College Recommendation System

Vinit Jain
B.E. Student of Computer branch
Atharva College of Engineering
Mumbai, India

Mohak Gupta
B.E. Student of Computer branch
Atharva College of Engineering
Mumbai, India

Jenish Kevadia
B.E. Student of Computer branch
Atharva College of Engineering
Mumbai, India

Prof. Krishnanjali Shinde
Faculty of Computer Department
Atharva College of Engineering
Mumbai, India

***Abstract*—To choose any educational organization is one of the major or foremost decision for every student because it plays a vital role for growth and development of students and it also helps to boosts their career. SSC is one of the crucial stage of every student's life in India. It decides the future of every student career. SSC decides in which stream the student will make his career. SSC scores of the student decides in which college the student will take admission. College selection is second step after SSC in student's career. The college selection plays an important role as college selection requires a lot of searching work. Students search for the various aspects like college campus, teaching staffs, extracurricular activities in colleges, infrastructure of colleges, etc., even the reviews of college is searched to get extra confirmation about the genuinely of details. Searching all the details requires a large amount of time. Hence, it's important to reduce this manual work and automate this with help of software.**

Keywords— Recommendation System; Data Mining; Decision Tree; Classification; Optimization; Query Processing; Filters; Bayesian.

I. INTRODUCTION

In this technical world, many techniques are used by humans for some purpose. There are many software, many applications are developed for human being. In this software, we can generate a list of colleges in which a student is eligible. Data mining techniques are of great importance in present education and business system [2]. A data mining task can be defined or described in the form of a data mining query, which is input to the data mining system. [3]. Approach of Decision tree is proposed which may be taken as an important basis of selection of college during any course program [2].

In college recommendation system, the challenging task is to collect the database of all colleges [5]. Generating the list of colleges from all the colleges requires to eliminate those colleges in which the candidate is not eligible [8].

Every year lakh of students from different boards pass there SSC and enter into junior colleges. While going through admission procedure student need to enter some minimum count of colleges in which he might have a chance to get admission. Because of this a candidate needs to prepare a list of colleges in which he/she intends to get admission. This task of list generation requires a large amount of manually searching, comparing different prospects of colleges. Our goal in this project is to automate this college list generation. We in this project aim to reduce all this manual working by making a system which will generate a list of colleges in which candidate is eligible and also provide him functionality of inter-college comparison.

This project aims in developing a college recommendation system using Data Mining and Query Optimization techniques which generates the list of colleges in which the candidate is most probable to be eligible.

II. LITERATURE REVIEW

"College Recommendation System" by "Leena Despande, Nilesh Dikhale, Himanshu Shrivastav ", in this paper they had proposed different data analysis and data mining techniques that can be used for college recommendation system. This system is made for students, parents and educationalist who aims to search engineering colleges. Recommendation systems solve the problem of information overload by searching through large volumes of data. There are different prediction techniques that help recommendation systems to obtain data. It includes data mining and machine learning techniques for presenting the required information and filtering data. Similar data mining techniques can be used in order get the list of colleges [1].

In "SQL Query Optimization Methods of Relational Database System" by Dandan Li, Lu Han, Yi Ding" this paper provides information on various ways of writing SQL queries. It also describes various features of oracle database that can be used to improve performance by partitioning large tables, using views and storing plain outlines. It too provides SQL tuning techniques which can help to tune SQL statements [2].

In "Recommendation in Higher Education Using Data Mining Techniques" by "Cesar Vialardi, Javier Bravo, Leila Shafti, Alvaro Ortigosa" this paper provides the use of another data mining techniques that can be useful to extract the required information in efficient way. This paper issues on the problem faced by the students in university to decide which courses they should opt for. Similar problem appears for the 10^{th} pass outs on which stream which subject and which college for particular subject they should select. This paper describes how to perform data pre-processing, pattern extraction and evaluation. [3].

