CS 677 Lab 1 Test Report

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This document is a report of all the tests ran on the system, and presents sample outputs of each test. To reproduce the results of the tests, run `runtest.sh` in the `test` directory on some `networkconfig.yml`.
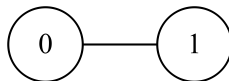
Test 1

Test Description: Assign one peer to be a buyer of fish and another to be a seller of fish. Ensure that all fish is sold and restocked forever. In `test1config.yml`, the number of fishes for the seller node is assigned to 10 and the unlimited flag is set to true, so that fish is sold throughout.

Node Assignment:

nodes	address	role	sell	buy
node0	localhost:10000	seller	fish (unlimited)	N/A
node1	localhost:10001	buyer	N/A	fish

Network Topology:

$$0 \text{---} 1$$

Program Behaviour: Buyer node `node1` continuously buys from seller node `node0`. The number of fish remaining for the seller goes from 10 to 0 and gets restocked once it hits 0.
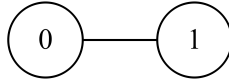
Test 2

Test Description: Assign one peer to be a buyer of fish and another to be a seller of fish and boar. Ensure that all fish is sold and restocked forever, but no boar is sold. In `test2config.yml`, the number of fishes for the seller node is assigned to 10 and the unlimited flag is set to true, so that fish is sold throughout. The number of boars for the seller node is also set to 10.

Node Assignment:

nodes	address	role	sell	buy
node0	localhost:10000	seller	fish/boar	N/A
node1	localhost:10001	buyer	N/A	fish

Network Topology:

Program Behaviour: Buyer node `node1` continuously buys from seller node `node0`. The number of fish remaining for the seller goes from 10 to 0 and gets restocked once it hits 0. No boar is sold to `node1`.
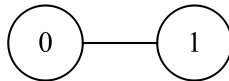
Test 3

Randomly assign buyer and seller roles. Ensure that items keep being sold throughout. In `test3config.yml`, the roles of the two nodes are set to `random`. The number of salt for the seller node is assigned to 1 and the unlimited flag is set to true, so that salt is sold throughout. The buyer target for the randomly chosen buyer node is set to salt.

Node Assignment:

nodes	address	role	sell	buy
node0	localhost:10000	random	salt(unlimited)	N/A
node1	localhost:10001	random	N/A	salt

Network Topology:

Program Behaviour: Salt is sold throughout and restocked if one node is a buyer and the other is a seller. No products are sold if both nodes have the same role.
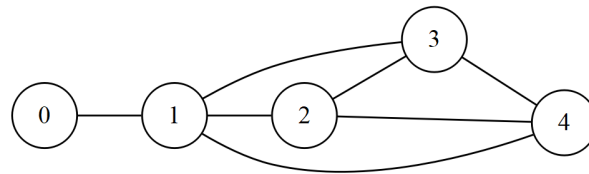
Test 4

One seller of boar, 3 buyers of boars, the remaining peers have no role. Fix the neighborhood structure so that buyers and sellers are 2-hop away in the peer-to-peer overlay network. Ensure that all items are sold and restocked and that all buyers can buy forever.

Node Assignment:

nodes	address	role	sell	buy
node0	localhost:10003	seller	boar	N/A
node1	localhost:10004	none	N/A	N/A

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nodes	address	role	sell	buy
node2	localhost:10001	buyer	N/A	boar
node3	localhost:10002	buyer	N/A	boar
node4	localhost:10000	buyer	N/A	boar

Network Topology:

Test 6

Simulate a race condition in buy() wherein a seller has stock of 1 for an item but then replies to multiple buyers.

Node Assignment:

nodes	address	role	sell	buy
node0	localhost:10002	buyer	N/A	salt
node1	localhost:10000	buyer	N/A	salt
node2	localhost:10001	seller	salt	N/A

Network Topology: