Context Aware Recommendation System for Choosing Higher Education based on Opinion over Rating using Collaborative Filtering Technique

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Abstract. Recommendation systems are one kind of information filters, where the filters learn certain users interest based on their locations, past profiles with respect to finance, historical behaviour in social networking sites and then pre- dict their preferences for a given item. The advent of recommendation system has changed the way business is being done with users and it also strengthens the interaction between the user and the service providers. Therefore, building an effective system or tools for recommendation is the key to the success of any service. One such important service rendered towards the education system it the choices given to students for their career growth in higher education. This is done during the transition phase from schools to colleges, because, providing a good choice based on users ability like financial status, location, language and job prospects. On the other hand the preference choice should be the focus of collecting various data about the colleges that are satisfying the requirements of users and providing a good recommendation with colleges that have neces- sary infrastructure, placements, language, and fees structures. Thus, the con- text of both the users requirements and the recommendation outcome are take into account and evaluated through collaborative filtering technique. The pro- posed work collects various attributes from students using a survey form and then applies it to our context aware recommender system, which in turn calcu- lates similarity indexed between various combination of items and then pro- vides the most preferred choice of institution for the students to enroll upon for pursuing his higher education.

Keywords: Context Aware Recommendation System, Higher Education, Col- laborative filtering, Students Course selection.

1 Introduction

In our daily life, we make choices at most cases relying on the internet. The student gets 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 confusion of the student Recommendation system is helpful.

Success comes with proper planning. Every student has 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 infor-mation 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.

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 ac-cording to the placements, courses, faculties and facilities in the college. The student once registers 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 requirements. Then student can select the best college according to the ratings and rankings. Then he can also produce the rating for that college.

2 Literature review

The importance and popularity of motion analysis has led to several previous surveys: [1] Developing an Intelligent Recommendation System for Course Se-lection by Students for Graduate Courses 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[2]. Choosing incorrectly courses implies confound between understudy fitness, capacity and individual intrigue. Staff or guardi- ans have neither the necessary information nor experience. College confirmations are a significant piece of an understudy's life. Hence- forth, a help must be accessible that aides the understudy appropriately. The framework must be quick, precise and light-weight to accomplish higher ef- fectiveness[3]. The framework must have the option to prescribe a college de-pendent on the understudy's legitimacy and decision. The HRSPCA framework allots understudies into reasonable streams just as appropriate universities. Now daily's understudies are keen on taking confirmation in school which hav-ing magnificent instructive history, great grounds, situation, better offices, col-lege 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 has 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.

Abilities based procuring is an ability the board approach that enables bosses to adjust enrollment around business results, as opposed to around qualifica- tions and title. It begins with managers recognizing the specific abilities re- quired for a job, and afterward screening and assessing competitors' skills against those prerequisites. With the ongoing ascent in bosses receiving apti- tudes-based contracting rehearses, it has gotten indispensable for understud- ies to take courses that improve their attractiveness and bolster their long haul vocation achievement [4].

In our everyday life, we settle on our decisions all things considered cases de-pending 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 [5]. Recom- mender frameworks have been a significant application region and the focal point of significant ongoing scholarly and business interests. They are gener- ally utilized by numerous business and philanthropic sites to assist clients with selecting things dependent on clients' inclinations.

3   Motivation

The motivation to do the recommendation system is currently I am facing the same issue. When I joined the college I also have the lack of information about the good colleges. I am not able to find the good college which is helpful to fulfil my dream. with the help of my friends and some other persons I selected college. In these days every single rupee is important and that is representation of our parents hard work. So we have to use the money in correct manner and for the good work which is helpful for our career. After the joining into the college I faced lot of issues and also I find that lot students facing the issues. In the course selection and the faculties, timings of the colleges, facilities of the college, semester duration timings, examination system etc. I faced lot things which are not suitable for my career and find the same thing with the many students. In that time I think towards the solution for the issue. I got the idea to develop the recommendation system which is helpful to select the good college, good course and then to fulfil their dream. with this recommendation system we can find the colleges according to the ratings and the information provided by the old students who are faced the issues in those colleges [6]. So that student can find the right college. 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 [7]. 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.

Statistics of Indian Colleges

The below diagram shows the statistics of colleges in India. India is one of the largest countries producing the degree students. Among these, colleges stu- dents 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 ac- cording to the information. The above bar graph represents the number of universities present all over India. The lowest number of universities are pre- sent in Goa, while the highest number of colleges are observed to be present in Rajasthan.
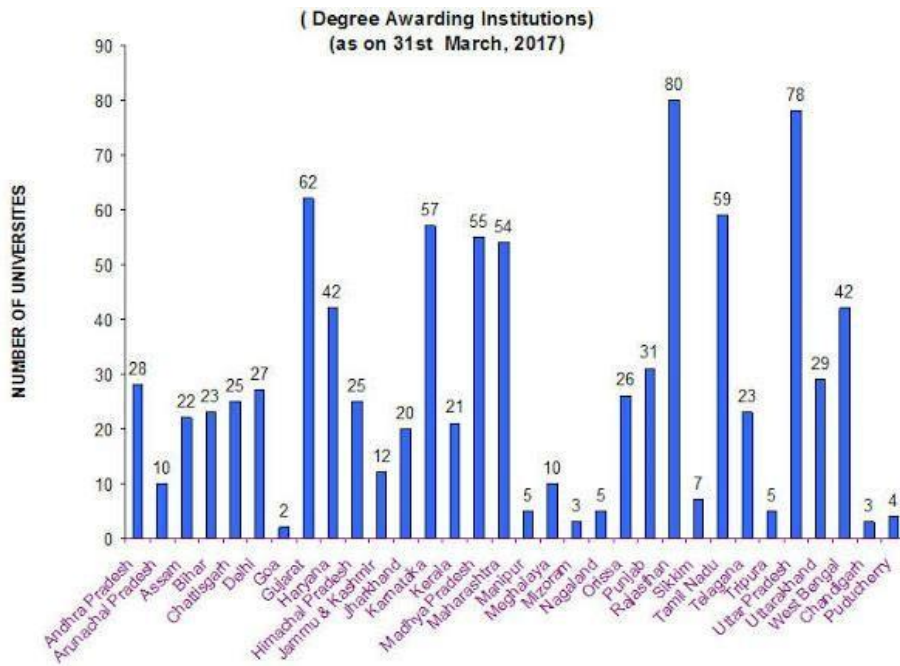
**Fig. 1.** Statistics of colleges in India

Fig. 2. Existing system colleges search in India

STATISTICS OF 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.
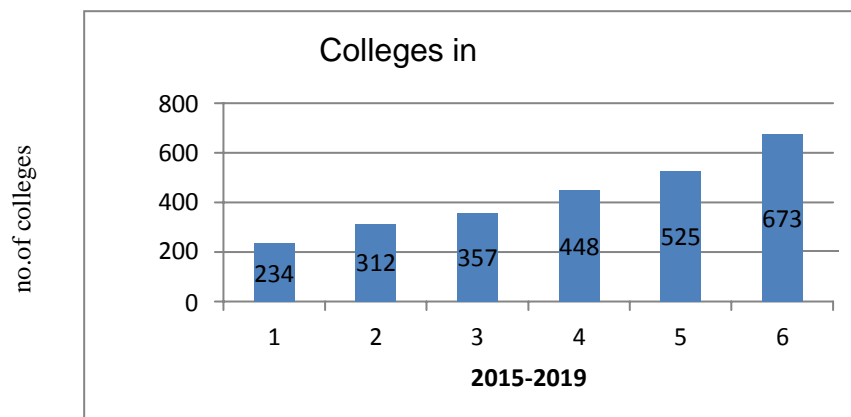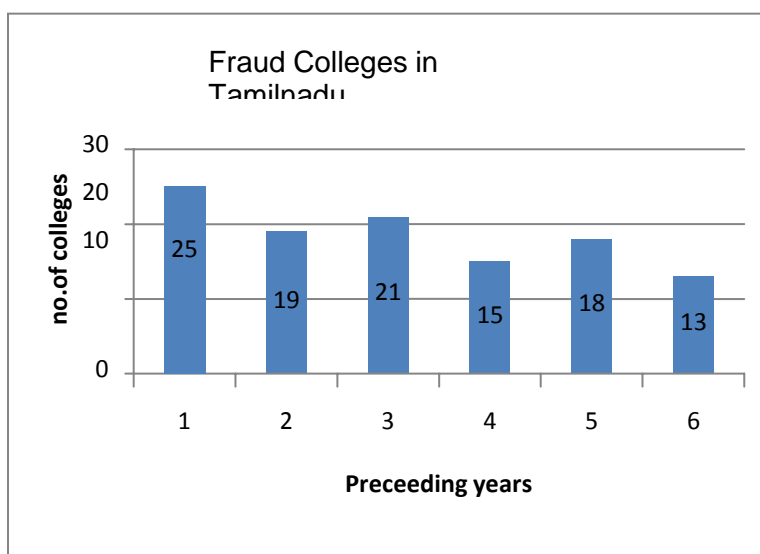
Fig. 3. Colleges in Tamilnadu

