AN EFFICIENT TECHNIQUE FOR OPTIMIZING TIMESTAMP ORDERING SCHEDULER IN SYNCHRONIZATION

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A Dissertation submitted to the School of Graduate Studies in partial fulfilment of the requirements for the award of degree of Master of Science (M.Sc) in the Department of Computer Science, Faculty of Science, University of Port Harcourt.

APRIL, 2018

DECLARATION

I, ABRAHAM IBOROMA with Registration Number G2014/MSC/COMP/FT/500 declare that this work on AN EFFICIENT TECHNIQUE FOR OPTIMIZING TIMESTAMP ORDERING SCHEDULER IN SYNCHRONIZATION was carried out by me, that it is my original work and it has not been submitted wholly or in part for the award of any degree in any institution.

Name of student: Abraham Iboroma Signature/Date ………………..

Confirmation by Supervisors

Name of supervisor: Prof. E. O. Nwachukwu Signature/Date………………….

Name of supervisor: Dr. E.E Ogheneovo Signature/Date………………….

CERTIFICATION

UNIVERSITY OF PORT HARCOURT
SCHOOL OF GRADUATE STUDIES

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The Board of Examiners certifies that this Dissertation is accepted in partial fulfilment of the requirement for the award of the Degree of Master of Science (M.Sc.) in Computer Science.

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DEDICATION

This work is dedicated to God Almighty for his loving kindness and protection over my life during the period of this work.

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ABSTRACT

This dissertation presents an efficient techniques for optimizing timestamp ordering scheduler in synchronization. We analyze the problems of concurrency control systems and developed an Optimistic Thomas Algorithm (OPTH) which is a hybrid of Optimistic Concurrency Control Algorithm and Thomas' Write Rule Timestamp Algorithm for optimizing the serialization of Read-Write/Write-Write (RW/WW) synchronization in distributed database management system (DDBMS). The proposed system consist of three phases: Read phase, Validation phase and Write phase. The proposed system fixed the problem of lost update, uncommitted data and long executing transactions. Object Oriented Analysis and Design methodology were adopted to analyse and design the system. The programming languages and tools used for the development of the system are C#, JavaScript, ASP.Net, Css, Visual Studio and Ms SQL Server. The results shows that the system is effective and provide an execution that has the same outcome as a serial execution. It reduces the rate transactions restart and improve transaction throughput in a distributed database management system. The integration of other pessimistic concurrent control algorithms and optimistic concurrent control algorithms should be used to address the anomalies of conflicting transactions in a centralized, distributed and mobile database system.

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