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Human Activity Recognition System

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Abstract: ***Almost every university has its management system to manage the students' records. Currently, even though there is a student management system that manages the students' records in Universiti Malaysia Sarawak (UNIMAS), no permission is provided for lecturers to access the system. This is because the access permission is only to top management such as Deans and Deputy Deans of Undergraduate and Student Development due to its privacy setting. Thus, this project proposes a system named Student Performance Analysis System (SPAS) to keep track of students' results in the Faculty of Computer Science and Information Technology (FCSIT). The proposed system offers a predictive system that can predict the student's performance in the course "TMC1013 System Analysis and Design", which in turn assists the lecturers from the Information System department to identify students that are predicted to have bad performance in the course "TMC1013 System Analysis and Design". The proposed system offers student performance prediction through the rules generated via the data mining technique. The data mining technique used in this project is classification, which classifies the students based on students' grades. Keywords- Student performance; student analysis; data mining; student performance analysis; classification; prediction; system***

I. INTRODUCTION

Students are the main asset of various universities. Universities and students play an important role in producing graduates of high quality with their academic performance achievement. Academic performance achievement is the level of achievement of the student's educational goal that can be measured and tested through examination, assessments, and other forms of measurement. However, academic performance achievement varies as different kinds of students may have a different levels of performance achievement. The student's academic performance is usually stored in a student management system, in different formats such as files, documents, records, images, and other formats. These available students' data could be extracted to produce useful information. However, the increasing amount of students' data becomes hard to be analyzed by using traditional statistical techniques and database management tools [4]. Thus, a tool is necessary for universities to extract useful information. This useful information could be used to predict the student's performance. Currently, in Universiti Malaysia Sarawak (UNIMAS), even though there is Intelligent Mining and Decision Support System (InMinds) that can view student performance, it is limited only to top management such asDeans and Deputy Deans of Undergraduate and Student Development due to its privacies setting. The lecturers, who are not part of top management, do not have permission to view the students' performance. Presently, lecturers seek students' data manually, from students' files and records, without aid from an automated system. Thus, it is a hurdle for each lecturer to retrieve information about their students' data throughout the semesters. The proposed performance analysis system allows lecturers to retrieve the students' previous performance in courses offered by FCSIT and increase the understanding of factors that contribute to students' performances in present courses taken by students. Other than that, the IS lecturers can predict students' performance in the course "TMC1013 System Analysis and Design". Thus, this helps the faculty to aim for a higher success rate in the future. In this project, a system is developed to predict student academic performance in the course "TMC1013 System Analysis and Design" offered by FCSIT by analyzing the students' performance using data mining classification techniques. Moreover, Student Performance Analysis System (SPAS) is developed to assist lecturers in consulting with students by permitting lecturers to view the student's past performance in a particular course and semester. There are a few objectives that are identified during the development of this system: i. To develop a system for students' performance analysis. ii. To assist the IS lecturers in analyzing and predicting student performance in the course "TMC1013 System Analysis and Design" by using data mining techniques in the proposed system. iii. To identify the factors that affect the student's performance in the course "TMC1013 System Analysis and Design" iv. To assist lecturers in keeping track of the student's progress throughout the semester.

II. MOTIVATION

The study found that students who had heard stories of scientists who made it, without any more information, were less likely to feel that they also had the same necessary talent to have a successful career in science.

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III. SYSTEM ARCHITECTURE

A. SVM machine Learning

In machine learning, support vector machines (SVMs, also support-vector networks) are supervised learning models with associated learning algorithms that analyze data for classification and regression analysis.

The SVM algorithm steps include the following:
Step 1: Load the important libraries.
Step 2: Import the dataset and extract the X variables and Y separately.
Step 3: Divide the dataset into train and test.
Step 4: Initializing the SVM classifier model.
Step 5: Fitting the SVM classifier model.
Step 6: Coming up with predictions.

