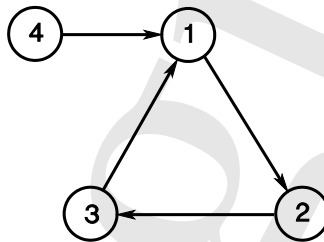


CS441/541 - Advanced Operating Systems Assignment # 4

Introduction

This assignment will give you the chance to implement a distributed deadlock detection algorithm. You can use either pthreads or MPI to implement this assignment.

First you will need to create a system that is in deadlock. Use the following “wait-for” graph for your system. One way to do this is to “pre-allocate” a set of “resources” such that process 1 is wait for resources held by process 2, process 2 is waiting for resources held by process 3, etc. A somewhat more realistic program is to devise a scheme whereby the nodes request resources that put them into the deadlock scenario shown in the wait-for graph. Note that process 4 is waiting for resources held by process 1, although is not itself causing the deadlock.



Then, implement the deadlock detection algorithm described in the book in section 9.5.2, p. 184, and run it on one (or more) of the nodes that is involved in the deadlock, and on node 4. Verify that you get the proper behavior.