

UNIVERSITI TEKNOLOGI MARA

**RANKING CARS USING
FUZZY VIKOR AMONG
UNIVERSITY FINAL YEAR
STUDENTS**

**NISHA SHABIIHAH BINTI
SHAH NURI**

BSc

July 2025

UNIVERSITI TEKNOLOGI MARA

**RANKING CARS USING
FUZZY VIKOR AMONG
UNIVERSITY FINAL YEAR
STUDENTS**

NISHA SHABIHAH BINTI SHAH NURI

Proposal submitted in partial fulfilment
of the requirements for the degree of
Bachelor of Science (Hons.) Management Mathematics

Faculty of Computer and Mathematical Sciences

July 2025

APPROVED BY:

.....

RAIHANA ZAINORDIN

Supervisor

Faculty of Computer and Mathematical Sciences

Universiti Teknologi MARA

ABSTRACT

Owning a car is often seen something useful and important for final-year students transitioning into working life. However, choosing a car to buy is not easy. This is because, there are a wide variety of cars available in the market. This can make the buyer feels overwhelmed to decide which car is the best fit for them. This study aims to identify the most important criteria students consider when purchasing a car and to rank selected car models using the fuzzy VIKOR method. This study also aims to compare the fuzzy VIKOR ranking with students' intuitive ranking (without fuzzy VIKOR). The cars chosen for this study are Perodua Axia, Perodua Bezza, Perodua Myvi, Proton Iriz and Proton Saga. The criteria chosen for this study are price, fuel efficiency, safety, exterior design, and interior design. The respondents of the study are 139 UiTM Perlis final-year students. It was found that the number one criterion that students will consider if they want to buy a car is price. It was also found that Perodua Axia is the most suitable cars for students who will soon graduate even though the most desired car among them is Perodua Myvi. The fuzzy VIKOR approach proved effective in handling subjective preferences and produced a fairer ranking outcome, supporting students and car marketers in decision-making.

TABLE OF CONTENTS

	Page
ABSTRACT	iii
ACKNOWLEDGEMENT	iv
TABLE OF CONTENTS	v
LIST OF TABLES	vii
LIST OF FIGURES	viii
LIST OF SYMBOLS	ix
LIST OF ABBREVIATIONS	x
CHAPTER 1 INTRODUCTION	11
1.1 Research Background	11
1.2 Problem Statement	12
1.3 Research Objectives	13
1.4 Significance of Study	13
1.5 Scope of Study and Limitation	14
CHAPTER 2 LITERATURE REVIEW	15
2.1 Fuzzy Sets	15
2.2 Multi Criteria Decision Making (MCDM)	16
2.3 VlseKriterijumska Optimizacija I Kompromisno Resenje	17
2.4 Criteria for Buying Cars	17
2.4.1 Price	17
2.4.2 Fuel Efficiency	18
2.4.3 Safety	19
2.4.4 Exterior Design	22
2.4.5 Interior Design	24
2.5 Past Research on Fuzzy VIKOR	25
CHAPTER 3 RESEARCH METHODOLOGY	28
3.1 Data Collection Method	28