

Computer Science 4327

Assignment #4

Due: Wednesday, March 28

80 points

A local family consists of two parents and N children. They all share the same bank account. The parents spend their life making a random amount of money and depositing that money into the bank account. The children spend their life taking a random amount of money from the account and using it to buy ice cream.

There is no maximum limit to the amount of money that can be put into the account, however the account balance can never go below zero.

- 1) Write a Java solution to the above program using a semaphore implementation for synchronization and mutual exclusion. Each parent should be a thread. Each of the N children should be a thread.
- 2) Write a Java solution using a synchronized class representing the bowl.

You can use a different implementation language as long as your language has both semaphores and a higher level synchronization construct like a Java synchronized class.

A 'Professional Grade' solution (i.e. A option) would have features such as a GUI which would allow for a varying number of children, speed up, slow down, make more money, eat more ice cream, etc.

Turn in working source code to Blackboard.