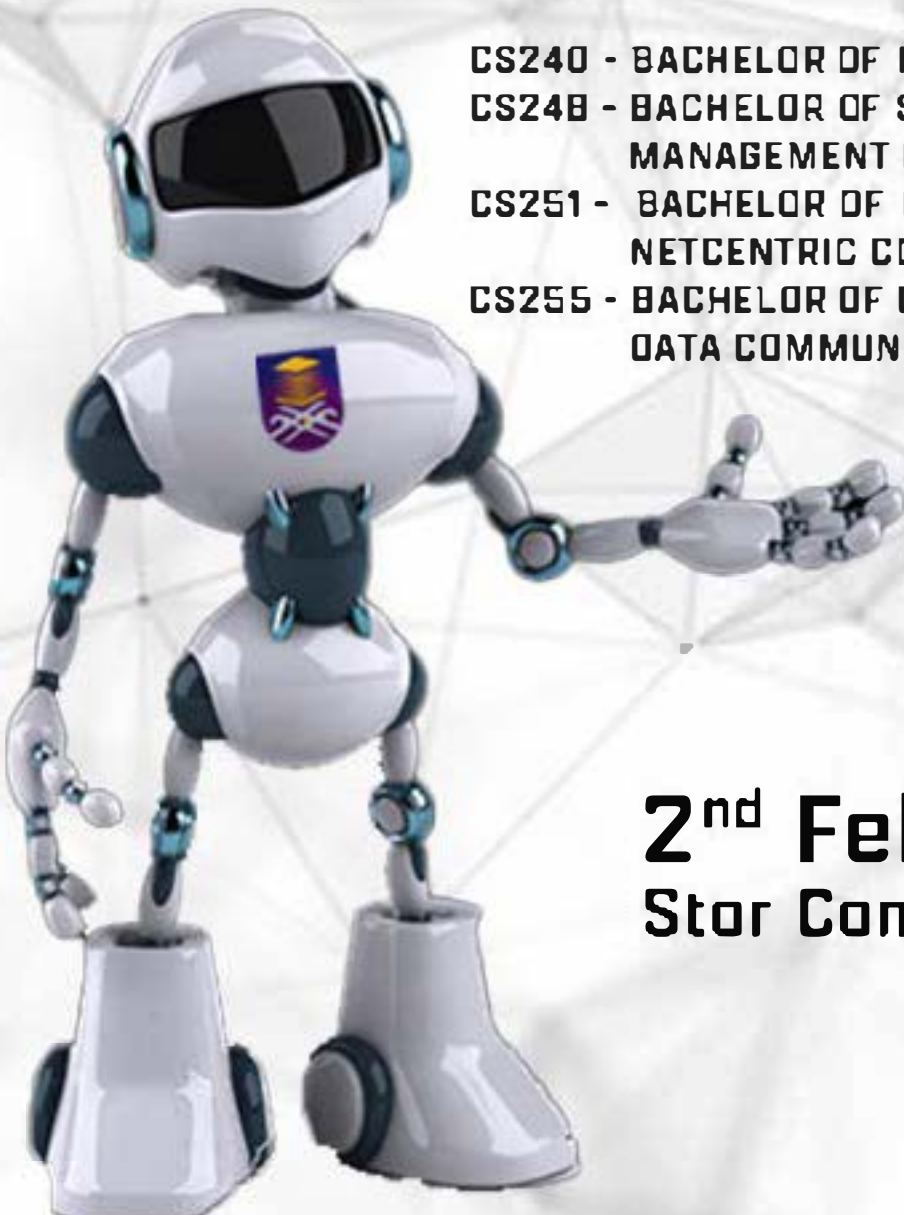

RESEARCH EXHIBITION IN MATHEMATICS & COMPUTER SCIENCES

REMACS 5.0

- 
- CS240 - BACHELOR OF INFORMATION TECHNOLOGY [HONS.]
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2nd February 2023
Stor Complex, UiTM Perlis

Organized by:
College of Computing, Informatics and Media
Universiti Teknologi MARA Perlis Branch

**Research Exhibition in Mathematics and Computer Sciences
(REMACS 5.0)**

Research Exhibition in Mathematics and Computer Sciences (REMACS 5.0)

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Preface

It is with great pleasure that we present this extended abstract book, titled "The 5th Research Exhibition in Mathematics and Computer Sciences (REMACS 5.0)". This book is a collection of research work in the fields of Computer Science and Mathematics, contributed by the final year students from Universiti Teknologi MARA, Perlis Branch. The aim of this book is to showcase the diversity and depth of research in these two interrelated fields.

Mathematics and Computer Science are two fields that have seen tremendous growth and advancement in recent years. With the rise of new technologies and the increasing demand for data-driven solutions, researchers in these fields have been working hard to develop new theories, algorithms, and models that can help solve some of the most pressing problems of our time. This book is a testament to their hard work and dedication.

The abstracts in this book cover a wide range of topics, including algebra, analysis, logic, computer architecture, algorithms, artificial intelligence, machine learning, computer network, netcentric computing and many more. The work presented here is both theoretical and practical, and has the potential to impact many areas of society, from finance and healthcare to education and security.

We hope that this book will serve as a valuable resource for future students in the fields of Mathematics and Computer Science. We also hope that it will inspire more students to pursue innovative and groundbreaking research in these two fields. Finally, we would like to express our gratitude to all the contributors for their hard work and dedication, without which this book would not have been possible.



