GTU Department of Computer Engineering
CSE 344 - SPRING 2022
HOMEWORK 3 REPORT

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1.Design Decisions and Concept

First, I initialize my array and semaphores in shared memory. To be able to share my unnamed semaphores between processes, I create them in shared memory. No such thing is needed for a Named semaphore.

I have 6 chef processes, 1 wholesaler process and a pusher process

The chefs all wait for specific ingredients as mentioned in the assignment pdf.

The wholesaler reads the whole file and adds it to an array.

If there is a valid input, the wholesaler posts the pusher process' semaphore

Pusher decides which chief process to run and posts its semaphore.

Each chef has a local variable to keep their number of desserts and also there is a run semaphore to easily stop the chefs when the program is finished.

The wholesaler stops working after the relevant chief starts working.

After the chef starts working, the wholesaler is waiting for the dessert.

After the chef gets the ingredients, that is, after making null the ingredients in the array, he/she prepares the dessert and gives it to the wholesaler.

Increases the number of desserts by one and posts the semaphore where the wholesaler waits his turn.

The loop continues like this until there is no material to be given.

When I come to the end of the loop, I set chef0's run value to 0 and they are successfully terminated with other chefs in turn.

I collect the number of desserts from the processes as return values, and finally I print the total number of desserts.

After printing the total dessert number, I deallocate the semaphores and successfully terminate the program.