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Instructions:

You can run the program by typing "python mp2.py". The program will print out the results of "join", "find", and "leave" to the error stream and it will output the results of "show" and "show-all" to the output stream. Type "quit" to exit out of the program. To save the output from “show” and “show-all” to a file (output.txt), either run “python mp2.py -g output.txt” or “python mp2.py > output.txt”. Entering in commands from a file (“commands.txt”) can be done by running “python mp2.py < commands.txt”.

For Part 2, we have made an automatic semi-random command file generator for performance testing. You can run it by typing "python test_generator.py N P F" where N,P,F are the parameters specified in the instructions. This will output a list of commands for mp2.py to perform the experiment. The commands can be saved or fed directly to mp2.py by running “python test_generator.py N P F | python mp2.py”. The commands will make mp2.py alternately output the total number of messages sent during the join phase and the find phase for each repetition of the experiment.

Performance:

The following is a table of the average number of messages sent per operation averaged over N=5 experiments for selected number of nodes.

P	4	8	10	20	30	40	50
Join	104.35	127.95	135.3	165.36	187.7267	203.125	214.636
Find	9.275	10.975	11.7625	13.625	14.7125	15.3125	16.0625

For the larger number of nodes, the number of messages sent seems to become more closely proportional to log^2N and logN for join and find respectively