A Semantic-based Approach for Representing Successful Graduate Predictive Rules

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***Abstract*— This paper seeks to identify the factors of university students in major of Computer Science at Thaksin University, Thailand that predicts successful completion of the bachelor's degree. Decision tree C4.5/J48 and ID3 algorithm, the classification algorithms in data mining which are commonly used in many areas can also be implemented to generate the classification rules. In our experiment with 126 training records, we found an overall accuracy of C4.5/J48 algorithm was 90.625% and accuracy of ID3 algorithm was 96.875%. Moreover, we extend the classification rule by applying a semantic-based approach for creating a classification tree ontology. The ontology represent about the classification rules that used to enable machines to interpret and identify learner factors in process of prediction. We also explain how ontological representation plays a role in classifying students to predictive target class. The inference layer of classification tree ontology is based on SWRL (Semantic Web Rule Language), making a clarify separation of the program component and connected explicit modules. One of the major advantages of the proposed approach is that identifying success factors will give students an awareness of essential features for successful completion of their graduate studies.**

***Keywords*— Decision Tree, Graduate Prediction, Ontology, Semantic Web, SWRL**

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