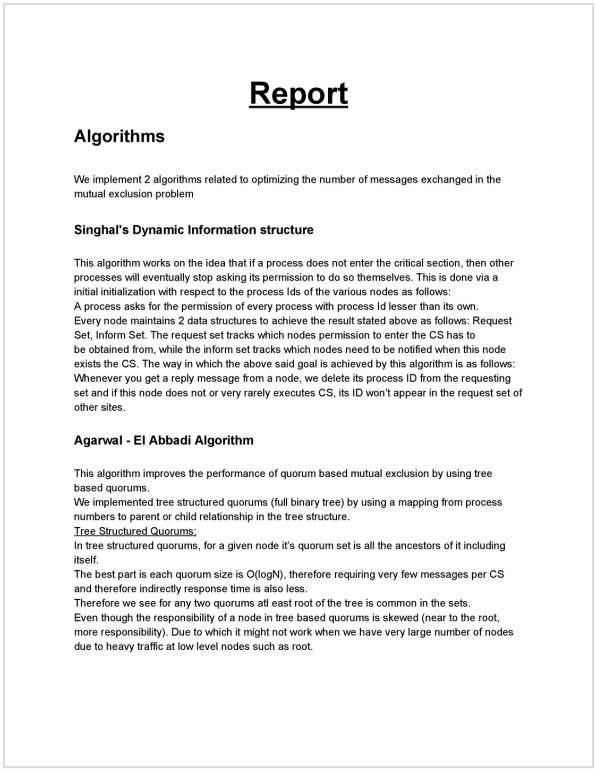
Digital Receipt

This receipt acknowledges that Turnitin received your paper. Below you will find the receipt information regarding your submission.

The first page of your submissions is displayed below.

Submission author:	Abhinav Gupta
Assignment title:	Final Course project
Submission title:	Project-cs15btech11037_es15btec..
File name:	Project-es15btech11002-cs15btec...
File size:	480.32K
Page count:	7
Word count:	1,087
Character count:	5,379
Submission date:	18-Nov-2018 10:06PM (UTC+0530)
Submission ID:	1041216210



Report

Algorithms

We implement 2 algorithms related to optimizing the number of messages exchanged in the mutual exclusion problem

Singhal's Dynamic Information structure

This algorithm works on the idea that if a process does not enter the critical section, then other processes will eventually stop asking its permission to do so themselves. This is done via a initial initialization with respect to the process Ids of the various nodes as follows:
A process asks for the permission of every process with process Id lesser than its own.
Every node maintains 2 data structures to achieve the result stated above as follows: Request Set, Inform Set. The request set tracks which nodes permission to enter the CS has to be obtained from, while the inform set tracks which nodes need to be notified when this node exists the CS. The way in which the above said goal is achieved by this algorithm is as follows: Whenever you get a reply message from a node, we delete its process ID from the requesting set and if this node does not or very rarely executes CS, its ID won't appear in the request set of other sites.

Agarwal - El Abbadi Algorithm

This algorithm improves the performance of quorum based mutual exclusion by using tree based quorums.
We implemented tree structured quorums (full binary tree) by using a mapping from process numbers to parent or child relationship in the tree structure.
Tree Structured Quorums:
In tree structured quorums, for a given node it's quorum set is all the ancestors of it including itself.
The best part is each quorum size is O(logN), therefore requiring very few messages per CS and therefore indirectly response time is also less.
Therefore we see for any two quorums atl east root of the tree is common in the sets.
Even though the responsibility of a node in tree based quorums is skewed (near to the root, more responsibility). Due to which it might not work when we have very large number of nodes due to heavy traffic at low level nodes such as root.