

UNIVERSITI TEKNOLOGI MARA

**MODIFIED DESIRABILITY FUNCTION FOR
OPTIMIZATION MULTIPLE RESPONSES**

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**2016655194
2016655214**

Dissertation submitted in fulfillment
of the requirements for the degree of
Bachelor of Science (Honours) Statistics

Faculty of Computer and Mathematical Sciences

June 2018

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ABSTRACT

Harrington's desirability function approach is usually used to overcome the problem of optimization of multiple responses simultaneously. However, this method will give a huge impact in the presence of outliers. After that, in this case, it is not reliable to use Harrington's desirability function method to find the optimum responses because it is not resistant to outliers. Thereupon, Modified Geometric Mean (MGM) approach is proposed as an alternative to estimate the parameter as this approach is resistant to outliers. Numerical example study is carried out to compare the performance of the proposed method with existing procedures. Based on the value of the overall desirability function, D , MGM is better compared with Harrington's desirability function as it clearly shows that the value of D is larger and the standard error of the MGM approach is smaller. It clearly shows that, the MGM approach can be an alternative method in dealing with the presence of outliers.

Keywords: Harrington's desirability approach, modified geometric mean, multiple responses, outliers.

ACKNOWLEDGMENT

Assalamualaikum w.b.t.

Alhamdulillah, thanks to Allah s.w.t because of His grace and mercy to give us a chance to submit this final year project on time. With His permission also we are able to make this project without any obstacle and disruption, Alhamdulillah.

There are many people who deserve a thousand of thanks for their help and support, both spiritual and words in completing this final year project. We would like to say our gratitude and special thanks our beloved supervisor, Madam Nasuhar binti Ab. Aziz who gives guidance and full support for us from the beginning till we finish our final year project.

Furthermore, we would like to thank our beloved parents for their pray and support. We are grateful for all the motivation, courage and what that has been given for us for this entire time so it will be our source of strength.

In addition, we also feel blessed to have classmates who also give their help, support guidance and willing to share their knowledge through this projects, yet a friend in need is a friend indeed. Thanks to our each members in our group because willing to contribute their time and energy in completing this task. Without the teamwork, we would not be able to completing the project successfully.

In conclusion, we hope that our final year project would give many benefits to others and the next generation in the future endeavours. Thank you.

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