

Next Up

Movie Recommendation System

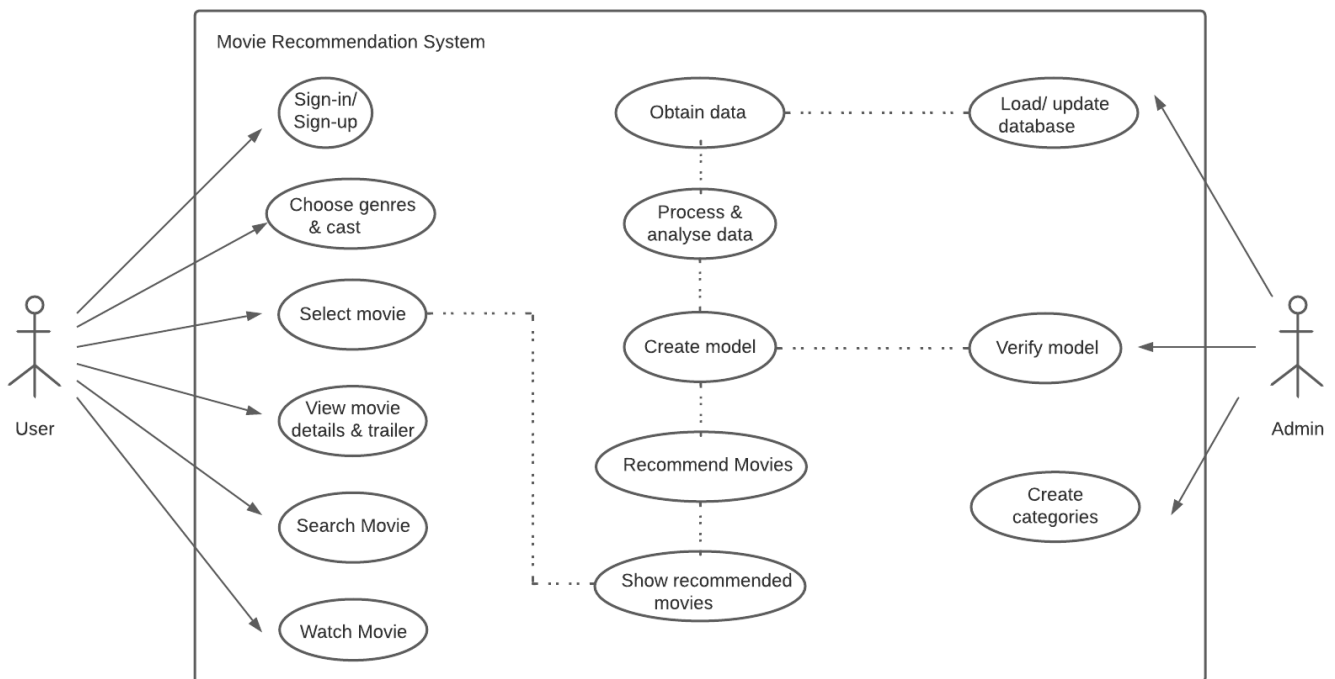
Overview

Next up is a movie recommendation system that offers generalized recommendations to every user based on movie popularity, genre, and year.

The model also gives personalized recommendations based on the user's choice of genre and cast.

Finally, the system suggests similar movies have a higher probability of being liked based on the movie selected by the user.

