**Task 1: Pizza Pazza**

Recall the Pizza Pazza case. In the case, Jean and Jacqueline were accepting custom orders for 2 pizzas (identical) at a time. Each process step has to be performed for each order separately. The process sequence is as follows:

Jean prepares sauce ( 2 mins ). Sauce for up to three pizzas can be prepared at a time. Jean then kneads the dough in a bowl after mixing ingredients. This takes 3 mins and dough for up to three pizzas can be mixed at a time. Then, Jean spreads sauce. This takes 1 min per pizza. Then Jacqueline Loads & Sets the oven in 1 min. The pizza has to cook for 15 minutes. The oven can hold up to 2 pizzas. After baking in the oven, the pizzas are cooled for 3 minutes. There is plenty of space for cooling. Then Jacqueline unloads and packs the pizza. This takes 1 minute per pizza. Finally, Jacqueline accepts payment, which takes 2 mins per order.

1. Assume all processing times as well as demand is deterministic. Assume Pizza Pazza gets 3 orders per hour. Model the process in HOM. Determine the utilization of various resources.
2. Simulate the process for 10 hours. Determine the flow time. Do you agree with the flow time?
3. What can be done to reduce the flow time?
4. Save this model.
5. Now, assume Pizza Pazza accepts orders for 1 pizza only. What modifications have to be done to the above process? Reload the saved model and add a product (not necessary to delete the 2-pizza process).
6. Simulate the 1-pizza process to identify resource utilization and flow time.

**Task 2: Assembly Line Planning**

Consider the tandem process example. Assume that the process times are as follows:

|  |  |  |
| --- | --- | --- |
| Workcenter | Set Time per | Run Time per |
| Name | Lot (min) | Unit (min) |
| Q1 | 35.00 | 0.40 |
| Q2 | 5.00 | 1.00 |
| Q3 | 3.00 | 3.00 |
| Q4 | 10.00 | 0.20 |
| Q5 | 5.00 | 1.00 |

Assume that each machine can process up to 50 units at a time. There are 1, 2, 4, 1, and 1 machines at the five stages. You can assume there are enough labor, say, 9 workers who can operate any equipment. Assume demand comes in lot sizes of 100. There are on average 3.84 orders per day. Demand and service times are deterministic.

1. Model this process. Compute the utilization and flow time.
2. How would you reduce the flow time? Do some experiments and report your results.

**Task 3: An Example from Underwriting**

Read the Manzana Insurance case.

1. Come up with a way to model the product flow using the process analysis tool.
2. After we briefly discuss the modeling choices, we shall present a model. Your task will be to help Manzana address its recent problems.