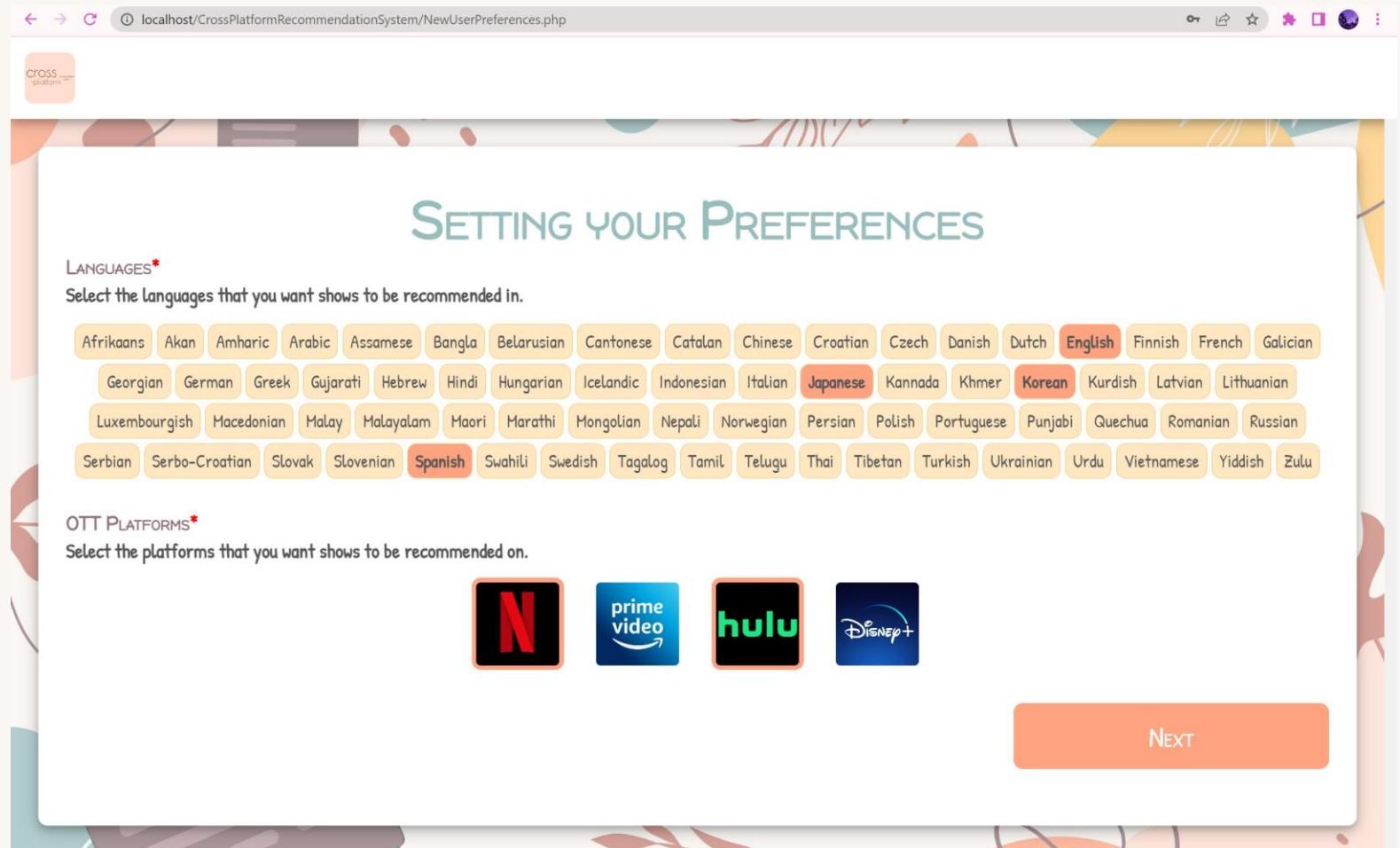


- >User can set a new password



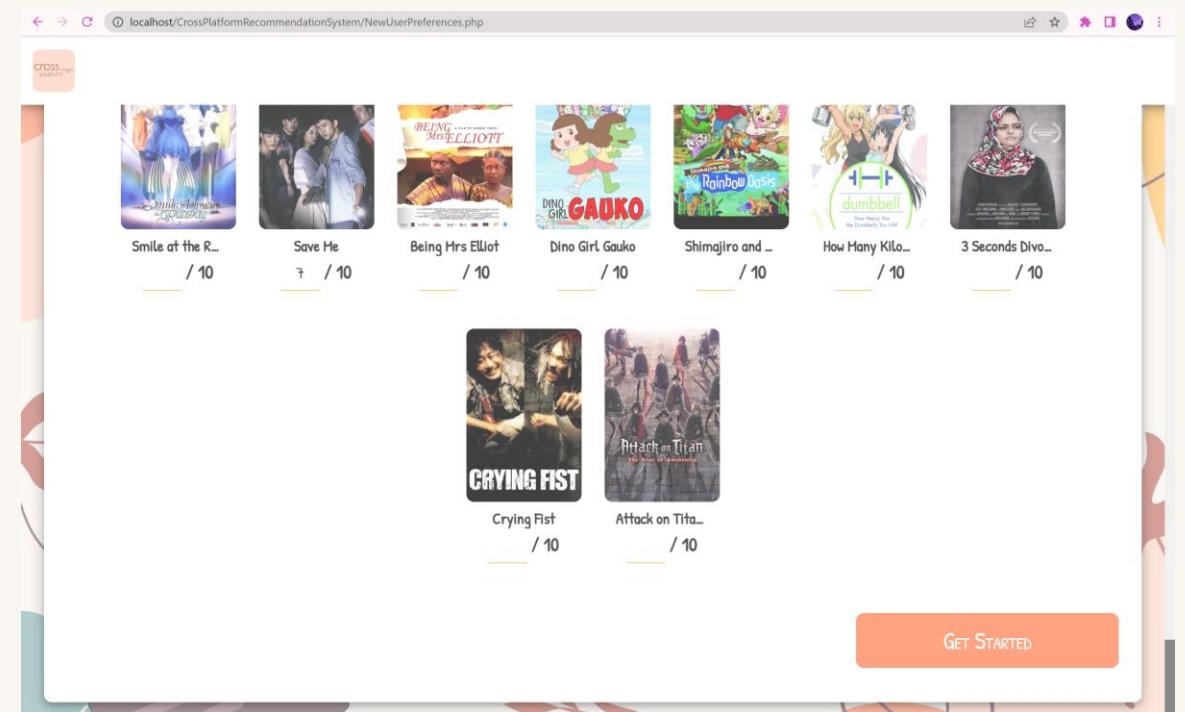
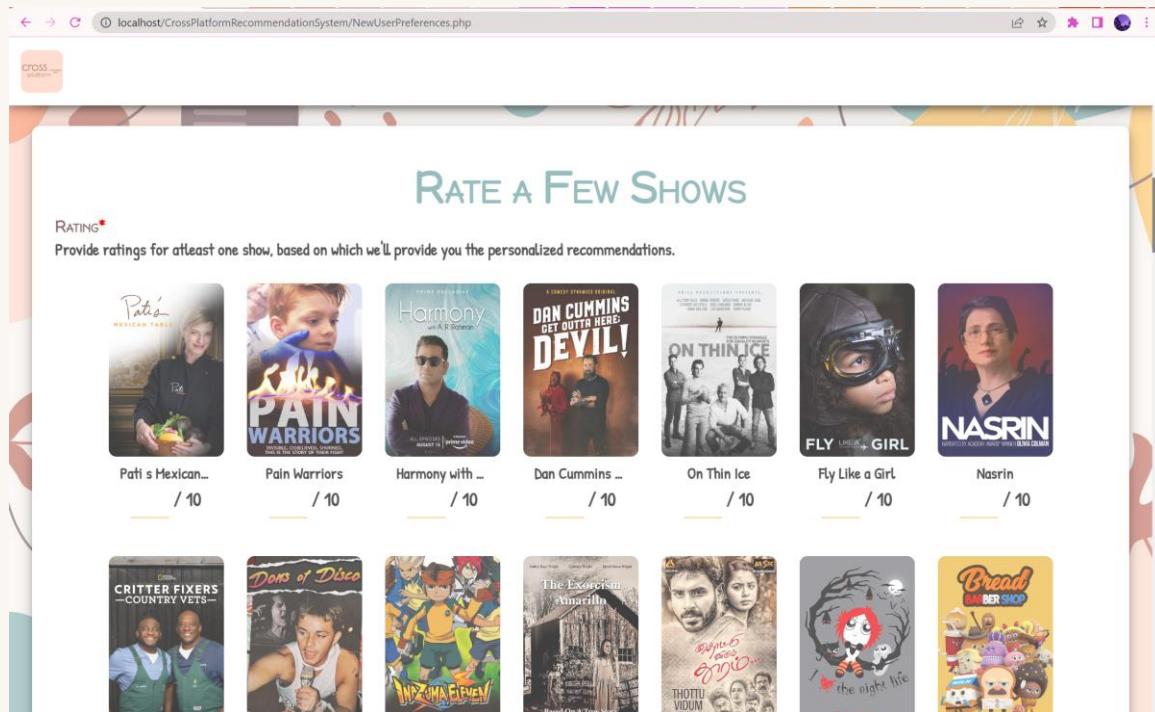
New User Preferences

- ➊ The user can set his
 - Preferred languages
 - Preferred OTT platforms

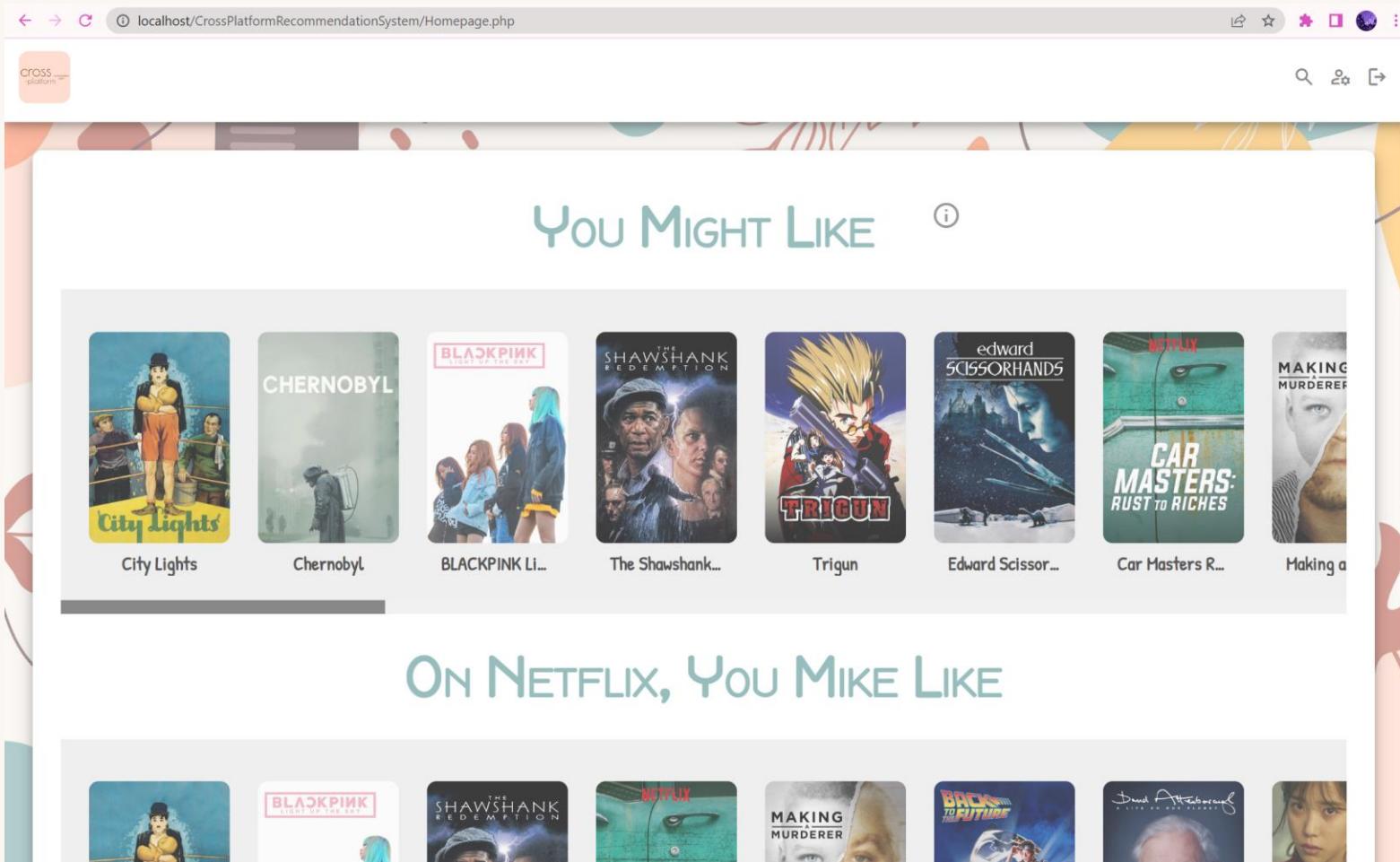


New User Preferences (cont.)

- The user can provide ratings for a few shows

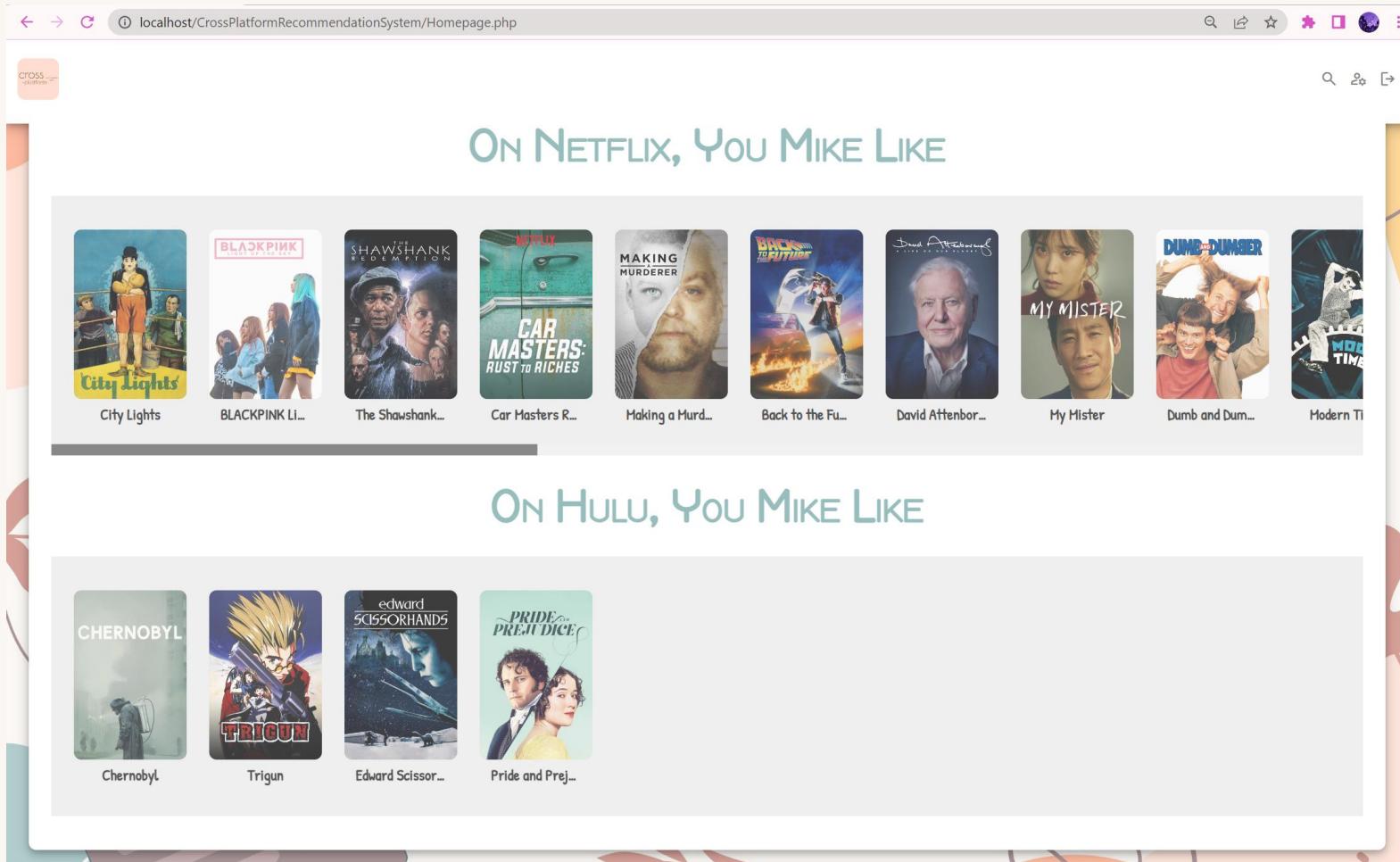


Homepage



- ➊ Homepage can be divided into 4 sections:
 - Currently Watching
 - You Might Like
 - Platform-wise You Might Like
 - Wishlist
- ➋ You Might Like section:
 - Personalized Recommendations
 - Collaborative Filtering

Homepage (cont.)



- ❸ Personalized recommendations on each platform preferred

Homepage (cont.)

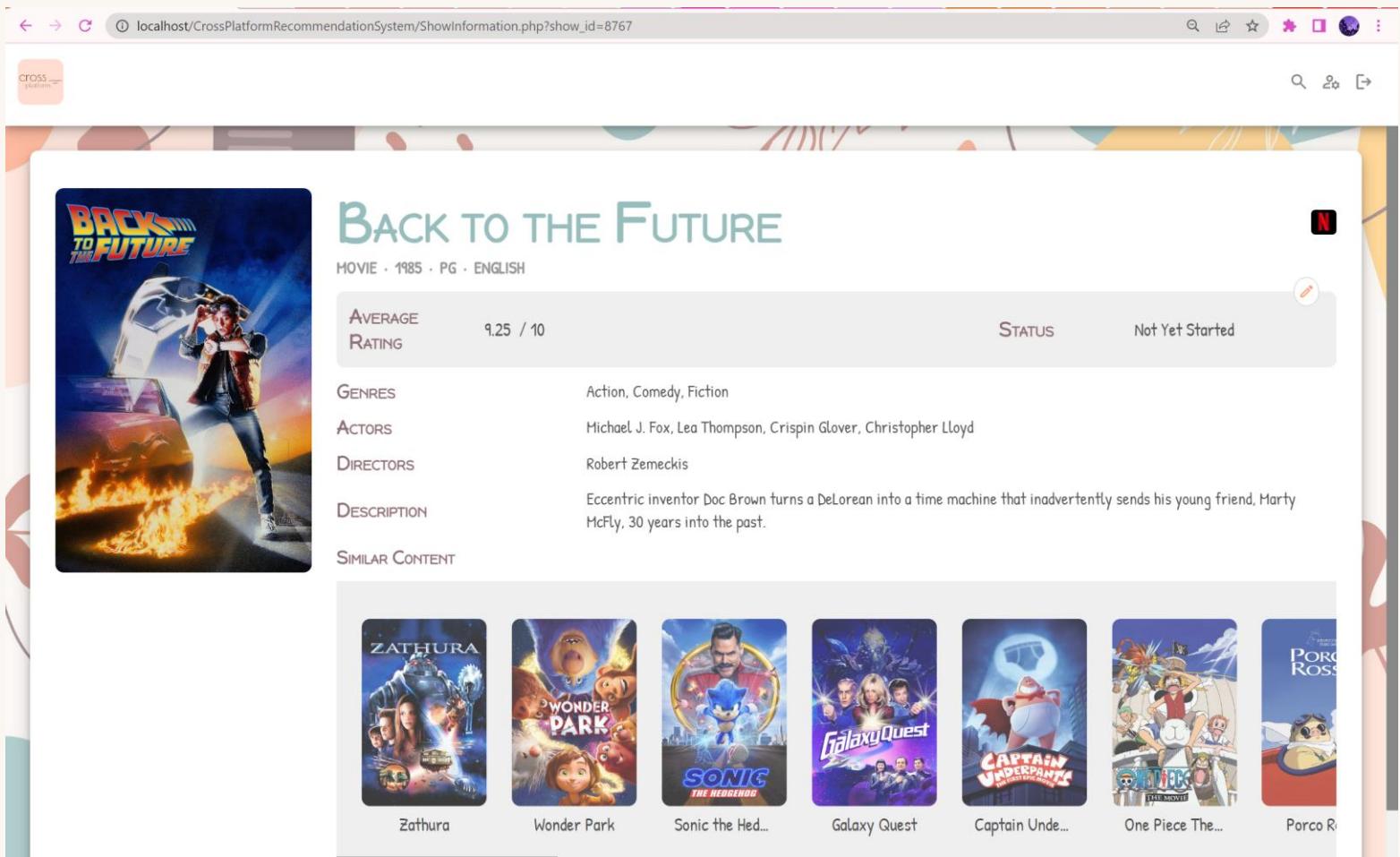
- ⌚ **Currently watching** section: Status for shows set to ‘Currently Watching’
- ⌚ **Wishlist** section: Status for shows set to ‘Wishlist’

The screenshot shows the 'Currently Watching' section of the homepage. It features a title 'CURRENTLY WATCHING' in green. Below it, three show cards are displayed: 'Friends', 'Pati's Mexican...', and 'Dan Cummins ...'. Each card includes a thumbnail image and the show's name. Below these cards, there is a section titled 'YOU MIGHT LIKE' with several smaller thumbnail images of other shows.

The screenshot shows the 'WISHLIST' section of the homepage. It features a title 'WISHLIST' in green. Below it, two show cards are displayed: 'Agent Sai Srin...' and 'Vikram Vedha'. Each card includes a thumbnail image and the show's name. Above these cards, a horizontal row of show cards is visible, including 'Workaholics', 'The Peanut Bu...', 'Better Off Ted', 'O.J.: Made in A...', 'Ugly Betty', 'Gattaca', 'Hannibal', and 'Pride and Prejudice'.

