MATHEMATICAL MODELLING FOR ESTIMATING NUMBER OF DENGUE CASES IN TERENGGANU USING CUBIC B-SPLINE METHOD AND DISCRETE LEAST SQUARE METHOD

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DECLARATION BY CANDIDATE

I certify that this report and the project to which it refers is the product of my own work and that any idea or quotation from the work of other people, published or otherwise are fully acknowledged in accordance with the standard referring practices of the discipline.

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ABSTRACT

B-spline curves are piecewise polynomial parametric curves or an approximating curve for curve and surface design. Meanwhile, discrete least square is an approach for determining best linear approximation between the number of data points. Two types of mathematical methods for estimating the number of dengue cases in area of Terengganu are presented in this project. The methods are cubic B-spline method and discrete least square method. The number of dengue cases estimations using these two methods are based on the data collected from January 2011 to December 2014. The data are tested to determine the best method to approximate the data by using Mathematica 11 and Microsoft Excel 2016. The errors for both method is compared using Root Mean Square Error (RMSE). Based on the results, the best method is chosen for the estimation. In short, it is a suitable mathematical method which able to approximate the number of dengue cases effectively in order to give an early warning for the dengue cases that may improve in reducing the spread of the dengue cases in the area of Terengganu and give more awareness to the people.

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