

## P2. Capacity Analysis – Restaurant Operation

Consider a restaurant in a casino. It is important that the customers be served quickly. Hence the manager has set up a buffet arrangement where customers serve themselves. The buffet is continually replenished to keep items fresh. To further speed-up the process, a fixed amount is charged for the meal, irrespective of what the customer eats. The buffet is designed in such a way that the customers take an average of 30 minutes to get their food and eat. Further the customers typically eat in groups (or customer parties) of two or three to a table. The restaurant has 40 tables.

Assuming that the average customer party is 2.5 individuals, what is the maximum capacity of this restaurant in terms of customer parties?

Further, based on past data, the manager has collected the following customer profile for customer parties arriving during lunch. The lunch time is 11.30 am to 1.30 pm. Customers are seated only until 1.00 pm. The restaurant operates only for two hours for lunch.

Time	Parties arriving
11.30 to 11.45	15
11.45 to 12.00	35
12.00 to 12.15	30
12.15 to 12.30	15
12.30 to 12.45	10
12.45 to 1.00	5

Analyze the situation and compute the following:

- Does the restaurant face any capacity issues for the lunch service?
- Is there any waiting line formation? If so, compute the number of customer parties and the expected waiting time for each customer party during each time interval.
- Give your suggestions on various alternatives available to solve the waiting line problem, indicating the pros and cons of each alternative. What is your final recommendation?