Show Information

- ⌚ The user can view more information for any show
- ⌚ **Similar Content** section: Based on
 - Genres
 - Actors
 - Directors
 - Content Rating
 - Description



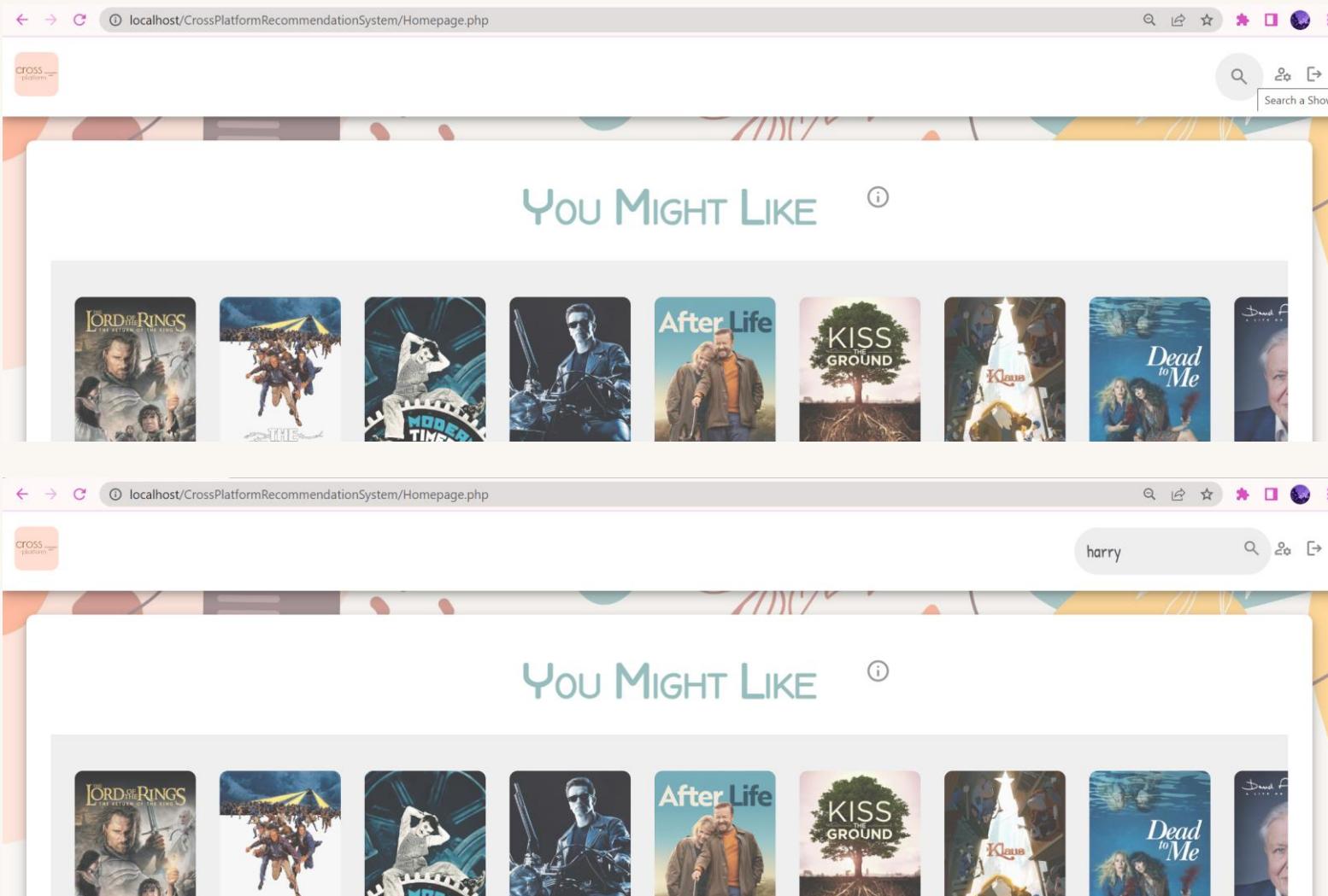
Show Information (cont.)

- ⦿ The user can set a rating and a status
- ⦿ Status:
 - Not Yet Started
 - Currently Watching
 - Finished
 - Dropped
 - Wishlist

The screenshot shows a web browser displaying a movie detail page from a recommendation system. The URL in the address bar is `localhost/CrossPlatformRecommendationSystem>ShowInformation.php?show_id=7541`. The page title is "HARRY POTTER AND THE SORCERER'S STONE". The movie details include:

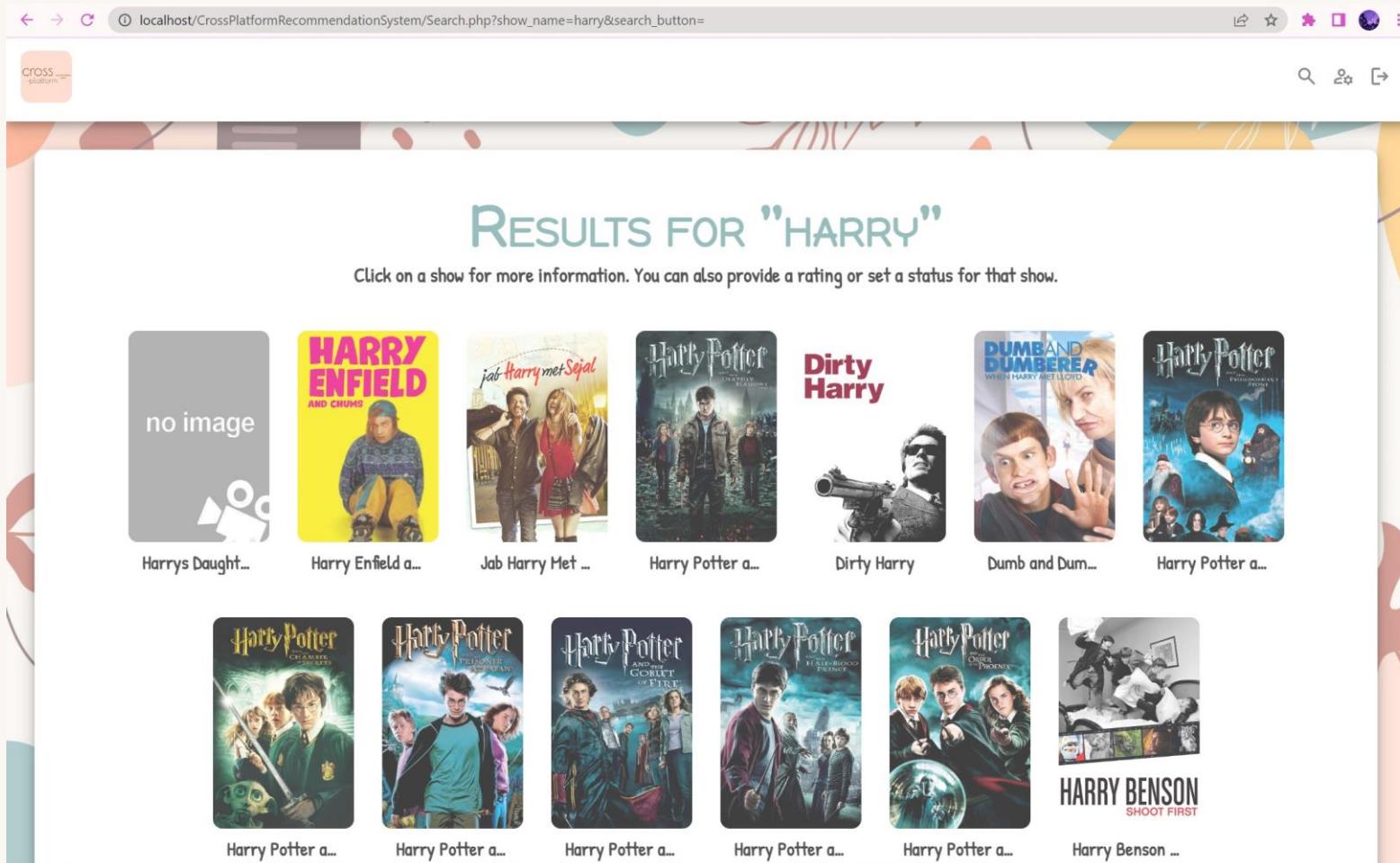
- Average Rating: 7.70 / 10
- Your Rating: 9 / 10
- Status: Finished
- Genres: Action, Family, Fiction
- Actors: Maggie Smith, Richard Harris, Saunders Triplets, Robbie Coltrane
- Directors: Chris Columbus
- Description: On his 11th birthday, Harry Potter learns that he's a powerful wizard with a place waiting for him at the Hogwarts School of Witchcraft and Wizardry.
- Similar Content: A grid of six movie posters for "The Water Horse", "Godzilla", "Blinky Bill the Movie", "Spooky Stories", "Captain Underpants: The First Epic Movie", and "The Missing Lynx".

