

UNIVERSITI TEKNOLOGI MARA

**FUZZY LOGIC VACATION TRIP BUDGET ADVISOR MOBILE
APPLICATION**

MOHAMMAD HASIF AFIQ BIN JAAFAR

**THESIS SUBMITTED IN FULFILLMENT OF THE REQUIREMENT FOR
BACHELOR OF COMPUTER SCIENCE (HONS.)
FACULTY OF COMPUTER AND MATHEMATICAL SCIENCES**

JANUARY 2019

ACKNOWLEDGEMENT

بِسْمِ اللَّهِ الرَّحْمَنِ الرَّحِيمِ

Praise be to Almighty Allah, his majesty for his uncountable blessings on me throughout my life. No words can be expressed to his generousness and kindness awarded upon me that enabled me to complete this task.

My sincere thanks to my family for all their love, support and encouragement. My deepest regards to my loving, supportive, encouraging, and patient parents, Yasmin Yahya and Mohd Mahyuddin Noh for their faithful support and unconditional love during my academic endeavors over the past several months that enable me to complete this thesis.

I am hugely appreciative and thank to my enthusiastic supervisor, Assoc. Prof. Dr. Syed Ahmad Sheikh Aljunid for his tremendous academic support and guidance that made my thesis work possible. He always been available to advise me and has been energetically involved in my work. I am very grateful for his patience, motivation, enthusiasm, and enormous knowledge in Computer Science.

Special mention and thanks go to the Head of Integration & Operation, Axiata Digital, Encik Hassan Basri as he had provided me good advice, support and encouragement towards completing this project.

Last, but not least, I would like to thank my lovely classmates: Siti Norfathiah Khairuna Muhamad, Mohd Izzat Ismail Hashim, Ammar Fitri Azman, Shah Rizal Masidin, Muhammad Amir Asyraf Mohd Nor, Muhammad Amirul Shafiq Azlin Shah, Muhammad Zaki Azim Zairil Aznin and many more. These brilliant classmates inspired and motivated me. They will do everything they could to support me. Without them, I would not have started this project or have seen it to an end.

I am gratefully acknowledged Universiti Teknologi MARA (UiTM) for giving me opportunity to carry out this thesis as my final year project.

ABSTRACT

Traveling is an enjoyable exploration, but of course it requires budget. There are some challenges for tourists to find and select their preferred vacation destinations within their limited budget. In this project, a vacation trip budget advisor using mobile application for iOS has been developed. This mobile application will assist tourist to have easy access to the application anytime and perhaps anywhere. The development of this mobile application employed fuzzy logic method to design the vacation trip budget advisor based on given travel criteria such as travel budget, travel duration, travel style and travel preferences. This mobile application has gone through the functionality testing, accuracy testing and user testing (users' satisfaction) to ensure the effectiveness, correctness and the reliability of the application. The results proved that this application is useful and efficient. Despite the successful of this mobile application, the vacation destinations are limited to only specific domestic packages offered by a travel agency. In future, the destinations should be incorporated other countries nearby Malaysia and perhaps all over the world.

TABLE OF CONTENTS

CONTENT	PAGE
SUPERVISOR APPROVAL	i
STUDENT DECLARATION	ii
ACKNOWLEDGEMENT	iii
ABSTRACT	iv
TABLE OF CONTENTS	v
LIST OF FIGURES	viii
LIST OF TABLES	x
LIST OF ABBREVIATION	xi
CHAPTER ONE: INTRODUCTION	1
1.1 Background of Study	1
1.2 Problem Statement	2
1.3 Project Objectives	2
1.4 Project Scope	3
1.5 Project Significance	3
1.6 Summary	4
CHAPTER TWO: LITERATURE REVIEW	5
2.1 Artificial Intelligence	5
2.2 Expert Systems	5
2.3 Type of Expert Systems	6
2.3.1 Fuzzy Logic-Based Expert Systems	6
2.3.2 Rule Based Expert Systems	9
2.3.3 Frame-Based Expert Systems	11
2.3.4 Expert Systems Based on Neural Network	12

CHAPTER 1

INTRODUCTION

This chapter provides the background study of the proposed project and the details about the problem that are faced by inexperienced tourists in meeting their budget constraints in choosing their preferred vacation. This chapter consists of the background of study, objectives, scope and the significant of this project that need to be achieved.

1.1 Background of Study

Almost everybody in this world likes going on vacation. They like to relax, to visit new places and see new things. Besides, they believe that going vacation can get away from reality of everyday life, release stress and fulfil their freedom aspiration (Chen et al., 2016; Gao & Kerstetter, 2018). Vacation also has an association with tourists happiness (Uysal, Sirgy, Woo, & Kim, 2016). Most tourists express their happiness and their trip activities by sharing them in internet such as social media and their own website (Jacobsen & Munar, 2014). They also engage in sharing activity to communicate their previous trips and build positive self-identity (Lee and Oh, 2017). Some people like to search information regarding vacation through these sharing activities.

No doubt that internet is the primary source of information for most people. For tourists, the internet has become a crucial platform for searching suitable travel destinations and planning their trips. There are factors to consider when searching for the best vacation whether it is worth money and time. Budget is one of the factors that need to be considered. Everyone have to answer the question of how much do you have for this vacation before deciding on the vacation destination, is it much or less. Different destinations will expect different budgets. Some people will need more budget while others will need less. The vacation budget is also depending on how much and what portion that the tourists wish to spend during their vacations. Hence, tourists' vacation destinations deal with a complex combination of multiple possibilities and centred experience services (Rita, 2018).