Use Case Diagram



Features

1. Sign-up and Sign-in functionality.
2. Forgot password (resetting password) functionality.
3. OTP validation.

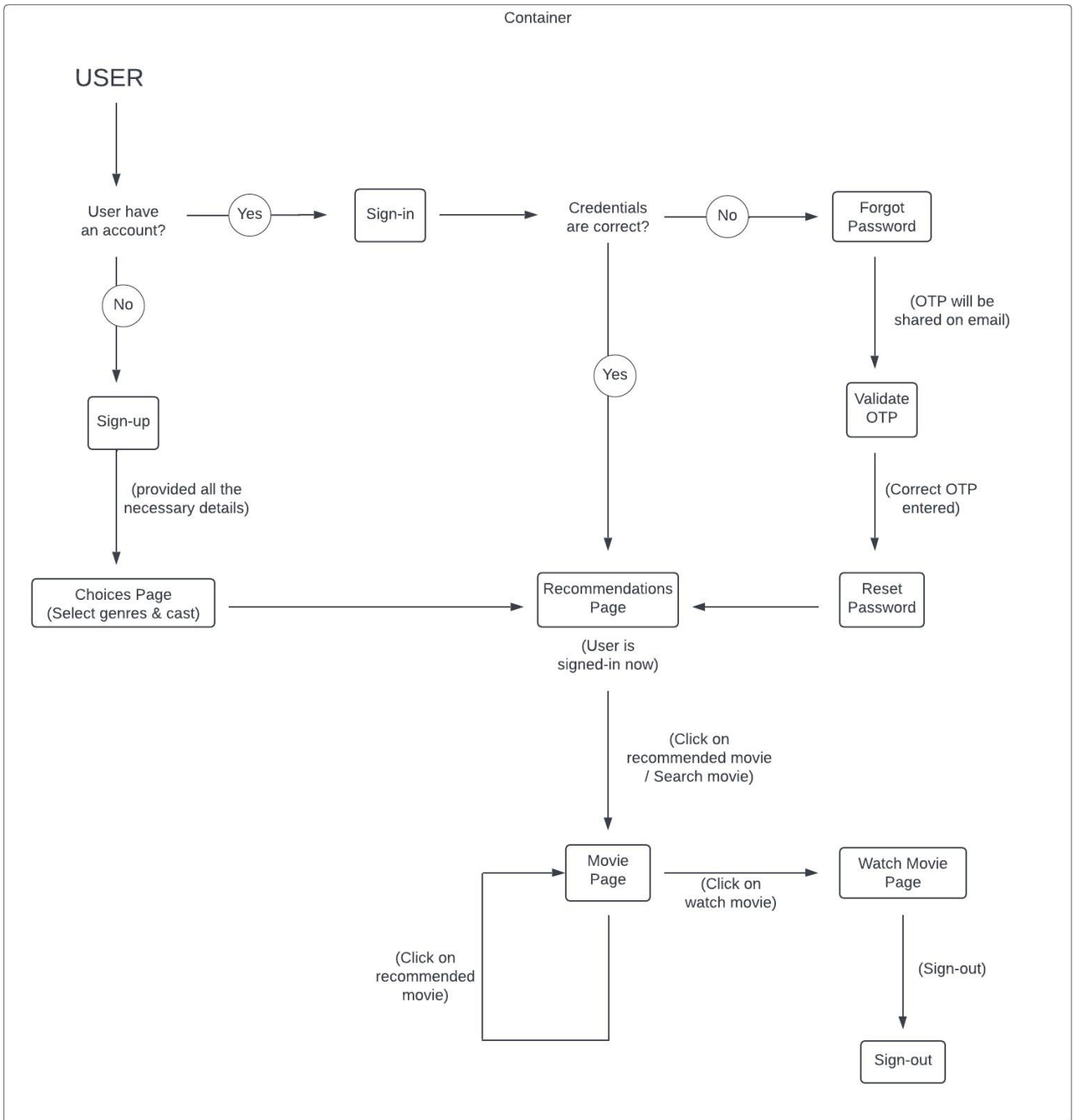
The user receives a mail containing OTP for validation before resetting the password.

4. The User's credentials are stored in the database.
5. Completely responsive front end.
6. A total of 4 types of recommendations:
 - Recommended movies based on the user's chosen genres and casts.
 - Most popular movies based on different genres.
 - Most popular movies based on different years.
 - Recommended movies similar to the user's selected movie.
7. Movie details and trailer linked for each movie.
8. Watch a movie option.
9. Option to like or dislike a movie.
10. Client-side session tracking.
11. Continuous deployment.

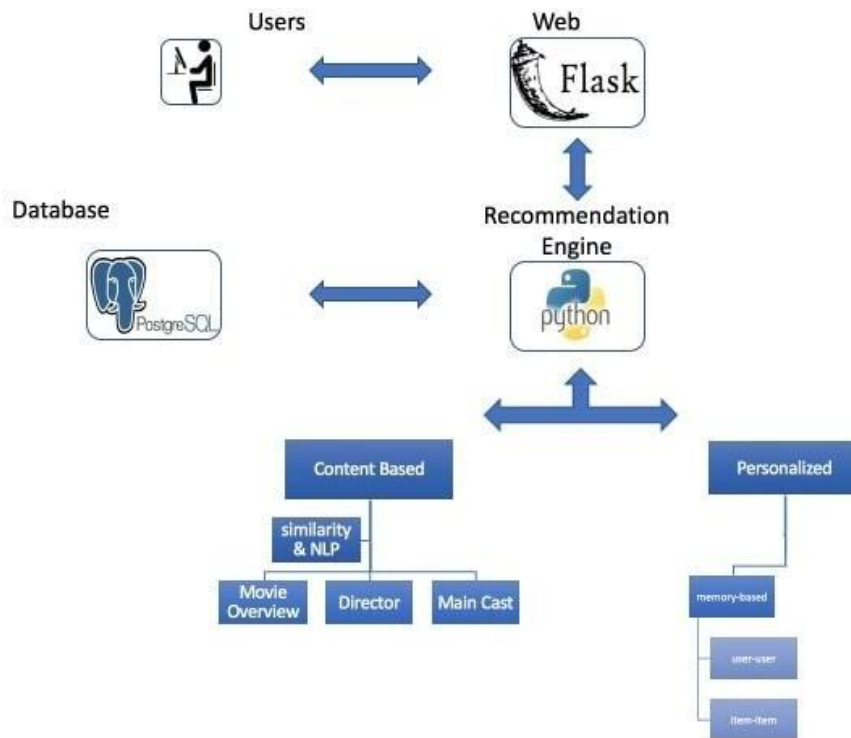
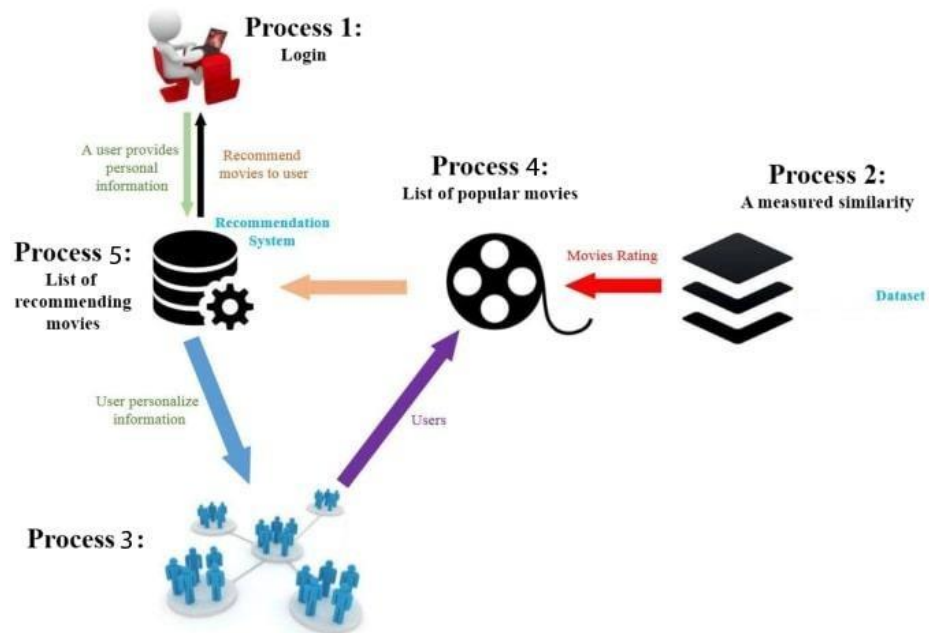
Recommendation Algorithms

