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Semesterproject report

Multi Agent and Agent Systems

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Agent and Object description

In our project we (team pjt) use following agent and objects:

1. Agents per bakery:

- Scheduler → Is needed to schedule orders. It checks whether the order can be processed - so is there enough time to prepare the order under given circumstances?
- OrderProcessing → The Order Processing agent receives an order from the client, distributes the order to all agents, talks to the scheduler to verify whether order is feasible and gives the customer a hint whether its order can be processed or not.
- DoughManager → He manages the kneading machines and preparation tables for one bakery. He ensures that its kneading machines and preparation tables are synchron with the time keeper, checks whether current kneaded and prepared products are finished and sends kneaded and prepared orders to proofer.
- Proofer → The proofer proofs the orders and sends them to the bakery.

2. Objects :

- BakedGood → Name of product and the amount of it for one order within Dough-PreparationStage.
- CurrentProcessedProduct → An object which describes the current kneaded product. In other context it is used to describe the current prepared product. Moreover it is used to remember already kneaded and prepared products.
- KneadingPreparingMachine → Describes kneading and preparing machines. It stores the current kneaded / prepared order , the progress of preparing / kneading and it checks whether the preparation has finished
- Order → An object for Scheduler and OrderProcessing Agent. It stores information as customer agent id, order day, order hour, delivery day and delivery hour.
- OrderDoughPrep → An object for storing received orders from Scheduler.
- Product → An object which stores information on the product (preparation time, salesPrice, boxingTemp, guid)

Design Decisions

Order processing Stage

Dough preparation Stage

In dough preparation stage there are two agents. Dough manager and Proofer. The dough manager contains kneading and preparing machines for one bakery. Kneading and preparing machines are stored in object KneadingPreparingMachine. We decided to store them in an object as the way we designed them there is not much functionality inside preparing machine and kneading machine. Their only task is to update a counter and check whether a certain time threshold is reached. Most of the intelligent behaviour was moved to the dough manager. The dough manager interacts with the environment (order processing agent and proofer). He manages the orders the order processing agent assigned him. Managing orders means moving one order from one state to next state, check whether current stage of dough preparing is finished, receiving orders from order processing agent and sending orders to proofer.