College Recommendation System for Students Using Data Mining With Collaborative Filtering Algorithm

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Abstract
Now a day's students are showing interest to join in their dream colleges according to their required branches and facilities regarding the studies. But here issue is due to lack of information about the colleges they are facing difficulties to choose their dream course and the colleges after completion of their standard education. Now we are creating a recommendation system which is helpful to the students to choose their dream course and college which are they are looking. We collect the information about the colleges. The information about the placements, courses, facilities in the college we collect from old students and current studying students. We rank the colleges based on the NAAC, NBA and placements. It is helpful to the students who are looking for the best colleges to join and fulfill their dream. The objective of the project has to enable the students to find the colleges by using the proposed recommendation system. This recommendation system works by using the collaborative filtering algorithm. When the student search for the colleges. This recommendation system shows the list of colleges according to student criteria. Then student can choose among those in which college he is interested to do admission. The project is implemented using rapid miner tool.

1. Introduction

Now a day, internet is very cheap. So we can find lot of information in the internet regarding the colleges. The student get confuse which is the proper information and which college he has to choose. In some times student may choose fraud colleges and then he will suffer a lot. To avoid the confuse of the student Recommendation system is helpful.

The recommendation system will suggest the best colleges according to the student requirements. The information is collected from the old students and current studying students.

Recommendation system will rank the colleges according to the placements, courses, faculties and facilities in the college. The student once register in the Recommendation system he can get the unique id and password. Using the id and password student can login and search for the colleges according to the his requirements. Then student can select the best college according to the ratings and rankings. Then he can also produce the rating for that college.
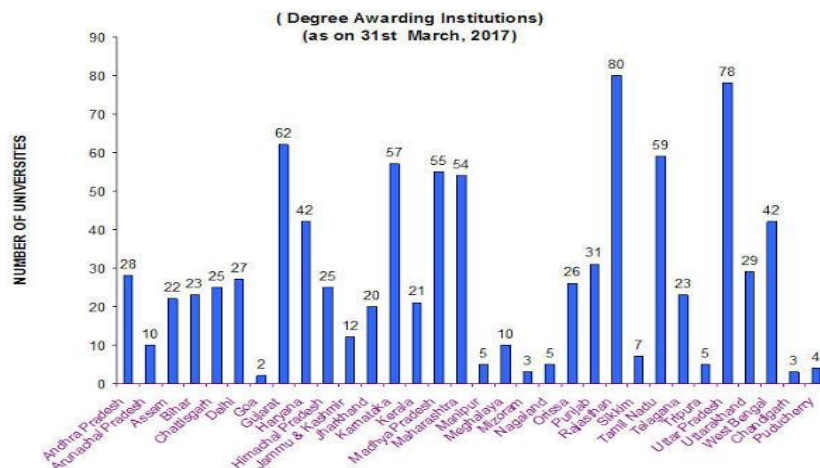
Statistics of Colleges in India:

Figure 1: Statistics of colleges in India

The above diagram shows the statistics of colleges in India. India is one of the largest countries producing the degree students. Among these, college students have to decide the good colleges suitable for their career. In every state lot of colleges are available among those we are categorizing the colleges according to the information. The above bar graph represents the number of universities present all over India. The lowest number of universities are present in Goa, while the highest number of colleges are observed to be present in Rajasthan.

Statistics of Colleges in Tamil Nadu:

