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Logical Review on Educational Data Mining

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ABSTRACT

Student's admission, attendance in the class and their examination results is one of the big data for today's educational institution for manipulating and storing. Maintaining this type of data is of the logic task for data recorder. As the education data is growing very quickly in the education field so that different logical algorithms are required. Due to this reason Educational Data Mining (EDM) is required in Educational Sector. The algorithms of data mining like traditional cannot applied directly to educational issues because they have particular aim, so that a primary algorithm has to apply then after the method of data mining will use on the problem. Before processing the data clustering can be used as a primary algorithm. The number of studies shows application of data mining algorithm by using different attributes. So, in this paper a logically review on applying clustering algorithm as well as its uses in terms of EDM is studied.

Key words: Cluster, Data Mining, Logical Review, Educational Data Clustering, Student

1. INTRODUCTION

The various researchers in EDM have conducted studies on different datasets of education sector and try to cluster academic performance of students in examination.[1] EDM is one of the interdisciplinary sector of education which apply on Data Mining(DM), statistics, machine-learning, information retrieval and various data set of educational issues to resolve.[2]. EDM aim is to make a model which improves educational setup effectiveness using different systems. Knowledge Discover in Databases (KDDs) is new name to Data Mining [3]. Pre-processing algorithm is clustering. It is one of the unsupervised ways in pattern recognition, mathematical data, DM etc. It is group of same elements together to make a bunch. Every group has elements which are identical but different to other group elements. Educational Data Clustering (EDC) in which such analyzing occurs in educational sector. The College or institute has three main parts like lecturer, student and their environment. While interaction is made between these three parts then it generates big data which logically clustered to mine hidden information. The academician can use data clustering to identify improvement in performance of learning styles and behavior of student [4]. Number of Colleges is increasingly focuses on academic success of their students [5]. For enhance student retention efforts some researcher applied the predictive modeling techniques. Now a day's various software's available like Rapid Miner, Weka etc. which are use for DM algorithms to find solutions for specific problems [6]. The commercial websites are used for grouping user data to identify the common fields. The same can apply to educational information system. The degree compass is one such successful system [7].

2. EDUCATIONAL DATA MINING

Educational Data Mining is a method for transferring data in primary stage to different modules into valuable sequence which will used by different elements of education sector such as student, teachers and other education related persons. EDM can be a new module inserted into the existing education system and complete the purpose of teaching quality [8]. The important role is play by the student which provided us the objective output, so that college can improve teaching strategies and development of courses etc.[9]The researchers, traditionally applied DM methods like rule mining, association, classification, clustering and text mining to educational concern [10]. During 1995 to 2005 most papers are published on EDM which are galleried in 2007 survey. The survey shows Data Mining application impact on traditional educational college by using web-based learning management system [11]. Online courses applications for DM are suggested by various researchers and proposed clustering technique which non-parametric to extract website information related to users [12]. The researchers show how to develop large essential and strong electronic education model with using association rules and clustering [13]. One game study shows how the student educated with disturbing equipments for model in place of educational model [14]. On other hand researcher has solutions which implement in mining data in education [15]. In their study showed how

student models are used using EDM prediction methods [16]. It indeed shows model of learner for mining in data education [14]. Some other scholar shows the DM is used for student performance in languages like English as well as the practices are taken in the syllabus [17]. E-learning systems are utilized by colleges to post or access syllabus material, the colleges did not support for learner with software which record the performance and marking of students [18].

3. CLUSTER AND ALGORITHM

The collection and presenting of similar data items is called as Clustering. In clustering similar shows common elements in a particular bunch and different related to some else bunch. It is one of the unsupervised learning algorithm[19]. It is one of the earlier algorithm for mining the data, it decease the size of information to making valuable group which used in detail study of data. While reducing the data sized clusters typically loses certain data, so one must be careful about it. Cluster classification algorithm is inexact because items may be overlap with each other. Hierarchical and partitional are the two types used in traditional clustering techniques. Supervised and unsupervised learning are the two different things which we have to learn. Clustering is unsupervised classification.

In supervised learning user provided the gathering of labeled part of data. Moto for identify the set of data which come first. On other hand clustering which is bunch of unidentified datasets within the different bunches. The method of bunch is decided in the cluster. So, it finds the way i.e. how many ways user have to decide. Clustering types depends the way of thinking on the problem. The top-down method is used for cluster and small dividend is possible [20] It is used on large data. The term large means that the data belong to paper format and binary format [21]. The big data which means the volume of data in increased in its original size [22]. The number of researchers gone through and provide uses of data mining in older way as well as show huge power of big data [12]. The system of Education can be of different ways such as unit and older class and binary class is good as Learning Management Systems (LMSs) [23]

4. PROCEDURE WHIT CRITERIA FOR LOGICAL REVIEW

As it a logical review on clustering algorithm, following is the way to go for search.

