Success Rate: The success rate of the program is around 96%

Approach

proddonuts.c contains the code of Producer.

consdonuts.c contains the code of Consumer.

utilities.c contains the code for P and V operations.

donuts.h contains all the header files and some required functions used in both consumer and producer.

Makefile is the make file to run executables from the shell. $make

Consumer and producer are the executable files for running from script.

A1\_linux\_donut\_loop.sh is a file used to compile the c codes each time and clear all the old logs. $ sh Assignment1.sh loop\_constant

Consumer: In this experiment, we are varying the number of consumers and getting the deadlocks. We also get deadlocks by keeping the number of consumers constant and varying queue size.

Producer: In this experiment, the producer is kept constant. It keeps on producing donuts and notifies the consumer upon its availability.

Number of Consumer and Deadlock:

We can conclude that the number of deadlock is directly proportional to the number of consumers. As the number of consumer increases, the deadlock rate also increases.

Queue Size and Deadlock:

Here we find out that deadlock is inversely proportional to the queue size. As the queue size increases, the number of deadlock decreases.

50% deadlock queue size :

The percentage of deadlock was dependent on the size of queue . For this, I have done an experiment by changing the size of queue and keeping the consumers at a constant rate 5 and keeping the loop at 8. The rate of deadlock falls from 100% to 0% between the queue size 30-70 and the 50% deadlock size was found to be 40

Problem:

The first problem I came across is I didn’t login to Ubuntu as an administrator, so I got an error as “Permission denied”. So I used the command, “chmod 777 <file\_name>” so as to access the files.

I ran the program various times, so every time I ran, it produced a file with .o extension, so I removed that file with the command “rm \*.o” and used the command “make” to run the file again. I also had to remove the C1, C2, C3..files in order to avoid overwriting.

E-mail ID: Hetali\_ShahGala@student.uml.edu