STATISTICS OF FRAUD COLLEGES:

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 col- leges 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.
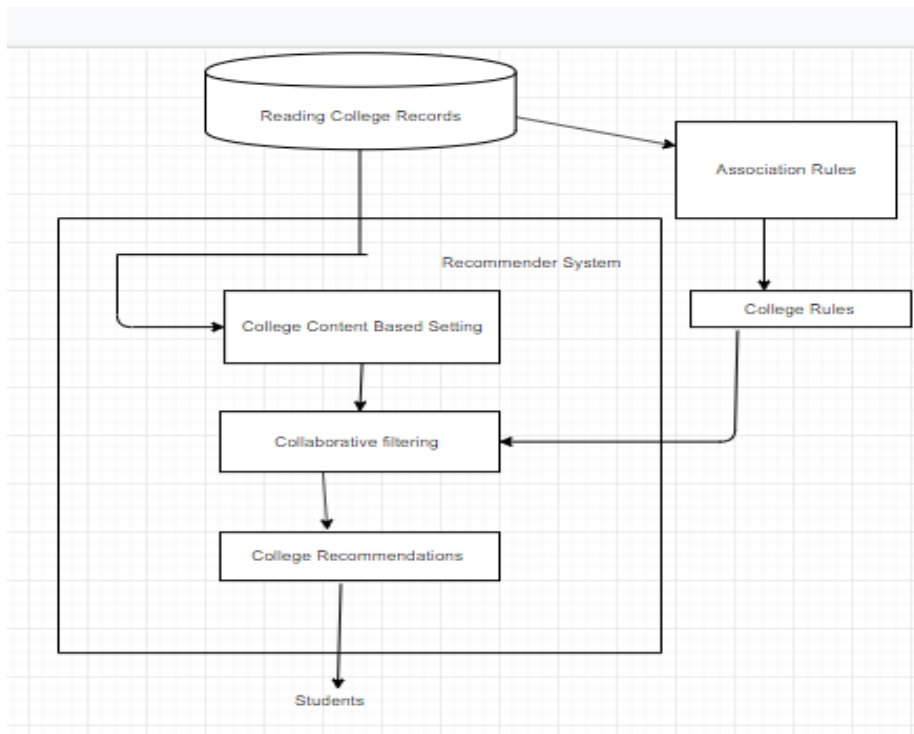

Fig. 4. Fraud Colleges in Tamilnadu

4   Proposed System Design

In this data flow diagram phase the data will collected from the different sources and filtering techniques are applied over collected data. So that, we can cluster the similar type of data into same clusters.

Fig. 5. Architecture of the Recommender system

After clustering with 80 percent of data we will train the model and remaining data will be used for testing the trained data. After completing all these steps we will get desired output. Use case diagram of a higher education recommendation system. Here it will take the reviews and ratings from the users and read the present reviews and ratings, and the system will train based on the weights of the reviews and ratings [8],[9]. After getting logged in into the website the input will be the grade which he/she scored in his 12Th grade, after entering the input the system will generate the output as the list of colleges which are advised for the input given by the user. A user can search any number of times about the required colleges at any time by searching in internet [10],[11].

