Eric Wang
eric_wang1@student.uml.edu
Assignment 3 writeup

I have completed this assignment and I believe I should get a 100.

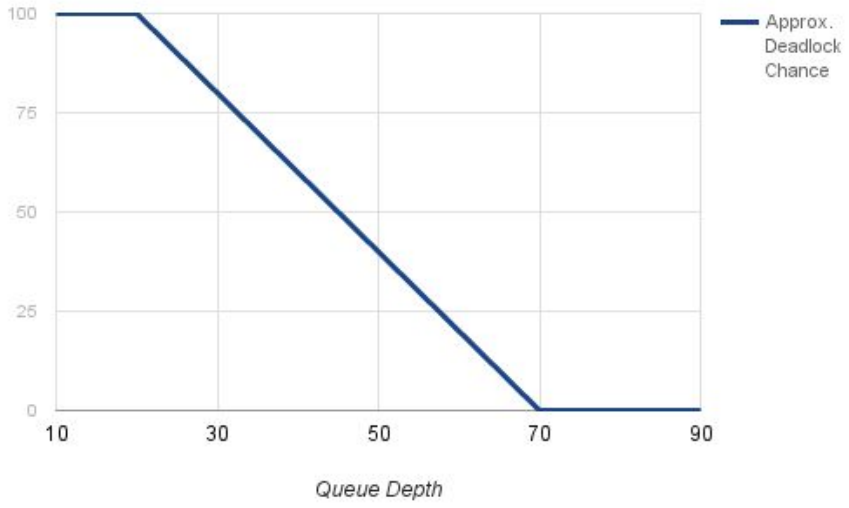
This was built largely from the help file and some class examples. Most of it was done by copy pasting large chunks of code from the help file, then adding some of my own in, like the donut production and consumption parts.

There is a compiler warning, but that's not such a big deal, since it was from part of the copy/pasted code. The discussion on the graphs is below the graphs themselves, all in this doc.

Probability of Deadlock vs. Depth of Queues

Queue Depth	Approx. Deadlock Chance
10	100
20	100
30	80
40	60
50	40
60	20
70	0
80	0
90	0

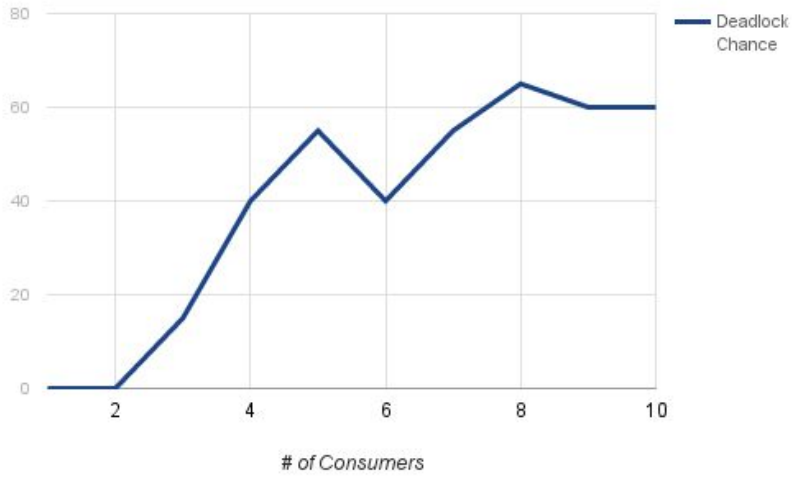
It will be zero for all larger queue depths as well.



For Step 7, I ran it multiple times, and got a fairly linear distribution for the deadlock chance. It seems like the 50% deadlock size would be approximately a depth of 45. The deadlock percent also decreased as the queue depth increased, reaching basically no chance of deadlock at 70 and higher.

Consumer Amount vs. Deadlock Chance (At queue size 45)

# of Consumers	Deadlock Chance	Trial 1 locks	Trial 2 locks
1	0	0	0
2	0	0	0
3	15	2	1
4	40	4	4
5	55	5	6
6	40	3	5
7	55	5	6
8	65	7	6
9	60	6	6
10	60	6	6



The deadlock chance for the number of consumers did seem to scale with the number of consumers that there were, but only up to a certain point. There does seem to be a cap on the chance of deadlock, seemingly at approximately 65%, possibly because excess consumers only cause it to take longer, rather than locking up the ring.

I did run into a problem executing the shell script on the mercury system though, Error 126. So I swapped it to one of my other computers and it worked ok.