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Article *in* Journal of Advanced Research in Dynamical and Control Systems · August 2017

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A Comparative Analysis of Techniques for Predicting Tutorial Performance Exploitation Tool Base Data Processing

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Abstract--- This "big data" affordance can facilitate learners by distinctive that learning methods would possibly be best for them, teachers by recommending approaches for serving to students World Health Organization square measure troubled, and researchers by enabling them to check principles of learning and instruction in authentic learning environments at scale. Data mining may be a method that uses spread information of knowledge of information analysis tools to get patterns and relationships in data that will be accustomed create valid predictions. Most commonly used techniques in data processing are: artificial neural networks, genetic algorithms, rule induction, nearest neighbor method and memory primarily based reasoning, logistic regression, discriminate an analysis and Cobweb algorithms. As a first step toward capitalizing on these opportunities, we conducted associate initial investigation supposed to use giant existing datasets to predict student success and failure in a university. The study we conducted involves the mining and analysis of "big data", which in our case refers to giant existing datasets that will be analyzed to distinguish patterns in student and teacher performance, identify at-risk students, and study relationships among important variables, such as attendance, learning, and student Satisfaction .

Keywords--- C4.5, ID3, Cobweb e, Styling, DM, EDM.

I. Introduction

Data mining permits discover hidden data in large amounts of knowledge that is extremely tough to envision with traditional method. This subject of computing permits manipulation and classification of giant amounts of knowledge[1]. C4.5 and ID3 call tree, for instance, are proved to be economical for specific prediction cases. This text shows the development of a predictive model of student dropout, characterizing students at the University Simón Bolívar so as to predict the likelihood that a student drop out his/her an educational program, by suggests that of two data processing techniques and comparison of results. To create the model was used that permits multiple and economical tools for processing.

II. Related Work

Starting from the previous models generated by the DM algorithms, a system to alert the teacher and their parents regarding students United Nations agency are probably at risk of failing or drop out are often enforced [2].

III. Proposed Method

We have investigated 2 data processing techniques: the Naïve mathematician and also the Cobweb algorithms data processing techniques are applied to predict faculty failure and lay about of the coed. That use real data on middle-school students for prediction of failure and born out. It implements white-box classification methods, like induction rules and Cobweb Cobweb is a call support tool that painted as like graph or a model of decision. It consist of nodes, in which the interior nodes are denoted as check on attributes. Attribute is nothing but real knowledge of students that collected from faculty in middle or pedagogy [3]. A path from root to leaf is represents classification rules and it consists of three varieties of nodes which incorporates call node, chance node and finish node. It is mostly employed in call analysis.

