Philosopher Problem

Shawn Cross, Ryan Crane

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To run the program:

To figure out a solution to this problem we used the little book of semaphores. specifically we used the footman solution. First we created the functions for thinking and eating and used the Mersenne Twister for getting the random times. Once we had the functions created we made the threads for the philosophers and the fork and footman semaphores. We first just created one start function for all of the theads but then realized that we would need to create one for each since they all needed to be numbered and nameded. These funcion consist of a while loop that will run forever and reapatedly call the think, pick up fork, eat, and put down fork functions. once we had these funcitons we created the functions for picking up and putting down the forks which is the same a the solution in the litlle book of semaphores and is to wait on the footman and then to wait on the right fork and then the left. The put down function is the exact opposite uses post on the left and right fork and then post on the footman. The forks are an array of semaphores that are all initially set to one so when a philosopher use wait on the fork it will block until they are done eating and then put it back down. The footman is initialiezd to four and will block before all five people could pick up a fork keeping there from being a deadlock.

We can see that given a time frame between 30 and 60 seconds that all of the philosophers are eatting at least one time and no fork is ever being picked up by two philosophers at the same time either.