Search



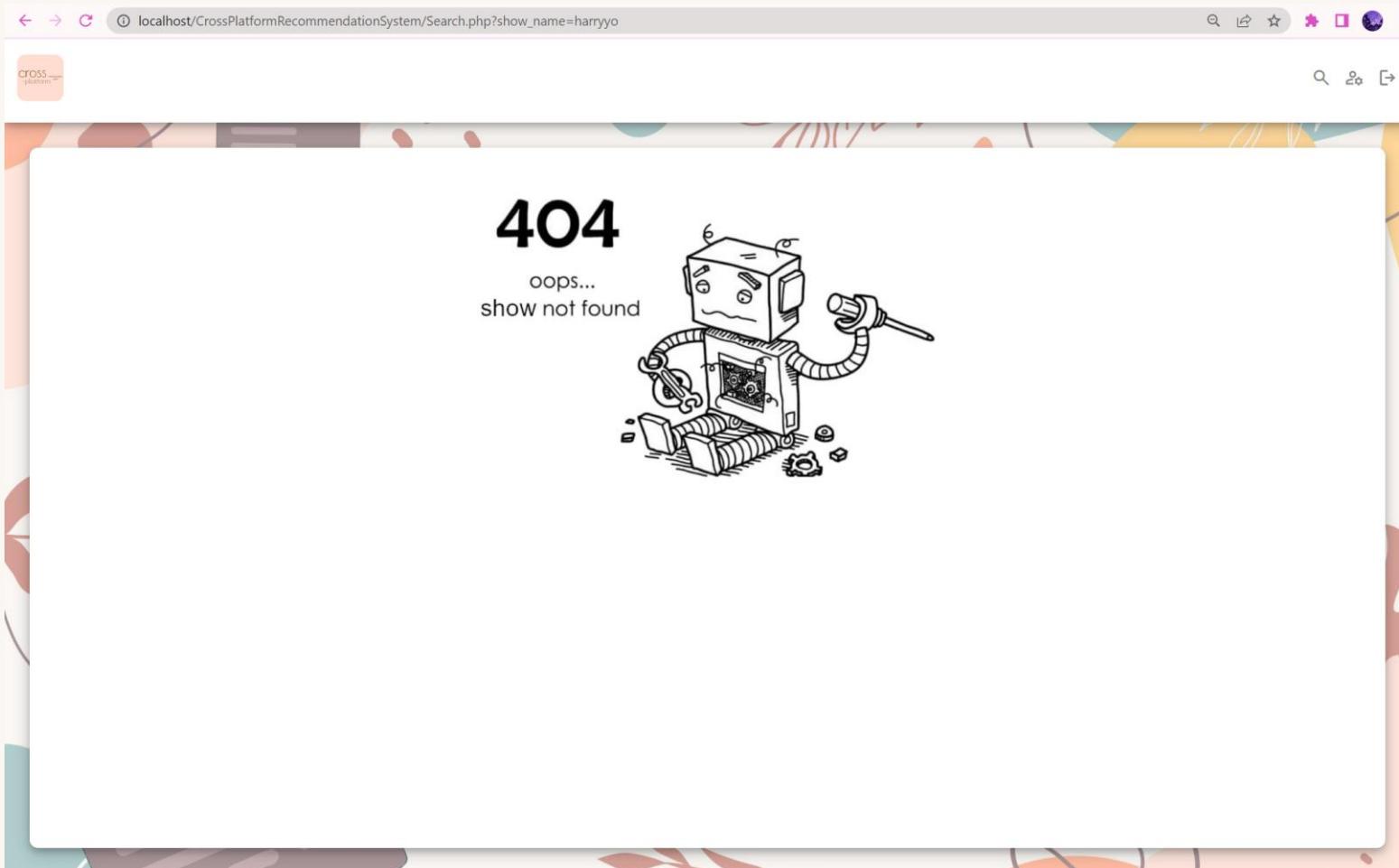
- ➊ The user can search for any show

Search (cont.)



- ❷ Results are shows that contain the entered keyword in title

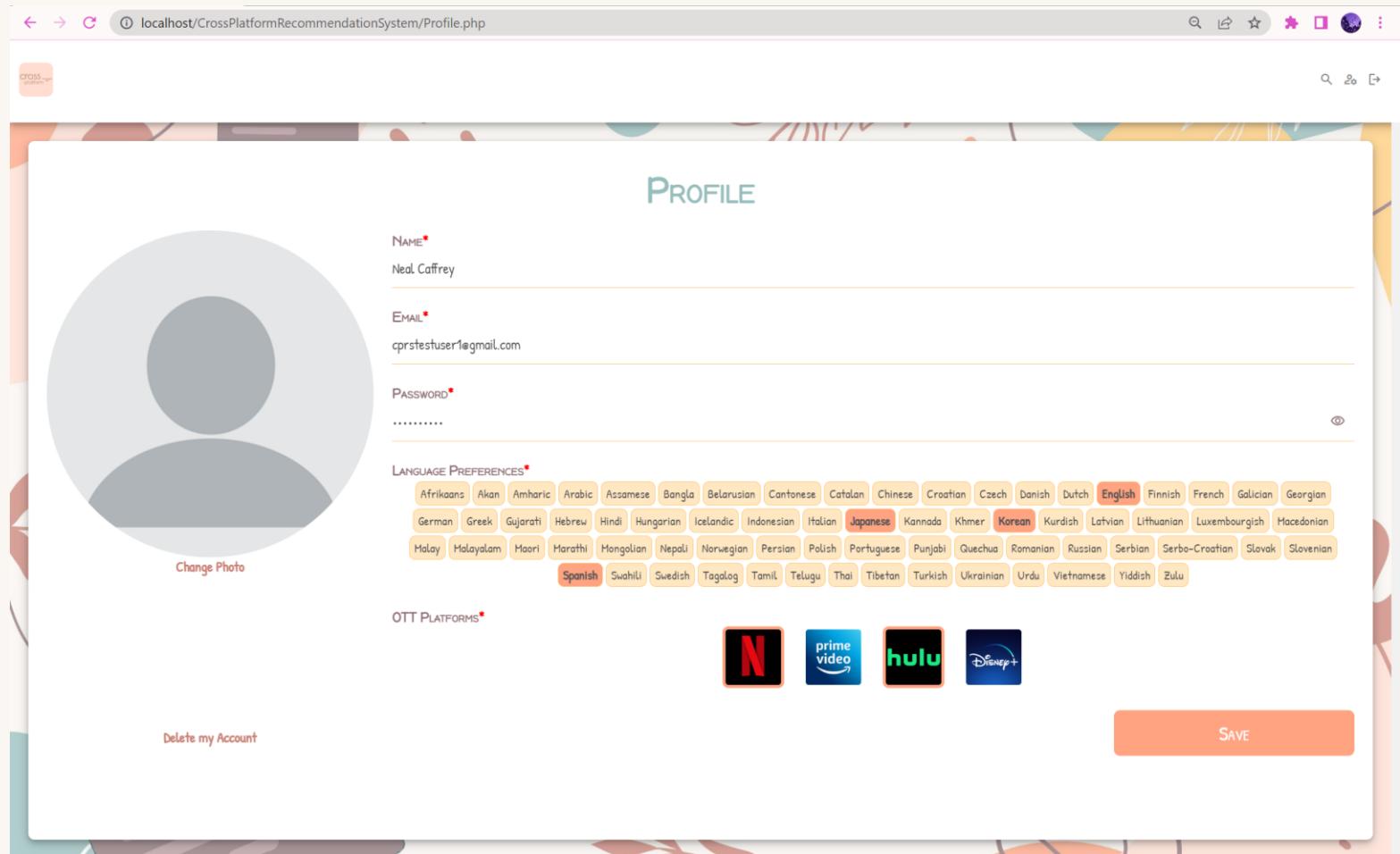
Search (cont.)



