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COLLEGE RECOMMENDATION SYSTEM USING ARTIFICIAL INTELLIGENCE AND MACHINE LEARNING

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ABSTRACT

A student's decision to enroll in a particular educational institution is one of their most important or important choices because it is essential to their career development and growth. The educational sector's engineering sector is one of the fastest growing. The engineering sector is quite competitive for students throughout India.

The topic that is now being debated a lot in India is college rankings. Every student must make a significant decision when selecting their educational institution because it affects how their personality and career will grow. This project lets students learn everything they need to know about engineering colleges. Some numerous websites and apps provide details about different engineering colleges, however, when it comes to students, they must get specific details about factors like professors, campus life, hostel amenities, placement, etc. Today, CET or diploma final year scores are one of the key requirements for admission to any engineering college. Students from small towns and cities are less likely to attend different colleges. The fresh talent will be adequately channeled as per their interests if these pupils have enough exposure. The user will assess the questions based on his level of interest. The dataset will contain the list of colleges so that the accuracy and precision of the system can be determined.

Keywords: College, Dataset, Education, Engineering, Interest, Recommendation.

I. INTRODUCTION

Humans employ numerous methods in our computer era for various purposes. There are numerous software programs and human applications available. Using this software, we may create a list of colleges a student is qualified to attend. We put forth a system to offer a recommendation system that will produce a list of colleges the user is interested in. This will be accomplished by asking a few questions about the college, such as about its facilities, campus life, employment opportunities, athletics, and extracurricular activities. The user will assess the questions based on his level of interest. This project's difficult task is compiling a database of every engineering institution in Maharashtra and generating a list of colleges based on user preference. The system would produce a list of colleges for students who have completed their HSC and Diploma in any engineering discipline after selecting their grades and other criteria. Many students from throughout Maharashtra complete their HSC and diploma exams each year. Every student desires to enroll in the best engineering colleges after clearing their examinations. Every student must apply to a certain minimum number of colleges where he or she might be admitted as part of the admissions process. A list of the colleges to which they desire to get admitted must therefore be made by a candidate. The list-making process requires a significant amount of manual college study. The college list will be generated automatically by our system. We aim to decrease this difference by creating a system that would produce a list of colleges for which a candidate is qualified.

II. LITERATURE SURVEY

In this paper [1], user-based collaborative filtering and association rule features are considered for selecting the highly rated top-N books. They have combined the features of classification, user-based collaborative filtering, and association rule mining for recommending books to buyers. The main motive of the paper was to develop the technique which recommends the most suitable books to the students according to the price range and author.

In this paper [2], they used data mining and machine learning techniques. This paper issues the problem faced by the students who have completed their SSC examination from the various boards to select the stream and

college. In this paper, they have focused on how to make the process of junior college admission more convenient and help students to choose colleges that fit best for them based on their needs. They have used various data mining and query optimization techniques for the college recommendation process. For more accuracy or optimality in recommendations, they have also used Naive Bayesian and Decision trees algorithms which help in minimizing the search time of colleges and the system will be able to give optimized results.

In this paper [3], they presented a model to generate recommendations based on the marks of students. It offers better opportunities in the project development cycle under the requirement phase and design phase. The social media and Ecommerce market has tapped into the recommender system to boost its growth by providing precise results. They mentioned that, provide either service or product recommendations using the information gathered in the software engineering process. It is broadly divided into three categories which are Collaborative, Content-based, and Hybrid recommendation approaches.

In this paper [4], they present a novel web platform for a college selection process. Having a recommendation system as a helping hand to give them detailed information about the options they have and the best options to choose from according to their caliber is a huge requirement. In this paper, we worked on designing a recommendation system that could understand a user's skill set and interest through the data from the User's Profile to suggest recommended options of colleges for the users to select. We have developed the college recommendation system as a web platform that gives the result as top matched colleges for a particular use.

In this paper [6], they mentioned the lack of semantic factors in recommendation systems and describes the different recommendation techniques that are being employed in the current e-commerce website. Recommendation systems can be broadly classified into three categories: content-based, collaborative, and hybrid recommendation approaches. Content-based systems consider the properties of the items to be recommended. For instance, if an Amazon user has purchased many romantic novels, then the content-based recommendation system recommends novels in the database as having the "romantic" genre. Collaborative filtering systems recommend items based on similarity measures between like-minded users and/or items. The items recommended to a user are those preferred by similar users. This paper also emphasizes the need for semantics in the current recommendation system.

