Assignment B

The Restaurant Ordering System: In a popular restaurant, customers place orders for food items, which are then prepared by chefs in the kitchen. To streamline the ordering process, the restaurant decides to implement an ordering system using threads. The system should allow customers to place orders, chefs to prepare food, and waiters to serve the prepared orders.
Question: Design a multi-threaded ordering system for the restaurant. Implement functions to allow customers to place orders, chefs to prepare food items, and waiters to serve orders while ensuring proper synchronization and coordination between threads.

- You must use counting semaphores to manage access to shared resources such as the kitchen or the serving area. Counting semaphores should be used to control the number of customers allowed to place orders simultaneously, the number of orders allowed in the kitchen at a given time, and the number of orders ready to be served by the waiters.
- Proper use of counting semaphores will ensure that the restaurant's resources are utilized efficiently and that orders are processed in a synchronized manner.

NOTE

Don't worry if you come across something in the assignment that you don't understand. Take your time to look it up! Even though this assignment seems simple, it might take you up to three hours, especially if you're new to threads.

But if you're familiar with threads, that's what I consider will take 1 hour from you. Best of luck, guys!