Figure 2: Colleges in Tamilnadu

The above chart shows the statistics of colleges present in Tamilnadu. If we see the above statistics, we can observe that the number of colleges present in this state has increased rapidly. As we can see in the above bar chart, the difference between the number of colleges in 2015 and 2016 is more than fifty. This can be considered as a rapid change since the next two consecutive years haven't seen any raise in the value more than this value. The growth rate hasn't either stopped there or rapidly increased, it can be considered as a steady growth. From 2017, the growth rate has rapidly increased.
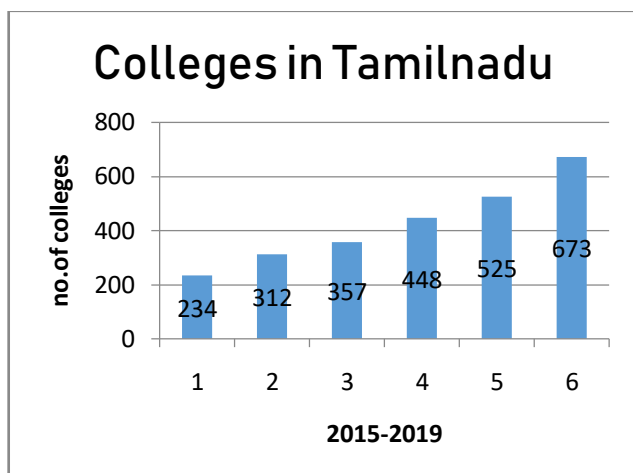
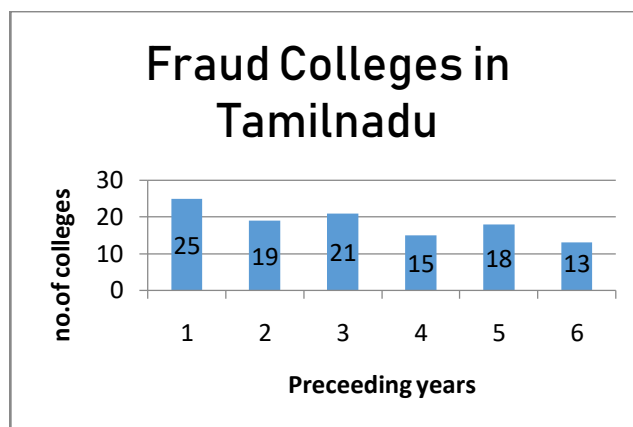**Statistics of Fraud Colleges:**

Figure 3: Fraud Colleges in Tamilnadu

With the increase in the number of students with each preceding year, the need for colleges has also increased. Making use of this situation, some colleges have started to build and run some colleges under them with no proper permissions and certifications. In order to create a system to help the students in choosing the college that best suits them, we should be aware of these fraudulent colleges and any presence of these fraudulent colleges in the listed colleges shouldn't be encouraged.

"So, it is essential to have knowledge on college information".

2. Literature Review

Developing an Intelligent Recommendation System for Course Selection by Students for Graduate Courses is proposed by Grewal DS and Kaur K.

This paper proposes lot of good predictions according to the students marks and based on the choice of job interest. To find structures and relationship within data clustering technique is used. Picking a correct course in developmental years is significant choice as his future relies upon this one choice. Understudy without anyone else isn't experienced enough to take right choice in his initial life. Choosing incorrectly courses implies confound between understudy fitness, capacity and individual intrigue. Staff or guardians have neither the necessary information nor experience.

A Review on Recommender Systems for University Admissions is proposed by AditiBhide, Karan Karnik, Pradnya Badge, Varun Joshi, Vina M. Lomte.

College confirmations are a significant piece of an understudy's life. Henceforth, a help must be accessible that aides the understudy appropriately. The framework must be quick, precise and light-weight to accomplish higher effectiveness. The framework must have the option to prescribe a college dependent on the understudy's legitimacy and decision. The HRSPCA framework allots understudies into reasonable streams just as appropriate universities.

The HRSPCA takes a shot at fell half breed recommender dependent on information disclosure and information mining which prompts exact forecast and proposal. Neural systems and choice tree classifiers were utilized to build up a Recommender System of Admission to University (RSAU). It breaks down understudy scholastic history to figure odds of admission to a specific college. The tests demonstrated that a half and half choice tree and neural arrange approach improves precision in admission to college arrangement task and performs considerably superior to anything a solitary choice tree or neural arrange. In spite of the fact that these frameworks were tried on Saudi Arabian and Macau Universities, they are nonexclusive and can be applied to some other colleges moreover.

College recommendation system for admission is proposed by Miss. Deokatemonali, Miss. Gholave Dhanashri, Miss. Jarad Dipali, Miss. Khomane Tejaswini, Guided By: Prof. Nale R.K.

Now daily's understudies are keen on taking confirmation in school which having magnificent instructive history, great grounds, situation, better offices, college award and so on. In any case, because of absence of legitimate data about each school present specifically college they deny from picking wanted school. There are numerous understudies who have score best stamps yet because of inappropriate data about any school or branch they don't get confirmation in wanted school or on the other hand branch. So we propose the suggestion framework for the college that suggestion framework structured on the premise of school NAAC grade, NBA

grade, grounds position and survey from graduated class understudy.

