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Mining the Frequent Attributes Using Feature Selection Technique for Learning Disability Students

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ABSTRACT

In recent era, learning disability is the most essential problem that affects the educational background of the students. The educational community faces many challenges in addressing these desires more in learning disability student. Students with learning disability have inadequate use of new technology. To overcome these issues focussed in this paper to identify the top ranking attributes that leads learning disability. The proposed work aims to study on identifying the most frequent symptoms of learning disabilities using the ranking technique in mining approach. Based on the result, the paper concludes necessitate of ICT with assistive technology used to enhance the educational background of learning disability student for all learning disabled student community. In this paper identifies the barriers of LD student and also concludes the technology used by the students with LD contributes towards their betterment in educational achievement.

Keywords : Learning Disability, ICT, Assistive Technology, Ranking Technique, Mining Approach

I. INTRODUCTION

The key problem that affects the academic performance of student is learning disability. Disability of learning includes variety of learning problems faced by the disabled students. These problems include learning new data, reading, writing, analysis and listening. Predictive mining in knowledge discovery suggests making predictions and understanding the common signs and symptoms of learning disability student.

One of the main feature technique for education is data mining used to support effective educational system. It identifies the useful information in the database. In the mining technique, association rule model used to predict the educational performance of learning disability student. As more number of populations is illiterate, education is the vital problem for the function of ICT. ICT used gradually more to deliver knowledge in rural areas. The use of efficient tool like ICT used for students

learning increased deliberate among educators. In rural areas learning disability student faces challenges with the use of ICT includes parents illiteracy, frequent electric power shutdown, problems in internet connectivity, lack of financial difficulty. The percentage of student using ICT for their education especially in the rural areas is insignificant.

ICT act as a bridge between economically and technology for the student improvement tool. It contains suitable instruction and accomplishment of ICT bring uprising in rural expansion. Lack of infrastructure and less number of qualified teachers continues the barrier to the learning disability student. Assistive tool used to enhance, sustain, or extend resourceful capabilities of a student with learning disability. They are anticipated to assist student with

learning disabilities to attain their potential. In spite of using ICT alone is not sufficient for the LD students, integrating ICT with assistive tools helps to overcome the barriers and improve the betterment of educational background.

II. LITERATURE REVIEW

Margaret Mary et al. (2017) present a study to predict the school children with learning disability using mining approach. The paper focused on two areas feature selection and classification. Julie M. David et al. (2010) proposed verdict the dissimilar symptoms in the LD affected child by applying the classification techniques and LD is identified. Pooja Thakar et al. (2015) present an analysis towards mining in education field and focus towards the future extent. The paper concentrates on the factor non cognitive rather than academic variables for the prediction.

Pekka Rasanen (2015) explains the inconsistency among learning opportunity in common skills and reduced presentation in maths. Ambili et al. (2016) foresee of learning disability using mining techniques. The paper compared with machine learning algorithms and concludes the naive bayes and neural network is best in analysis of learning disability among classification and prediction algorithms. Sabu M.K (2015) present feature selection approach by integrate feature ranking process rough set. The paper shows the removal of variables capably from the LD dataset.

Thakaa Mohammad et al. (2014) describe the analyze on structure model in educational data mining for teaching English for low behavior students get the efficient learning prototype to attain an development in their performance. Julie M. David et al. (2013) establish the consequence of the missing value to predict the learning disabilities of children with PCA for sinking the unrelated variables to improve the data and increase the correctness. Zachariah Kariuki Mbugua et al. (2012) explore the factors influence student performance in maths and recognized the strategy to develop the betterment in Maths. The paper improves the factors to abandon practices student's efficient contribution in learning mathematics.

Abolfazl Shahbazi et al. (2015) explain the assessment of mining application in rural areas promoting agricultural field by collecting and preprocessing the important variables. Brijesh Kumar Bhardwaj et al. (2011) develop predictive mining prototype for students' performance to recognize the differentiation among high learners and slow learners student.

