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Assignment#1

DEGREE OF SUCCESS: 100%

In my opinion, my degree of success for this assignment is 100%
All files are provided by the Professor. I separated the help file into 4 files which are donuts.h, utilities.c, proddonuts.c and consdonuts.c. Then, I compiled them with Makefile and ran a shell file without any code error.

The first time I ran with 10 loops and 2 times on each queue size, my %deadlock and queue depth graph was shown as a non-linear graph. However, I went to consult with the Professor. His comment was that my data might not be enough and it might also come with a few errors. So, I started testing again with 10 loops and 20 times on each queue size and the graph became a linear graph eventually.

I provide the probability of deadlock VS queue depth graph which is a linear graph. I observe that the higher queue depth, the lower chance of getting deadlock.

My 50% deadlock queue size is 94 which is ranged from the 90-95 queue size data. I use the 94th queue size depth to generate the probability of deadlock VS number of consumers graph. Also, the higher the number of consumers, the higher chance of deadlock because there is only one producer.

1. The probability of deadlock VS queue depth

Queue depth	%Deadlock
10	100.00%
20	100.00%
30	100.00%
40	99.00%
50	97.00%
60	89.50%
70	76.00%
80	67.00%
90	58.00%
95	48.00%
100	42.00%
150	0.60%
200	0.10%

%Deadlock vs Queue depth
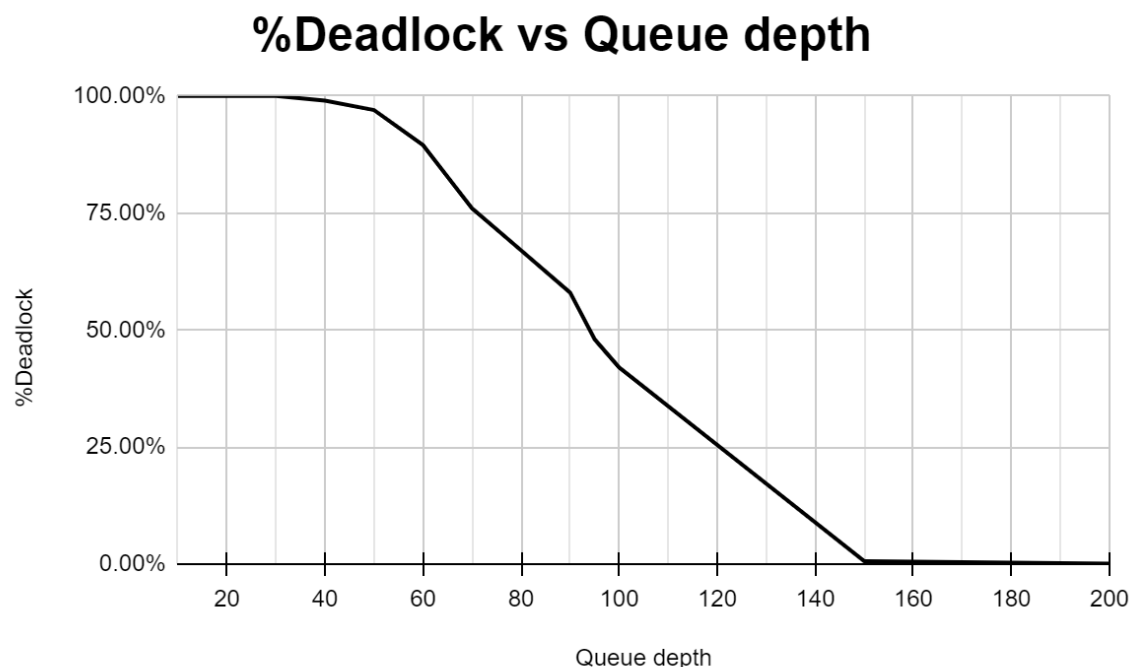
2. The probability of deadlock VS number of consumers graph

Queue depth	94
#Consumer	%Deadlock
1	1.00%
2	6.00%
3	22.00%
4	41.00%
5	50.00%
6	68.00%
7	73.00%
8	74.00%
9	78.00%
10	92.00%

%Deadlock vs #Consumer