COMPARATIVE STUDY OF OPTIMIZATION METHOD FOR SOLVING LARGE SYSTEM OF LINEAR 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

System of linear equations are usually solve using inverse of matrix. However, finding inverse for large of system of linear equation a problem and burden the computer. Therefore, many researches tend to use indirect method in the form of optimization method such as Steepest descent (SD) method, Broyden-Fletcher-Goldfarb-Shanno (BFGS) method and Conjugate Gradient (CG) method. In this project, three optimization methods are chosen to solve small and large system of linear equation. The matrix that is used consist of positive and negative definite of six different dimension. The comparative results analysis of these methods is based on number of iteration and CPU time. The performance profile that is presented by Dolan and More is also used to analyse the result. From the result, it shown that Polak-Ribiere-Polyak (PRP) method which is one of the CG method is the best method to solve system of linear equation.

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