Zip all of your files together into a single zip file named Project3\_username.zip or

Project3\_teamname.zip and submit via InstructAssist.

The control module works on the basis of spin locks. It only allows a thread to pass into the critical section. This means that our variables within bathroom cant be in a race condition. Furthermore the initial spin lock means that the threads that can enter the critical condition must be of the same gender as the bathroom.

The test program works by using the pthread library to create a user defined amount of threads and runs them all against the one bathroom object made. The conditions can be modified to allow for a variable ammount of threads, a variable ammount of loops per thread, a variable average stay time per thread, and a variable average enter time per thread. with these conditions set to the decretion of the user, the control module can be pushed to its limits. Each thread can only print at one time meaning prints cant overlap. At the end of execution all threads are joined to the master thread and bathroom statistics are printed.

When no one is entering or leaving the bathroom the state of the bathroom is guaranteed to be one of the states, "Empty","Male,or "Female". Furthermore our current people in bathroom is a true representation of the number of people in the bathroom at that time.

The files are as follows:

bathroom.h

Struct and method defentions for the bathroom

bathroom.c

Method writeup and expantion

master.c

A single method for threads to run and thread creation

Makefile

Its a Makefile

TestSingle

the command that we ran and the output of the single thread test

this tests that the bathroom works

TestDozen

the command that we ran and the output of the 12-ish thread test

this mostly test that gender generation works and that some overlap doesnt happen

TestThousands

the command that we ran and the output of the 10,000-ish thread test

this stresses the code in order to try and force the bathroom to allow the wrong people in

To run the program first make it useing 'make all' within the direcctory with the makefile and the bathroom and master files.

Then run 'bathroomSim nUsers meanLoopCount meanArrival meanStay' as specified with the project guidelines.

The number of threads and loop count should not be phased by what they are set to but both must be ints.

The mean arrival and mean stay should be set to numbers that are not too many orders of magnitude away from each other. .25 and .001 is fine and even 10 and .1 is fine, but if one gets to the point of 100 and 0.1 things get messy.