ACADEMIC MATCHER - THE COLLEGE PREDICTOR

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ABSTRACT

Academic integration is defined by how students are able to access, effectively interact with, and are supported by engineering faculty and staff. Academic integration is an important construct, which contributes to a student’s persistence and ultimate graduation. However, it is unknown if there are differences between the way residential and commuter engineering students access the support structures provided for them. Several factors, either numeric or non-numeric can have varying degrees of influence on academic performance of students. It is believed that ranking of these factors will, hopefully, assist management to initiate corrective action, with a view to improve students’ academic performance. In an academic environment, teachers are frequently in close contact with students and therefore their belief about degree of influence of factors on students’ academic performance could be of vital significance. The case study reported in this paper analyzes and proposes a possible and practicable ranking strategy of only selected factors via Dempster Shafer theory of evidence and fuzzy relational calculus.

Keywords: SVM, Support Vector Machine Algorithm, Decision Tree, Random Forest.

I. INTRODUCTION

Prediction of college admission became an urgent desire in most of educational bodies and institutes. That is essential in order to help at-risk students and assure their retention, providing the excellent learning resources and experience, and improving the university’s ranking and reputation. However, that might be difficult to be achieved for start-up to mid-sized universities, especially those which are specialized in graduate and post graduate programs, and have small students’ records for analysis. So, the main aim of this project is to prove the possibility of training and modeling a small dataset size and the feasibility of creating a prediction model with credible accuracy rate. Throughout the experiment, we will implement SVM classifiers, decision tree, Random forest; on the student dataset to predict the achievement of the student at graduation year.

II. LITERATURE SURVEY

1. Paper Name: A Robust Performance Degradation Modeling Approach Based on Student’s t-HMM and Nuisance Attribute Projection.

Author: HUIMING JIANG 1, JING YUAN 1, QIAN ZHAO 1, HAN YAN 2, SEN WANG3, AND YUNFEI SHAO

Abstract: Performance degradation assessment (PDA) is of great significance to ensure safety and availability of mechanical equipment. As an important issue of PDA, the robustness of the trained model directly affects the assessment efficiency and restricts its application in practice.

2. Paper Name: A Review: Predicting Student Success at Various Levels of their Learning Journey in a Science Program.

Author: Judith Goodness Khanyisa Mabunda, Ashwini Jadhav, Ritesh Ajoodha

Abstract: This paper examines how features affect student persistence or dropout at South African higher education institutions, based on three previous studies.

3. Paper Name: Data-driven Student Support for Academic Success by Developing Student Skill Profiles.

Author: Ritesh Ajoodha, Shalini Dukhan, Ashwini Jadhav

Abstract: In this paper, we attempt to provide a data-driven solution to the datacongested environment of attributes related to student success and contribute towards preventing the increased dropout rates at South African higher education institutions.

4. Paper Name: Creating a Recommender System to Support Higher Education Students in the Subject Enrollment Decision.

Author: ANTONIO JESUS FERN ´ ANDEZ-GARC ´ I 1, ROBERTO RODR ´ IGUEZCHEVERR ´ IA 2, JUAN CARLOS PRECIADO
Abstract: Higher Education plays a principal role in the changing and complex world of today, and there has been rapid growth in the scientific literature dedicated to predicting students’ academic success or risk of dropout thanks to advances in Data Mining techniques.

5. Paper Name: Academic Success Prediction based on Important Student Data Selected via Multi-objective Evolutionary Computation
Author: Nobuhiko Kondo, Takeshi Matsuda, Yuji Hayashi, Hideya Matsukawa
Abstract: This paper proposes an academic success prediction modeling approach that can be used for student advising.

6. Paper Name: Influence Factors in Academic Performance among Electronics Engineering Student: Geographic Background, Mathematics Grade and Psychographic Characteristics
Author: Tuan Norjihan Tuan Yaakub, Wan Rosmaria Wan Ahmad, Yunsira Husaini, Norhafizah Burham
Abstract: A study was conducted to investigate the influence factors of the performance in mathematics during secondary education level to student’s academic performance in electrical engineering study.

