

**UNIVERSITI TEKNOLOGI MARA**

**LAPTOP PRICE PREDICTION USING DECISION  
TREE ALGORITHM**

**NURNAZIFAH BINTI ABD MOKTI**

**BACHELOR OF COMPUTER SCIENCE (Hons.)**

**JANUARY 2024**

**Universiti Teknologi MARA**

## **ACKNOWLEDGMENT**

Alhamdulillah, praises and thanks to Allah because of His Almighty and His utmost blessings, I was able to finish this research within the time duration given. Firstly, my special thanks goes to my supervisor, Puan Norulhidayah Isa for their unwavering support, invaluable guidance, and constructive feedback. Special appreciation also goes to my beloved parents their encouragement throughout completing this project. Last but not least, I would like to give my gratitude to my dearest friend for their support, insightful conversations, and willingness to lend a hand whenever necessary. I am truly indebted to each of you for your invaluable contributions in shaping the outcomes of this endeavour.

## **ABSTRACT**

This research project focuses on developing a laptop price prediction model using the decision tree algorithm based on laptop specifications. The objective is to provide a reliable tool for students, laptop buyers, and sellers to estimate laptop prices accurately. The project involves data collection, data preparation, and the implementation of the decision tree algorithm for price prediction. The decision tree's effectiveness and accuracy in predicting laptop prices are evaluated through rigorous testing and validation. The findings of this research aim to offer valuable insights into the relationship between laptop specifications and their corresponding prices, helping users make informed decisions in the laptop market. The model's interpretability and ease of use contribute to its practical applicability. The project's results and their implications are documented in a comprehensive report, providing a clear overview of the methodology, evaluation process, and potential real-world applications. Overall, this laptop price prediction model demonstrates the effectiveness of the decision tree algorithm in delivering accurate and valuable predictions for various stakeholders in the laptop industry.

## Table of Contents

<b>SUPERVISOR APPROVAL</b> .....	<b>ii</b>
<b>STUDENT DECARATION</b> .....	<b>iii</b>
<b>ACKNOWLEDGMENT</b> .....	<b>iv</b>
<b>ABSTRACT</b> .....	<b>v</b>
<b>LIST OF FIGURES</b> .....	<b>x</b>
<b>LIST OF TABLES</b> .....	<b>xi</b>

### **CHAPTER ONE : INTRODUCTION**

1.1 Background of Study .....	1
1.2 Problem statement .....	3
1.3 Objective.....	4
1.4 Project scope.....	4
1.5 Project significance.....	5
1.6 Overview of Research Framework .....	6
1.7 Conclusion .....	7

### **CHAPTER TWO: LITERATURE REVIEW**

2.1 Price prediction.....	8
2.1.1 Benefit of Price Prediction.....	10
2.2 Regression Algorithm.....	11
2.2.1 Regression Algorithm and How It Works.....	12
2.2.2 Regression Algorithm Feature.....	13

2.2.3 Advantage of Regression Algorithm.....	14
2.3 Implementation Regression Algorithm in Various Problem.....	16
2.4 Similar Works.....	24
2.5 Implication of Literature Review.....	31
2.6 Conclusion.....	33

### **CHAPTER THREE: RESEARCH METHODOLOGY**

3.1 Overview of research framework methodology .....	34
3.1.1 Detailed of Research Framework .....	35
3.2 Preliminary phase.....	38
3.2.1 Literature Study.....	39
3.3 Data understanding .....	40
3.1 Data collection .....	40
3.4 Data preparation.....	42
3.4.1 Data Selection and data cleaning.....	42
3.4.2 Data transformation.....	43
3.5 Modelling.....	44
3.5.1 Algorithm design.....	44
3.5.2 Algorithm testing.....	46
3.6 System development.....	47
3.6.1 Software Recommendation.....	47
3.6.2 Hardware Recommendation .....	48
3.7 Evaluation.....	49
3.8 Documentation.....	50
3.9 Gantt Chart.....	51