- Based on chosen genres and cast:
First, the movies which have the cast chosen by the user are filtered out by using a search algorithm. Then out of those, movies that have the genres chosen by the user are filtered out using a search algorithm. The resultant movies are sorted based on the frequency of chosen cast appearing in a movie and secondly based on popularity. The top 3 movies are recommended to the user.
- Popular movies based on the genre
First, the movies which have the genre chosen by the user are filtered out by using a search algorithm. Then movies are sorted based on their popularity. The top movies are recommended to the user for that genre.
- Popular movies based on the year
First, the movies which are released in the year chosen by the user are filtered out by using a search algorithm. Then movies are sorted based on their popularity. The top movies are recommended to the user for that genre.
- Similar movie recommendation
For recommendations of similar movies, a content-based recommendation system. For recommendation, the system takes into account movie titles, genres, starring cast, keywords, overview, and the director. I have implemented Cosine Algorithm after the vectorization of movies. It is achieved by using Annoy (Approximate Nearest Neighbors) mechanism. Resource for Annoy: <https://github.com/spotify/annoy>

Web Flow



Work Flow



Requirements

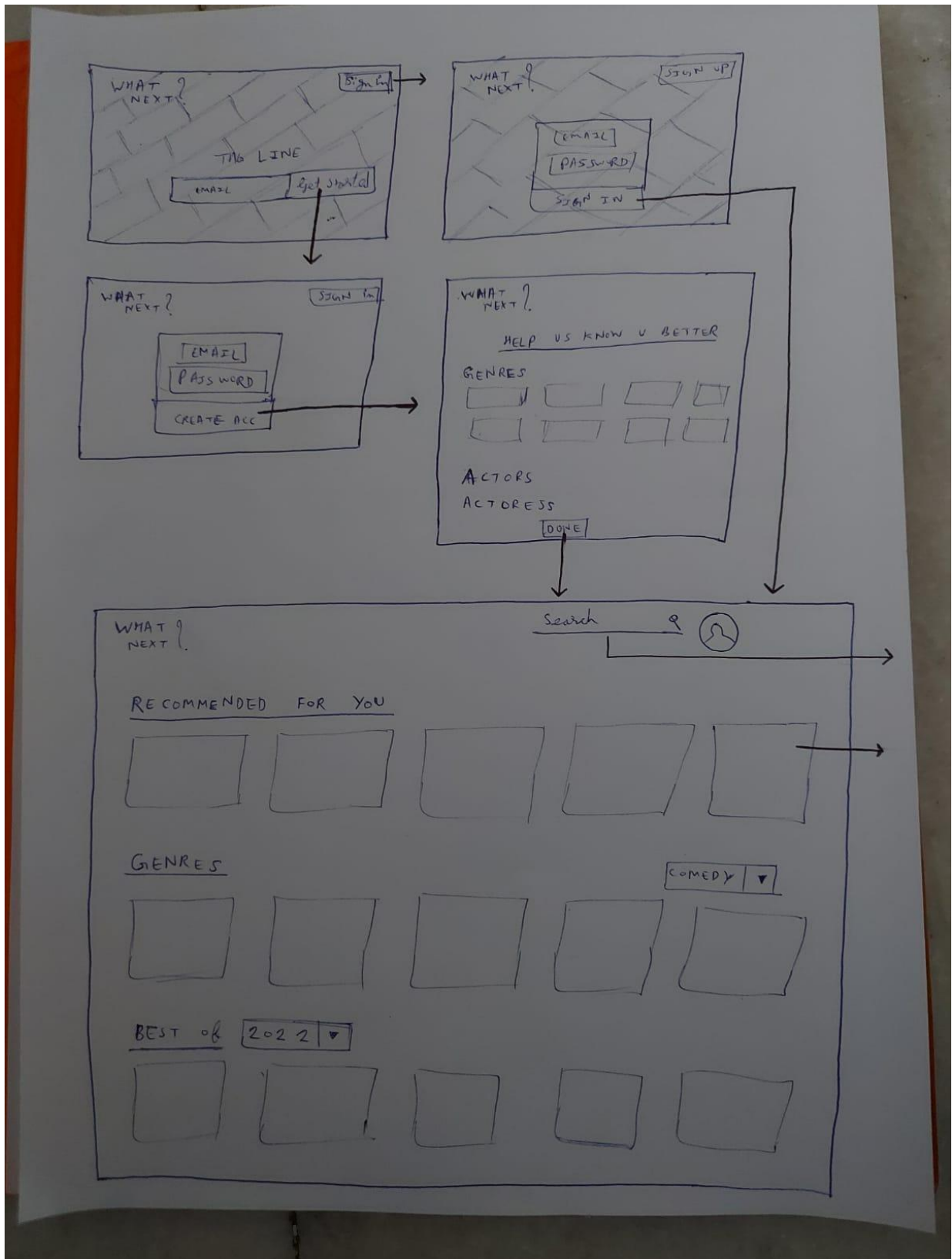
Tech Stack and Software requirements:

