

**UNIVERSITI TEKNOLOGI MARA**

**SALES PREDICTION OF RELIGIOUS PRODUCT AND  
SERVICES OF MUTAWWIF HARAMAIN TRAVEL &  
TOURS USING PREDICTIVE ANALYTICS**

**NURUL AININ QISTINA BINTI MOHD SABRI**

**BACHELOR OF INFORMATION SYSTEMS (Hons.) BUSINESS  
COMPUTING**

**JULY 2025**

## ACKNOWLEDGEMENT

Bismillahirrahmanirrahim first and foremost, I am forever grateful to Allah S.W.T for the guidance and blessings which made it possible for me to complete the proposal. I thank Him for granting me the strength and wisdom which has been the sustenance to this journey. For that, I am grateful. Additionally, I thank Him for the hidden blessings which help me understand gratitude.

I would like to appreciate Ts. Dr. Hasiah Binti Mohamed @ Omar, my supervisor, for her guidance and encouragement which provided unfaltering support during the preparation of the proposal. Her commitment to helping me with my messages, even in the dead of the night, is deeply appreciated. I am thankful for the support of my CSP600 lecturer, Miss Nor Hasnul Azirah Binti Abdul Hamid, who provided invaluable tips and helped me develop my technical report while keeping me on track. I am also very grateful for the help of the CEO of Mutawwif Haramain Travel & Tours, Encik Yahdi, for his assistance and cooperation during the interviews, and the help of Mulaihah Sabri for her great support and assistance regarding this project.

I would like to thank my beloved parents, Mohd Sabri bin Mahmood and Nik Zadira binti Zakaria, for their unconditional love, support, prayers, motivation, and belief in me. Their prayers have carried me this far. Even with their tight schedules, they always tried to visit me at UiTM and ensured I was fine and reminded me that I was capable and destined for greater things. Their continuous positive affirmations fuelled my ambition more than anything else. And to my dear siblings Kak, Abey, Yen, Adam, and Ica, your thoughtful calls brought me joy and soothed my mind knowing that I am never alone while on this journey. You have my deepest appreciation for your encouragement and love.

I owe a huge thank you to my friends who showed up for me throughout my life. To my Amni who has always motivated me since 2019 and my Fatihah who has always given her support from Kedah meant a lot to me. Also, my amazing Nik, Yana, and Tirah who have always been there for me even before they finished their diplomas and continue supporting me from a distance. Thank you for all believing in me, for all the video calls and for your presence that always made everything feel lighter. Thank you to my incredible Munqiyara team (Aisyah, Mun and Piya). You have been there for me at my lowest and endured when I was stressed and at my highest when we celebrated, and we shared some laughter in between. I am truly grateful for always having believed in each other and also Najwa, Aina, Marsya, Syifa, Mel. My warmest regards to all of you as well for your support and encouragement.

Finally, let me take the opportunity to thank myself. Thank you for being patient and a strong person because the people around me were and I had no idea where to begin. After managing such a daunting challenge and still coming out on top, it is truly amazing.

## ABSTRACT

Sales prediction in the religious services sector is challenging due to seasonal, cultural, and economic factors, which make traditional methods less reliable. This research develops a predictive model for sales prediction at Mutawwif Haramain Travel & Tours, utilizing machine learning algorithms, specifically Decision Tree, Random Forest, and Naive Bayes, to uncover patterns in customer behavior and seasonal demand. Following the CRISP-DM methodology, data from January to December 2024 was collected, covering factors such as product sales, customer demographics, and seasonal events. The Decision Tree algorithm was selected for its highest accuracy of 89.29%, reflecting its ability to accurately classify sales outcomes compared to the other models. The final model was deployed in an interactive dashboard, providing real-time insights to aid decision-making, resource optimization, and marketing strategies. The model is scalable for future growth at MHTT and can be applied to other sectors. Future improvements will include adding more environmental and customer-related variables to enhance accuracy and adaptability in a dynamic market.

## TABLE OF CONTENTS

<b>CONTENT</b>	<b>PAGE</b>
<b>SUPERVISOR APPROVAL</b>	<b>I</b>
<b>STUDENT DECLARATION</b>	<b>II</b>
<b>ACKNOWLEDGEMENT</b>	<b>V</b>
<b>ABSTRACT</b>	<b>VI</b>
<b>LIST OF TABLES</b>	<b>XI</b>
<b>LIST OF ABBREVIATIONS</b>	<b>XIII</b>
<b>CHAPTER 1</b>	<b>1</b>
1.1 Background of Study	1
1.2 Current Business Process	3
1.3 Problem Statement	5
1.4 Objectives	6
1.5 Scope	6
1.6 Significance	8
1.7 Project Framework	9
1.8 Gantt Chart	10
1.9 Conclusion	11
<b>CHAPTER 2</b>	<b>12</b>
2.1 Introduction	12
2.2 Business Analytics	12
2.2.1 Business Analytics Technique	14
2.2.2 Data Mining	17
2.3 Predictive Analytics	20
2.3.1 Process of Predictive Analytics	21
2.3.2 Predictive Analytics Model in Religious Tourism	22
2.3.3 Predictive Analytics Techniques	23
2.3.4 Tourism Industry	24
2.4 System Development Model(s)	26
2.4.1 Advantage of CRISP-DM	30
2.5 Similar Existing Systems/Research	30
2.6 Implications of Literature Review	33
2.7 Conclusion	34

<b>CHAPTER 3</b>	<b>35</b>
3.1 Project Methodology	35
3.2 Business Understanding	38
3.3 Data Understanding	41
3.3.1 Collect Initial Data	42
3.3.2 Describe Data	43
3.3.3 Verify Data Quality	44
3.4 Data preparation	45
3.4.1 Select Data	47
3.4.2 Clean Data	47
3.4.3 Construct Data	49
3.4.4 Integrate Data	50
3.4.5 Format Data	51
3.5 Evaluation	54
3.6 Deployment	55
3.8 Conclusion	59
<b>CHAPTER 4</b>	<b>60</b>
4.1 Introduction	60
4.2 Conceptual Framework	60
4.3 Result of Objective 1	61
4.4 Result of Objective 2	62
4.5 Decision Tree	63
4.5.1 Result Experiment 1: Sales Prediction	64
4.5.2 Result Experiment 2: Product and Services Prediction	66
4.6 Random Forest	69
4.6.1 Result Experiment 1: Sales Prediction	70
4.6.2 Result Experiment 2: Product and Services Prediction	73
4.7 Naive Bayes	75
4.7.1 Result Experiment 1: Sales Prediction	76
4.7.2 Result Experiment 2: Product and Services Prediction	79
4.8 Evaluation	81
4.10 Expert Evaluation Result	90
4.11 Project Summary	92
4.12 Conclusion	93