

Testing Documentation for Lab 1 - The Bazar

We have performed the following tests. These test cases are exhaustive in terms of testing the logic. Since there is a random component of selecting the next possible item to buy or sell, buyers and sellers might choose any next item to buy/sell. Irrespective of this randomness, the algorithms work correctly and give the expected results. The outputs of the tests are given in separate .txt files. For the unit tests we have used assert statements to check the correctness of the functions defined.

Test case 1

Initial Configuration:

Peer 1: Buyer (Salt)

Peer 2: Seller (Salt)

Description

There are 2 peers in the network. 1 buyer and 1 seller.

Buyer requests for salt and the seller is of salt. The seller initially has 5 salt items to sell.

The buyer starts a lookup, and matches with the seller. The seller sells 1 salt item to the buyer and its total count decreases.

The buyer then selects another item for buying, but does not match with the buyer until it selects salt again.

When the buyer selects salt again it matches with the seller and buys salt. This continues till the seller's salt stock is finished.

Result

The test shows that buyer can only buy the item which the seller has, it keeps changing the item it wants to buy randomly

and keeps buying the item salt until sellers items get finished.

Test case 2

Initial Configuration

Peer 1: Buyer (Salt)

Peer 2: Seller (Salt)

Description

There are 2 peers in the network. 1 buyer and 1 seller.

Buyer requests for salt and the seller is of salt. The seller initially has 2 salt items to sell. The buyer starts a lookup, and matches with the seller. The seller sells 1 salt item to the buyer and its total count decreases.

When the total count of items of the seller goes to 0, it randomly pick another item and not the same item to sell.

Result

Every time seller's items finish, it picks another item to sell.

Test case 3

Initial Configuration

Peer1 - Buyer (salt)

Peer2 - Seller (salt)

Peer3 - Seller (salt)

Peer4 - Seller (salt)

Peer5 - Seller (salt)

Description

There are 5 peers in the network. 1 buyer and 4 sellers.

Buyer requests for salt and the sellers are of salt. The sellers initially has 2 salt items to sell.

The buyer starts a lookup, and matches with single/multiple sellers. But randomly selects any seller.

That seller sells 1 salt item to the buyer and its total count decreases.

Result

Every time buyer gets replies from multiple sellers, it selects 1 seller randomly and the item count of only that seller decreases.

Test case 4

Initial Configuration

Peer1 - Buyer (salt)

Peer2 - Buyer (salt)

Peer3 - Buyer (salt)

Peer4 - Buyer (salt)

Peer5 - Seller (salt)

Description

There are 5 peers in the network. 4 buyers and 1 seller.

All buyers request for salt and the seller is of salt. The seller initially has 2 salt items to sell.

The buyers start a lookup, and match with a single seller. But randomly selects any seller.

That seller sells 1 salt item to the buyer and its total count decreases.

Result

A seller sends a reply back to all the buyers it matched with. But among the matched buyers, only 1 buyer is locking the seller.

And if the seller's items are 0, the buyer fails to make a purchase.

Unit Tests

TestCreateBazar

Unit tests for all the functions defined in `create_bazar`

TestNamespace

Unit test for testing whether the namespace is up or not.