

# Multi-Agents and Agent Systems

## Flying Saucers Bakery

Md Zahidussaman, Arun Prabhu, Dharmin Bakaraniya

H-BRS

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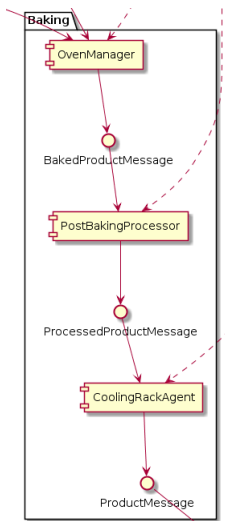
# Overview

- 1 Baking stage
- 2 Packaging stage
- 3 Common agents

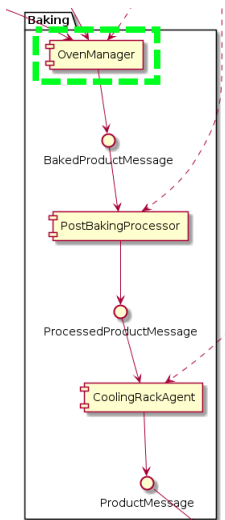
# Baking Stage

## Agents

- OvenManager
- PostBakingProcessor
- CoolingRackAgent

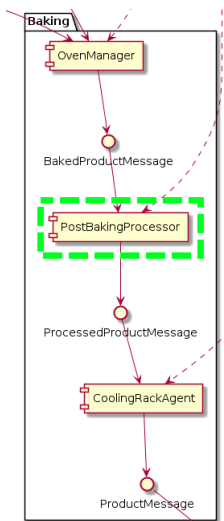


# OvenManager



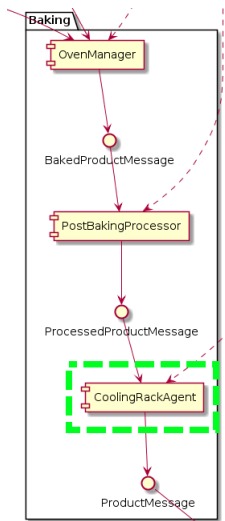
- Single Agent to manage all the ovens in the bakery.
- Receives **UnbakedProductMessage** from Proofer(Dough Preparation Stage).
- Sends **BakedProductMessage** to **PostBakingProcessor**(Baking Stage).

# PostBakingProcessor



- Performs all the steps in the recipe of a product which occur between Baking and Cooling.
- Receives **BakedProductMessage** from **OvenManager(Baking Stage)**.
- Sends the **ProcessedProductMessage** to **CoolingRackAgent(Baking Stage)**.

# CoolingRackAgent

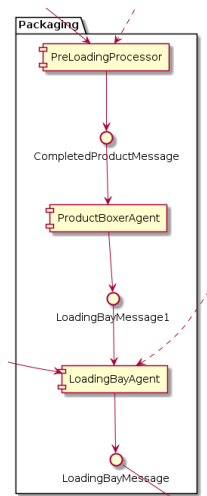


- Performs cooling steps of the recipe corresponding to different products.
- Receives **ProcessedProductMessage** from **PostBakingProcessor(Baking Stage)**.
- Sends **ProductMessage** to **PreLoadingProcessor(Packaging Stage)**.

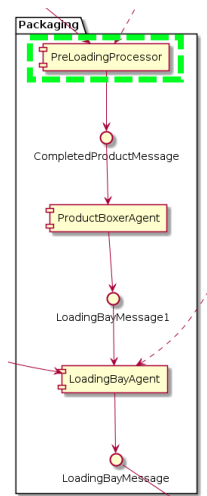
# Packaging Stage

## Agents

- PreLoadingProcessor
- ProductBoxerAgent
- LoadingBayAgent



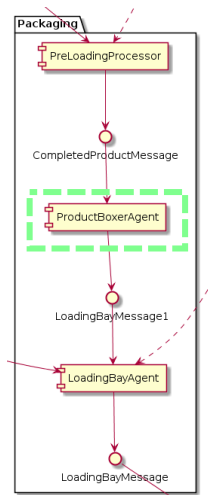
# PreLoadingProcessor



- Performs all steps in recipe of a product which lie between Cooling and Packaging.
- Recieves ProductMessage from CoolingRackAgent(Baking Stage).
- Sends CompletedProductMessage to ProductBoxerAgent(Packaging Stage).

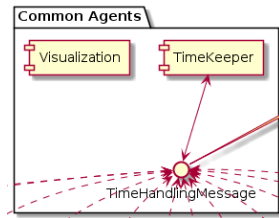


# ProductBoxerAgent



- Packs the products into boxes and dispatches them.
- Receives **CompletedProductMessage** from the **PreLoadingProcessor** (Packaging Stage).
- Sends **LoadingBayMessage** to the **LoadingBay** agent (Delivery Stage).

