

POSSIBILITY OF IMPROVING THE TRAINING COURSE'S CONTENT BASED ON STATISTICAL ANALYSIS OF THE COLLECTED POINTS

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ABSTRACT: The research looks into the methods of visual representation of points accumulated by students in a single study course that are employed in modern data science. Statistical indicators and prospects for improving the subject based on them are discussed: which parts of the subject should be adjusted to increase the training course's quality. Data processing and display methods that the course instructor can employ effectively in the process of observing continuous visualisation of scores are discussed.

The article introduces a novel approach for enhancing the content of a training course through statistical analysis and visual representation of student scores, utilising React.js technology. The proposed platform empowers course instructors to incorporate various assessment methods such as quizzes, presentations, mid-term exams, and final exams and subsequently display students' grades based on each assessment method. The platform employs advanced statistical indicators and robust visual presentation capabilities to calculate and illustrate the points achieved. This enables instructors to easily identify desired evaluation methods, observe the distribution of points, and simultaneously track multiple evaluation methods to monitor the dynamic progression of the training course. Consequently, this holistic approach enables instructors to identify and address problematic sections within the course content, leading to meaningful improvements.

KEYWORDS AND PHRASES: MODERN TECHNOLOGIES IN EDUCATION, DATA PROCESSING METHODS IN EDUCATION, DATA VISUALISATION, DATA SCIENCE, STATISTICAL INDICATORS, STATISTICAL ANALYSIS.

INTRODUCTION

Observing the points earned by students, processing relevant data, using visualisation tools and statistical methods of data, and conducting relevant analysis are all significant components of the flexible management system of the learning process [1, 2, 6]. Recently, automation tools in the education management process have been strengthened and diversified, and various modern data analytics technologies have become available, allowing the teacher to continuously monitor the learning process and de-

termine the strengths and weaknesses of the course content during the training course [1]. The employment of new technology in the process of observing the learning process optimises time and provides a definite result to the teacher.

The use of data visualisation tools in the aforementioned process yields an interesting and important result, allowing one to determine the quality of the training course, refine the content of the training course, and determine the level of the subject for each period of training by observing the available data [6, 7].

USING THE STATISTICAL INDICATORS IN THE HIGHER EDUCATION EVALUATION SYSTEM

Higher education data-based decisions rely on the collection, analysis, and implementation of statistical information. These indicators provide an objective, empirical foundation for assessing student performance, recognising patterns, and modifying instructional techniques.

Statistical indicators convert qualitative characteristics of schooling into quantitative measures that enable objective evaluation and comparison. They contain measurements of central tendency (such as mean and median) as well as distribution (such as standard deviation and range). These metrics demonstrate students' academic performance in many ways.

The use of extensive statistical analysis in learning management system (LMS) platforms boosts their effectiveness. Professors may recognise trends, respond to student needs, and make data-driven curriculum and teaching method decisions. Statistical indicators are critical in evaluating course content, analysing student results, and determining the fairness and validity of assessment techniques.

Statistical indicators have a number of advantages. They provide objectivity, minimise prejudice, allow for comparative analysis, aid in data-driven decision-making, and increase transparency for stakeholders [4, 5].

ROLE OF THE DATA VISUALIZATION IN MODERN SYSTEMS OF A COURSE MANAGEMENT

Data visualisation is significant in the process of reviewing and analysing educational data in higher education because it shows the gathered data in clear visual formats. It contains data on student results, teaching methods, and curriculum efficacy.

Modern course management systems (CMS) use data visualisation to improve course evaluation by visualising student results, monitoring learning progress, tracking course progress, and facilitating benchmarking.

Integration of visualisation tools, customisation, real-time data updates, user-friendly interfaces, data privacy, collaborative capabilities, integration with evaluation tools, and continuous analysis assistance is required for effective usage of CMS systems for course evaluation [3]. This is achievable by various visualisa-

tions such as bar charts, histograms, line charts, and scatter charts.

In higher education, data visualisation is a significant tool for understanding educational data. It allows for data-driven decision-making, better educational tactics, and better curriculum design.

