Universiti Teknologi MARA

Analysing the Uncertainty Attributes for Health and Beauty Product Using Fuzzy Logic Technique

Nursyahirah Binti Zulkifli

Thesis submitted in fulfilment of the requirements for
Bachelor of Information Technology (Hons.)
Information Systems Engineering
Faculty of Computer and Mathematical Sciences

January 2017
STUDENT DECLARATION

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

................................................

NURSYAHIRAH BINTI ZULKIFLI

2014368981

JANUARY 3, 2017
ARA RZ Enterprise is a distributor of health and beauty product. During business hour, customers usually ask the suggestion from the worker on the product that can solve their skin problem. However, lack of knowledge about beauty product, the difficulty to choose the right product and the diverse effect of each product with people has difficult the process of selecting the skin care product. Thus, this system is meant to be used by the customers and workers of ARA RZ Enterprise to get recommendation on the suitable product that can cater their skin problem. The aim for this system is to analyse the uncertainty attributes for health and beauty product using fuzzy logic technique and provide product recommendation to user. The objective of this project are to gather requirements and data regarding health and beauty, to analyse the uncertainty attributes using fuzzy logic technique, to design as well as to develop the system and provide product recommendation to user. In order to develop this project, there are five stages involved which are the introduction, literature review, methodology, result finding and conclusion and recommendation. The methodology used in the project is Waterfall methodology which consists of three phases which are requirements gathering and analysis, system design and implementation. The requirements gathered resulting in the designing and development of the system. Some recommendations for future works are also discussed at the very end of the project based on the limitations identified throughout the project to offer opportunities for enhancement and improvement for the future. As a result, a prototype of Beauty Product Recommendation System has been produced together with the Software Requirements Specifications (SRS) and Software Design Document (SDD).
# 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>TABLES OF CONTENTS</td>
<td>vi</td>
</tr>
<tr>
<td>LIST OF FIGURES</td>
<td>xi</td>
</tr>
<tr>
<td>LIST OF TABLES</td>
<td>xiv</td>
</tr>
<tr>
<td>LIST OF ABBREVIATIONS</td>
<td>xv</td>
</tr>
</tbody>
</table>

## CHAPTER ONE: INTRODUCTION

1.1 Background of Study                        1
1.2 Problem Statement                          3
1.3 Aim                                        4
1.4 Objectives                                 4
1.5 Project Scope                              4
1.6 Project Significance                       5
    1.6.1 Stakeholder                           5
    1.6.2 Academician                          6
1.7 Summary                                    6

## CHAPTER TWO: LITERATURE REVIEW

2.1 Health and Beauty                          7
    2.1.1 Traditional Care of Health and Beauty 8
    2.1.2 Modern Care of Health and Beauty      9
2.2 Skin Care Product

2.3 Skin Type
   2.3.1 Normal Skin
   2.3.2 Oily Skin
   2.3.3 Dry Skin
   2.3.4 Combination Skin
   2.3.5 Sensitive Skin

2.4 Skin Problem
   2.4.1 Acne
   2.4.2 Scar
   2.4.3 Dark Spot
   2.4.4 Dull Skin
   2.4.5 Large Pores
   2.4.6 Aging Skin
   2.4.7 Whitehead
   2.4.8 Blackhead

2.5 Technique to Analyse Uncertainty Attributes
   2.5.1 Fuzzy Logic
   2.5.2 Rule-Based
   2.5.3 Case-Based Reasoning
   2.5.6 Discussion on Techniques

2.6 Related Works
   2.6.1 Conventional Way of Recommending Product
      2.6.1.1 Flyer
      2.6.1.2 Brochure
      2.6.1.3 Mass Media
   2.6.2 Online Recommendation of Health and Beauty Product
      2.6.2.1 Instagram
      2.6.2.2 Facebook
      2.6.2.3 Blogger
   2.6.3 Recommendation Using Fuzzy Logic