IV. Architecture Diagram

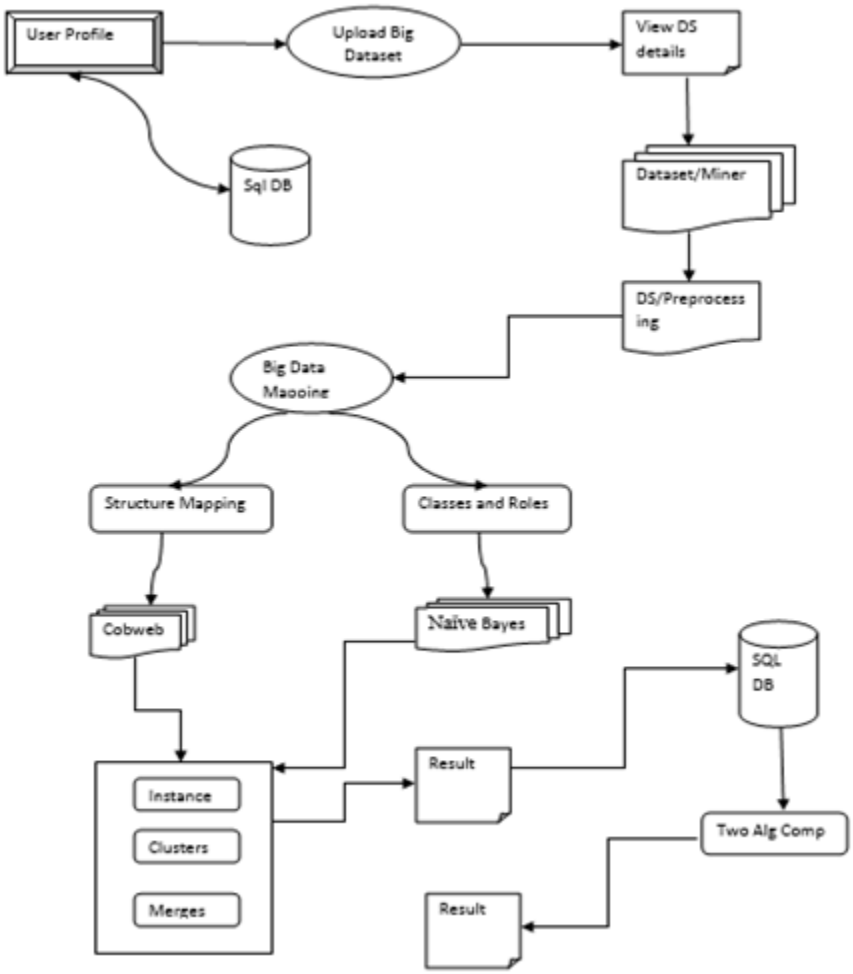

Fig. 1

V. Related Work

Five Years of the Pupils´ Academy of Serious Gaming: Enhancing the ability to study

The ability to review requires the scholars to alter their learning behavior [4]. The Pupils´ Academy takes two days. On the one hand, that is nowhere close to enough for learning to master all aspects of the flexibility to review. But on the alternative hand, it definitely is adequate time to raise the students´ awareness and to produce elaborate data on significantly necessary aspects of the flexibility to review, like time management, methods of science, self-competences or teamwork.

Lab2go - A Repository to Locate Educational Online Laboratories

Semantic net technology is a terribly broad field which will be applied in several distinct areas. In this paper very specific use case situations are mentioned. There exist however several alternative possible extensions on the far side the main scope represented here [5]. It proposes an approach on however to offer such specific variety of data mistreatment linguistics net technologies, associate degreed comprehends a first implementation try of an open supply platform.

Student Dropout Analysis with Application of Data Mining Methods

The application of the info mining methods in teaching, where they are not sometimes applied. It is recognized that this area abounds in unused knowledge that, unfortunately, are not hold on in associate degree acceptable

manner. The analysis has separated the causes of students' dropout (e.g. previous knowledge, examination results) [6]. It has also determined the everyday profile of the coed inclined to drop out at the college of social science in Split. The obtained data ought to, in the earliest stage, be used to raise awareness on the probabilities and want to use the info mining models and methods at the establishment within which this analysis has been administered [7]. The planned construction of data warehouse can enable support in strategic selections and observance of the dropout trend.

Predicting School Failure Using Data Mining

Recent years have shown a growing interest and concern in many countries concerning the drawback of faculty failure and also the determination of its main contributory factors [2]. This problem is famous because the "the 100 factors problem" and an excellent deal of analysis has been done on distinguishing the factors that have an effect on the low performance of scholars (school failure and dropout) at completely different instructional levels (primary, secondary and higher) (Araque et al., 2009). A very promising answer to resolve this drawback is that the use of knowledge Mining (DM) that's referred to as instructional data processing (EDM) once applied to an academic context (Romero and Ventura, 2010).

Factor Analysis with Data Mining Technique in Higher Educational Student Drop Out

Factors Analysis in Higher Educational Student's Drop Out is associate degree necessary. In this paper we conferred the effectiveness of classification techniques (J48 and Naïve mathematician algorithms) on the info set used from the info of educational MIS at BRU [8]. Sample data were school of science. The three problems of factors analysis moving to student drop out are: factors associated with the coed before admission, factors related to the scholars throughout the study periods within the university, and all factors. Our experimental results are shown as the rules that remodeled from call tree by accuracy price between seventy fifth and half of 1 mile. Based on the 3 problems analysis.

VI. Modules

Data Gathering

The process of knowledge gathering is that involves in assembling all accessible information concerning students .the set of factor ought to be known that will have an effect on student's performance and picked up from completely different accessible knowledge sources[9]. The collected characteristics or risk factors that can influence to students failure or born out. Risk factors contain the information concerning student's cultural, social, educational background, socioeconomic status, psychological profile and academic progress .In which most of the scholars square measure aged between fifteen and sixteen and this is often the years with the best rate of failure. Finally the survey is to obtain personal and family info to spot vital risk factors of all students and faculty services provides the score obtained by the scholars altogether subjects after all. All those information square measure integrated into single dataset t.

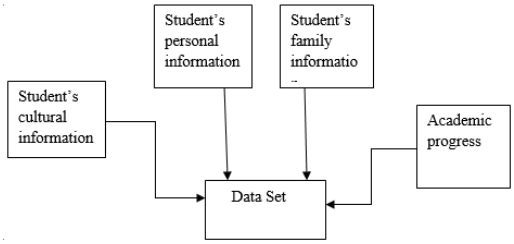

Fig. 2

Pre-Processing

In this stage dataset is ready for applying data processing technique. Before applying data mining technique, pre-processing methods like improvement, variable transformation and data partitioning and alternative technique attribute choice is should be applied. Here new attribute of age is formed using date of birth of every students. The continues variables are reworked into discreet variable that is scores obtained by every student is modified into categorical values (i.e) Excellent score between nine.5 and 10,Very smart the score between eight.5 and 9.4.all information's are integrated in single dataset that is keep in .arff format of tool. Finally entire knowledge set is

divided randomly into ten pairs of coaching and take a look at data files. After pre-processing we tend to have attributes or variables for every student. Each take a look at file can contain best attributes and rebalanced [10].