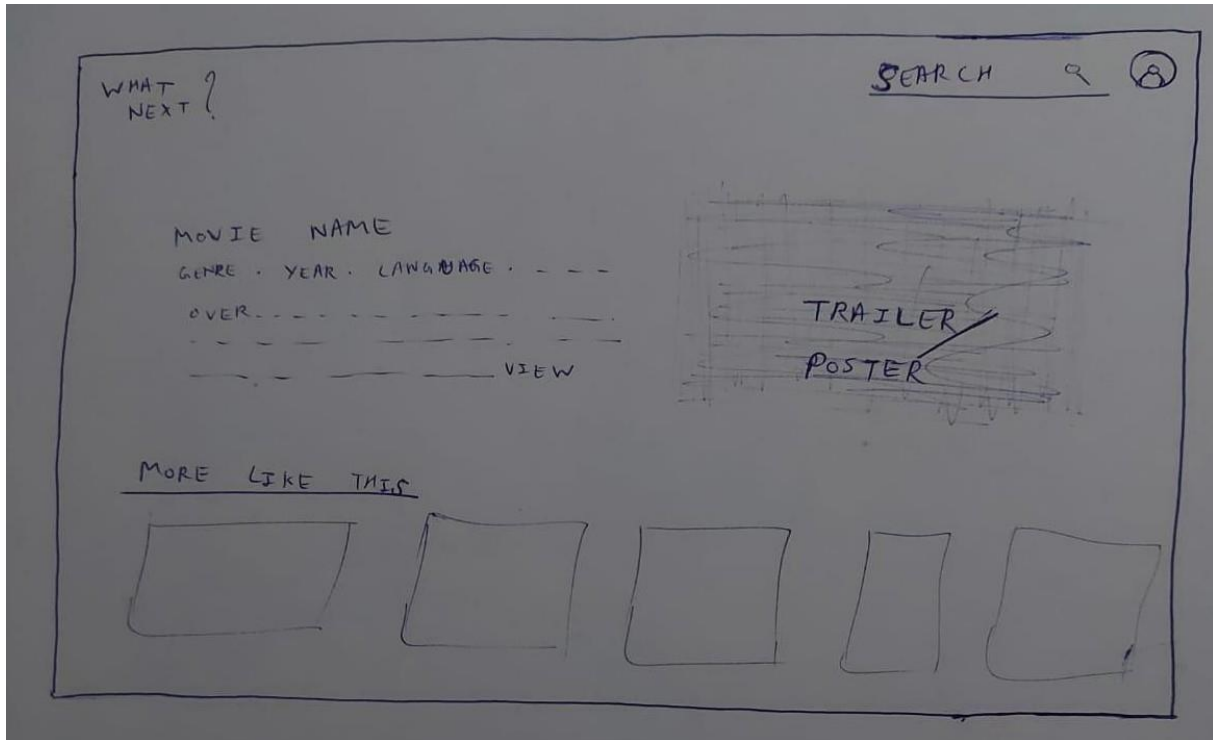
1. Frontend: HTML5, CSS3, JavaScript, BootStrap, jQuery
2. Backend: Python flask
3. Database: PostgreSQL, SQLite3
4. ML model : Jupyter Notebook
5. IDE: PyCharm
6. Version Control: Git
7. Deployment: Heroku

Libraries and toolkit requirements:

1. Python: NumPy, Pandas, ast (Abstract Syntax Trees), pickle
2. ML: nltk (Natural Language Toolkit), sklearn (scikit-learn)
3. SQLite: sqlite3, SQLAlchemy

