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Clock based Mutexes, exercise 2

Overview

The goal of this exercise is to fully understand the Lamport and Agrawala algorithms, as well as to implement them in a distributed system (simulated on one machine with subprocesses).

Note : given that we didn't use a token ring system for the exercise n°0, this exercise also let us learn how to implement it.

Difficulties

During the development, the biggest difficulty was to debug the subprocesses, since using the C debugger was a painful process. We decided to debug them by making them print on the HeavyProcess console.

Some synchronization issues also occurred in the management of the threads within a LightWeightProcess, and we don't fully understand how we repaired those issues.

Conclusion

In this exercise, we implemented 2 different mutual exclusion algorithms : the Lamport and Agrawala. The execution of this project starts 3 different shells : Process A, Process B and the main screen.

The Processes A and B each spawn 3 sub Processes that will use one of the algorithms to synchronize the access to the Main screen. Processes A and B communicate by using a token ring to know who's sub processes can access the Main screen.