CS3502 Operating Systems, Fall 2017

Assignment No. 4

Study of Deadlocks with the Five Philosophers Problem.

This assignment involves observation of general behavior of a system with deadlock situations and solutions. Computation of some relevant performance metrics.

There are three models implemented in C++ using Psim3 package:

"philos.cpp", "philoshw.cpp", and "philoscw.cpp".

The first model always deadlocks.

The second model applies the dis-allowance of the hold and wait condition as a solution to deadlock.

The third model applies dis-allowance of the circular wait condition as a solution to deadlock.

Copy the model source C++ files from the system directory on the CS3 server, then compile, and link to create the executable program.

Run the programs at least three times. Change the average parameter for the eating and thinking periods, and compare results.

Write a report describing the characteristics of the operating system modeled. Use the usual guidelines for structuring the report.

At the end of your report, include at the end of the report your answers to the following questions:

* What aspect of an operating system is the model representing?
* What is noticeable in the dynamic behavior of the system?
* After changing some of the parameters in the model (the workload) and recompiling. What changes in the results do you notice?
* What other performance measures can this model compute?

As usual, use the guidelines on the course web page for structuring your report.