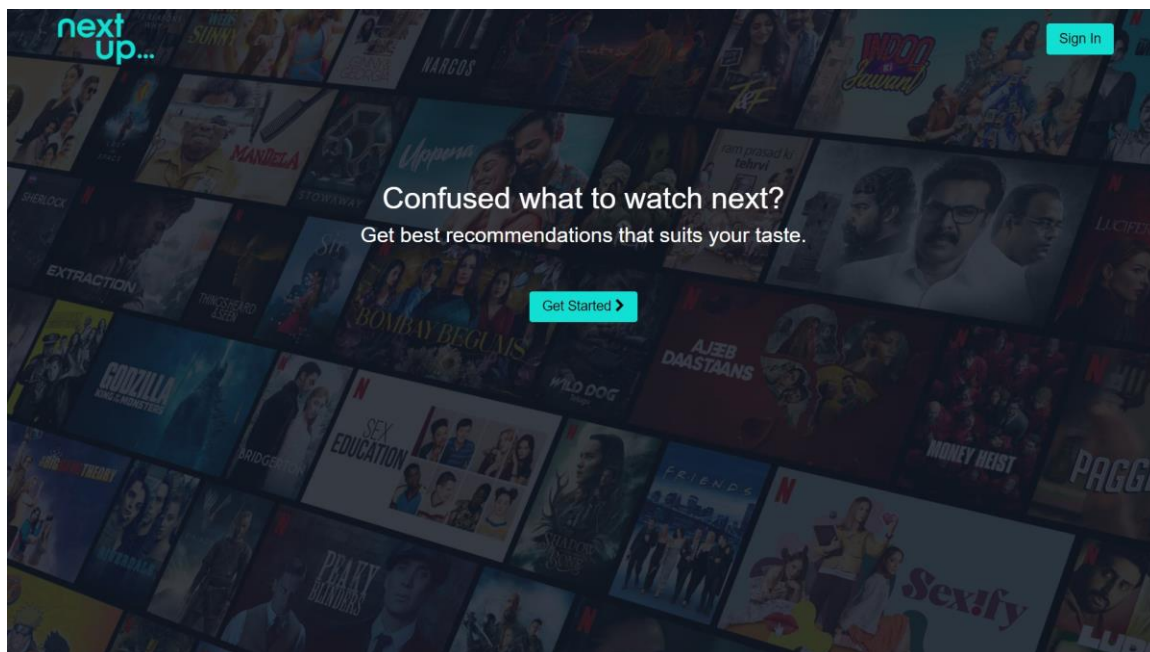
Wireframes



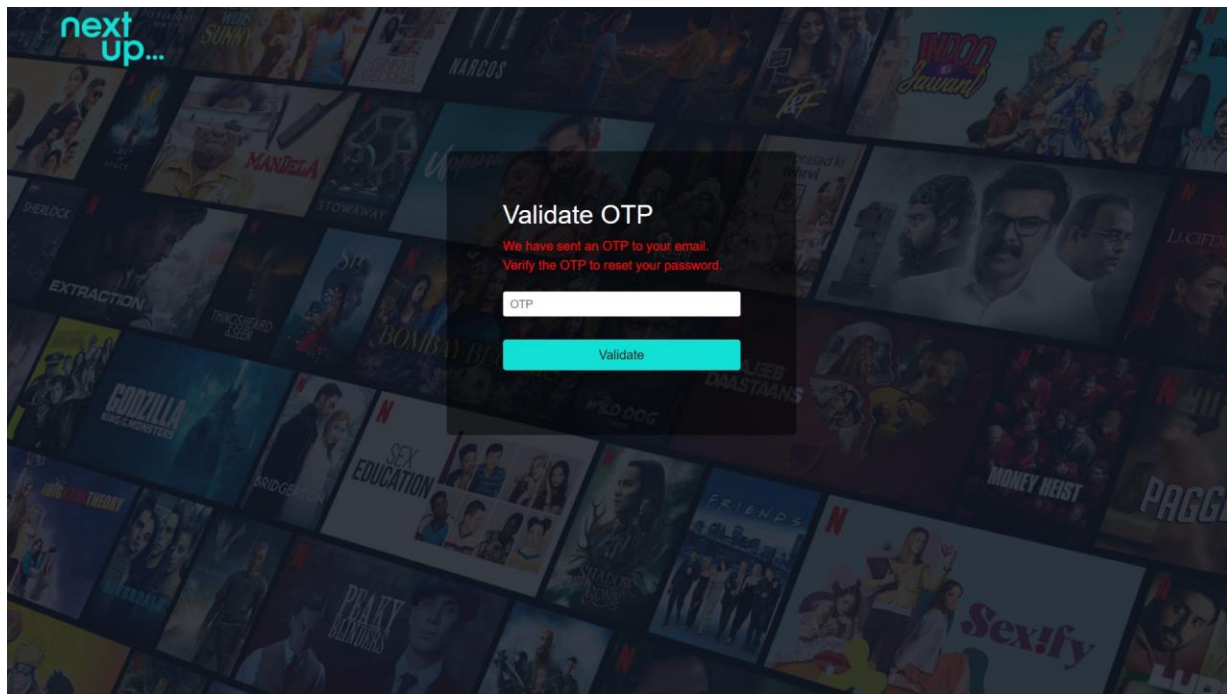


Interfaces

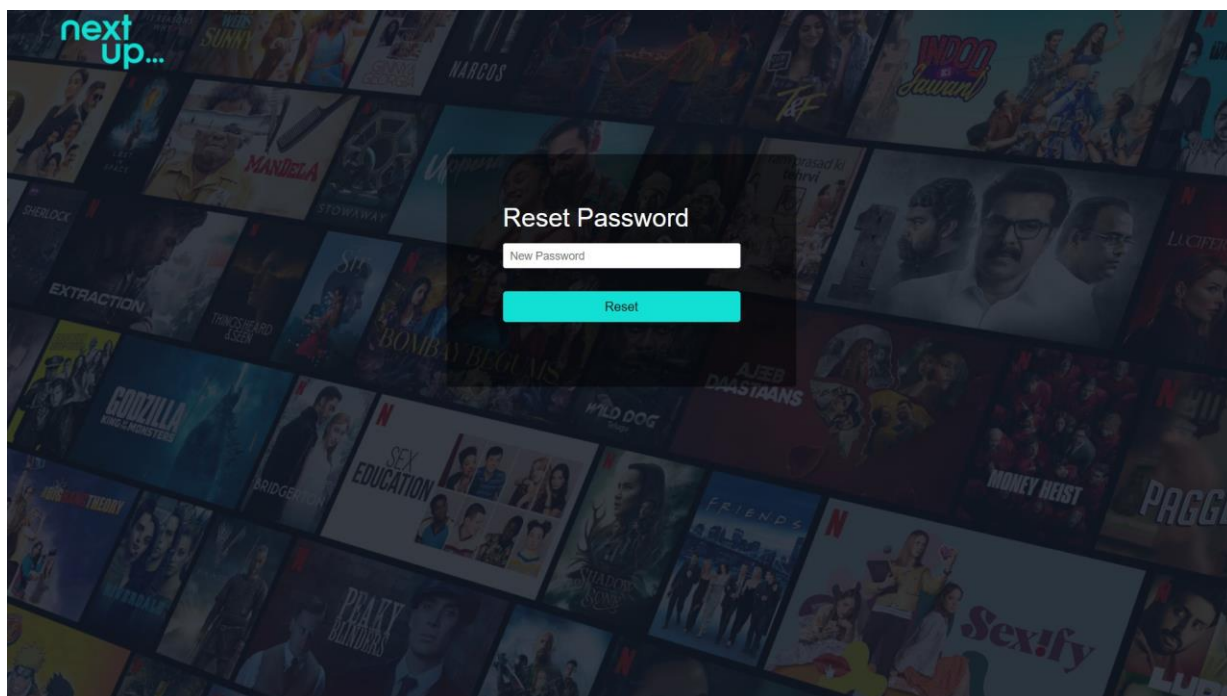
- Landing Page



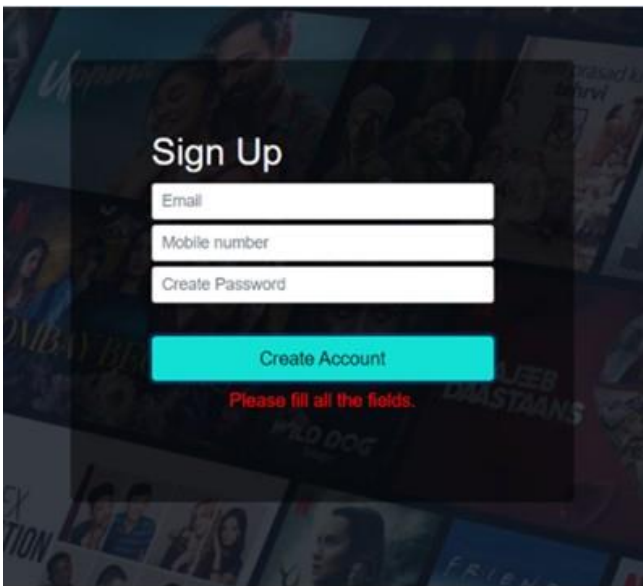
- OTP Validation Page



- Reset Password Page



- Restrictions and validations on the sign-up page, sign-in page, forgot password functionality, OTP validation page, and reset password page
 1. All fields not filled
 2. Email account already registered (sign-up), Email account not registered (sign-in)
