UNIVERSITI TEKNOLOGI MARA

TECHNICAL REPORT

AN APPLICATION OF ANALYTICAL HIERARCHY PROCESS (AHP) IN E-WALLET SELECTION

P47S19

NUR ARYANI NAJIHAH BINTI JAMLI (2017732113)
NURUL HASANAH BINTI MOHD ZAFRI (2017313041)
SITI NUR AMIMAH BINTI MAHUSIN (2017193185)

Report submitted in partial fulfilment of the requirement
for the degree of
Bachelor of Science (Hons.) Mathematics
Faculty of Computer and Mathematical Sciences

DECEMBER 2019

ACKNOWLEDGEMENTS

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

Firstly, we are grateful to Allah S.W.T for giving us the strength to complete this project successfully.

We would like to express special thanks of gratitude to our supervisor, Puan Rasidah Binti Buang for her valuable support and help she gave us toward the completion of this project, most of the time she advised us where we are wrong, guide us when necessary and give valuable comments which are so helpful in the progress of finishing this project. Not forgetting our lecturers of MSP660 and MAT530, Profesor Madya Dr. Nur Azlina Binti Abd Aziz and Dr. Maznah Banu Binti Mohamed Habiboo Raman for guiding us in completing our research.

We also would like to thank our friends who supported and motivated us throughout our project. Having them by our side giving suggestions and tips were also helpful for us.

Finally, we would like to express the highest praise to our parents and family members, with whom this project came into reality. The immense love and moral support given by them is truly immeasurable. May Allah bless our parents.

TABLE OF CONTENTS

LIST OF TABLES

ABSTRACT

A digital wallet also known as "e-Wallet" refers to an electronic device or online service that enables an individual to transact electronically. This may include purchasing products online with a laptop or using a smartphone to buy something from a store. The digital revolution continues to transform most of our everyday lives. Each e-wallet has different features and uniqueness. However, a proper research for the e-wallet selection has not been done yet. The criteria of the most preferable e-wallet are not being properly identified by using a mathematical method. This research was conducted to identify which e-wallet is preferable by the consumers, and which factors affect their choice. Thus, this research used an Analytical Hierarchy Process (AHP) to recommend the solution to achieve our objectives. The hierarchical structure of this problem is constructed. The criteria that included in this research were uses, money transfer, money withdrawal, rewards, security and user-friendly. Next, the pairwise comparison matrix is calculated to find the weightage of each criterion. The most preferable criteria and alternatives for e-wallet can be defined based on the highest weightage value. By evaluating the results from AHP method, Touch 'n Go had become the preferable e-wallet with weightage of 0.2798. Among all the criteria, Security became the most important criteria in selecting of e-wallet. This research had selected the most preferable e-wallet by using AHP method, thus other researchers are encouraged to use another approach in Multi-Criteria Decision Making (MCDM) such as fuzzy Analytical Hierarchy Process (AHP), Technique for Order of Preference by Similarity to Ideal Solution (TOPSIS), and Data Development Analysis (DEA).