

**ROUGH SET RULES EXTRACTION FOR STUDENT  
PROGRAMMING SKILLS**

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# **Rough Set Rules Extraction for Student programming skills**

A thesis submitted to the Faculty of Information Technology in partial  
fulfillment of the requirement for the degree  
**Master of Science (Intelligent System)**  
University Utara Malaysia

By

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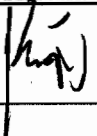
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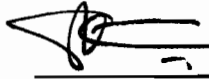
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## **ABSTRACT**

Programming is a critical subject to computer science or information technology students. It is one of the fundamental skills they need to acquire during study. The aim of the study is to generate a compact set of rules using real data to predict student's performance. Not all variables as usual if good results are to be obtained. Data mining refers to one of the phases or step within the knowledge discovery in databases (KDD) processes for extracting used rough set technique. The extracted rules will be a measurement of the students' performance in programming and give the insight to educators on what should be help the students to master programming skills.

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# Chapter 1

# CHAPTER 1

## INTRODUCTION

In the real world, organizations often have large amount of data that are stored in databases. The large size of data makes data analysis difficult, as data are more complex in terms of number of attributes and number of objects. The use of a sufficient number of attributes and objects are one way to overcome the problem. In data mining, there are many techniques that can be used for reducing data. Such as, Rough set, multi discriminate analysis (MDA), classification and regression tree (CART) and principal component analysis (PCA). However, most reduction techniques perform differently when applied to various problems. To date there is no research that can identify which reduction technique is the best. This is because one reduction technique may be suitable to be used on one problem domain but unsuitable when applied on another problem domain.

There have been very few studies in recent years into academic success in computer programming. Today, despite of job saturation, industry is still keen to accept IT graduates and its main focus will be on any bright students can that do programming well. But many students who are proficient in many non-programming fail to achieve success in programming (Byrne and Lyons, 2001).

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