

17 - Synchronisation 2

Student version

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Question 1

Describe the Bully Algorithm in details.

Question 2

Describe Ricart and Agrawala's algorithm.

Question 3

In the centralised approach to mutual exclusion, upon receiving a message from a process releasing its exclusive access to the resources it was using, the coordinator normally grants permission to the first process on the queue. Give another possible algorithm for the coordinator.

Question 4

Consider the centralised approach to mutual exclusion again. Suppose that the coordinator crashes. Does this always bring the system down? If not, under what circumstances does this happen? Is there any way to avoid the problem and make the system able to tolerate coordinator crashes?

Question 5

Ricart and Agrawala's algorithm has the problem that if a process has crashed and does not reply to a request from another process to access a resources, the lack of response will be interpreted as denial of permission. We suggested that all requests be answered immediately to make it easy to detect crashed processes. Are there any circumstances where even this method is insufficient? Discuss.