Course recommender system based on career interests is proposed by Shehba Shahab.

Abilities based procuring is an ability the board approach that enables bosses to adjust enrollment around business results, as opposed to around qualifications and title. It begins with managers recognizing the specific abilities required for a job, and afterward screening and assessing competitors' skills against those prerequisites. With the ongoing ascent in bosses receiving aptitudes based contracting rehearses, it has gotten indispensable for understudies to take courses that improve their attractiveness and bolster their long haul vocation achievement.

An automated recommender system for course selection is proposed by Amer Al-Badarenath, Jamal Alsakran.

In our everyday life, we settle on our decisions all things considered cases depending on suggestions from papers, individuals, or the Internet. Be that as it may, as the measure of data accessible on the Internet develops, looking for and settling on choices about data becomes troublesome. New innovations are required to help Internet clients to adapt to data over-burden. Recommender frameworks have been a significant application region and the focal point of significant ongoing scholarly and business interests. They are generally utilized by numerous business and philanthropic sites to assist clients with selecting things dependent on clients' inclinations. The objective of a recommender framework is to give suggestions that clients will assess well and acknowledge.

Problems Faced by Students:

Success will come with the proper plan. Every student have the own goals and dreams. While entering into the college every student will think that we have to study well and complete the course on time and then complete the degree with the no backlogs. Here problem is many students facing the issues after the joining into the college. The students are facing the issues with the timings and the courses. If the students did not understand the course properly finally he will fail the course. Many of the students with lack of information about the colleges they are failing to join the good colleges and then absolutely they are failing to achieve their dreams and goals. Every student has the different goals according to their goals the educational process is also differ. The recommendation system will help to solve the issue.

3. Methodology

- Gather the source data and data sets required.
- Process the data in required format and remove the unimportant data.
- Import the dataset into the rapid miner.
- Based on the rapid miner instructions change the necessary things.
- Rapid miner will show the results for the dataset.
- We can design the data in required format.
- Then the output will come out.

Existing System

For College recommendation system there are lot of existing systems are available but here issue is no one done for the Tamilnadu colleges. This recommendation system is not performed using rapid miner till date by anyone. This is also not performed using any original dataset provided by the government.

Proposed System

This system involves the analysis of data provided by the students and display results i.e., the colleges that best suit them based on their requirements. This system exactly no one done for the Tamilnadu colleges so, that this recommendation system deals with Tamilnadu colleges. This recommendation system done by using the original data set provided by the government. The dataset taken from the govt.in.

Recommendation System

The recommendation system shows the predictions based on the student preferences and make the recommendations that are helpful to the student. The recommendation system main aim is to deliver the good colleges to the students. When the student completed the mandatory courses and then when the student is waiting to join the college recommendation system is very useful. The student has to register in the recommendation system and then the user needs to get the id and password. By using the id and password user have to login to the recommendation system. The recommendation system works on the collaborative filtering algorithm. The course recommendations are related to the student's job interest. Recommendation system uses the collaborative filtering algorithm to analysis and for the rating purpose. In recommendation system there are some different types of recommendation systems in that collaborative filtering, content based filtering, hybrid recommendation system. Among those systems for this recommendation system collaborative filtering is used.

The collaborative filtering is one type of method to do the predictions according to the student interest by collecting the information from many sources.

The results shown by the collaborative filtering are highly suitable for the students regarding to their required jobs. Those are helpful to the students to select the desired colleges. According to this recommendation system the results are very transparent which are helpful to increase the student trust. In this new information is automatically updated and increase the recommendation level. The benefit by using this is student can get the both course and skills needed for their future jobs. The colleges are ranked according to the basis of old students those are completed their course in the respective colleges. Thus the student can easily choose desired college. Then the student gets the elaborate details of the college. This recommendation system consists of different modules in that admin module, former student module, user module. Initially admin can login to the system using the id and password. Admin only handle all the functions of system.

Admin updates the data of the colleges and courses information. Also, he sends the login details to former students. The other one is former student module in this system admin will send the login details to the former students once they login to the system they gives rating and review for the particular course. The rating will be given by according to the parameters. Initially, the student gets registered in this system to access the details of the colleges available colleges that are present in his or her preferred location. The user need to choose a college based on all the required facilities such as the type of teaching and some other facilities.

The student need not necessarily enroll their details for all each and every college that are recommended by this system. A lot of colleges are recommended based on the student's requirements. From those results, the students need to make their selection based on all the favourable choices that they feel necessary.
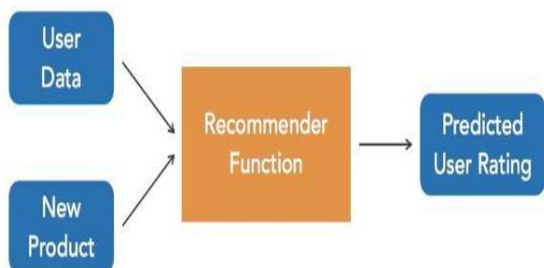
Figure 4: Recommender Function

Types of Recommendation System

Recommendation system mainly having the two types they are:

- Content based recommendation system
- Collaborative filtering

Content based recommendation system:

Content-based suggestion frameworks are proposal frameworks that utilization their insight into every item to prescribe new items.

Collaborative filtering:

Synergistic separating frameworks make proposals just dependent on how clients appraised items before, not founded on anything about the items themselves.
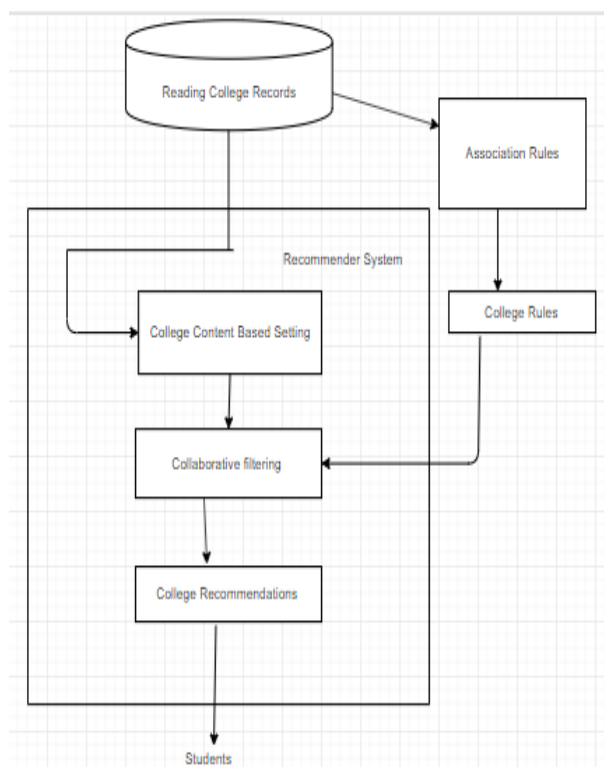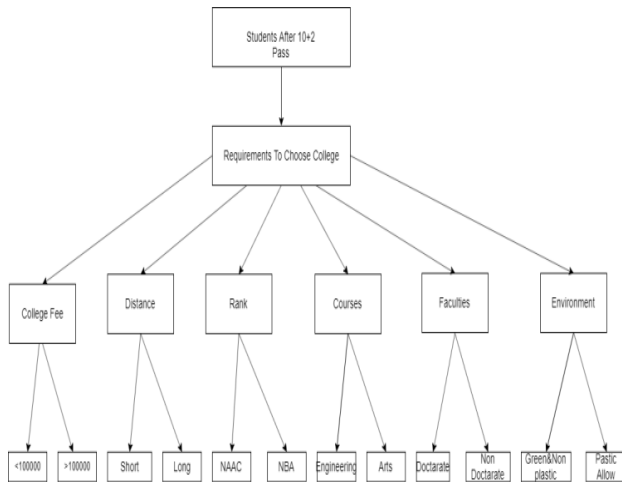
System Architecture

Figure 5: Architecture of Recommendation system

The recommendation system shows the predictions based on the student preferences and make the recommendations that are helpful to the student. The recommendation system main aim is to deliver the good colleges to the students. When the student completed the mandatory courses and then when the student is waiting to join the college recommendation system is very useful.

Attribute for Recommendation:

Showing the Streams and Substreams of College Recommendation

Figure 6: Course allotment procedure based on their requirements.