- ⌚ If no shows are found, 404 error is displayed

Profile

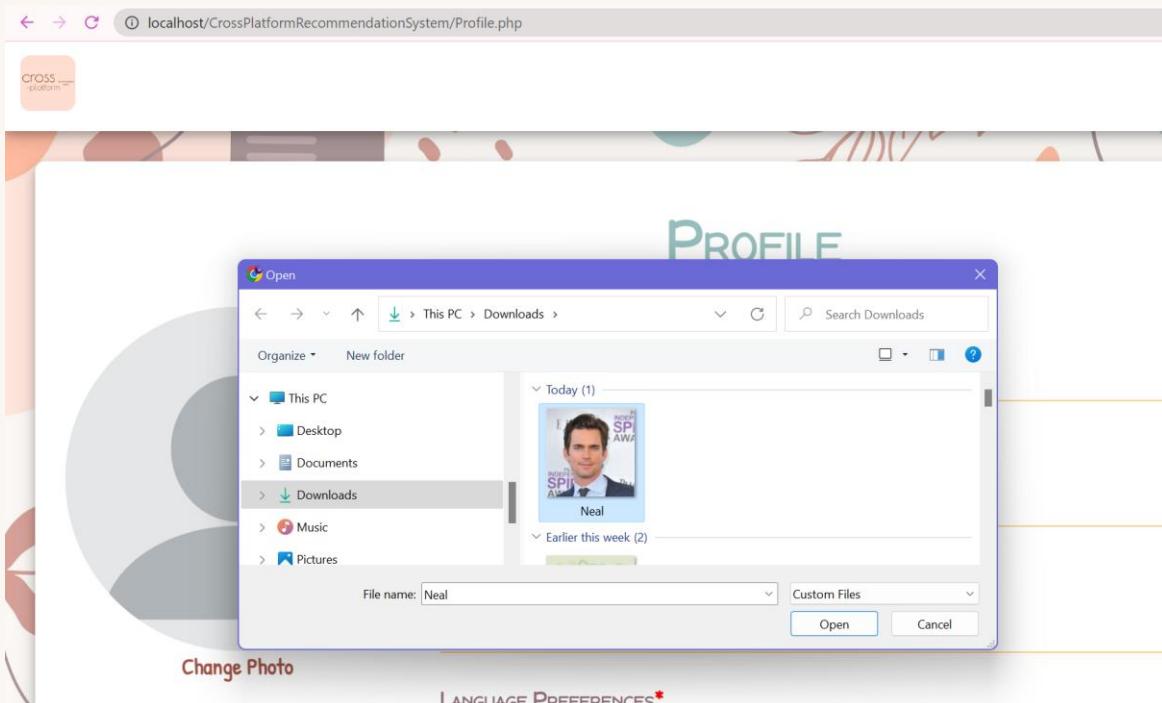
- ➊ The user can
 - Edit his personal details and preferences
 - Change profile photo
 - Delete his account



Profile (cont.)

④ Change Photo link:

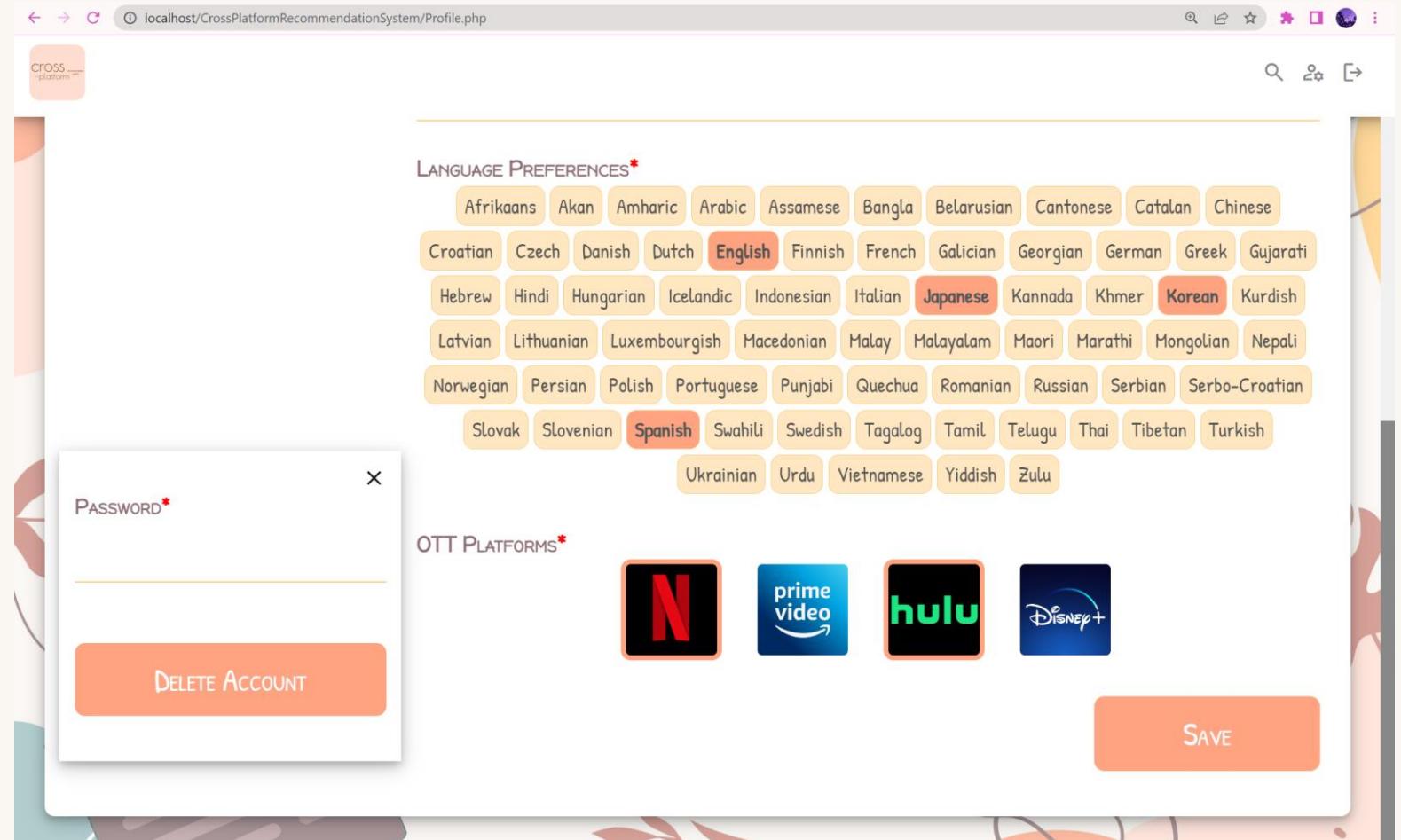
- The user can choose a profile photo from his computer
- Photo must be either .png, .jpg, or .jpeg

