

CSCI 201L Final – Programming
Fall 2015
12% of course grade

Using the existing, initial, factory code posted on the course web site, you are going to modify the functionality as follows.

Finished Product Bin

Create a bin for the finished products in the factory. The bin will be a type of `FactoryObject` located at 14,5. The Finished Product Bin should be able to hold `Products`. `FactoryWorkers` must place the `Products` they make into the Finished Product Bin. This must occur after a `FactoryWorker` marks the `TaskBoard` when the `Product` is completed.

Visually, the Finished Product Bin must be represented by the provided image. In addition to this image, the Finished Product Bin must display a counter at all times that shows the number of Finished Products that it contains.



The Mailbox

The Mailbox has not been implemented in the original factory code. You may need to bring in your current factory's Mailbox code into your final project's workspace. Or you can create a new one from scratch. It will, however, not be a carbon copy of the lab's mailbox.

In case you do not have the mailbox.png file, the image is posted on the website.

When a `FactoryShipper` arrives at the mailbox (which is explained in the next section), the *mailbox*, not the shipper, must **communicate** with the server (i.e. using networking code) and deliver a statement to the server that the item that the shipper has delivered is complete. Look at the `FactoryServerCommunicator` for ways to send data to the server.

The new Mailbox will not be a holder for resources. It instead needs a method to add things to a queue of requests that the `FactoryClientListener` will then send to the server. The design and ideas for this new mailbox should be similar to the `FactoryClientListener` you created in lab with a `PrintWriter` and sent messages to the server. If you wish, you can copy and paste the `FactoryClientListener` from your current working `Factory` and modify it to not handle resources but instead requests for finished goods.

Finally, the `Expand on This` section of Lab 10 gives a good overview of how to create a good communicator between the client and the server that you can repurpose for this project.

Factory Shipper

Create a new type of FactoryWorker, called FactoryShipper, which is able to ship finished products. The Factory Shipper will navigate to the Finished Product Bin and retrieve a Finished Product. If there are no Finished Products, the Shipper will wait for a FactoryWorker to add one. Once the Factory Shipper has a Product to ship, it will navigate to the Mailbox to send the Product to the server. Finally, the Factory Shipper will navigate to the Taskboard. It will note that the item has been shipped and return to the Finished Product Bin. Simply reuse the stock-person images for the shipper (also posted on the web site). Make sure to update the image to the boxed shipper when the shipper acquires a finished product. Update the image again to the empty shipper once they drop the item off at the mailbox.

Waiting for a finished Product.



Picked up an item from the bin, and heading towards the mailbox.



Sending the Finished Product.



Checking off the Product on the Taskboard.



Modified Taskboard

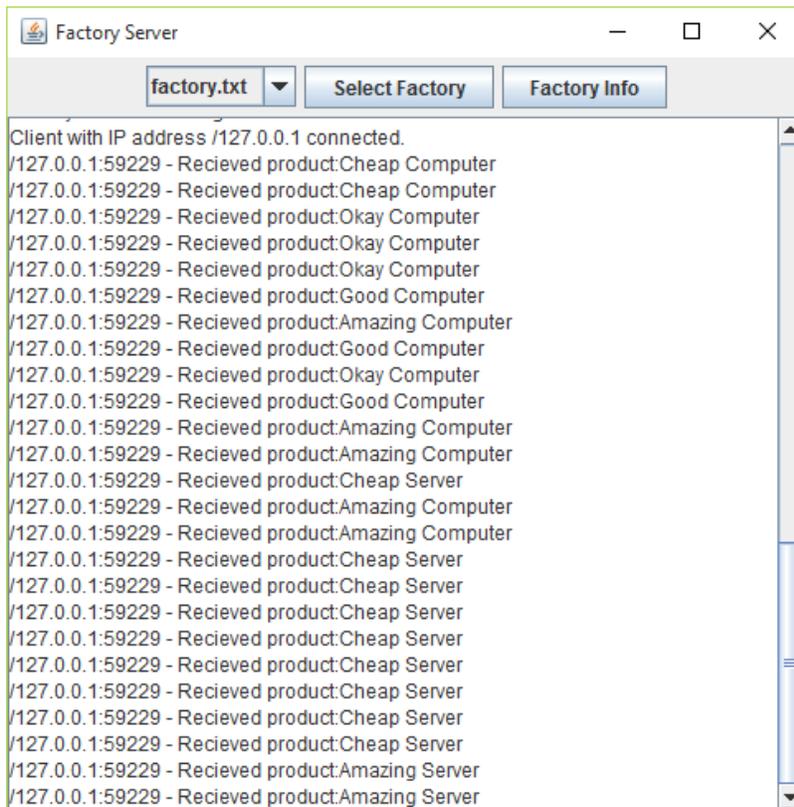
Add a final column “Shipped” on the Taskboard. Each entry will start at 0. Once a FactoryShipper marks off a Product as shipped, update this visually. The simulation must end when all products are marked as shipped, not only when all products are marked complete.

The initial taskboard.

Product	Total	Started	Completed	Shipped
Cheap Comp...	2	0	0	0
Okay Computer	4	0	0	0
Good Comput...	3	0	0	0
Amazing Com...	5	0	0	0
Cheap Server	9	0	0	0
Amazing Server	2	0	0	0

Factory Server

Once the Mailbox sends the finished Product, the server will output the name of the Product.



Grading Criteria

- 1.0% Finished Product Bin FactoryObject located at 14,5 in the FactorySimulation.
- 1.0% Workers are able to place Finished Products in the Finished Product Bin.
- 1.0% The counter on the Finished Product Bin updates correctly.
- 1.0% Factory Shippers wait at the Finished Product Bin when none are available.
- 1.0% Factory Shippers automatically pick up a Finished Product when available.
- 1.0% Factory Shippers navigate the factory as described.
- 1.0% The Factory Shippers update their image as described.
- 1.0% The Taskboard is updated with a new column.
- 1.0% The Factory Shipper updates the table
- 1.0% The factory simulation ends once all the Products are marked as shipped.
- 1.0% The finished products are sent to the server.
- 1.0% The finished products are printed by the server.