System Implementation

Rapidminer:

The rapidminer is a software used for the data processing. It is very useful in this recommendation system. The recommendation system is working with the rapidminer tool only.

Dataset:

The dataset is taken from the government website gov.in. The data set contain information about the colleges name, state, institutional cgpa, grade, accrediation valid upto the date available.

College Recommendation

According to the student information recommendation system will shwe the suited collrges for the student. College recommendation wiil done by considering the department, program, faculties, placements.
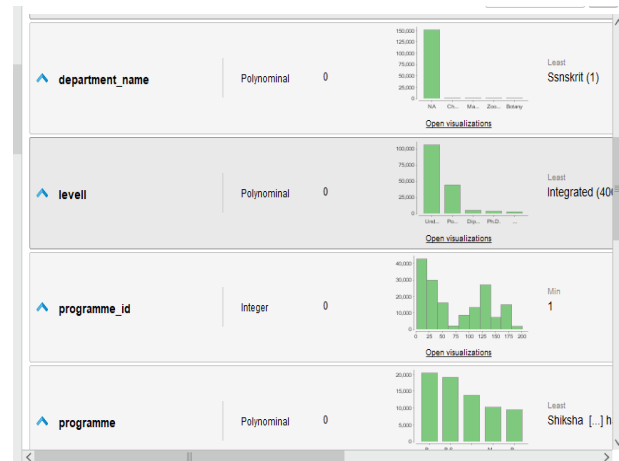

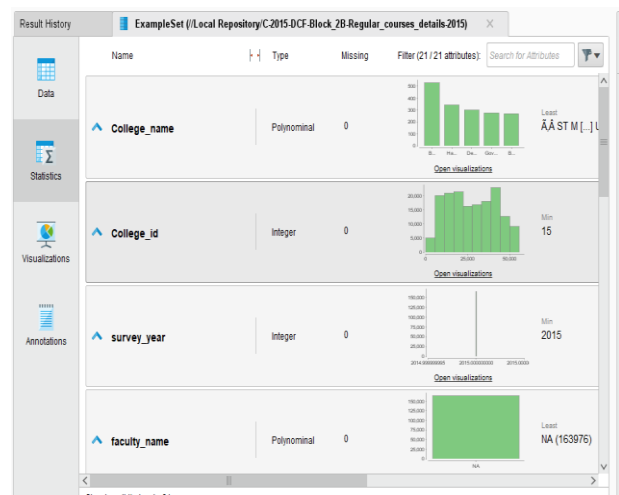Figure 7: Statistics of deprt_name, program.

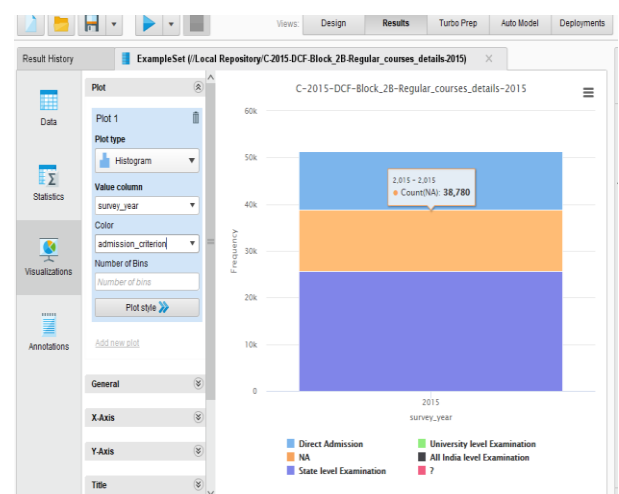Figure 8: Statistics of the College name, College id, Survey year.

Figure 9: Histogram for Survey year, Admission criteria.

4. Recommendations

Recommender Systems for Educational Guidance is basically required for helping understudies to choose their preferred courses. A proposal framework has been structured and created as a Recommender System on Counseling in Technical Education Field also, has been discovered successful. This new Recommender System gave preferable running time over different frameworks referenced in the writing. This framework is prescribed to be stretched out for other choice frameworks also.

5. Conclusion

The paper presents Student Recommender System for issues related to the issue obviously determination for 10+2 understudies in all streams and gives powerful exhortation and advising to them. Framework is created and tried; the forecast model is exact. The proposal framework will be a useful for understudies to set up Undergrad Relationship Management system also.

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