III. METHODOLODY

To overcome the disadvantages in educational barriers of learning disability student, the proposed work focussed to identify the most frequent symptoms that affect the academic performance. Based on the identification of attributes, the ranker used to find top ranking attributes leads to learning disability.

From the Figure 1 shows the methodology for finding the symptoms of learning disability in mining approach. The feature extraction is done to extract the most significant learning disability attributes.

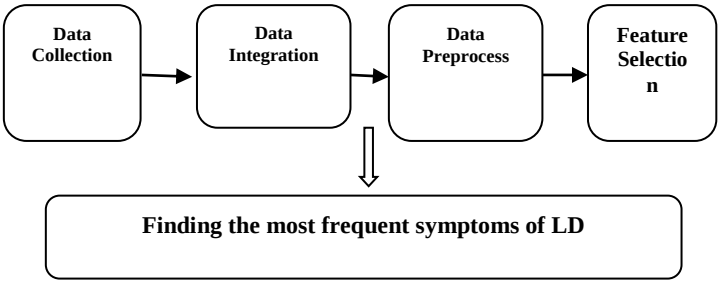

Figure 1. Methodology for finding the symptoms of learning disability in mining approach

To predict the LD student filter from the disability student data done to handle the prediction of LD student performance. To achieve efficient data, preprocess technique applied to eliminate the

redundant and irrelevant data. Feature selection technique is used to reduce the number of attributes. Based on the feature selection the most frequent attribute is identified for the symptoms of learning disabilities. The ranking is applied to the frequent variable and generate the rank for the attributes influence the learning disability student.

IV. RESULTS AND DISCUSSION

This research study explored the student data from the learning disability students. The dataset contains 513 instances with 98 attributes with demographic, socio economic, financial, parental support, teachers support, educational support, availability of resources and skills related factors. From the Table I, it shows the most frequent list of attributes for learning disability student. The symptoms of learning disability assigned a unique attribute value for the prediction.

Table 1. Attribute list for learning disability student

SI NO.	Attribute	Symptoms of learning disability student
1	AI	Attention Inability
2	DE	Distracted Easily
3	LRS	Less Remembering Skills
4	SL	Slow Learning
5	LSS	Lack of Study Skills
6	LSEP	Lack of Self Efficacy Perception
7	LC	Lack of Coordination
8	LM	Lack of Motivations
9	DRWS	Difficulty with Reading/Writing/Spelling
10	LICTU	Lack of ICT usage

From the Figure 2 shows the ranking for the most frequent attribute for learning disability. In the below graph prove the ranking of attributes for all the symptoms of LD students. Like this way all the attribute values are ranked and marked according to the most frequent symptoms of learning disability student. In this graph contains the main ten symptoms of LD student and allocated ranking to the attributes.

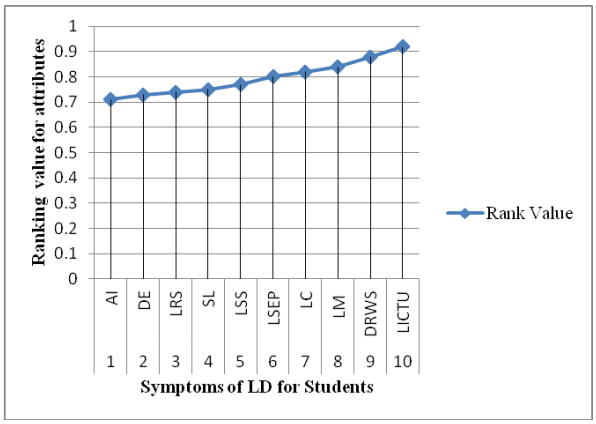

Figure 2. Ranking the most frequent attribute for learning disability

V. CONCLUSION

Based on the study, the most frequent attribute of learning disability is identified. The ranking is applied to the attributes using mining technique. This research work identifies the barriers of LD student. The paper concludes the technology used by the students with LD contributes towards their betterment in educational achievement.

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