Title: Movie Recommendation System Using Content-based Filtering

Nature of the Project: (Web-App)

The project aims to create a ML-based movie recommendation system that suggests movies to users based on their search query and similarities between movie attributes. The system will analyze user data to generate personalized recommendations and provide an intuitive interface to users to browse and discover new movies.

Scope:

The movie recommendation system uses content-based filtering and is limited to only suggesting movies from the dataset used to train the model. The application is built using the Flask framework in Python and is deployed locally on the user's system. It utilizes libraries such as Pandas and scikit-learn for data processing and ML algorithms. The project will focus on building a functional movie recommendation system that can take user input and generate relevant movie suggestions by using similarity matrix to find similar movies and build an interactive GUI to display recommended movies.

The functional requirements are as follows:

1. User Account Management:
    - User should be able to signup using unique username and password.
    - User should be able to login using their credentials.
    - User should be able to logout.
2. Movie Recommendation Features:
    - User will input a movie title.
    - The app will suggest the top 10 most similar movies based on cosine similarity score.
    - The app will display the recommended movies' titles, release dates and similarity scores.
3. UI/UX Design:
    - Homepage with brief description and instruction on how to use.
    - Search bar to input movie title.
    - The app will display the recommended movies in an appealing manner.

4. User ratings & feedback:
    - The system will allow users to provide feedback on the recommended movies.
5. User profile management:
    - The system should allow users to manage and create their profiles.
    - This includes viewing their watch history as well as updating preferences.

6. Popular & trending movies:
    - The system should display popular and trending movies that are currently popular among the general public.
    - This can be based on the number of ratings and views,
7. Error Handling:
    - If user inputs invalid movie name, webpage will show 'Not Found' error.
    - The system will ask movie to provide input again,
    - The app will display custom error page if there is any internal server error.

Product Backlog:

1. User Account Management:
    - As a User, I want to be able to create an account so that I can access personalized movie recommendations.
    - As a User, I want to be able to login and logout to access my movie recommendations.
    - As a User, I want to keep my preferences up-to-date.
2. Movie Recommendation Features:
    - As a User, I want to able to search for movies based on title or genre to find new movies to watch.
    - As a User, I want to receive personalized movie recommendations based on my viewing history.
3. UI/UX Design:
    - As a user, I want the app to have an intuitive and easy-to-use interface so that I can easily navigate through the app and find what I'm looking for.
    - As a user, I want the app to have an attractive design that is visually appealing and enjoyable.
4. User ratings & feedback:
    - As a user, I want to be able to rate movies so that I can provide feedback on movies that I have watched (or were recommended to me).
5. User profile management:
    - As a user, I want to be able to view my profile information so that I can see my saved movies.
    - I want to be able to edit my personal info to keep my account updated.
6. Popular & trending movies:
    - As a user, I want to be able to see a list of popular and trending movies so that I can stay up to date on what's popular In the movie industry.
7. Error Handling:
    - I want to see helpful error messages if I encounter an issue with the app which can help in resolving the error.

Project plan:

No. of iterations: 3 sprints planned, each of 2 weeks.

Sprint	Modules	User-stories
Sprint 1	User-Account Management, UI/UX Design	User should be able to create an account and log in using their credentials while keeping their credentials secure. User should be able to easily navigate the website and find the features I am looking for
Sprint 2	Movie Recommendation Features	User should be able to search for movies and get recommendations, then rate and provide feedback on the recommendations.
Sprint 3	User profile management, Popular & trending movies, Error Handling	User should be able to manage my profile and preferences. User should be able to see popular and trending movies on the website. User should be informed of any errors that occur and provided with helpful messages.

Number of stories and tasks per iteration/Sprint:

- Sprint 1 includes 4 total user-stories/tasks, 2 each in User account management and UI Design.
- Sprint 2 includes implementation of the Movie recommendation system and covers 4 user stories.
- Sprint 3 will cover 3 modules; each of which covers 2 user-stories.

Sprint backlog for first iteration/sprint comprising user stories to be implemented in first iteration:

- User Account Management

- User should be able to create account.
  Task1: Design a registration form.
  Task2: Implement user registration functionality.
- User should be able to login using their credentials.
  Task1: Design a login form.
  Task2: Implement user login functionality.

- User-Interface Design

- User should find features they're looking for.
  Task1: Define target audience and design goals for UI/UX design.
  Task2: Create logo and branding elements for the website.
  Task3: Implement the design into website using HTML, CSS and JavaScript.
- Easy navigation through webpage.
  Task1: Design a navigation menu.
  Task2: Implement website navigation functionality.

Scrum Master & Team Member Roles:

The scrum master will be responsible for keeping the team together and leading it through any challenges it faces, he/she will facilitate daily meetings, sprint planning and review.

As for the team members roles in this first iteration, UI/UX designer will design the user interface for this project including signup/login form. Obviously, they will work closely with scrum master and other team members to ensure user-stories are implemented and fulfilled.

The front-end designer will implement the UI design in code using HTML, CSS whereas the back-end developer will make integration is done seamlessly. The back-end developer will also develop server-side code to support the signup/login page functionality while also making sure user-data is stored securely and authentication process is robust and secure.

As a result, each team member has to work collaboratively with other team members to achieve the sprint goals in the mentioned time to complete the user stories assigned to them. They are also responsible for communicating their progress to the Scrum Master who makes sure there are no impediments blocking the team's progress.