

**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.

TABLE OF CONTENTS

DECLARATION BY SUPERVISORS	i
DECLARATION BY CANDIDATE	ii
ABSTRACT	iii
ACKNOWLEDGEMENT	iv
TABLE OF CONTENTS	v
LIST OF TABLES	viii
LIST OF FIGURES	ix
CHAPTER 1 : INTRODUCTION OF RESEARCH	
1.1 Introduction	1
1.2 Background of The Study	1
1.3 Problem Statements	4
1.4 Objectives	4
1.5 Significance of Project	4
1.6 Scope of Project	5
1.7 Project Benefits	5
1.8 Organization of Project	6
CHAPTER 2 : LITERATURE REVIEW AND METHODOLOGY	
2.1 Introduction	8
2.2 Definition of Terms and Concept	8
2.3 Literature Review	9
2.4 Methodology	12

2.4.1 B-spline Method	12
2.4.1.1 Cubic B-spline	17
2.4.2 Discrete Least Squares Method	21
2.4.2.1 Linear Least Squares	21
2.4.2.2 Quadratic Least Squares	22
2.4.2.3 Cubic Least Squares	22
2.5 Research Steps	23
2.6 Conclusion	26

CHAPTER 3 : IMPLEMENTATION

3.1 Introduction	27
3.2 Research Data	27
3.3 Calculation using Cubic B-spline Method	31
3.4 Calculation using Discrete Least Squares Method	36
3.4.1 Linear Least Squares Method	36
3.4.2 Quadratic Least Squares Method	38
3.4.3 Cubic Least Squares Method	39
3.5 Error Calculation	42
3.6 Conclusion	42

CHAPTER 4 : RESULTS AND DISCUSSION

4.1 Introduction	43
4.2 Results for Cubic B-spline Method	43
4.3 Results for Discrete Least Squares Method	47
4.4 Error Analysis	52