**OUTPUT:** The output files are saved in the same folder with the name prod\_out.txt and the consumers have names starting with C followed by a number at the arrival of shared memory i.e. C1, C2, C3, etc

**RESULT:** To determine the number of deadlocks, I have used queue size and no. of consumers, by keep these variables constant or varying. Listed below are the outcomes of three experiments that I tried.

**Experiment number 1**

Queue size = 50 (constant)

Consumers = 1-10 (varying)

Loop Count = 8

No. of consumers Deadlocks

1. 0
2. 0
3. 0
4. 2
5. 4
6. 3
7. 5
8. 6
9. 5
10. 3

X-axis: No. of Consumers

Y-axis: Deadlocks

Observation:

There were no deadlocks for 1,2 and 3 consumers. The deadlock started when the number of consumers started increasing. There was a steady growth of deadlocks as the consumers increased. Repeating the experiment has a variation in the number of deadlocks for a given number of consumers.

**Experiment number 2**

Queue size = 10-80 (varying)

Consumers = 5 (constant)

Loop Count = 8

Queue size Deadlocks

10 1

20 1

30 2

40 4

50 3

60 2

70 1

80 2

X-axis: Queue size

Y-axis: Deadlocks

Observation:

As the queue size is increasing the number of deadlock is increasing to a certain point after which it starts decreasing and then increases again. From this we can say that the 50% deadlock queue size is 40.

**Experiment number 3**

Queue size = 40 (constant)

Consumers = 1-10 (varying)

Loop Count = 8

No. of consumers Loop count Queue size Deadlocks

1 8 40 0

2 8 40 0

3 8 40 1

4 8 40 1

5 8 40 5

6 8 40 1

7 8 40 6

8 8 40 5

9 8 40 5

10 8 40 3

X-axis: No. of Consumers

Y-axis: Deadlocks

Observation:

Keeping the queue size constant, i.e. 40, the deadlocks occurrence increases with increase in the number of consumers, there is a fall certain points.