

Task 1:

Problem Statement

Objective

The goal is to develop a Python-based task scheduler for a robotic kitchen that can prepare two dishes simultaneously. The robotic kitchen has a single arm responsible for picking up ingredients and placing the bowls on the stove.

Given a stream of incoming orders, the task scheduler needs to optimize the sequence of operations to minimize the total preparation time. Each order will specify the dish to be prepared and the orders will be received through the "/order" topic.

Assumptions

1. Picking up any ingredient takes 5 seconds.
2. Picking up a bowl from the conveyor takes 5 seconds.
3. Placing a bowl on the stove takes 5 seconds.
4. Placing the bowl back on the conveyor takes 5 seconds.

The cooking time for each dish is specified in a Google Sheets database named "task". This database consists of two sheets:

- "Ingredients": This sheet provides a list of all the ingredients, along with the dispenser number associated with each ingredient.
- "Recipes": This sheet provides detailed instructions for each dish, including the sequence of ingredients to be picked, sautéing times, and additional ingredients to be added after sautéing.

Constraints

1. At any given time, only one bowl can be handled by the robotic arm.
2. The robotic kitchen can prepare two dishes simultaneously, but the arm can only operate on one bowl at a time.

Desired Output

Input: 0-Garlic_Mushroom_Pasta:10-Chicken_Fried_rice:75-Vegetable_Pasta

Explanation: x_y:x_y:x_y where x is when the dish is ordered. And y is the dish name

Output - Check the output page of the sheet

Download the task sheet here: [Task](#)

Task 2 :

Objective:

We aim to envision, design, and develop an automated frying station that executes the complete frying process - ingredient dispensing, frying, mixing the spices, sauce addition, and transfer into the bowl. This project aims to streamline the process, 0 human intervention, and ensure consistency in output quality, while also considering cost-effectiveness and possible failure points.

Deliverables:

1. Comprehensive system architecture including major mechanisms involved in the process.
2. Process flow diagram depicting end-to-end operations from dispensing fries to final output delivery.
3. Identification of potential failure points and proposed solutions to mitigate them.
4. Considerations for cost-effectiveness and efficiency in the system design.

You will be presenting the solution for this scenario in the review meeting, prepare any pictures/flowcharts/doodles, or any other documents that will help you to explain the scenario in the most effective manner.