In "Adaptive Query Processing" by "Amol Deshpande", "Vijayshankar Raman" this paper provides the use of adaptive query processing algorithm. This paper describes on how to improve query processing during runtime. Query processing requires lot of CPU resources and time. To improve this query processing, this paper provides plans to improve processing of quires that run-in database. In relational database, traditional approach is to parse the query and produce logical representation of query and then call the optimizer to optimize it. This may bring load in the system, AQP provides techniques like Symmetric hash joins, Adaptive Loops [4].

In "Classification and prediction based data miming algorithm to predict based slow learners in education sector" by " Parneet Kaur, Manpreet Singh , Gurpreet Singh Josan. Lakshmi M. Gadhikar, Deepa Vincent, Lavanya Mohan and Megha V. Chaudhari " describes that the data set of schools are taken and filtration is done using WEKA an Open source tool. The data set of student academic records is tested and applied on classification algorithm known as Nave Bayes Algorithm. [5].

In " Data Mining in Education: Data Classification and Decision Tree Approach " by "Sonali Agarwal, G. N. Pandey, and M. D. Tiwari " decision tree approach is used, which may be taken as an important basics of selection of student in any course/program. Different data mining schemes can be used on business intelligence process of educational system to enhance the efficiency. Similar decision making tree can be used in helping students to select college based on various criteria specified by the student. [6].

In "Bayesian-Inference-Based Recommendation in Online Social Networks" by "Xiwang Yang, yang Guo, Yong Liu" they have proposed recommendation system based on Bayesian Inference for online social networks. In this the user can share their content ratings with their friends. The ratings among a pair of friend is measured and set of probabilities is derived from them based on mutual ratings. When a user fires a query for a particular content rating, a Bayesians network is developed and rating is generated from his direct and indirect friends. Similarly, same technique can be used to get the ratings of colleges. Here the ratings of various college that would be colleges that would be collected from various modes such as social networks, goggle forms, end-to-end ratings etc., Bayesian's Algorithm can be applied to get the most probable rating of colleges. [7].

In "WEKA Approach for Comparative Study of Classification Algorithm" by" Trilok Chand Sharma, Manoj Jain" this paper compares Naive Bayes and J48 algorithm. Naive Bayes uses probability and J48 algorithm uses decision tree. Accuracy is checked using WEKA tool. The experiment results described in this paper are about classification accuracy and cost analysis. In this paper the results on dataset also show that the efficiency and accuracy of J48 and Naive Bayesian is good [8].

III. PROPOSED SYSTEM

Current system which are similar to our system provides solutions to the student studying in Under Graduation and Post-Graduation. There is no such system available for 10th standard/ SSC pass out students. Our system aims in guiding a student for his career right through SSC. The system helps student to get list of colleges that are famous for particular courses in particular region. The system contains variety of range of filters through which student can get list of colleges based on his/her criteria. Other system build on same objective are web page sites while our system is desktop application that a user can use with ease.

Our proposed system aims to develop a software for SSC passed students in order to help them in their admission process. This project will help the high school students to get the list of colleges based on their scores. The inputted student score will be compared with past year's college cut-offs and a list would be populated within the range of +5 and -5 of the student's score. The generated list would be ordered based on the best rated college and cut-off. The rating of the college will be collected from various students across different colleges. Along with cut-off the resulted list would be filtered based on various criteria like caste information, region and minority. This filters would be selected by the user based on his choice. Thus, the populated list can be used by the user to fill the junior college admission form hence reducing their stress of manually preparing the list or roaming everywhere to get information about admissions from their seniors.

Also, this project will help the student to get the college based on their career's perspective and also based on the field of interests. The details of our project is given below

A. Process

In first stage of the project we will start making frontend and backend of the system. Then we will start preparing the database which will contain the list of all Junior colleges, user's details, registration details, cut-off details, login details and many more useful information. All information of colleges that we are going to put in database will be based on student's reviews. These reviews will be collected by us personally from some of the students of various colleges and by the way of google sheets. These reviews will be based on various parameters like teaching, college environment, training, etc. Our system will compare students score with college's cut-off and generate list. System also generates ratings based on users provided reviews. Our system will generate ratings using efficient rating prediction algorithm.

B. Algorithms used

We are using Naive Bayesian's and Decision Trees which are useful to solve the given problem. The algorithm which is expected to have higher accuracy in recommending the best college to be used. Therefore, this technique would be helpful to students for minimizing their time in searching colleges. Our system consists of total four modules which describe the various aspects for recommending colleges, details of the all colleges, branches and comparison with other colleges.

Total 4 modules of our system are explained below as shown:

a) College Search: In this module, user will be required to enter his name of the college and its location by which he wants to search as input. Accordingly, a list of colleges will get generated and will be displayed to the user.

b) Analogy: In this module, user will be given a choice about selection of colleges which he wants to compare. By this he will get a clearer idea for the distinguished college.

c) Advanced Search: We have collected various ratings from a survey using Google form. The area of fields on which we have given ratings includes attributes like infrastructure, cultural, technical activities, sports, NSS, etc. and other attributes include faculty, hostel, placement and fees. Based on the feedback received by the students of various colleges we have calculated the average of their ratings so that we can get a mean value. In this module, user will be asked to give his academic details and his area of interests in co-curricular and extracurricular activities. According to his merit, interests, fees, locality and other provided details colleges will be shortlisted.

d) Branch Wise Search: In this module, user will be asked to give his academic details and name of the college. According to his merit, a list of branches will be recommended which the student will most likely to get according to merit of that particular college.

IV. FUTURE SCOPE

Since there is no such system available in present, our system will be beneficial for lots of students. Presently our system will be exclusive to only for SSC students but in the future, more higher education students will be able to take advantage of our system and will be able to use it since we will be adding support for more streams in future updates.

V. CONCLUSION

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

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REFERENCES

[1] Leena Deshpande, Nilesh Dikhale, Himanshu Srivastava, Apurva Dudhane, Umesh Gholap “College recommendation system”, ISSN: 2321-9637, NCPCI-2016, 19 March 2016, in press.
[2] Dandan Li, Lu Han, Yi Ding "SQL query optimization methods of relational database system", ICCEA, 12 April 2010, in press.
[3] Cesar Vialardi, Javier Bravo, Leila Shafti, Alvaro Ortigosa "Recommendation in higher education using data mining techniques ", 2009, unpublished.
[4] Amol Deshpande, Vijayshankar Raman "Adaptive query processing ", Foundations and Trends in Databases, Vol. 1, No. 1 (2007) 1-140.
[5] Parneet Kaur, Manpreet Singh, Gurpreet Singh Josan, Lakshmi M. Gadhikar, Deepa Vincent, Lavanya Mohan and Megha V. Chaudha " Classification and prediction based data miming algorithm to predict based slow learners in education sector", International Conference on Recent Trends in Computing 2015 (ICRTC-2015).
[6] Sonali Agarwal, G. N. Pandey, and M. D. Tiwari " Data mining in education: data classification and decision tree approach ", IJEEE, Vol. 2, No. 2, April 2012.
[7] Xiwang Yang, yang Guo, Yong Liu "Bayesian-inference-based recommendation in online social networks ", IEEE Transactions on Parallel and Distributed Systems, Vol. 24, Issue: 4, April 2013.
[8] Trilok Chand Sharma, Manoj Jain "WEKA approach for comparative study of classification algorithm", IJARCCE, Vol. 2, Issue 4, April 2013.
[9] Mohammad Aamir, Mamta Bhusry “Recommendation system: state of the art approach”, International Journal of Computer Applications (0975-8887) Vol. 120-No.12, June 2015.
[10] F.O. Isinkaye, Y.O. Folajimi, B.A. Ojokoh, Recommendation systems: Principles, methods and evaluation”, Egyptian informatics journal, Vol. 16, Issue 3, November 2015, Pages 261-273.
[11] Sonali Agarwal, G. N. Pandey, and M. D. Tiwari, “Data mining in education: data classification and decision tree approach”, IJEEE, Vol. 2, No. 2, April 2012.