A screenshot of a web browser displaying a profile editing form. The title bar says 'localhost/CrossPlatformRecommendationSystem/Profile.php'. The main area is titled 'PROFILE'. It contains fields for 'NAME*' (Neal Caffrey), 'EMAIL*' (cprtestuser1@gmail.com), and 'PASSWORD*' (represented by a series of dots). Below these fields is a circular placeholder for a profile photo, which currently displays a photo of Matt Bomer. A red 'Change Photo' button is located at the bottom left of this placeholder. At the bottom of the page is a section titled 'LANGUAGE PREFERENCES*' containing a grid of language names. Some languages like English, Japanese, and Korean are highlighted in orange, while others like French, German, and Spanish are in white. Other languages listed include Afrikaans, Akan, Amharic, Arabic, Assamese, Bangla, Belarusian, Cantonese, Catalan, Chinese, Croatian, Czech, Danish, Dutch, English, Finnish, French, Galician, Georgian, German, Greek, Gujarati, Hebrew, Hindi, Hungarian, Icelandic, Indonesian, Italian, Japanese, Kannada, Khmer, Korean, Kurdish, Latvian, Lithuanian, Luxembourgish, Macedonian, Malay, Malayalam, Maori, Marathi, Mongolian, Nepali, Norwegian, Persian, Polish, Portuguese, Punjabi, Quechua, Romanian, Russian, Serbian, Serbo-Croatian, Slovak, Slovenian, Spanish, Swahili, Swedish, Tagalog, and Tamil.

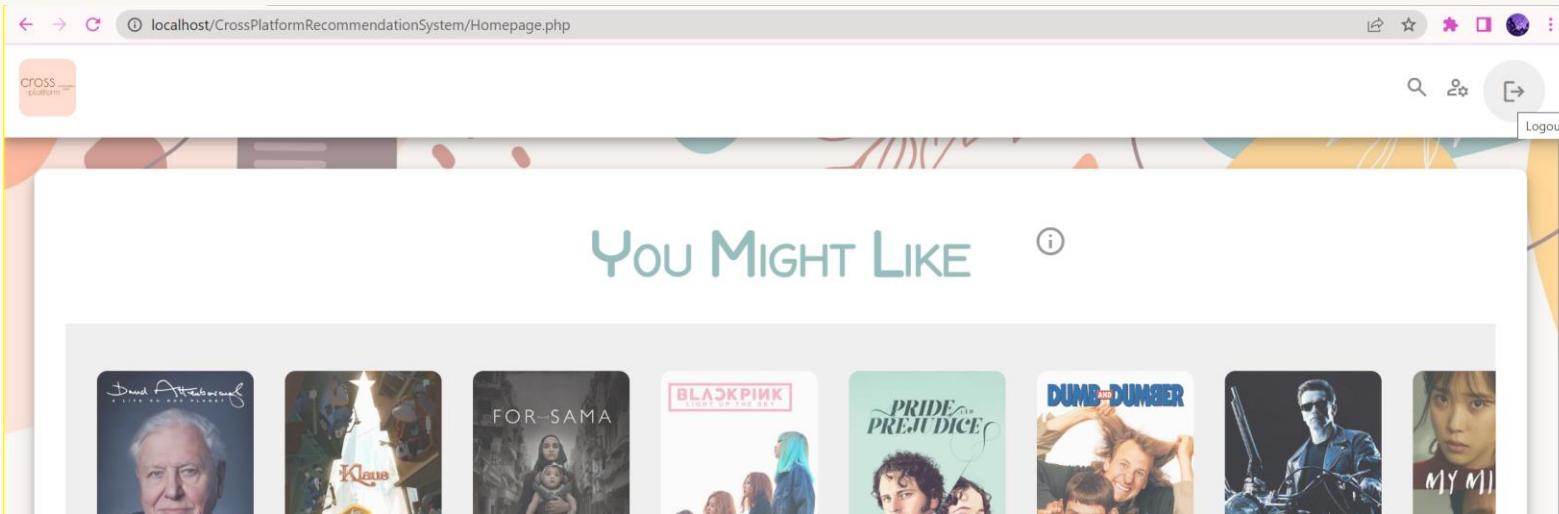
Profile (cont.)

>Delete my Account link:

- User should enter password to confirm deletion
- User personal details will only be deleted



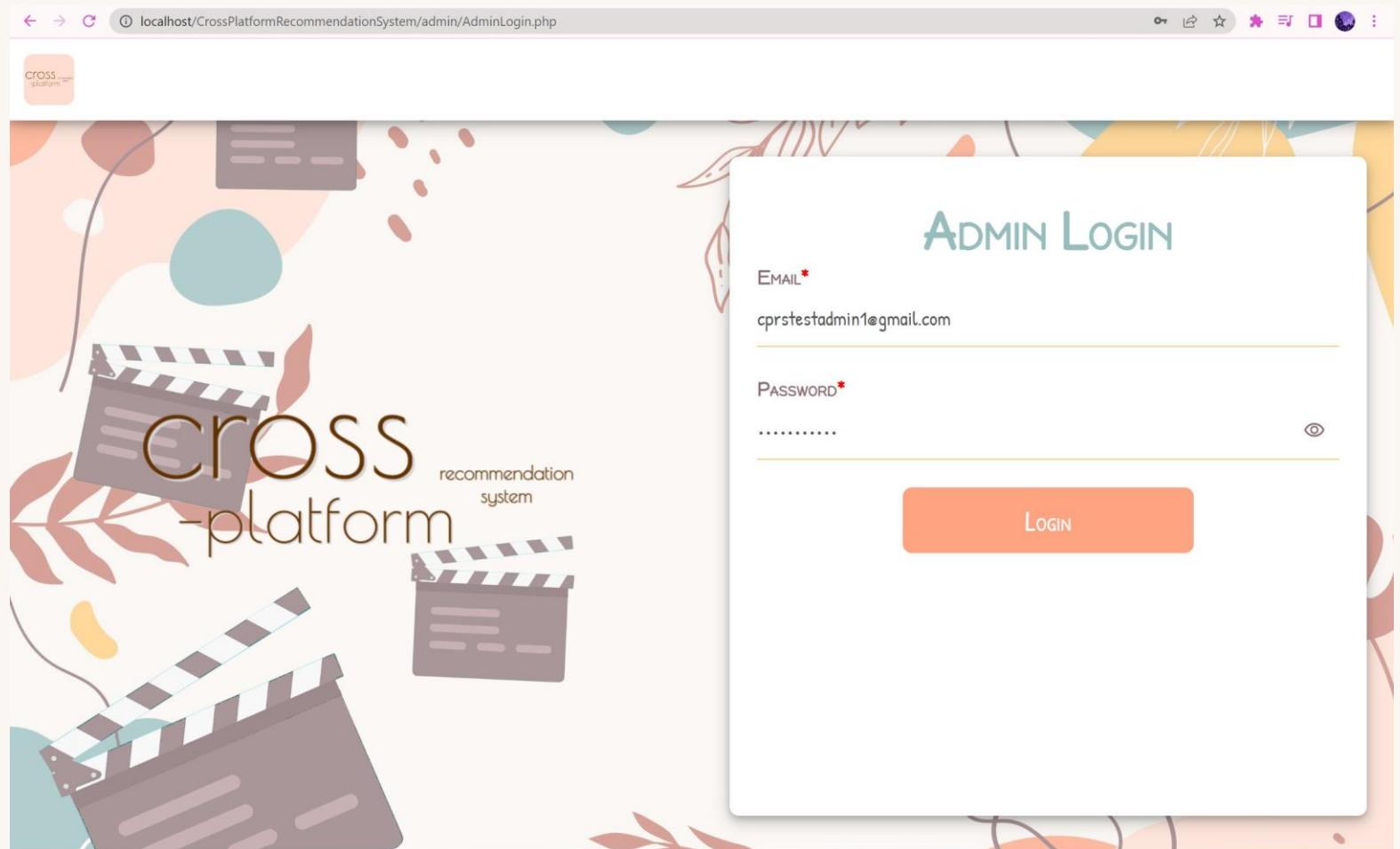
User Logout



- ➊ The user can log out of his account anytime

Admin Login

- ④ Admin will enter email and password to Login
- ④ Sets **admin_cprs_token** cookie to keep the admin logged in