 3. Incorrect password, OTP incorrect
 4. Email address not entered, OTP not entered, new password not entered



Sign Up

Email

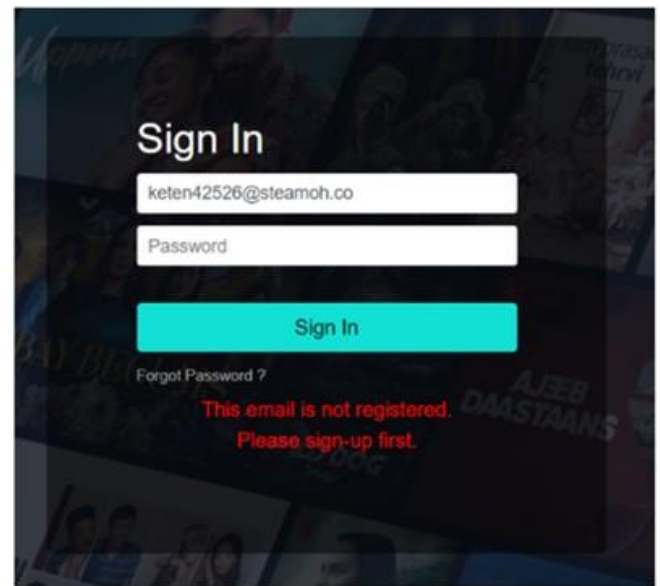
Mobile number

Create Password

Create Account

Please fill all the fields.

The image shows a 'Sign Up' form with three input fields: 'Email', 'Mobile number', and 'Create Password'. Below these fields is a red button labeled 'Create Account'. A red error message 'Please fill all the fields.' is displayed at the bottom of the form.