In this paper [7], they have used the following approaches – a simple recommendation system, a content-based filtering approach, collaborative-based filtering approach., with the huge number of technologies and a tremendous amount of information being available at the disposal over the Internet, a huge amount of data is made available to users. This results in a condition known as "information overload". Due to these, it is difficult for a person to search and access information for taking decisions to arrive at an effective conclusion. To perorate this nut, there are filtering systems for information, known as the recommendation system or recommendation engine, considered here in the paper, that help a person in identifying significant and possible services or products of interest based on the preferences given by him/her. This results in searching through lots of results to find the one that the user needs.

In this paper [8], they used data mining techniques. They have proposed a system that provides a recommendation system that generates the user-interested college's list. The database is collected by asking a few questions related to the college like college infrastructure, campus life, placement, sports, and cultural activities. The list of colleges is stored in the dataset for calculating the accuracy and precision of the system.

This paper [9], —This paper presents a new System designing method for job recommendation of College Graduates based on Hadoop in China. With the enlargement of the scale of Chinese graduates and the improvement of the employment demand of enterprises, the employment situation of college graduates is becoming more and more serious. College graduates can't get a satisfactory job, while enterprises can't recruit suitable graduates. To improve the satisfaction and efficiency of college graduates' employment and enterprise recruitment, an intelligent employment recommendation system was designed in this paper which was based

on the collaborative filtering recommendation framework Mahout. With the system, the intelligent recommendation mechanism of schools, enterprises, and graduates could be realized, and the employment efficiency, the satisfaction of college graduates, and the efficiency of recruiting enterprises could be effectively improved.

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In this paper [10], they had given a systematic review of the recommendation System. In the paper, they described the challenges developers faced while proposing any recommendation system. As per them, the key challenges to a recommendation system arises due to the huge growth of data on the internet as well as the no of users visiting the websites. In this paper, they have explained approximately the recommendation system, its processes, and the technology used. Their study shows that an item-based recommendation system is an efficient recent method to make recommendations where users could provide the whole documents instead of just keywords and make internal and external ratings to make a recommendation system.

In this paper [11], they reviewed data mining based on recommendation Methods. They have described the recommendation system techniques such as content-based recommendations, collaborative recommendations, Information based suggestions, and hybrid recommender systems. As they say, the most used recommendation method is the web-based approach used for recommending the set of ranked and limited products from all available products of the same category without using direct inputs from end users. In this paper, they have presented the systematic review of a novel fuzzy preference graph-based B2B marketing campaign recommendation system to address the challenges of the complex and dynamic nature of the business buying process. The fuzzy approach is used to address the challenges of vague or fuzzy online users' preferences problem.

In this paper [12], they designed and implemented a Recommendation system for college libraries. They mentioned that to meet the real-world circulation demands for college library books, in-depth analysis is performed on the library book circulation data and readers' preferences. The Apriori algorithm is used to build the recommendation for college libraries. The proposed system was able to provide efficient and custom services, enabling readers to find the books of their interest more quickly.

In this paper [13], they described the various web recommender systems in use by some popular websites on the internet like Amazon.com, LinkedIn.com, YouTube.com, etc. Further, we have described the various approaches used in the various recommender systems such as Content-based, Collaborative, and Hybrid recommender systems. At the end of this paper, they focused on some of the main challenges faced by web recommender systems and analyze some techniques to overcome them.

III. PROBLEM STATEMENT

For a student who wants to be admitted to a top engineering college, finding a respectable institution to attend is a difficult task. Students search from a variety of perspectives, including the college campus, the faculty, extracurricular activities, placements, etc. According to the student's grades and other selected criteria, the College Recommendation System will produce a list of colleges. It will chop out details and lessen manual research in engineering colleges.

