USE OF DATA MINING FOR ASSESSMENT AND EVALUATION IN EDUCATION

* Pradnya D. Bapat

Assistant Professor,

B. Y. K. College of Commerce, Nashik-5

**Dr. Shriram Zade

HOD, Computer Management,

Dr. Moonje Institute of Management and Computer, Nashik-5

Abstract:

In the today's modern world technology plays a significant and powerful role in almost every sector. Data mining is one of the developing fields in present days. Data mining is the process to extract meaningful information from huge data. In education sector data mining plays an important role. There are various data mining techniques which are helpful for mining educational data. Data mining techniques include Classification, Clustering, sequential pattern, prediction etc. This paper focuses on the Educational Data Mining (EDM) which is rising field. It also explains the use of Data Mining in Education for assessment and evaluation process, which is the core part of educational system.

Keywords: *Data Mining, Educational Data Mining, Classification, Clustering, prediction*

Introduction:

1. Data Mining:

Data mining is the process of determining patterns, trends, correlations, or useful information from large sets of data. It is required to analyze the collected data. In Data Mining various techniques from statistics, machine learning and artificial intelligence are used to analyze and interpret data. The purpose of data mining is to extract meaningful insights and knowledge from data which can then be used for decision-making, prediction, and other business-related purposes.

2. Educational Data Mining:

Educational Data Mining (EDM) is the discipline which uses data mining techniques in the field of education. It is a very important research area which helps to predict useful information from educational databases to improve educational achievement. Educational Data Mining (EDM) is raising field which is concerned with developing methods for exploring the unique types of data that come from educational settings, and using those methods to better understand students.

Educational Data Mining has significant use for better assessment of the students learning process. Educational Data Mining is the application of data mining techniques to educational data aiming to uncover patterns and insights that can improve teaching and learning experiences. It involves analyzing like student assessments and online learning platforms to enhance educational outcomes and support decision making in the field of education.

Educational data mining (EDM) uses different data mining techniques to analyze students' data in educational environment. The core purpose of EDM is to analyze and solve educational issues and accordingly

improve educational processes. Therefore, its goal is to examine the educational data for resolving the associated issues with education.

Assessment and Evaluation in Education:

Assessment and evaluation are integral components of the educational process, providing insights into student learning, instructional effectiveness, and overall educational outcomes. Assessment refers to the ongoing process of gathering, analyzing, and interpreting evidence of student learning. It involves a variety of methods and tools to measure student performance, skills, knowledge, and understanding in a particular subject or skill area. Evaluation is a broader process that involves the systematic assessment of educational programs, policies, or individuals. It goes beyond measuring student performance to include the overall effectiveness and quality of educational initiatives.

Purpose of assessment is mainly focused on measuring student learning and providing feedback, opinion for improvement. Evaluation aimed at making judgments about the effectiveness, value, or quality of educational programs.

Use of Data Mining in Education:

In the education sector data mining plays a vital role. Data mining is useful to take out meaningful information. Data mining can enhance the assessment process by providing detailed insights into student performance. Educators can use this information to offer targeted feedback, identify areas for improvement, and adapt teaching methods to address specific challenges. Educational data mining includes extracting useful information from educational data. There are several techniques for data mining which are helpful for mining educational data.

Use of Educational Data Mining for Assessment and evaluation:

Educational Data Mining (EDM) can be a powerful tool for assessment and evaluation in education. By using data analysis techniques on educational data, EDM can provide valuable insights into student learning, instructional effectiveness, and the overall performance of educational programs.

Student is the core part of education system. Students' academic progress is nothing but the students' performance. One of the important uses of Educational Data Mining is students' performance prediction. The student performance is calculated using academic records. If there are multiple records such as internal marks, mid semester marks, assignments, presentations, worksheet/job sheets etc, this process can be done with the help of computers. If the data is massive or in huge it becomes difficult to collect, store and maintain in the forms of sheets.

Educational Data Mining is used for evaluating students' performance, learning analytics, classifying students and for decision making Data mining can offer several benefits when applied to student evaluation and assessment in educational settings such as:

- **Performance Prediction:** Predictive model in data mining can be used to forecast future student performance based on past data. This allows teachers to look forward to challenges and implement extra measures to support students who may be at risk. It also helps to predict students' effort and academic achievement by analyzing their learning situations.

- **Assessment Improvement:** Data mining can enhance the assessment process by providing insights into the effectiveness of different types of assessments. Teachers can use this information to refine exams and assignments, making them more reflective of student understanding.

- **Performance Monitoring:** Continuous monitoring of student performance using data mining allows educators to track progress over time. It can help teachers/ educators to keep track academic progress to improve the teaching process.

- **Decision Making:** Data mining techniques can help students to take decisions more efficiently. This can

OPEN ACCESS

help students for course selection.

Conclusion:

This paper throws light on an emerging field of Data Mining and its increasing use in education field. There are several benefits of using data mining in education which are focused. This paper illustrated the benefits of using data mining techniques for students' assessment and evaluation which is the core part of education system. As technology becomes a part of every field, Educational Data Mining (EDM) should be used more effectively by the academicians.

References:

Monika Goyal and Rajan Vohra, CSE Department, Bahra University, Waknaghat, H.P 173234, India , "Applications of Data Mining in Higher Education", IJCSI International Journal of Computer Science Issues, Vol. 9, Issue 2, No 1, March 2012

B.Namratha, Niteesha Sharma, Assistant Professor, Department of Information Technology, Anurag Group of Institutions,RR Dist., Hyderabad, Telangana, India, Educational Data Mining –Applications and Techniques, International Journal of Latest Trends in Engineering and Technology (IJLTET), Vol 7 issue 2 July 2016

Abdulmohsen Algarni, College of Computer Science King Khalid University Abha 61421, Saudi Aribia, "Data Mining in Education", (IJACSA) International Journal of Advanced Computer Science and Applications, Vol. 7, No. 6, 2016

Chitra Jalota, Dr. Rashmi Agrawal, "Analysis of Educational Data Mining Using Classification",2019 International Conference on Machine Learning, Big Data, Cloud and Parallel Computing(Com-IT-Con), 978-1-7281-0211-5/19/$31.00 2019 ©IEEE

Sirwan M. Aziz, Ardalan H. Awlla, Iraq, " Performance Analysis and Prediction Student Performance to Build Effective Student Using Data Mining Techniques", UHD Journal of Science and Technology , Jul 2019,| Vol 3, Issue 2

Brijesh Kumar Baradwaj, Rajasthan, India Saurabh Pal, Sr. Lecturer, Dept. of MCA, VBS Purvanchal University, Jaunpur, India , " Mining Educational Data to Analyze Students' Performance", (IJACSA) International Journal of Advanced Computer Science and Applications, Vol. 2, No. 6, 2011

Fatima Alshareef, Hosam Alhakami, Tahani Alsubait, Abdullah Baz, College of Computer and Information Systems Umm Al-Qura University, Makkah, Saudi Arabia, "Educational Data Mining Applications and Techniques", (IJACSA) International Journal of Advanced Computer Science and Applications,Vol. 11, No. 4, 2020

https://www.mdpi.com/2076-3417/11/1/237

https://technoaretepublication.org/intelligent-data-mining/article/role-data-mining.pdf

Cite This Article: