Recommendation System for Engineering Admission

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Abstract- *Nowadays the number of students opting for engineering has increased. The number of engineering colleges are more but students do not have proper knowledge while taking admission. The present admission process has multiple rounds based on cutoffs , while students are allocated colleges based on their merit. But it is the student's preference for colleges which is critical for allocation. This recommendation system helps the students while taking admission as it will provide college list based upon the marks and preference. It recommends items based on comparison between the content of the rating and a user profile.*

Keywords- Client server architecture ,data mining , android application

I. INTRODUCTION

A recommendation engine (sometimes referred to as a recommender system) is a tool that lets algorithm developers predict what a user may or may not like among a list of given items. Recommendation engines are a pretty interesting alternative to search fields, as recommendation engines help users discover products or content that they may not come across otherwise. Recommendation engines work ideally in one of two ways. It can rely on the properties of the items that a user likes, which are analysed to determine what else the user may like; or, it can rely on the likes and dislikes of other users, which the recommendation engine then uses to compute a similarity index between users and recommend items to them accordingly. The proposed system recommends the colleges based on the value of the college and the user preference. Each college is represented by set of   attributes that define each college individually. This system has all the engineering colleges affiliated to Savitribai Phule Pune University.

II. PROPOSED SYSTEM

The recommendation system is client server architecture. The server holds all the functionalities of backend system. The backend of the system has the business logic as well as the database of the system. The client has the integration of the application programming interface(APIs). The recommendation system functions in two modules:
1. User of the system
2. Administrator

In module 1, the user of the system is the end user who will use the system to gain knowledge regarding colleges. The user will interact with the system through Android application. The user will first register in to the system and create his/her own profile. Then, the user will log in using the login credentials used to create profile. The recommender algorithm works in two phases:

1. Without priorities
2. With priorities

In phase 1, the user needs to provide his marks, category and branch of engineering. The recommender algorithm will then list out the colleges suitable for him based on the college ratings.

In phase 2, the user will be provided the privilege to select his own priorities such as placements, infrastructure, activities, etc. He/she can   select the priorities and the recommender algorithm will function according to the priorities provided by the user. The colleges will then be displayed based on the ranking value calculated using the priorities.

In module 2, the administrator is the developer of the system. The developer of the system has the rights to change the system as per the necessity . He/she can manage the database as well as the business logic of the system. The developer can manage the database through application as well as directly through console. Through application, the administrator can login to the system as he/she is already registered with admin privileges. After logging in, the admin can perform all the operations necessary to change or update the database. He/she can perform CRUD operations on the collections in the database.

The algorithm is implemented in three parts,

I. Calculating avg cutoff:

$$M = \sum_{i=1}^{3} C_i/3$$

Where

Ci is the cutoff marks of previous three years as per selected branch and category,

M is the average cutoff of three years.

II. Calculating ranking value without rating factors as input by user:

$$R1 = \log(M) * sqroot[\ \sum_{i=1}^{15} (Ri)\ /15\ ]$$

where,

M is the average cutoff of three years according to selected category and branch,

Ri is the rating factors,

R1 is the ranking value without rating factors as input.

Iii. Calculating Ranking Value With Rating Factors As Input By User:

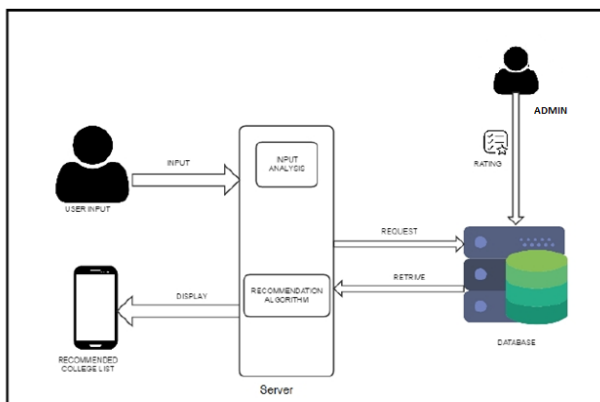$$R2 = \log(M) * sqroot[\ \sum_{i=1}^{n} (Ri)\ /n\ ]$$

where,

M is the average cutoff of three years according to selected category and branch,

Ri is the rating factors,

n is the number of rating factors given as input by user,

R2 is the ranking value with rating factors as input.

The list of colleges will be recommended as per the ranking factor value

System Architecture 1

III. APPLICATIONS

The applications of this system can listed as:

- This system is very useful for the students to gain insight and knowledge of the engineering colleges and suitable college to opt for based on their marks.
- This system can also be used by the colleges under university of Pune to analyse their performance.

IV. CONCLUSION AND FUTURE SCOPE

This recommendation system is efficient , scalable and user friendly. The recommendation can be provided based on different parameters like marks, cutoff , branch ,category etc. using an algorithm. This system proves to be useful for students who have no knowledge about admission process. We did exhausted literature survey on recommendation system and come to a conclusion that there is not a fullfledged recommendation system. We evaluated how to use different recommendation strategies to generate recommendations. The future scope of the system is very vast. This system can be scaled to different fields of graduation and also for different universities. The system can be modified and can be implemented using Hadoop. Also other factors such as maps, location, navigation can be added to the existing system.

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