

DE LA SALLE UNIVERSITY

EXTENDED SINHA-NATARAJAN'S ALGORITHM
FOR
DISTRIBUTED DEADLOCK DETECTION AND RESOLUTION IN
A DISTRIBUTED DATABASE SYSTEM

780000

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ABSTRACT

In the recent years, the availability of databases and of computer networks gave rise to a new field: *Distributed Database System*. The primary motivation for using distributed database system is the possibility of resource sharing. If the sequence of resource allocation to processes is not controlled a *deadlock* may occur.

Majority of the previous algorithms for deadlock detection are incorrect because of two reasons. 1) They do not detect all existing deadlocks, 2) They detect false deadlocks.

This study will present a distributed deadlock detection algorithm and resolution in distributed database systems. A priority is assigned to each transaction to minimize the number of messages initiated for detection of deadlocks. It does not construct any transaction-wait-for (TWF) graph but detect cycles by an edge-chasing method.

First an abstract model of DDBS will be presented. The algorithm will then be formulated for deadlock detection. A proof of correctness will be conducted for the validation of the algorithm.

