

UNIVERSITI TEKNOLOGIMARA

TECHNICAL REPORT

**SELECTING A QUALITY SMARTPHONE FOR
STUDENTS' PREFERENCE BASED ON ANALYTICAL
HIERARCHY PROCESS (AHP)
(P25S22)**

**NURUL AFIQAH BINTI ISMAIL (2021102051)
NOOR NADHIRAH BINTI ZARKHSI (2020455664)
WAN NUR FATIN BINTI WAN MAHMMUD (2020449356)**

**Report submitted in partial fulfillment of the requirement
for the degree of
Bachelor of Science (Hons.) Mathematics Management
Bachelor of Science (Hons.) Mathematics & Business Administration**

FEBRUARY 2023

ACKNOWLEDGEMENTS

IN THE NAME OF ALLAH, THE MOST GRACIOUS, THE MOST MERCIFUL

Praise be to Allah Subhanahu Wa Ta'ala for providing me the time, good health, and strength to work toward completing this study.

Acknowledgements are due on behalf of the Faculty of Computer and Mathematical Sciences for giving me the opportunity to undergo this course of Final Year Project (MSP660) as one of the degree course requirements.

High appreciation and deepest gratitude are given to my supervisor, Puan Rasidah Binti Buang, for her invaluable guidance, encouragement, generous assistance, patience, and strong support throughout this study work, as well as for her trust in our ability to produce the case study.

And for the teammates: Nurul Afiqah binti Ismail, Noor Nadhirah binti Zarkhsi, Wan Nur Fatin binti Wan Mahmud, and others too, for their willingness to share the burden and for their very passionate support of each other's weaknesses in order to fulfill the achievement in this final year report.

Let's not forget the hard work and determination of Sir Mohd Azdi Maazar, the lecturer of the Final Year Project (MSP660) who has been managing our programme very well and guiding the supervisors, panels, and students in order to ensure everything runs according to schedules smoothly.

Above all, I wish everyone happiness and prosperity in their lives. May Allah bless our lives with loved ones in this world and the hereafter.

TABLE OF CONTENTS

ACKNOWLEDGEMENTS.....	ii
TABLE OF CONTENTS	iii
List of Table	iv
List of Figures.....	iv
List of Graphs.....	iv
ABSTRACT	v
CHAPTER 1.....	1
INTRODUCTION.....	1
1.1 Motivation.....	1
1.2 Problem Statement.....	1
1.3 Objectives.....	2
1.4 Significant and Benefit of Study	2
1.5 Scope and Limitation of Study.....	3
1.6 Definition of Terms.....	4
CHAPTER 2.....	5
BACKGROUND THEORY AND LITERATURE REVIEW.....	5
2.1 Literature Review	5
CHAPTER 3.....	8
METHODOLOGY AND IMPLEMENTATION.....	8
3.1 Methodology	8
3.2 Implementation.....	14
3.2.1 Criteria Calculation	14
3.2.2 Alternative Calculation.....	19
RESULTS AND DISCUSSION.....	37
CONCLUSIONS AND RECOMMENDATIONS.....	41
REFERENCES.....	42
APPENDIX.....	45

List of Table

Table 1: Criteria of smartphones.....	9
Table 2: Alternative of smartphones.....	10
Table 3: Fundamental Scale ((Saaty, 1990))	11
Table 4: Compare criterion in each pair.....	11
Table 5: Random Index	14
Table 6: Degree of Importance.....	14
Table 7: Comparison criteria each pair (Memory), C1	15
Table 8: Comparison criteria each pair (Design), C2	15
Table 9: Comparison each pair (System), C3	15
Table 10: Comparison criteria each pair (Display), C4	16
Table 11: Comparison each pair (Price), C5	16
Table 12: Comparison each pair (Screen), C6	16
Table 13: Comparison each pair (Battery Life), C7	16
Table 14: Comparison each pair (Latest Model), C8	17
Table 15: Ranking of Criteria.....	19
Table 16: Alternative Criteria Memory.....	19
Table 17: Alternative Criteria Design.....	20
Table 18: Alternative Criteria System	20
Table 19: Alternative Criteria Display.....	20
Table 20: Alternative Criteria Price.....	21
Table 21: Alternative Criteria Screen	21
Table 22: Alternative Criteria Battery Life	22
Table 23: Alternative Criteria Latest Model.....	22
Table 24: Alternative Criteria Camera.....	22
Table 25: Ranking of alternative.	36
Table 26: Ranking of criteria.	38
Table 27: Ranking of Alternative	39

List of Figures

Figure 1: Flowchart of AHP ((Kumar & Singal, 2015)).....	8
Figure 2: The hierarchy order.....	9

List of Graphs

Graph 1: Criteria of smartphone.....	37
Graph 2: Brand of Smartphones.....	39

ABSTRACT

Smartphones are nearly a requirement for university students. The study identifies and highlights the aspects that students evaluate when buying smartphones. They always use smartphones in order to get information that is related to educational purposes and also to download varieties of applications and information on their smartphones. As smartphones have already blended into their lives, some of them have slowly realised that having an overqualified smartphone will not really benefit them as students. Therefore, this study is to assist the student in selecting the best brand of smartphone that will help with their daily life by using the Analytical Hierarchy Process (AHP). It showed that Apple is the best smartphone that meets the criteria that will improve the students' lives. Due to the fact that each person uses their smartphone in a different way, students should concentrate more on the features that are most important to them.