IV. LITERATURE SURVEY

Tuan Norjihan Tuan Yaakub, Wan Rosmaria Wan Ahmad, Yusnira Husaini, Norhafizah Burham Faculty of Electrical Engineering, Universiti Teknologi MARA, 40450 Shah Alam, Selangor.[1] Abstract—A study was conducted to investigate the influence factors of the performance in mathematics during secondary education level on students' academic performance in electrical engineering study. In addition, the student's geographic background and their motivation to pursue study in engineering courses to their academic performance was also been examined. A total of 82 electronics engineering students in Universiti Teknologi MARA (UITM), Shah Alam responded to the distributed questionnaire. Students' performance in engineering courses was measured by their Cumulative Grade Point Average (CGPA). Findings showed that students from town areas performed better compared to those from a rural areas. Meanwhile, there was no strong relation between students' performances in engineering studies with mathematics grades at the school level.
Keywords— engineering student, mathematics, motivation, academic performance, CGPA
Preetha K.G.1, SarithaS.1, Shimmi Asokan2 Department of Information Technology1, Department of Computer Science & Engineering2 Rajagiri School of Engineering &TechnologyKochi, Kerala, India [2] Abstract— This paper proposes a new framework for assessing the performance of Engineering students, viz., Revolution in Engineering Assessment (REA). REA is an innovative framework designed and developed exclusively for evaluating the comprehensive, problem-solving, designing models, programming, and application-developing skills for all disciplines of engineering. REA evolves in different modes like general questionnaires, questionnaires with tip-off mode, enhanced graphical mode, and crossword mode to evaluate all aspects of engineering skills. Experiments are done on batches/groups of engineering students to evaluate their comparative performance in terms of the traditional mode of writing exams and the proposed framework. REA shows an overall improved performance of about 78% in engineering students. The result also pictures the enhanced performance of weaker students when evaluated through REA by a reasonable margin of 9%. Keywords- student; assessment; engineering; performance evaluation
Ching-Chieh Kiu School of Computing and IT Faculty of Built Environment, Engineering, Technology & Design Taylor's University Subang Jaya, Malaysia [3]Abstract—Educational data mining techniques are widely used in academic prediction on student performance in classroom education. However, most of the existing research studied and evaluated student coursework performance against the passing grade on the exam. In this paper, we performed analysis to identify the significance and impact of student background, student social activities, and student coursework achievement in predicting student academic performance. Supervised educational data mining techniques, namely Naïve Bayesian, Multilayer Perceptron, Decision Tree J48, and Random Forest were used in predicting mathematic performance in secondary school. The prediction was performed on a 2-level classification and a 5-level classification on the final grade. The experimental results have shown that student background and student social activities were significant in predicting student performance on a 2-level classification. The model can be used for early predicting student performance to help in improving student performance on the subject. Keywords—Student Performance, Educational Data Mining, Decision Tree, Naïve Bayesian, Neural Network
Arto Vihavainen Department of the Computer Science University of Helsinki Helsinki, Finland Email: [4]Abstract—As the amount of data, facilities, and tools for understanding students' programming process are improving, the time is ripe for analyzing students' actual programming process. In our current work, we are investigating how students' behavior during their programming process (e.g. eagerness to start working on freshly released exercises, and following best programming practices) affects the course outcome.

We purposefully utilize only data gathered automatically using snapshots from the students' programming process and do not gather any additional background information. Currently, we can predict whether the student is a high performer, passes the course, or fails the course with a 78% accuracy. Keywords-Computer Science Education, Extreme Apprenticeship, Code Snapshots, Student Performance

V. PROBLEM STATEMENT

This project will be developed to justify the capabilities of students in various subjects.
In this, the classification task is used to evaluate students' performance and as many approaches are used for data classification, the Support Vector Machine method will be used here.
Through this task, we extract knowledge that describes students' performance in end semester examination.
It helps earlier in identifying the dropouts and students who need special attention and allows the teacher to provide appropriate advising/counseling.

VI. CONCLUSION

In conclusion, the project concentrates on the development of a system for student performance analysis. A data mining technique and classification algorithms are applied in this project to ensure the prediction of the student performance in the course "TMC1013 System Analysis and Design" is possible. The main contribution of the SPAS is that it assists the lecturers in conducting student performance analysis. The system assists lecturers in identifying the students that are predicted to fail in the course "TMC1013 System Analysis and Design". Other than that, SPAS assist lecturers to retrieve information about their student's performance throughout the semesters.

