Review on Intelligent Recommender System using Bayes Classification Algorithm

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Abstract: *With the advanced development of resource technology, more and more digital resources are available in Internet. To maintain college study material repository online as I propose a "Intelligent study material recommendation system for college students". The document classification as well as material recommendation for college students based on bayes classification algorithm. It helps staff to upload study material and students to get the study material by convenient way and allow to provide rating for every study material to re-rank the links of study material uploaded by the staff. Re-ranking concept increases the interest of the student as he will get what he wants easily and overcome the resource restriction problem by providing additional live recommender system to student by using educational search engine.*

Keywords: Document classification, recommender system, re-ranking concept, educational search engine

1. Introduction

In tertiary institutions, online academic advising systems can provide prompt advice as and when required, and thus enhance student experience and save staff time and other institutional resources. Therefore such systems are gaining popularity. Research into such systems and development of such systems are in progress. In, the authors describe a Web-Based Decision Support Tool for Academic Advising. In their study, 90% of users, consisting of 20 undergraduate students and 5 faculty members, found their system effective and efficient. They consider four models of advising: prescriptive, developmental, and integrated and engagement. They also discuss the importance of making systems that are more than data repositories and including more intelligence so the systems are able to provide reliable advice that students do not have to check back with human advisors. In other words, systems that provide reliable advice. The advice given by academic advising systems will vary, from student to student, depending on a number of factors such as the academic performance of the student concerned and the major area of study and also may be impacted by other factors such as the nationality, age and gender of the students. There are also academic regulations and rules, which can be applied to provide simple answers to basic questions with the assistance of normal SQL queries[7].

2. Literature Survey

a) Prediction of Cancer Risk in Perspective of Symptoms using Naïve Bayes Classifier [1]

Health Care professionals face the complex task of predicting the type of cancer in patient. This earlier prediction of cancer helps to the practitioner to recommend cancer treatment .A patient affected with any Cancer may suffer symptoms in the body. Cancer symptoms are used to forecast the risk level of the cancer disease. The main aim of this study is to predict the risk of type of cancer using Naïve Bayes classification algorithm. Naive Bayes is one of the most effective statistical and probabilistic classification algorithms. Naïve Bayes algorithm is called "Naïve" because it makes the assumption that the occurrence of certain feature is independent of the occurrence of other features. This will eventually spare the time and decrease the cost of treatment and conjointly will increase the possibility of survivability.

b) Performance Analysis of Naïve Bayes Algorithm on Crime Data using Rapid Miner [2]

In current society, crime exist everywhere in distinct form, and if we collect all the data related to different crime, that data would be very large in volume which can be managed through data mining techniques. Using those techniques, lot of conclusion can be drawn like rise or fall in particular type of crime, percentage of particular crime, time when crime mostly or less happens, area in which maximum or minimum crime happens etc. In this experiment the crime data is used as input and different chart are populated based on the input. These charts can be used to take decision in controlling the crime by comparing the different type of crime in different states. The reason of using Rapid Miner, compared to other data mining tool like WEKA, orange and R is that, it provides the fully automatic parameter optimization of machine learning operator and provide good validation and cross validation.

c) Naive Bayes Classification Based Facial Expression Recognition With Kernel PCA Features [3]

This work presents a system which automatically identifies the emotion or expression represented on face. Various channels such as action, speech, poses, facial expression are considered as that conveys human emotion. In order to discover the connection among these channels and emotions, wide spread research has been carried out. Naïve bayes classifier has performed better than deep neural network. However, since the recognition tests were performed only on a part of one dataset, future work required is to take on the system implementation on some real time functioning in order to check its efficacy so that it can adapt to a variety of situations.

d) A Bayesian network and analytic hierarchy process based personalized recommendations for tourist attractions over the Internet [4]

Selecting tourist attractions to visit at a destination is a main stage in planning a trip. Although various online travel

recommendation systems have been developed to support users in the task of travel planning during the last decade, few systems focus on recommending specific tourist attractions. In this paper, an intelligent system to provide personalized recommendations of tourist attractions in an unfamiliar city is presented. Through tourism ontology, the system allows integration of heterogeneous online travel information. Based on Bayesian network technique and the analytic hierarchy process (AHP) method, the system recommends tourist attractions to a user by taking into account the travel behaviour both of the user and of other users.

e) Performance Analysis using Bayesian Classification-Case Study of Software Industry[5]

There has been rapid improvement in the ability to construct software systems, firstly by developing reliable hardware and second by developing effective process oriented methodologies. This study will help the organization to reduce the failure ratio of software to a significant level and enhance the quality of the software by deploying the right person at the very start of all software process. This study has used Bayesian classification method to predict the performance of the project member on the basis of few personal attributes. Historical data was taken from the previous project and applied to data mining technique for identifying those attributes in a project personnel that will contribute towards good software quality and increase the company profitability factors.

f) An Intelligent Student Advising System Using Collaborative Filtering [6]

It is a web based intelligent student advising system using collaborative filtering, a technique commonly used in recommendation systems assuming that users with similar characteristics and behaviours will have similar preferences. With our advising system, students are sorted into groups and given advice based on their similarities to the groups. If a student is determined to be similar to a group students, a course preferred by that group might be recommended to the student.

3. Proposed Work

We propose a web based intelligent student advising system using collaborative filtering, a technique commonly used in recommendation systems. This technique assumes that users with similar characteristics and behaviours will have similar preferences. With our advising system, students are sorted into groups and given advice taking into account the relevant factors and also considering their similarities to specific groups. A major use of the online advising system we have proposed and prototyped is to help students choose courses from over fifty courses and five interlinked pathways in the Bachelor of Computing (BCS) program. If a student belongs to a particular group, a course that other students in that group have preferred or performed well in, may be recommended to the student.

4. Module

By using this system we simplified the process of sharing the study material online. System propose the log in process

to authenticate the valid users, Following are the Modules provided by the system:

- Admin panel
- Staff
- Document classification
- Student
- Recommender system

a) Admin Panel

To Manage the system process like Register staff, Create staff log in, View staff details, Approve pending student registrations, View students, Register branches, Register branch wise subjects, Allocate subjects to staff.

b) Staff

Staff will do Log in, View allotted subjects, Upload documents, Delete document, Approve pending student registrations, Communicate with student, Communicate with other staff member, manage keyword in document classification.

c) Document classification

The document uploaded by the staff member, will be processed by first RAKE Algorithm and then passes to the weka tool using bayes document classification techniques.

d) Student

Student will do Registration, Log in, View recommended notes/study material, View live recommended links for every subject, Search any educational study materials if necessary. View own search history, Communicate with staff.

e) Recommender system

System propose two types of recommendation techniques

Study material recommendation

The study material uploaded by the guide will recommend to student as per his profile.

Live study material recommendation

The relevant study materials will be extracted from Google using Google API.

5. Conclusion

The Intelligent Recommender system for students using Bayes Classification Algorithm is great improvement over the manual work. The system proposed different modules like Admin panel, Staff, Document Classification, student Registratation. So that it will reduces time as well as easy to handle. In the current manual work managing is very slow. So that the Intelligent Recommender system base on document classification by weka tool.

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