4.1 Making Search Terms

Educational fields: learning styles, classroom decoration, exam failure, examination, learning electronically, aim of learning, learner place, and intelligent tutoring systems (ITS), how the learner place of class and reginable price of education is decided.

4.2 Search Plan

User can make or adopt the policy for recognize the learning fields and find out the algorithm for cluster. User can identify the similar words which come across the search. User can use Logical operators for finding the characters.

5. CLUSTERING METHODS AND EDUCATIONAL DATA

Educational Data Clustering (EDC) method is based with technology of mining algorithm. Its motto is to enlarge educational data for forecast the activities related to learner day today activity. The algorithm of clustery can be implemented related to education issues. For enrich the study system these type of algorithm is very effective for learning sectors.

5.1 Analyzing Student

Some of the students make poor in particular subject like maths. Peoples understand that the learner who sits first is better than the last student. The examination seat numbers as consider for student performance [24]. According to display or understand of the student, student will make activity in the related lines of book which is know as 'annotation' [25]. For learner inspiration related to learn and gain a same survey is studied i.e. Self Deterministic Theory (SDT) [26]. The technical learners are 404. The research related learner having the cluster of 93 learner of technology institutes, and the other 137 as well as 174 learners coming from different institutes.

5.2 Learning Style of Student

One of the researchers shows his way for acquiring knowledge known as “Experiential Learning Theory (ELT)” [27]. Buzz word ‘Experiential’ show that the information comes from past activities. The Learning Style Inventory (LSI) is introduced with a structure help for evaluate other way separate student. There are different theories and methods to gain the knowledge for different students.

5.3 E-Learning

E-learning is related to EDM shown by different researchers. Because, information collection is fast as compare to other tools and gaining the knowledge. The agglomerative structure is used to represent the study of e-learner to make certain group. While on online learner send the messages and gives the responses on which data is collected by which the above structure is helpful [28].

5.4 Collaborative Learning

There are few students which having minor problem for learning. Such students make the group which is called as

collaborative learning [29]. At start in this bunch the importance is given to the individual when individual is progress the attention is diverted towards the bunch or cluster. So the very important bunch of students is form by collaboration. Some researcher's study [30] says when collaboration is done the students are positively respond and more activities are done. Hence in online learning area the collaboration is very important.

5.5 EDM using Clustering

The Hierarchical as well as Non-hierarchical are the way of representing clustering algorithms. The algorithm make simple and effortless for the beginner who may divide the groups commonly to learn. The researchers try to solve the difficulties present in K-means algorithm for clustering[31] The two things are identify that , first of all it is very difficult to select the particular learn in the big group and form the related cluster.; another, in early stage the various cluster should be known to the user; at last, very large data group will complete by spending more time on it. . Co-operative Particle Swarm Optimizer (PSO) is implemented by scholars. The researcher using C-Means to find out the field or attributes which gives importance and main key because all others are depended on it due to which the UG learner performance is calculated [32]. The data is hidden by the researchers in this study. Following table shows Educational Data Clustering Process

Table 1: Educational Data Clustering Process

Data Pre-Processing Stage	**Data Standardization Stage**	**Cluster Modeling Stage**
Understanding educational data set ----------→		
	Data preparation & cleaning---------→	
		Cluster identification
		Cluster evaluation & validity
		Deployment

In Table 1, shows how learning data is process in the cluster form. The two ways in which the primary way is related area and group which user have to form. In this, user has to make out fields which having absent items as well as unrelated items. Due to unrelated data user understand that the filed having wrong data. The second stage is the Data Standardization in which data preparation and cleaning is down and the last stage is Cluster Modeling Stage in which cluster identification, cluster evaluation & validity and deployment is done.

6. CONCLUSION

This paper has presented logical review algorithm related to cluster and availability of it in different applications of Educational Data Mining. It has also blue print of several futures cluster related on enlightening learner data which is present in different research papers which I have studied. The main task of algorithm of cluster is to systematic and mathematical study to provide sketch of learner way of learning as well as time, behavior, task, and groups of clusters to form in different and applicable way. So a researcher must concentrate while selecting the clustering algorithm which gives better, authenticate and more promising outputs.

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