COMPARATIVE STUDY OF MODIFIED BFGS AND NEW SCALE MODIFIED BFGS FOR SOLVING UNCONSTRAINED OPTIMIZATION

SHAHIRAH ATIKAH BINTI MOHAMAD HUSNIN

BACHELOR OF SCIENCE (HONS.) COMPUTATIONAL MATHEMATICS UNIVERSITI TEKNOLOGI MARA

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DECLARATION BY CANDIDATE

I hereby declare that the thesis is based on my original work except for quotations and citations which have been duly acknowledged. I also declare that it has not been previously or concurrently submitted for any other degree at Universiti Teknologi MARA or other institutions.

SHAHIRAH ATIKAH BINTI MOHAMAD HUSNIN
2015418966
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ABSTRACT

Broyden-Fletcher-Goldfarb-Shanno (BFGS) is one of a well-known Quasi-Newton update formula. This method is generally considered as the most efficient method among other variable metric methods for solving unconstrained optimization problems. To improve the BFGS methods, numerous studies and modifications have been devoted recently. In this research, the modified BFGS (mBFGS) works by Liao (1997) is scaled with a new scalar to reduce the number of iterations. A new scaled modified BFGS (smBFGS) is compared with the mBFGS in terms of iteration numbers and CPU time. These methods were tested with several selected functions by using code Maple 18 software. The numerical analysis shows a strong evidence that the smBFGS is more efficient than the mBFGS method. This indicated that the new scaled mBFGS algorithm performance is better than mBFGS algorithms.

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