**MOVIE RECOMMENDATION USING MACHINE LEARNING**

**Functional Requirements:**

1. **User Registration/Login:**
   * Users should be able to register and create an account.
   * Existing users should be able to log in securely.
2. **User Profile Management:**
   * Users should be able to edit their profiles.
   * They should be able to set preferences such as preferred genres, actors, directors, etc.
3. **Movie Database:**
   * The system should have a comprehensive database of movies.
   * It should include information like title, genre, cast, director, release date, synopsis, ratings, etc.
4. **Recommendation Engine:**
   * The system should employ machine learning algorithms to analyse user preferences and past interactions.
   * It should provide personalized movie recommendations based on user profiles and preferences.
   * Recommendation algorithms should consider factors like genre affinity, ratings, viewing history, and demographic information.
5. **Search Functionality:**
   * Users should be able to search for movies based on various criteria such as title, genre, actor, director, etc.
   * The search functionality should provide relevant and accurate results.
6. **Rating and Reviews:**
   * Users should be able to rate movies they have watched.
   * They should be able to write reviews and provide feedback.
7. **Watchlist:**
   * Users should be able to add movies to their watchlist for future viewing.
   * The system should provide notifications or reminders about movies in the watchlist.
8. **Recommendation Updates:**
   * The recommendation engine should continuously update recommendations based on user feedback and interactions.

**Non-functional Requirements:**

1. **Performance:**
   * The system should respond quickly to user requests, providing recommendations and search results within seconds.
   * It should be able to handle a large number of users simultaneously without significant performance degradation.
2. **Scalability:**
   * The system should be designed to scale seamlessly as the user base grows.
   * It should be able to accommodate an increasing number of movies in the database.
3. **Security:**
   * User authentication and data transmission should be secure to prevent unauthorized access and data breaches.
   * User data should be encrypted and stored securely.
4. **Usability:**
   * The user interface should be intuitive and easy to navigate.
   * It should be visually appealing and accessible across different devices and screen sizes.
5. **Reliability:**
   * The system should be available and reliable, with minimal downtime for maintenance or updates.
   * It should have mechanisms in place to handle errors and failures gracefully.
6. **Privacy:**
   * User privacy should be maintained, and personal information should be handled in accordance with applicable privacy regulations.
   * The system should provide users with control over their data and the option to opt out of data collection for personalized recommendations.
7. **Compatibility:**
   * The system should be compatible with a wide range of devices, browsers, and operating systems.
   * It should support popular web browsers and mobile platforms.
8. **Data Integrity:**
   * The movie database should be kept up to date with accurate and reliable information.
   * Data integrity checks should be performed regularly to ensure the quality of the data.