7. Paper Name: Application of Fuzzy logic for performance evaluation of academic students
Author: Seyyed Hossein Jafari Petrudi, Maryam Pirouz, Behzad Pirouz
Abstract: In educational institutions the success is measured by academic performance, or how well a student meets standards set out by governmental educational policies and/or the institutional rules and regulations.

8. Paper Name: Perception of Academic Self-efficacy and Academic hardiness in Taiwanese university students
Author: shr-kai Jang
Abstract: This study aims to explore the relation between Taiwanese university students’ academic hardiness (USAH) and their academic self-efficacy (USASE).

9. Paper Name: Predicting the Probability of Student’s Academic Abilities and Progress with EMIR and Data from Current and Graduated Students
Author: Kunihiko TAKAMATSU*, Kenya BANNAKA
Abstract: In 2016, Kobe Tokiwa University constructed an office for institutional research (IR) promotion. The purpose of this office is to propose, manage, arrange, and collect information on students at the university not only as a general management strategy, but also to support enrollment management.

Author: P.A. Pattanaik, Tripti Swarnkar
Abstract: The infected red blood cell pixel count in thin blood smear image plays a vital role in malaria parasite detection analysis. This paper proposes three stage object detection procedure of computer vision with Kernel-based detection and Kalman filtering process to detect malaria parasite.

III. METHODOLOGY

1. Requirement Analysis – Requirement Analysis is the most important and necessary stage in SDLC. The senior members of the team perform it with inputs from all the stakeholders and domain experts or SMEs in the industry. Planning for the quality assurance requirements and identifications of the risks associated with the projects is also done at this stage. Business analyst and Project organizer set up a meeting with the client to gather all the data like what the customer wants to build, who will be the end user, what is the objective of the product. Before creating a product, a core understanding or knowledge of the product is very necessary.

2. System Design - The next phase is about to bring down all the knowledge of requirements, analysis, and design of the software project. This phase is the product of the last two, like inputs from the customer and requirement gathering.

3. Implementation - In this phase of SDLC, the actual development begins, and the programming is built. The implementation of design begins concerning writing code. Developers have to follow the coding guidelines described by their management and programming tools like compilers, interpreters, debuggers, etc. are used to develop and implement the code.
4. Testing - After the code is generated, it is tested against the requirements to make sure that the products are solving the needs addressed and gathered during the requirements stage. During this stage, unit testing, integration testing, system testing, acceptance testing is done.

5. Deployment - Once the software is certified, and no bugs or errors are stated, then it is deployed. Then based on the assessment, the software may be released as it is or with suggested enhancement in the object segment. After the software is deployed, then its maintenance begins.

6. Maintenance - Once when the client starts using the developed systems, then the real issues come up and requirements to be solved from time to time. This procedure where the care is taken for the developed product is known as maintenance.

IV. MODELING AND ANALYSIS

- Admin

In this module, the admin has to log in by using valid user name and password. After login successful he can do some operations, such as View All Users and Authorize.

- End User

In this module, there are n numbers of users are present. User should register before doing any operations. Once user registers, their details will be stored in the database. After registration successful, the user has to login by using authorized user name and password. Once Login is successful.

V. CONCLUSION

This research focused on the predictive ability of DM methods to predict students' achievement after preparatory year at the degree level in higher education. The students' achievement is based on the Grade Point Average (CGPA) defined as (high, average, or under average). Throughout the experiment, we have implemented three SVM classification the student dataset to predict the achievement of the student at graduation year. Moreover, the important features that had a significant impact on predicting academic achievement of CCSIT students were; CGPA for Prep year, Computer Skills course, Communication Skills course, Mathematics course. The results obtained will help to predict students’ final achievement early enough to take effective countermeasures by providing timely warnings to students. Thus, the percentage of students who have low achievement can be reduced providing the right counseling.
VI. REFERENCES

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[3] "Learning and academic success in engineering courses: Comparing 1st year students according to gender" Vasconcelos, Rosa M.

[4] "Measuring Commuter Student Support and Success through Academic Integration" Cory Brozina

[5] "Optimal ranking of factors affecting students’ academic performance based on belief and plausibility measures" Satish S. Salunkhe Yashwant Joshi


[9] "Predicting the Probability of Student's Academic Abilities and Progress with EMIR and Data from Current and Graduated Students" BANNAKA, Kunihiko TAKAMATSU*