INCREASING THE TRAINING COURSE'S EFFECTIVENESS BY INCLUDING DATA VISUALIZATION TOOLS AND STATISTICAL INDICATORS

A web platform was created as part of the project to improve the evaluation process in the educational process by incorporating data visualisation tools and statistical indicators into the CMS platform. It focuses on assessing the effectiveness of the training course with real data from Georgian-American University. The project's goals include introducing data visualisation tools, using statistical indicators, analysing student results, and developing course enhancement plans.

The project effectively communicates student outcomes across evaluation methodologies by including visualisation techniques such as histograms and scatterplots, offering an overview of trends and indicating areas for improvement. Statistical indicators (for example, mode, median, and standard deviation) provide summary information regarding student results, reveal trends, and allow for more in-depth study.

Analysing students' results in various ways allows instructors to adapt their teaching methods. For example, if a dot chart reveals a substantial association between high quiz scores and overall performance, it may imply that quizzes are effective in the learning process. As a result, lecturers can employ this evaluation method more frequently during the learning process. If the scores have a high standard deviation, this indicates that the findings are dispersed and that more personalised actions are required.

The developed web platform exemplifies the use of visualisation tools and statistical indicators to better evaluate and teach in higher education. The application of these strategies helps to data-driven decisions, enhanced learning, and improved outcomes.

The platform includes built-in statistical indicators such as mode, median, and standard deviation. These indicators provide useful findings for assessing students' academic success. The mode displays the most frequent

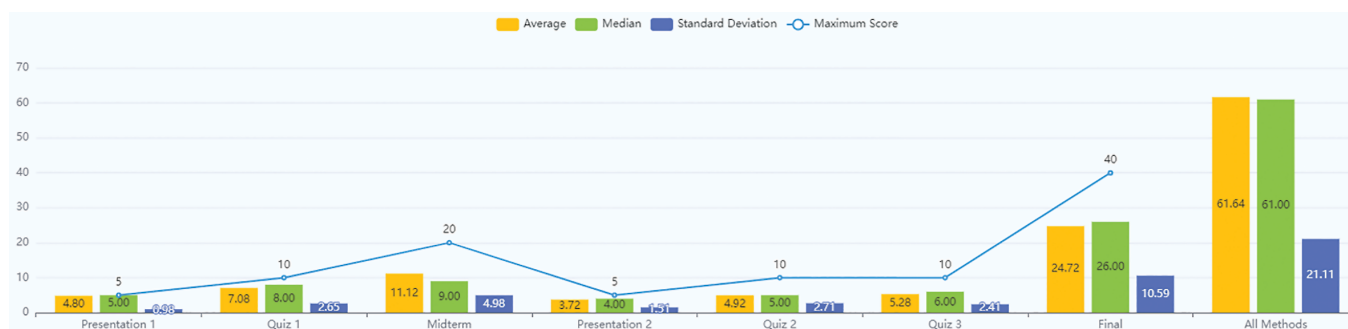


FIGURE 1. Statistical Indicators of Activities.

ly achieved scores for each evaluation method and gives data on the trend of improving student outcomes. The median is a measure of central tendency and, thus, the distribution's centre. Along with these statistical indications, the standard deviation provides a broader view of the scenario. A low standard deviation suggests that the findings are reasonably uniform, whereas a high standard deviation indicates that there are considerable variances in student academic performance (see Fig. 1.).

CONCLUSION

The project developed in the study involves the use of data visualisation tools and statistical indicators to improve the evaluation process in educational courses.

University administrators can make informed decisions to improve the learning experience by examining student data from various evaluation methods. The project effectively displays the possibility of integrating various technologies into CMS platforms, as well as its numerous benefits in terms of increasing the learning experience.

It is confirmed within the context of the research that the integration of data visualisation tools and statistical indicators has great potential in the evaluation process of higher education courses. The adoption of new technologies greatly improves the assessment and evaluation procedures used in higher education. The combination of data visualisation and statistical indicators via ongoing research and observation enables designing the future of education and enhancing student results on a larger scale.

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