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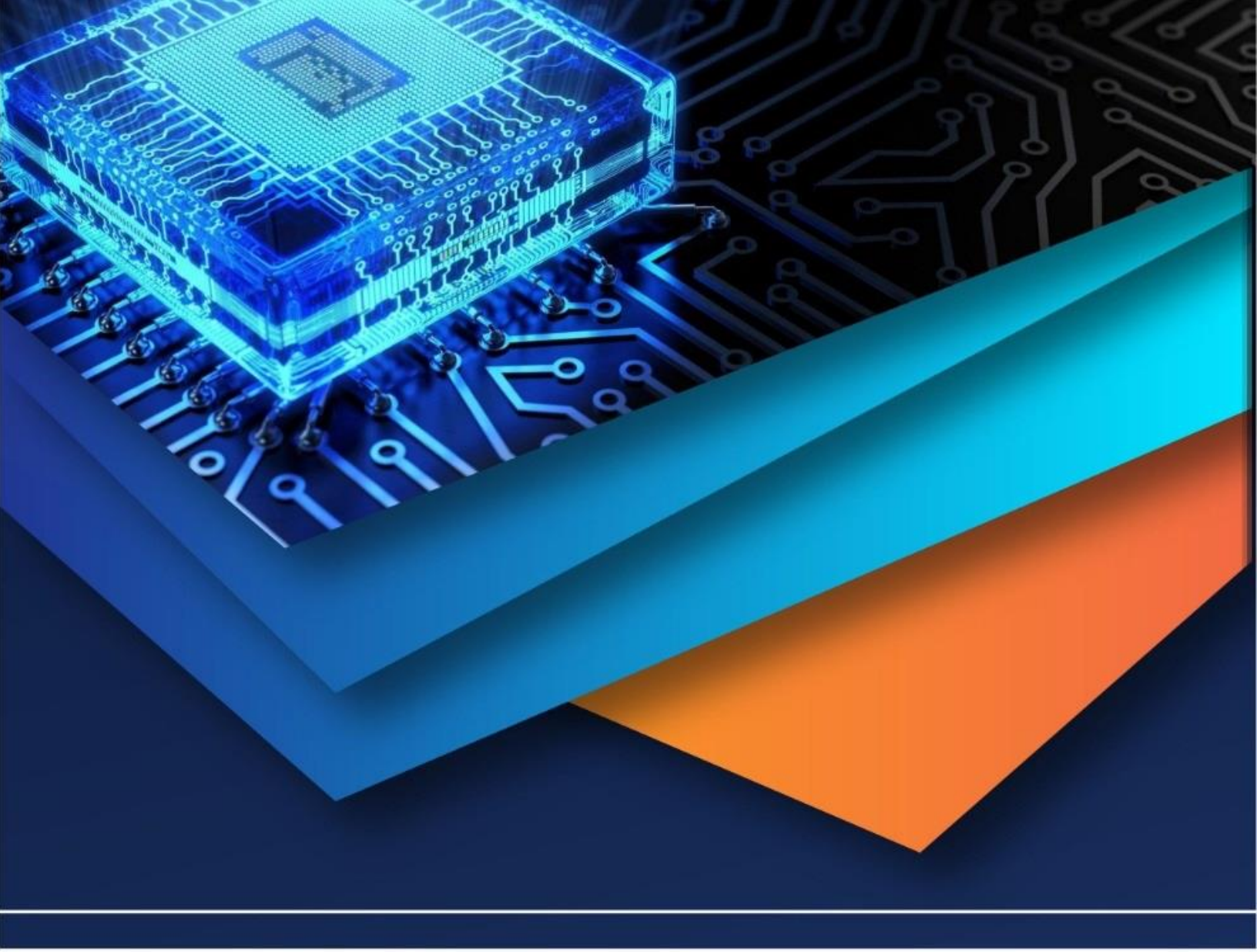

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