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REMACS 5.0

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EVENT SCHEDULE

8:00 – 8:30 am

- Registration

8:00 am – 12:00 pm

- FYP Project Presentation

12:00 - 2:00pm

- Lunch Break

2:15 – 2:35 pm

- National & Wawasan Setia Anthems
- Doa Recitation

2:35 – 2:45 pm

- Welcoming Address by Director of REMACS 5.0

2:45 – 2:55 pm

- Officiating & Closing Remarks from Rector of UiTM Perlis

2:55 – 3:00 pm

- REMACS 5.0 Montage

3:00 – 4:00 pm

- Awarding of Winners:
 - Best Poster
 - Best Project Award
- Photo Session
- End of Ceremony

Dress Code: Formal / Corporate

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EXTENDED ABSTRACTS

RESEARCH EXHIBITION IN MATHEMATICS & COMPUTER SCIENCES
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APPLICATION OF FUZZY AHP ON THE SELECTION OF ONLINE SHOPPING PLATFORM IN MALAYSIA

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Abstract

E-commerce, popular known as an online shopping platform is a digital platform that helped ease people buying or selling without having to go to a physical store. There are numerous kinds of these platforms in the whole world, but only a few are supporting shipping to Malaysia like Shopee, Lazada, Carousell, et cetera. However, users sometimes feel it difficult to choose a preferred online shopping platform, since there are platforms with better navigation, but not many choices of products, and so on. Hence, this study aims to determine the optimal factors and sub-factors that influence users in choosing an online shopping platform in Malaysia and to rank those factors and sub-factors. The fuzzy Analytic Hierarchy Process has been used as the method to achieve the objectives of this research by ranking the four factors which are user-friendly, trusted, price and promotion, and responsive, with three sub-factors for each factor. This study used primary data collected by distributing questionnaires to two experts, an online marketer from a business company and a lecturer with marketing expertise from UiTM Arau, Perlis. The findings show that price and promotion is the factor that influences users the most when choosing an online shopping platform whose normalised weight is 0.5083. For the major sub-factors, sales promotion benefit has a normalised weight of 0.2350. In conclusion, the Fuzzy AHP method can help researchers to rank all the factors and sub-factors with accuracy, and help users determine a suitable online shopping platform for them to use.

Keywords: Fuzzy Analytic Hierarchy Process, E-commerce, Online Shopping Platform, price and promotion, sales promotion benefits.

1. Introduction

Online shopping platforms all offer various features and benefits as well as a selection of goods and services. The availability of a large number of online shopping platforms makes it challenging for customers to select their preferred choice. They must take into account a platform that enables simple and enjoyable online buying experiences. This study aims to find out what aspects people in Malaysia take into consideration when selecting an online shopping site. Specifically, to analyze and rank the major factors and sub-factors that influence users' decisions about the ideal online shopping platform using Fuzzy Analytic Hierarchy Process (AHP). This study focused on evaluating the factors and sub-factors that influence users when choosing the best online shopping platform in Malaysia, which consists of four factors and 12 sub-factors. Two respondents with marketing expertise were chosen to answer the questionnaire.

2. Methodology

An interview to answer the prepared questionnaire was conducted with two experts in the marketing field. The questionnaire's results were calculated using the Fuzzy AHP method and created the pairwise comparison matrix is the first step. Next, the consistency ratio was calculated and when the value was less than or equal to a 10% consistency ratio, the pairwise comparison matrix was adjusted, otherwise, the pairwise comparison matrix was transformed into fuzzy numbers to set up the Triangular Fuzzy Number (TFN). Afterward, fuzzy geometric mean, fuzzy weight, and normalized weight were computed and the criteria were ranked.

3. Results and Discussion

Based on the normalised weight, the results demonstrate that users are most influenced by price and promotions when selecting an online shopping platform followed by user-friendly, trusted, and responsive. The main sub-factor for the user-friendly factor is easy navigation while the trusted factor is payment security. Sales promotion benefits were the main sub-factor for the price and promotion factor whereas, for the responsive factor, the main sub-factor is rating reviews. The ranking of the factors and sub-factors was done by sorting the highest normalised weight value to the lowest value. In conclusion, the Fuzzy AHP technique surely can both assist users in selecting an appropriate online shopping platform and assist researchers in accurately ranking all the factors and sub-factors.

4. Novelty of Research / Product

There have been a number of researches that have investigated what elements influence users to select their preferred online shopping platform, particularly those intended for digital commerce, digital marketing, and conversion rate (Zumstein & Kotowski, 2020). A previous study by Rababah & Masoud (2010) said that Important factors that determine success or failure include delivering a high-quality website rather than just having an online presence or charging a low price. Therefore, web security was included as one of the elements in this research. (Bucko et al., 2018) studied the elements that influence consumers' willingness to buy products from online stores but they assessed the criteria that people use to decide when making purchases online and used principle components analysis to whittle down the number of those criteria to just seven. Another study by (Lim et al., 2016) wanted to establish the link between purchase intention and online shopping behaviour as well as the relationship between subjective norm, perceived usefulness, and online shopping behaviour. Since the study used Structural Equation Modelling to examine the model, this research used Fuzzy AHP to calculate the elements.

5. Conclusion

In conclusion, the Fuzzy AHP method helped achieve the objectives of this research to find the factors and sub-factors influencing users when choosing an online shopping platform. Briefly, users choose an online shopping platform based on the sales promotion benefits first, and customer service is the least to focus on.

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