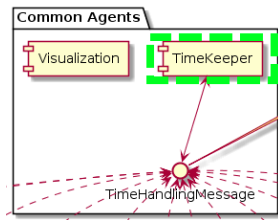
# Common agents



## Agents

- TimeKeeper
- BaseAgent
- VisualisationAgent (Order board)

# TimeKeeper

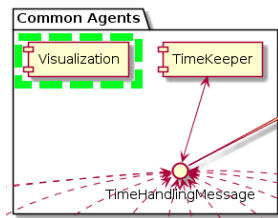


- It is responsible for the movement of time in the entire bakery eco-system.
- Receives finished from the based agents of all the agents.
- Sends TimeStep to all the base agents of all the agents.

# BaseAgent

- BaseAgent is a parent to all agents in bakery simulation.
- Receives TimeStep from the TimeKeeper agent.
- Sends finished to the TimeKeeper agent. Sends all the messages to the visualization agents.

# Order Board Visualisation Agent



- Creates an instance of JavaFX application instance Visualizer during initialization and forwards all interface agent messages to the Visualizer instance.
- Receives the output messages of all the interface agents(via their Base Agents).
- Does not send any messages apart from TimeStep finished message.

# Order Board Visualisation Agent

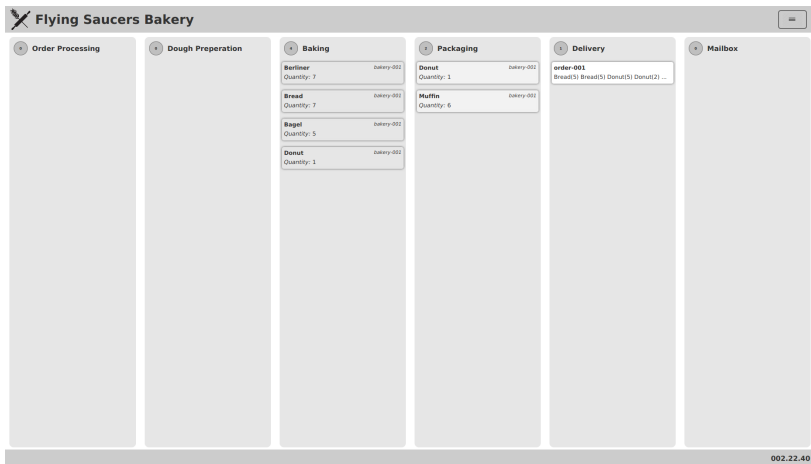


Figure: Board visualization in progress

# Order Board Visualisation Agent

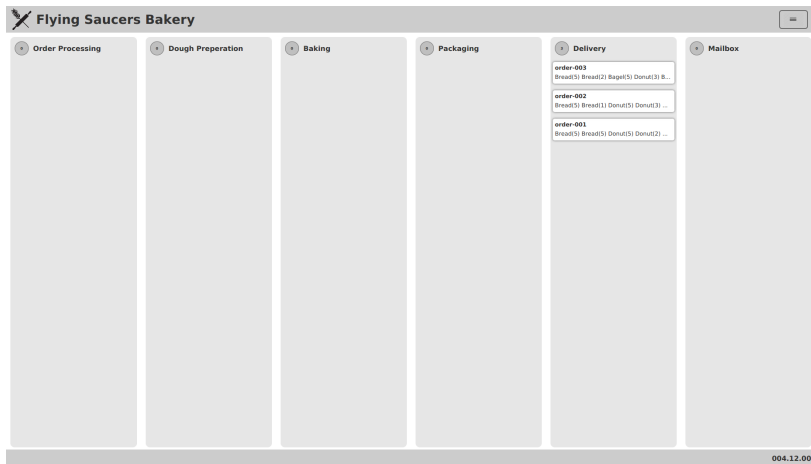


Figure: Board visualization complete

# Order Board Visualisation Agent

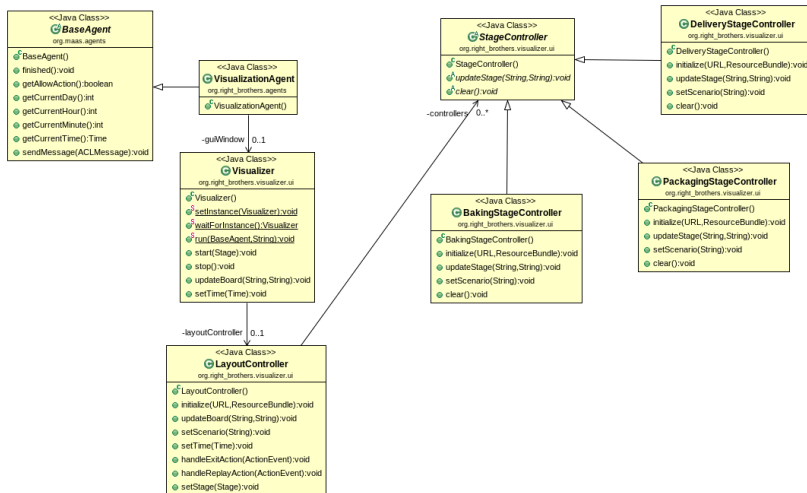


Figure: Class diagram of the major classes of the visualizer



Thank you  
Demo