Sign In

keten42526@steamoh.co

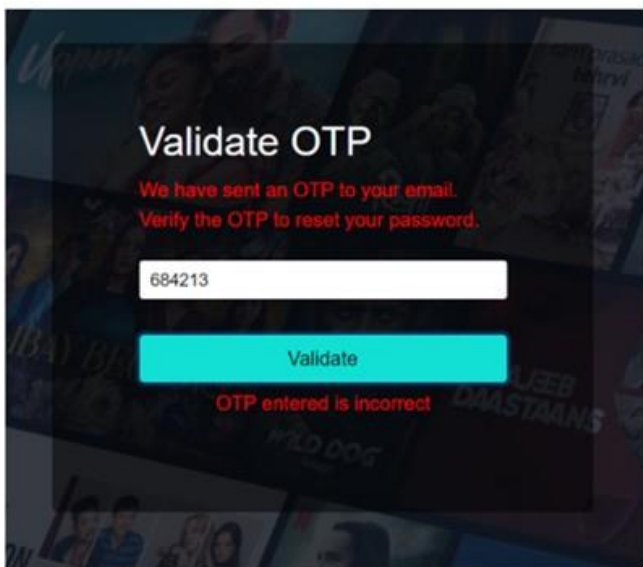
Password

Sign In

Forgot Password ?

This email is not registered.
Please sign-up first.

The image shows a 'Sign In' form with two input fields: 'Email' (containing 'keten42526@steamoh.co') and 'Password'. Below these fields is a red button labeled 'Sign In'. A link 'Forgot Password ?' is located below the 'Sign In' button. A red error message 'This email is not registered. Please sign-up first.' is displayed at the bottom of the form.



Validate OTP

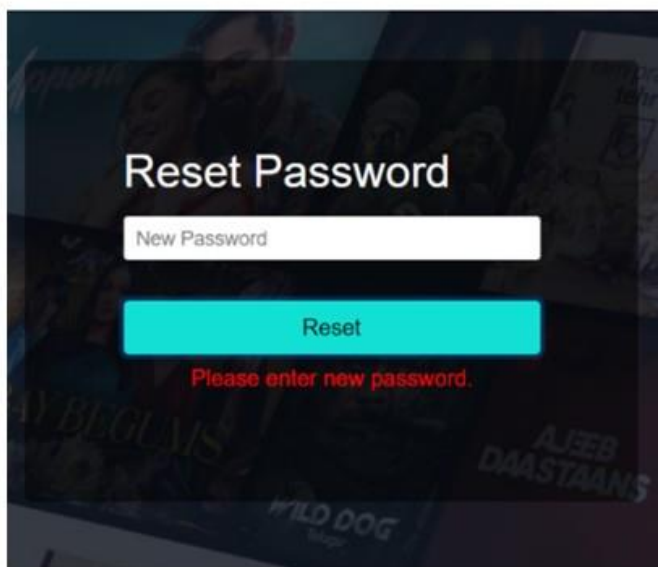
We have sent an OTP to your email.
Verify the OTP to reset your password.

684213

Validate

OTP entered is incorrect

The image shows a 'Validate OTP' form. It contains a message: 'We have sent an OTP to your email. Verify the OTP to reset your password.' Below this is an input field containing the number '684213'. A red button labeled 'Validate' is below the input field. A red error message 'OTP entered is incorrect' is displayed at the bottom of the form.



Reset Password

New Password

Reset

Please enter new password.

The image shows a 'Reset Password' form with one input field labeled 'New Password'. Below the input field is a red button labeled 'Reset'. A red error message 'Please enter new password.' is displayed at the bottom of the form.

next
up...

Select your top 3 Genres

Action

Adventure

Fantasy

Scien...

Crime

Drama

Thriller

Animation

Family

Western

Comedy

Romance

Horror

Mystery

History

War

Music

Select your top 5 Cast

Robert De Niro

Samuel L....

Bruce Willis

Matt Damon

Nicolas Cage

Johnny Depp

Morgan Freeman

Brad Pitt

Mark Wahlberg

Denzel Washington

Tom Hanks

Tom Cruise

- - - - -

Done


- Recommendations Page

next up...

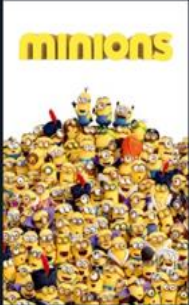
Search Movie 🔍 👤

The Martian


During a manned mission to Mars, Astronaut Mark Watney is presumed dead after a fierce storm and left behind by his crew. But Watney has survived and finds himself stranded and alone on the hostile planet. With only meager supplies, he must draw upon his ingenuity, wit and spirit to subsist and find a way to signal to Earth that he is alive.




