Adaboost-multilayer perceptron to predict the student's performance in software engineering

Ahmad Firdaus Zainal Abidin¹, Mohd Faaizie Darmawan², Mohd Zamri Osman³, Shahid Anwar⁴, Shahreen Kasim⁵, Arda Yunianta⁶, Tole Sutikno⁷

^{1,2,3,4} Faculty of Computer Systems & Software Engineering, Universiti Malaysia Pahang, 26300 Gambang, Pahang, Malaysia

⁵ Faculty of Computer Science & Information Technology, Universiti Tun Hussein Onn Malaysia, Parit Raja, Johor, Malaysia

⁶ Faculty of Computing and Information Technology in Rabigh, King Abdulaziz University, Jeddah, Saudi Arabia

⁷ Faculty of Industrial Technology, Universitas Ahmad Dahlan, Yogyakarta, Indonesia

ABSTRACT

Software Engineering (SE) course is one of the backbones of today's computer technology sophistication. Effective theoretical and practical learning of this course is essential to computer students. However, there are many students fail in this course. There are many aspects that influence a student's performance. Currently, student performance analysis methods just focus on historical achievement and assessment methods given in the class. Need more research to predict student's performance to overcome the problem of student failing. The objective of this research is to perform a prediction for student's performance in the SE using enhanced Multilayer Perceptron (MLP) machine learning classification with Adaboost. This research also investigates the requirements of each student before registering in this course. This research achieved 87.76 percent accuracy in classifying the performance of SE students.

KEYWORDS

Adaboost; Education; Machine learning; Multilayer perceptron; Software engineering

ACKNOWLEDGEMENTS

This work was supported by Universiti Malaysia Pahang, under the Grant Faculty of Computer Systems and Software Engineering (FSK1000), RDU180360.