



## **An Analysis of Student Performance through a Web-Based Intelligent Tutoring System in Automata**

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### **Abstract**

Educational data mining (EDM) describes a research field concerned with the application of data mining, machine learning, and statistics and information from different educational settings (e.g., universities and intelligent tutoring systems) to solve the following problem statements, i.e., student performance analysis in web-based intelligent tutoring system, how the developed system helps the student, and user assessment through software standard significant level of the users' assessment. The scaffolding technique is a way to provide supports to learners concerning activities that are beyond their ability. This study aimed to stage undertaken in the development of student performance, student performance analysis in web-based intelligent tutoring system, assessment of the users regarding the system through software standards that determine the significant difference on the assessments of the users. Results of this study will be significant to teachers, students, researchers, and future researchers on how they can have an alternative way of teaching by using a computer program or Educational Data Mining. This study used descriptive research to collect quantifiable information for statistical inference on the target respondents through data analysis. Simple Purposive Sampling is the basic sampling technique where the researchers select a group of subjects for the study from a larger population. Each individual is chosen entirely by chance and each member of the population has an equal chance of being included in the sample. The One-Sample z-test is used to determine whether the difference between a sample mean and the population means is large enough to be statistically significant regarding the assessment of the student in student performance analysis in a web-based intelligent tutoring system in automata. The result implies that the null hypothesis is rejected and the alternative hypothesis is accepted. A z-value of greater than 1.645 means that there is a significant difference in the assessment of the users in the proposed system and the traditional way of learning. The software can improve the motivational aspect of the student such as video tutorials provided per topic in the instructional tool. Alternative learning is also promoting the continued leveraging of the blended learning environments; the challenge is to keep up with the learners' growing abilities. For the future enhancement of the learning tool, the followings should be improved in the system; the learning tool should have online teacher collaboration when it comes to the lessons, board work, and assessment to be indicted in the tool, the learning tool should be available cross-platform such as using an application thru mobile devices rather than accessing it in a browser alone, and the learning tool should have continuity per lesson to properly improve the monitoring of the student performance.

**Keywords:** *Data Mining, Intelligent tutoring system, web-based system, Formal Languages and Automata Theory*