IV. PROPOSED METHODOLOGY

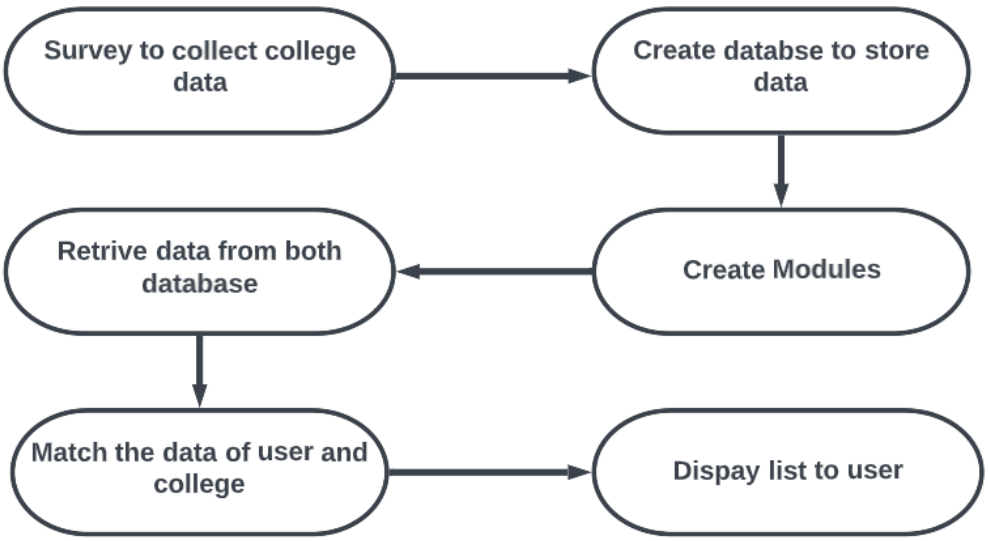

Fig. 1

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The proposed system will be the website developed using HTML, CSS, and JavaScript mainly where we will implement our recommendation system. The recommendation mainly uses the python language. To store the database of the engineering college we are using MySQL. The system will first store the information provided by the user or student and then it will match the data with the college database and display the list of colleges according to the match.

A. Step-1: Survey to collect college data:

The recommendation system mainly works on the database. The database is the root of any recommender system. To recommend the colleges to the users according to their choice it is necessary to have sufficient data on the colleges for accurate results. We will collect the data of colleges from the students of that colleges, from the students who have passed out, use some internet resources, etc.

Step-2: Creating Modules

As our system is currently proposed for the students who are appearing for B. E (1st year Engineering) and DSE (Direct second-year engineering). The main parameters of the system are marks, branches, distance, and campus infrastructures.

Marks:

Students who need to take admitted to B.E and DSE need to enter their HSC, CET marks, and Diploma Final Year Marks Respectively.

Branch:

As we know, engineering is a sector in which there are several branches where students can enhance their knowledge in their interested branches. Users in the system can select one or more branches.

Distance:

The distance can be the major parameter to choose any institute. Users need to decide how much distance he/she can travel every day. Users need to provide their location and the distance he/she can travel.

Campus Infrastructure:

This includes campus placements, extra curriculum activities, Co-curriculum activities, campus life, and other some parameters.

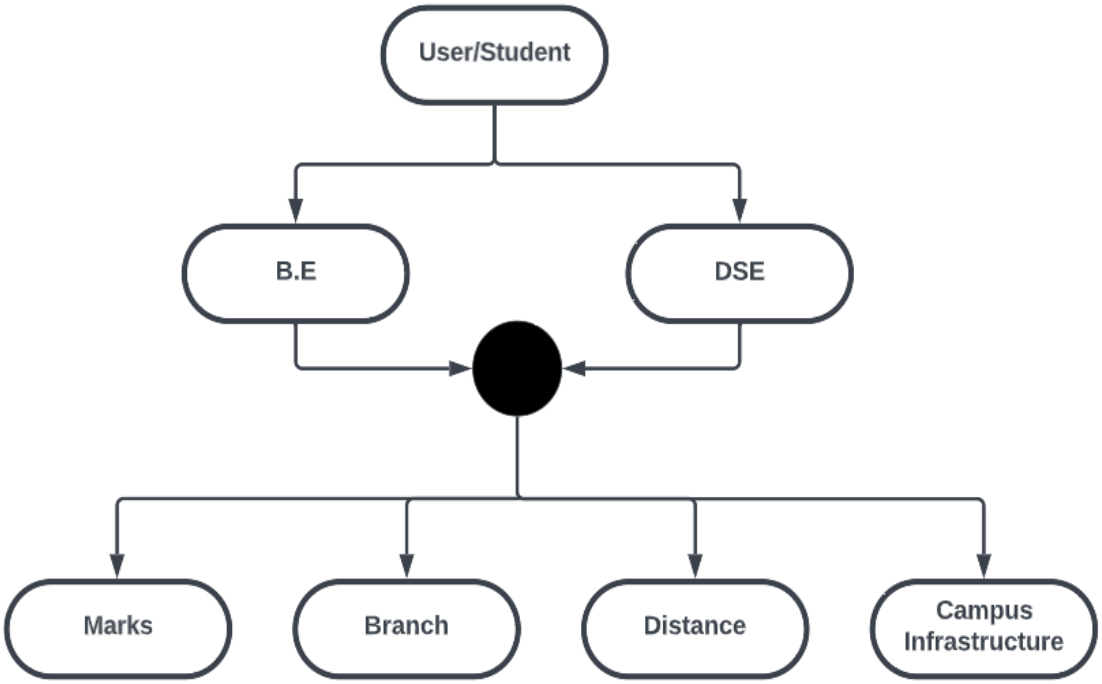

Fig. 2

Step-3: Retrieving data and Displaying list:

The data of the colleges stored and the data entered by the user are matched together and using some recommendation algorithm the list of colleges will be displayed to the user. This list will reduce the manual research of the college and cutoff details.

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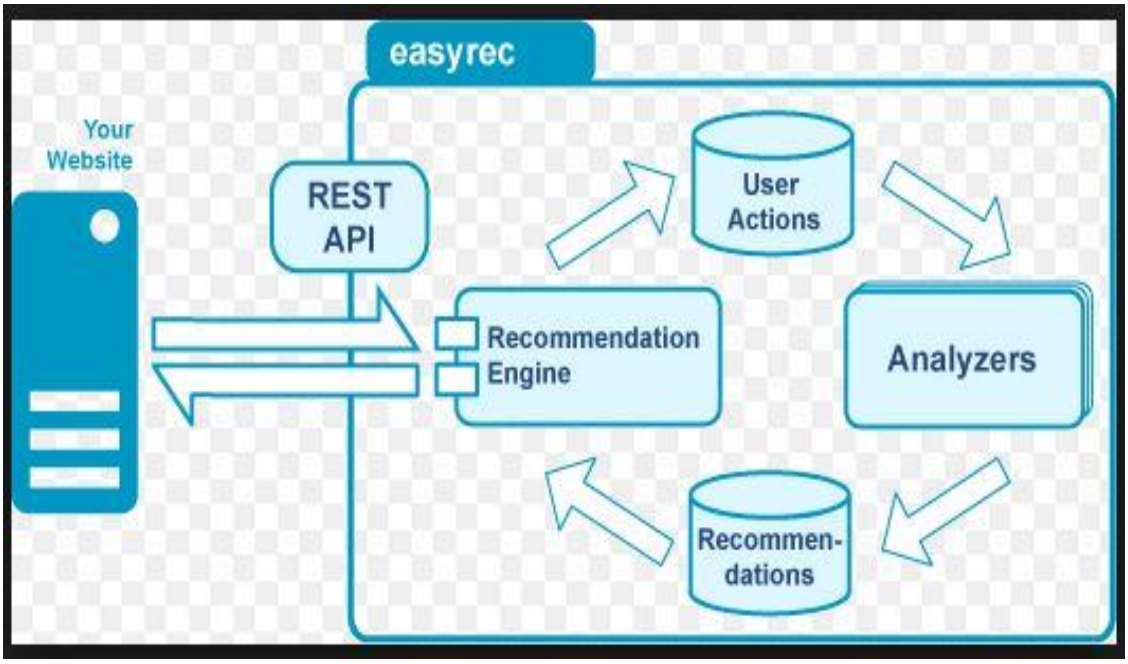

Fig. 3

V. PROJECT PURPOSE

The topic that is now being debated a lot in India is college rankings. Every student must make a significant decision when selecting their educational institution because it affects how their personality and career will grow. This project lets students learn everything they need to know about engineering colleges. Some numerous websites and apps provide information on different engineering colleges, but when it comes to students, they must gain specific insights into aspects like faculty, campus life, hostel facilities, placement, etc. Today, CET or diploma final year scores are one of the key requirements for admission to any engineering college.

VI. FUTURE ENHANCEMENT

Many youngsters will benefit from our system because there isn't one like it yet. Our system will currently only be accessible to applicants for B.E. programs, and second-year direct engineering students will be the only ones who can use and gain from it. They can discover about engineering colleges easily and swiftly.

VII. CONCLUSION

Thus, in this paper, we have focused on how to make the process of B.E and Direct second year admission more convenient and help students to choose colleges that fit best for them and based on their needs. To make college recommendations, we have applied a variety of data mining and query optimization approaches. We are proposing this system, to reduce the manual research of engineering colleges and cut off details.

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