View All Ratings

The screenshot shows a web application titled "VIEW ALL RATINGS". The table data is as follows:

User ID	Content ID	Rating	Rated At	Delete
10	7541	9	2022-11-28 16:14:31	☒
10	1962	7	2022-11-28 14:00:53	☒
11	8771	8	2022-11-28 11:27:04	☒
8	5668	5	2022-11-28 09:50:18	☒
8	8771	9	2022-11-28 09:50:18	☒
8	22144	7	2022-11-28 09:50:18	☒
8	9365	9	2022-11-28 09:50:18	☒
9	6473	6	2022-11-28 09:36:13	☒
9	5925	8.6	2022-11-28 09:35:48	☒
9	2843	6	2022-11-28 09:31:26	☒
9	1962	7	2022-11-28 09:30:01	☒

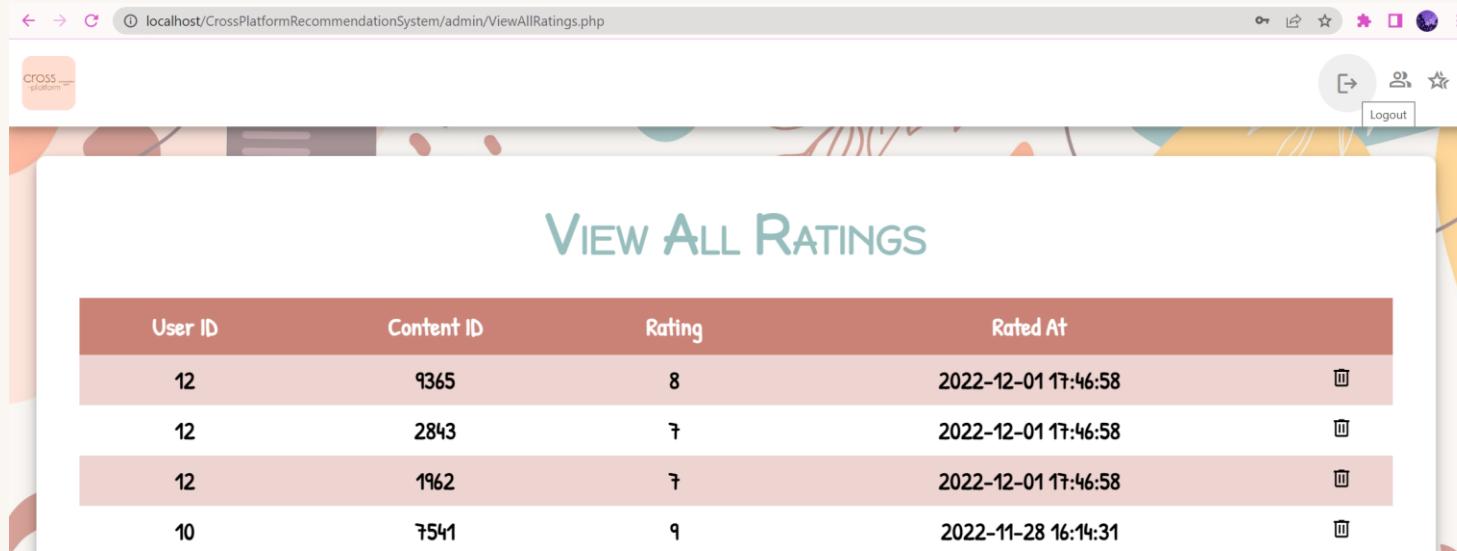
- ❷ The admin can see all the ratings provided on the website
- ❷ Can delete any rating by clicking on its **Delete** icon

View All Users

- ⑧ The admin can see all the users registered on the website
- ⑧ Can delete any user by clicking on its **Delete** icon

User ID	Email	Count of Ratings	Registration Date	Delete
10	cprstestuser1@gmail.com	2	2022-11-28 10:44:48	☒
9	arminarlercprs@gmail.com	7	2022-11-28 09:28:38	☒
8	monicagellercprs@outlook.com	4	2022-11-28 09:23:10	☒

Admin Logout



The screenshot shows a web application titled "VIEW ALL RATINGS". The page contains a table with the following data:

User ID	Content ID	Rating	Rated At	
12	9365	8	2022-12-01 17:46:58	☒
12	2843	7	2022-12-01 17:46:58	☒
12	1962	7	2022-12-01 17:46:58	☒
10	7541	9	2022-11-28 16:14:31	☒

- ❸ The admin can log out of his account anytime

Testcases

User Story number	Test cases										All Passed?
1	OP_01	OP_02									✓
2	SU_01	SU_02	SU_03	SU_04	SU_05	SU_06	SU_07	SU_08	SU_09		✓
3	LG_01	LG_02	LG_03	LG_04	LG_05	LG_06	LG_07	LG_08			✓
4	FP_01	FP_02	FP_03	FP_04	FP_05	FP_06	FP_07	FP_08	FP_09		✓
5	NP_01	NP_02	NP_05	NP_06							✓
6	NP_01	NP_03	NP_04								✓
7	HP_02	HP_05	HP_06								✓
8	HP_03										✓
9	SI_01	SI_03	SI_04	HP_07	SE_01						✓
10	NB_02	NB_04	SE_02	SE_03							✓
11	SI_05	SI_08									✓
12	SI_06	SI_07	SI_08								✓

Testcases (cont.)

User Story number	Test cases						All Passed?
13	SI_02						✓
14	HP_01						✓
15	HP_04						✓
16	NB_03	PR_01	PR_02	PR_03	PR_04	PR_07	✓
17	SI_06	SI_07					✓
18	NB_01	AN_01					✓
20	PR_05	PR_06					✓
21	AL_01	AL_02	AL_03	AL_04			✓
22	VR_01	AN_02					✓
23	VR_02						✓
24	VU_01	AN_03					✓
25	VU_02						✓

Outcome →



References

- ❶ Bansal, S. (2021, November 29). Disney+ movies and TV shows. Kaggle. Retrieved from <https://www.kaggle.com/datasets/shivamb/disney-movies-and-tv-shows>
- ❷ Bansal, S. (2021, October 12). Amazon prime movies and TV shows. Kaggle. Retrieved from <https://www.kaggle.com/datasets/shivamb/amazon-prime-movies-and-tv-shows>
- ❸ Bansal, S. (2021, October 25). Hulu movies and TV shows. Kaggle. Retrieved from <https://www.kaggle.com/datasets/shivamb/hulu-movies-and-tv-shows>
- ❹ Bansal, S. (2021, September 27). Netflix movies and TV shows. Kaggle. Retrieved from <https://www.kaggle.com/datasets/shivamb/netflix-shows>
- ❺ Biswas, E. (2020, December 25). IMDB Review Dataset. Kaggle. Retrieved from <https://www.kaggle.com/ebiswas/imdb-review-dataset>
- ❻ Dadban, H. (n.d.). API for imdb, tmdb, Wikipedia and more - imdb-API. IMDb. Retrieved from <https://imdb-api.com/>
- ❼ The Movie Database API. (n.d.). Retrieved from <https://developers.themoviedb.org/3/getting-started/introduction>

Thank you!

