

MAAS - Assignment-02
Proposed Architecture for
Flying Saucers Bakery Project

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1 The Architecture

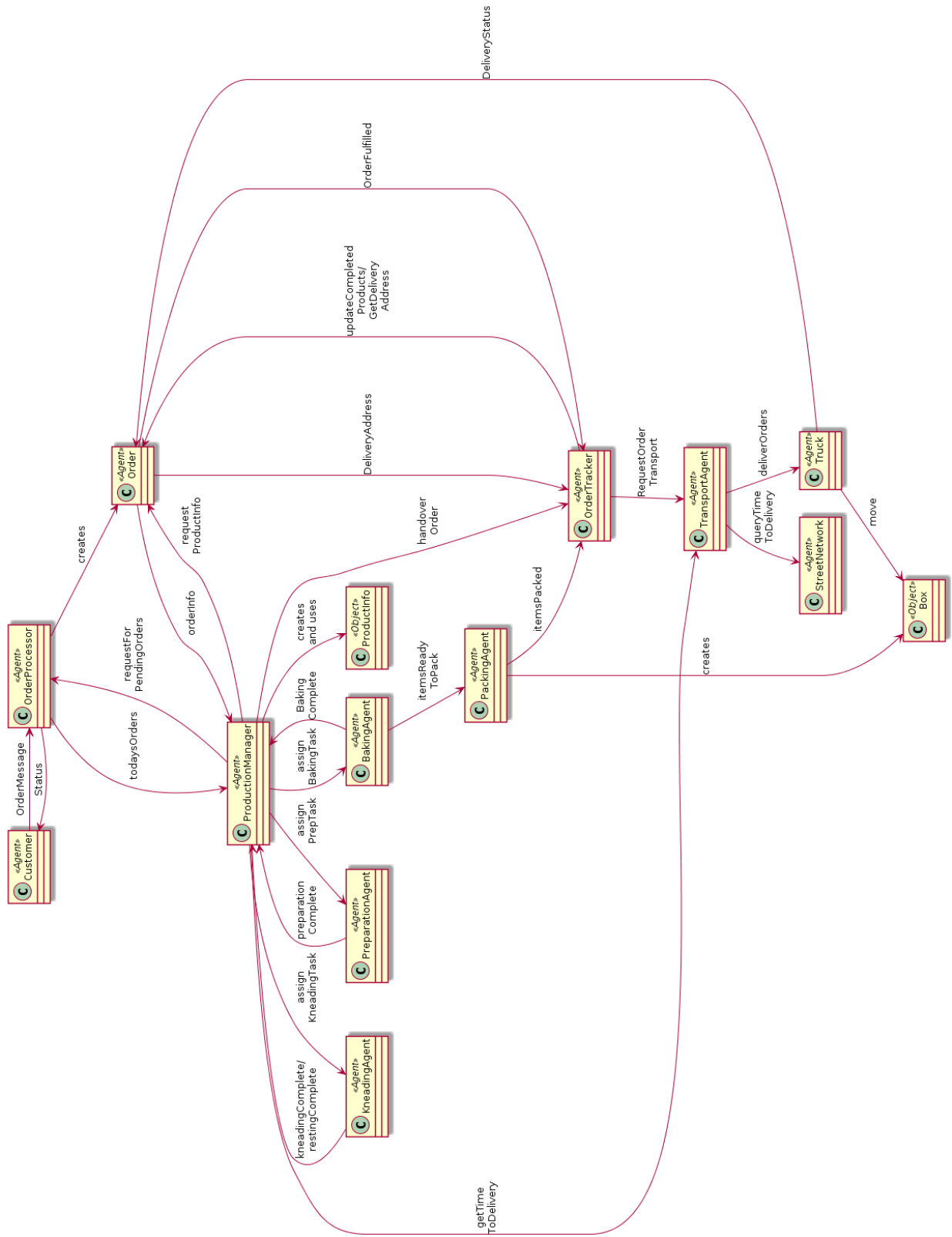


Figure 1: Architecture diagram

The above figure 1 outlines the overall architecture for the Flying Saucers Bakery project. The tags above each of the components describe if the component is an object or an agent. The links between the components, represent the messages exchanged between the components. A detailed description of these messages can be looked up in the *Messages.md* file.

2 Agent Definitions

The below table lists out the details of each of the component that are a part of the architecture diagram.

Component	Agent/ Object	Static/ Dynamic	Stage	Description
Customer	Agent	Dynamic	Ordering	Places the order for a set of items
Order	Agent	Dynamic	Ordering/ Production/ Delivery	Keeps track of a customer's request for list of products at a given date
Truck	Agent	Static	Delivery	Delivers packed boxes that fulfill orders
StreetNetwork	Agent	Static	Delivery	Maintains a network of customer and bakery locations
Order-Processor	Agent	Static	Order	Receives and maintains the orders until they are picked up for production
Production-Manager	Agent	Static	Production	Schedules and synchronizes the activities of the rest of the agents in the production stage
Kneading-Agent	Agent	Static	Production	Responsible for kneading the dough and its resting time
Preparation-Agent	Agent	Static	Production	Responsible for preparing a given batch of items
BakingAgent	Agent	Static	Production	Responsible for maintaining the ovens including making time and time to cool the baked products and time to cool the baked products
OrderTracker	Agent	Static	Production/ Delivery	Responsible for notifying the order about their partial fulfillment
PackingAgent	Agent	Static	Production	Packs the baked items into boxes when they are cooled down
TransportAgent	Agent	Static	Delivery	Schedules the delivery of completed orders by dividing them among truck agents
ProductInfo	Object	Static	-	Contains the details of the products (e.g. time to bake, number of items in box)
Box	Object	Dynamic	-	Contains the type and quantity of products packed in it

Table 1: Agent Definitions

3 Aggregation of order data

The OrderProcessor maintains a database of all the orders that have been received from customers, indexed by delivery date. The ProductionManager requests the OrderProcessor for the orders that are due for the day. It sorts the orders according to their delivery time and picks them in that order for production. If some agents are still free (e.g. to bake or prepare more items), the ProductionManager also schedules products to be prepared from the next order in the queue and so on.