Genre **Animation** ▾




Minions




Big Hero 6




Frozen



Despicable Me 2




Inside Out




Brave


Best Of Year **2016** ▾




DEADPOOL




CAPITAN AMERICA
CIVIL WAR




BATMAN v SUPERMAN
DAWN OF JUSTICE



X-MEN
APOCALYPSE

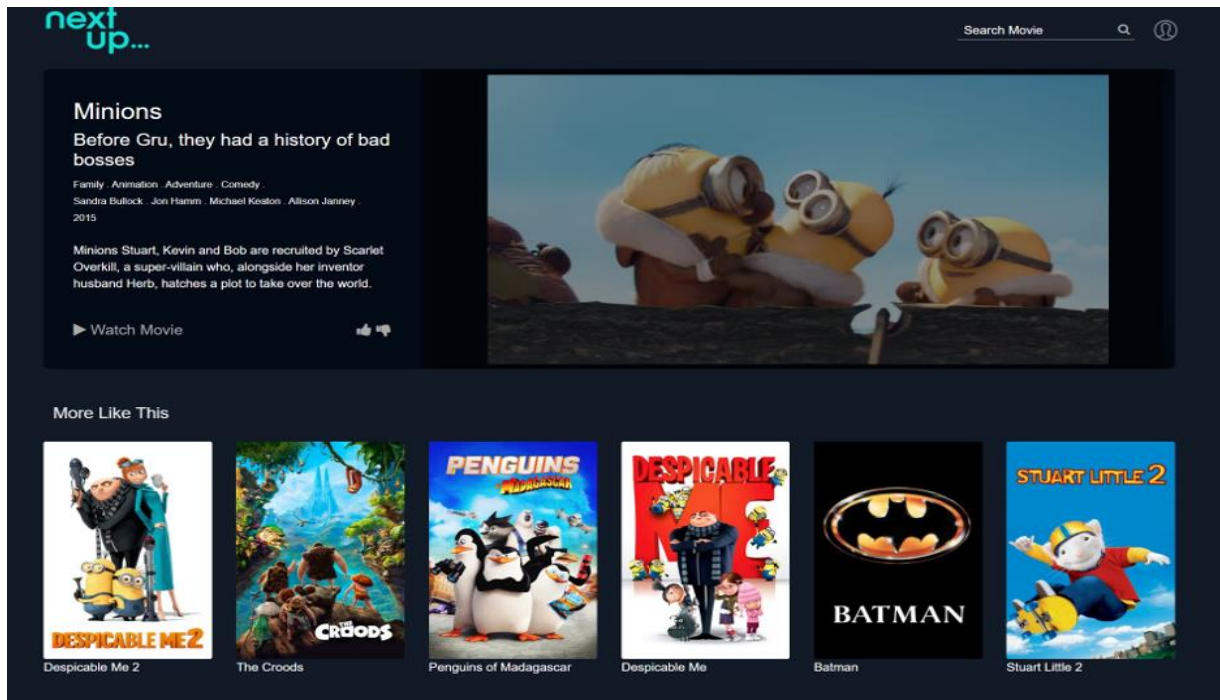


THE JUNGLE BOOK

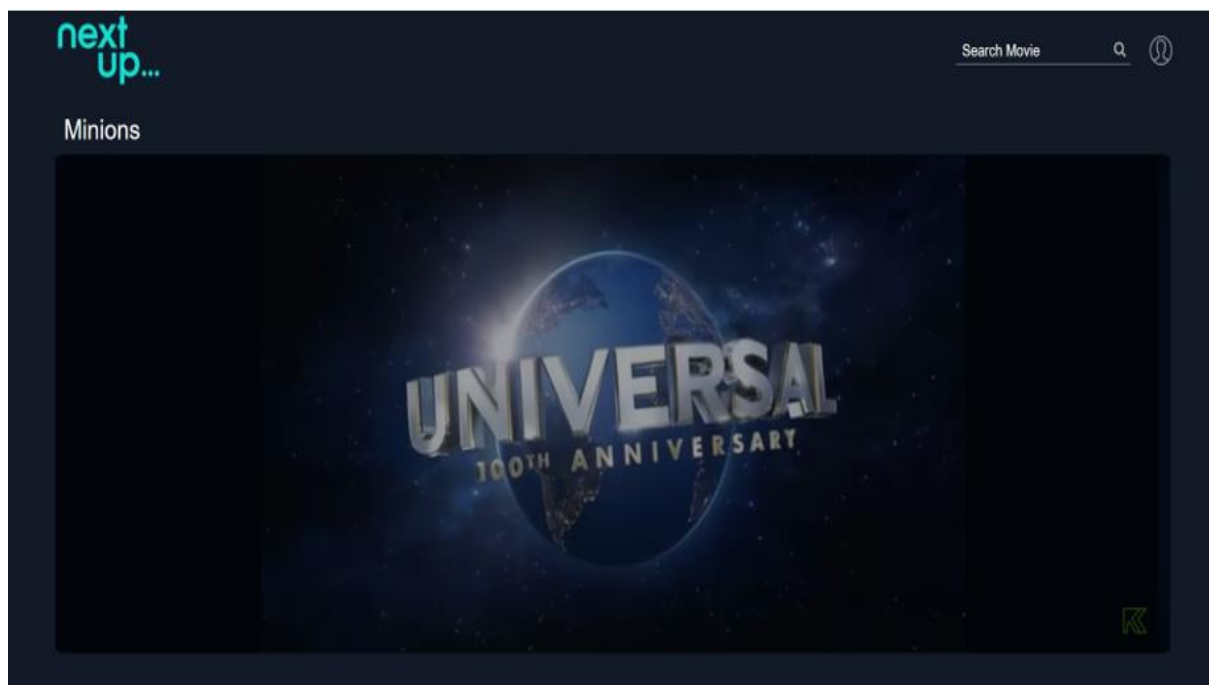


SUICIDE SQUAD

- Movie Page



- Watch Movie Page



Future Scope

- Like/Dislike: The option to like or dislike a movie adds the movie to the user's like/dislike list. As of now, I am just accumulating the data. This can be further extended by using the like/dislike list to recommend movies to the user.
- Watch Movie: The watch movie option currently displays the same movie intro for all the movies. In the future, it can be customized according to the movie selected.
- Collaborative Filtering: The model currently uses a content-based recommendation system. It can be converted into a hybrid system by adding a collaborative filtering mechanism.

Thank you.