COMPARISON BETWEEN NEWTON DIVIDED-DIFFERENCE INTERPOLATION, LAGRANGE INTERPOLATION AND LEAST SQUARE METHOD FOR SOLVING NONLINEAR EQUATION

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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

Mathematically, every information or statistic could be transform into a specific function by using mathematical modeling techniques. This function could be used later on to find formula, maximum point or minimum point and even to find the discontinuity point. A few numerical methods have been introduced in order to help mathematician to solve these functions for finding formula for example Newton Divided Difference Interpolation, Lagrange Interpolation and Least Square method. These methods are chosen because they apply simple algorithm that could be understood.

This research analyzed and compared the efficiency of these methods to solve nonlinear function such as trigonometric, exponential, logarithmic and polynomial function. These methods were tested using twelve test functions with different initial values and the efficiency is measured in term of absolute error. The codes are executed using Maple 17.

TABLE OF CONTENT