# Recommendation System Web Platform

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The recommendation system web platform is a web based application where users can see recommendations on different kinds of media (books/movies/music). Each media would have some tags/genre associated with it, which would be used in the process of recommendation.

The users of the application can be categorized as either *registered* or *anonymous*. Anonymous users will only be able to receive generic recommendations based on search terms, and will have no profile on the application. Registered users, however, would be given additional features such as the ability to provide reviews of media content (by means of text), rate recommendations and content (following a standardized "star system"), as well as add comments to the reviews. Comments will have scores attributed to them in order to display comments in the order of relevance/popularity. This will also be used in increasing the "reputation" of a user, where his comments could later carry higher weightage.

Recommendation of obscure media content will be a challenging task. To aid in the solution to this problem, there will be a feature for registered users to add their own media to expand the media database. Registered users would then be able to add other users as "friends". This would help with the recommendation process as now this process can be streamlined to consider only the friends of the user, rather than all users (hence avoiding problems of sparse data and unnecessary computation). The platform will also include a feature that would let the registered users communicate via instant messaging.

On the other side of the platform, an admin user would be responsible for the maintenance of the website and to resolve any issues. The admin profile would be one of escalated privileges. Hence, in the event of unethical behaviour on the platform (E.g. if users indulge in cyber-bullying, sharing of inappropriate content etc.), the reported user account can be temporarily/permanently banned.

There can also be a friend recommendation system, where users would be shown a list of users with similar interests. They can add these users as friends and get further enhanced personal recommendations. There can also be groups organized by users with similar interests.

Media content that is to be recommended will be identified by a set of features:
- Name
- Type of media
- Genre and subgenre
- Creator(Author/Band/Director)
- A small description
- Year of release
- Country
- Band/Actor list
- Picture
- Additional Information

Registered users would have a user profile on the platform. On this page, users can add more information about their likes to further tune recommendations (preferred genres, disliked genres, etc.)

The users will also have a favourites/disliked list, and they can add media to that. This would let the recommender system give a higher weightage to the media on that list, as well as let the user conveniently manage his favourites.

To monetize the website, we will show advertisements. In an effort to not let the ads be too intrusive, the ads would be relevant to media that the users enjoy (concert tickets to favourite artists, new books of a particular genre, etc.).

The users will be able to subscribe to the website for a certain amount to support the website and get some additional premium features including
- Removal of advertisements

- Having a larger cap for the number of friends (E.g. 1000 for premium users vs 50 for standard).
- See extra metadata like sub-genres for releases.
- Changing their username (subject to availability)
- Have a larger number of items for their personalized recommendations. (e.g. subscribed users can have 500 favourite bands while registered can have only 50).
- Early access to contents.

## Functional Requirements

### General
- Anyone can access the website. The anonymous users would have lower privileges than the registered ones.  New accounts can be made if there is a valid email that isn't in use already.
- They can change their password at any time.

### End User Requirements
- End users consist of the following: anonymous users, registered users and subscribed users.
- Registered users features are a superset of anonymous users.
- Subscribed users features are a superset of registered users.
- They will only need an internet connection to access the website. The only case when someone will be unable to use the website is if they are banned by an admin for going against the Terms of Service or if their IP was blocked for unusual behaviour.

### Anonymous End users should be able to:
- Query the website for recommendations. They can enter the name of something they like and get similar things. Or they can find the top rated releases for a particular year/genre etc.
- View the Terms Of Service
- View the reviews/comments of something they selected and sort it according to options like most liked, most disliked, most controversial, latest etc.

- View more detailed information like genre, year of release, country, people involved etc of something they selected.
- Be able to click on the ads, i.e. the buy links/new release.

**Normal Registered End users should be able to:**
- Have all the rights as an anonymous user
- Maintain a profile on the website with their personalized recommendation and information
- Add, view and message friends (other non-anonymous users of the website)
- Maintain a favourites list to better tune the recommender
- Form groups and invite other users to join the group

**Premium Registered End users should be able to:**
- Have all the rights as a Normal Registered user
- Have options to view extra meta-data of media content
- Have modified, higher limits for number of friends, number of personalized recommendations shown, and number of favourites that can be saved

**Non-Functional Requirements**

**User Interface Requirements:**
- The website should be accessible by any popular browser's interface.
- User interface should use principle of least astonishment.
- Should behave similarly for resolutions from phone displays to 4K resolutions.
- Ads should be non intrusively placed.

**Performance Requirements:**
- The response to any query shouldn't exceed 1 second.
- It should scale up to 10000 concurrent accesses.
- Ads shouldn't affect the performance. (might lead to people using ad blockers)

- Should use minimum amount of bandwidth as possible, i.e. no unnecessary javascript files etc.

**Security Requirements:**
- End users shouldn't get direct access to database.
- Only admins should be able to give admin privilege.

**Other Requirements:**
- Since this is going to be built from scratch and there is not much funding, open source technologies will be used.
- A lot of advertisements need to be done so that the website becomes popular i.e advertising on various platforms including but not limited to youtube, google, tv ads, banners and many more.
- The availability of the website needs to be 99.999%.
- Maintenance costs needs to be minimum.
- Integrating with digital media partners for getting the content before hand should be strategized.