Testing is a process, to evaluate the functionality of a software application with an intent to find whether the developed software met the specified requirements or not and to identify the defects to ensure that the product is defect-free in order to produce the quality product. Thus, in this we have fo- cused on how make to make the process of junior college admission more con- venient and help students to choose colleges which fits best for them and based on their needs. We have used various data mining and query optimiza- tion techniques for college recommendation process [12],[13]. The work for the phase is data collection and pre-processing, which has been collected and effectively processed. Since the data is a actual information got from govern- ment, the authenticity of the data is accurate.

In the next phase Similarity index and correlation coefficient will be found for recommendation system [14], [15]. We are able to decrease the difficulties of a student by helping him to decide on a stream and providing information on why he should choose a particular stream. Then we are also able to provide lesser options to choose from which makes it a easier decision.
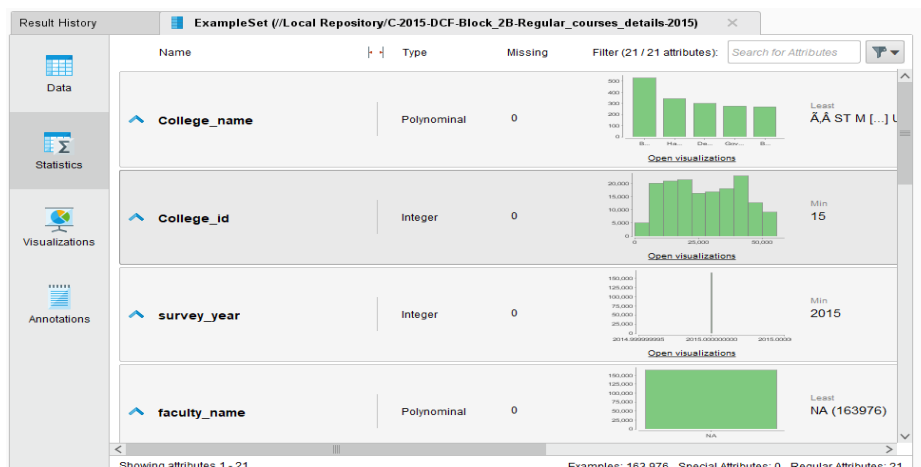
5   Results Analysis

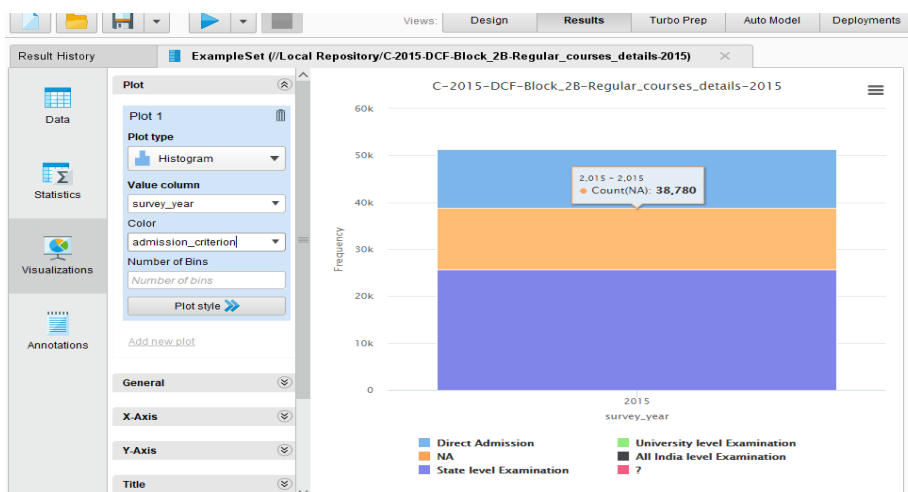**Fig. 6.** Statistics of the College name, College id, Survey year.

Fig. 7. Histogram for Survey year, Admission criteria.

We can later develop our site by providing the details about the place- ments and every feature of the college through a pie chart which should be easier to follow and we can also show they can shine in a particular stream and the other online options that we are available in the internet. And there is a possibility that we can create an application which can be worked even without the internet. By this many can use this and can select their college.

6   CONCLUSION

The work for the phase is data collection and pre-processing, which has been collected and effectively processed. Since the data is a actual information got from government, the authenticity of the data is accurate. The processing is done using rapid miner tool and various statistical information are evaluated. In the next phase Similarity index and correlation coefficient will be found for recommendation system. This 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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