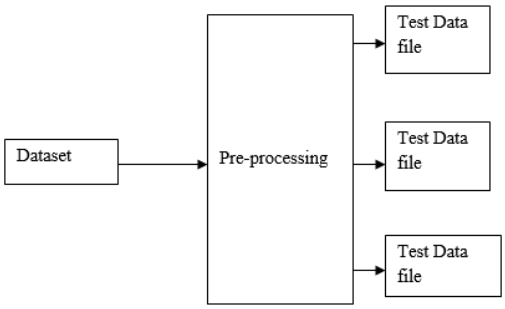

Fig. 3

Data mining

In this stage data processing technique goes to be applied. Here the data mining technique is especially used for classification. The classification is based on best attribute choice from knowledge set. In which the naive bays algorithmic program is enforced for classification of information [12]. Traditionally the software package tool is used for data processing. It contains verity of data mining algorithms. Implements decision tree, it is a group of condition organized in data structure. etc. Here the classification algorithms were executed victimization cross-validation and all accessible data. Finally the result with the test file of classification is shown.

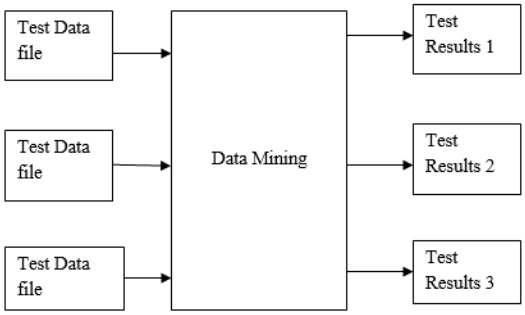

Fig. 4

Interpretation

In which, the obtained results are analyzed to predict student failure or born out [11]. To achieve this previous take a look at results square measure taken for comparison. At this stage classification rules are applied for predict relevant factors and relationships that lead to student pass or fail. There square measure attribute that indicate that student World Health Organization unsuccessful square measure older than fifteen year and some of the attribute are shows marks of poor, not presented and regular students. Finally the risk factors are analyzed from previous results of classification algorithms.

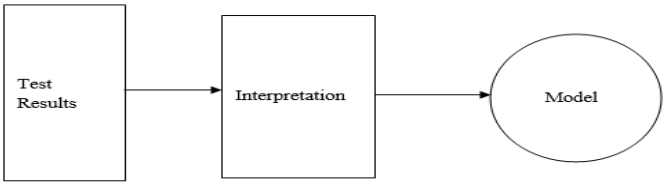

Fig. 5

Screen

VII. Conclusion

As we have seen, predicting student failure at school are often a tough task not solely as a result of it's a multifactor downside (in that there square measure plenty of private, family, social, and economic factors that can be influential) however conjointly as a result of the obtainable knowledge square measure usually unbalanced. To resolve these problems, we have shown the employment of various Cobweb and naive mathematician algorithms and approaches for predicting student failure. We have administrated many experiments exploitation real knowledge from students in North American country. We have applied completely different classification approaches for predicting the educational standing or final student performance at the tip of the course. Furthermore we have a tendency to have shown that some approaches like choosing the most effective attributes, cost-sensitive classification, and data reconciliation will conjointly be terribly helpful for rising accuracy. A system to alert the teacher and their parents regarding students UN agency square measure probably at risk of failing or drop out are often enforced. As an example of doable action, we propose that once students were found in danger, they would be assigned to a coach so as to produce them with each tutorial support and steerage for motivating and making an attempt to stop student failure.

VIII. Future Work

Finally, as a result of ensuing step in our analysis, we've an inclination to aim to carry out lots of experiments exploitation lots of knowledge and in addition from altogether totally different} tutorial levels to examine whether or not or not constant performance results are obtained with different Cobweb and naive man of science approaches [1]. As future work, we tend to are able to mention the following: 1) To develop our own rule for classification/

prediction supported linguistics exploitation genetic programming that will be compared versus classic algorithms. 2) To predict the student failure as shortly as potential. The earlier the upper, therefore on sight students in peril in time before it's too late. 3) To propose actions for serving to students notable among the danger cluster. Then, to determine the speed of the times its potential to forestall the fail or dropout of that student previously detected.

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