Universiti Teknologi Mara

Prediction of Secondary Public School Selection Based on Parents’ Preferences Using Naïve Bayes

Mohamad Hafizi Bin Masdar

Thesis submitted in fulfilment of the requirements for Bachelor of Computer Science (Hons.) Faculty of Computer and Mathematical Sciences.

July 2017
STUDENT DECLARATION

I certify that the thesis and the project to which it refers is the product of my own work and that any ideas or quotation from the work of other people, published or otherwise are fully acknowledges in accordance with the standard referring practices of the discipline.

..............................................
MOHAMAD HAFIZI BIN MASDAR
2014247684

July 24, 2017
Choosing a school for the secondary students is not a simple task nowadays since there are many factors needed to be considered by parents. These might be an overhead to the parents to filter each school and try to sort it out based on their requirements. Therefore, a predictive model which is a quantitative research that implemented artificial intelligence (AI) strategy using Naïve Bayes (NB) technique been applied in order to predict the chosen secondary school in Gombak based on parents’ preferences. Through six different independent variables (IV) namely distance of home from school (DSH), sibling enrolment in the same school (SE), highest parent’s level of education (PLE), household income (HI), employment status (ES) and race, 64 prediction models were produced and tested. Among all these models, the highest accuracy detected was the combination of four IVs which are DSH, PLE, ES and race, that resulted more than 55% of accuracy. This finding then implemented into a system which is Prediction of Secondary Public School System (PSPSS) to help parents making school selection easier since parents’ concerns are taken into consideration. NB provided a new way of solving a problem in determining the vital factors for making a school choice. Since this is the preliminary and exploratory study, the highlighted achievement is not the accuracy percentage of the prediction, but a new angle on the ability of how AI can solve the problem within the domain of this study. This finding can be further improved by using the same technique which is NB through modification of IV used and the number of data collected. Other AI techniques such as support vector machine (SVM), multiple linear regression (MLR) and artificial neural network (ANN) also can be used to compare with the current NB as well as an enhancement to readily available findings. This study also may be broadened to other regions or states to help more parents making school selection easier.
# TABLE OF CONTENTS

<table>
<thead>
<tr>
<th>CONTENT</th>
<th>PAGE</th>
</tr>
</thead>
<tbody>
<tr>
<td>SUPERVISOR APPROVAL</td>
<td>ii</td>
</tr>
<tr>
<td>STUDENT DECLARATION</td>
<td>iii</td>
</tr>
<tr>
<td>ACKNOWLEDGEMENT</td>
<td>iv</td>
</tr>
<tr>
<td>ABSTRACT</td>
<td>v</td>
</tr>
<tr>
<td>TABLE OF CONTENT</td>
<td>vi</td>
</tr>
<tr>
<td>LIST OF FIGURES</td>
<td>x</td>
</tr>
<tr>
<td>LIST OF TABLES</td>
<td>xi</td>
</tr>
<tr>
<td>LIST OF ABBREVIATIONS</td>
<td>xii</td>
</tr>
</tbody>
</table>

## CHAPTER ONE: INTRODUCTION

1.1 Background of Study 1
1.2 Problem Statement 2
1.3 Objectives 3
1.4 Project Scope 4
1.5 Significance of Project 6

## CHAPTER TWO: LITERATURE REVIEW

2.1 Introduction 7
  2.1.1 School Definition 8
  2.1.2 Secondary Schools in Malaysia 9
    2.1.2.1 Regular National Secondary School (SMK) 9
    2.1.2.2 Fully Residential Secondary School (SBP) 10
    2.1.2.3 Technical and Vocational Education 10
    2.1.2.4 Government-Aided Religious School (SABK) and National Religious Secondary School (SMKA) 11
CHAPTER THREE: METHODOLOGY

3.1 Introduction
3.1.1 Agile Model

3.2 Detail of Project in Agile
3.2.1 Overview of Project Framework
3.2.2 Analysis Phase
3.2.3 Planning Phase
3.2.4 Design and Development Phase
3.2.5 Testing Phase
3.2.6 Documentation Phase