

CSE 4510 Operating Systems Laboratory

IPC Assignment

Spring 2025

Total Marks: 20

Scenario

You are tasked with implementing a thread synchronization system for a busy restaurant kitchen. The kitchen has chefs (producers) who prepare dishes and waiters (consumers) who serve them to customers.

Restaurant Rules & Constraints

- The hot plate area can hold a maximum of 3 dishes at any time (limited buffer)
- There are 2 chefs working simultaneously
- There are 3 waiters serving customers
- Each chef prepares 5 dishes during their shift
- Each waiter serves 3-4 dishes (you decide the distribution)

Sample Output Format

```
Chef-1 prepared Dish-1 [Hot Plate: 1/3]
Chef-2 prepared Dish-6 [Hot Plate: 2/3]
Waiter-1 served Dish-1
Chef-1 prepared Dish-2 [Hot Plate: 2/3]
Waiter-2 served Dish-6
Chef-2 prepared Dish-7 [Hot Plate: 2/3]
Waiter-3 served Dish-2
...
All chefs finished cooking
All waiters finished serving
```

Submission

Submit your cpp file after renaming <your_id>.cpp.