

Q1) step 0: flag[0] = true, flag[1] = False step 1: process 1 runs, flag[0] = true, flag[1] = true step 2: process 0 runs, enters while loop, flag[0] = true, flag[1] = true step 3: process 1 runs, enters while loop, flag[0] = true, flag[1] = true step 4: both processes stuck in while loop, therefore deadlock. flag[0] = true, flag[1] = true

Q2) step 0: turn = 0 step 1: process 0 runs, enters critical section, turn = 0 step 2: process 0 runs, leaves critical section, turn = 1 step 3: process 1 runs, does not need to enter critical section yet, turn = 1 step 4: process 0 runs, needs to enter critical section but can't because process 1 hasn't entered his yet. So process 0 goes into starvation, turn = 1

P2) Running process 0 (test.txt) and process 1 (test2.txt) concurrently, starting process 0 first.

Process 0: Rony\$ ./main test.txt

warning: this program uses gets(), which is unsafe.

>>Executing Command : init

>>Executing Command : reserve specific A 209 Invalid table number

>>Executing Command : reserve specific B 209 >>Executing Command : reserve specific A 104

>>Executing Command : status Table A Number: 100, Name: random Number: 101, Name: random Number: 102, Name: random Number: 103, Name:

Number: 104, Name: specific Number: 105, Name: Number: 106, Name: Number: 107, Name: Number: 108, Name: Number: 109, Name:

Table B Number: 200, Name: Number: 201, Name: Number:

202, Name: Number: 203, Name: Number: 204, Name: Number:  
205, Name: Number: 206, Name: Number: 207, Name: Number:  
208, Name: Number: 209, Name: specific

>>Executing Command : reserve random B

>>Executing Command : reserve specific A 104 Cannot reserve  
table

>>Executing Command : status

Table A Number: 100, Name: Number: 101, Name: Number:  
102, Name: Number: 103, Name: Number: 104, Name: Number:  
105, Name: Number: 106, Name: Number: 107, Name: Number:  
108, Name: Number: 109, Name:

random random random random specific random random  
random

random

Table B Number: 200, Name: Number: 201, Name: Number:  
202, Name: Number: 203, Name: Number: 204, Name: Number:  
205, Name: Number: 206, Name: Number: 207, Name: Number:  
208, Name: Number: 209, Name:

specific >>Executing Command : init

>>Executing Command : status

Table A Number: 100, Name: Number: 101, Name: Number:  
102, Name: Number: 103, Name: Number: 104, Name: Number:  
105, Name: Number: 106, Name: Number: 107, Name: Number:  
108, Name: Number: 109, Name:

Table B Number: 200, Name: Number: 201, Name: Number:  
202, Name: Number: 203, Name: Number: 204, Name: Number:  
205, Name: Number: 206, Name: Number: 207, Name: Number:

208, Name: Number: 209, Name:

>>Executing Command : exit

Process 1: Rony\$ ./main test2.txt

warning: this program uses gets(), which is unsafe.

>>Executing Command : reserve random A

>>Executing Command : reserve random A >>Executing  
Command : reserve random A >>Executing Command : reserve  
random A >>Executing Command : reserve random A  
>>Executing Command : reserve random A >>Executing  
Command : reserve random A

>>Executing Command : reserve random A >>Executing  
Command : reserve random A >>Executing Command : reserve  
random A >>Executing Command : reserve random A  
>>Executing Command : reserve random A

>>Executing Command : status Table A Number: 100, Name:  
random Number: 101, Name: random Number: 102, Name:  
random Number: 103, Name: random Number: 104, Name:

Number: 105, Name: Number: 106, Name: Number: 107, Name:  
Number: 108, Name: Number: 109, Name:

Table B Number: 200, Name: Number: 201, Name: Number:  
202, Name: Number: 203, Name: Number: 204, Name: Number:  
205, Name: Number: 206, Name: Number: 207, Name: Number:  
208, Name: Number: 209, Name:

>>Executing Command : reserve random B >>Executing  
Command : reserve random B >>Executing Command : reserve  
random B >>Executing Command : reserve random B  
>>Executing Command : reserve random B >>Executing  
Command : reserve random B

>>Executing Command : reserve random B >>Executing  
Command : reserve random B >>Executing Command : reserve  
random B >>Executing Command : reserve random B

>>Executing Command : status Table A

Number: 100, Name: Number: 101, Name: Number: 102, Name:  
Number: 103, Name: Number: 104, Name: Number: 105, Name:  
Number: 106, Name: Number: 107, Name: Number: 108, Name:  
Number: 109, Name:

Table B Number: 200, Name: Number: 201, Name: Number:  
202, Name: Number: 203, Name: Number: 204, Name: Number:  
205, Name: Number: 206, Name: Number: 207, Name: Number:  
208, Name: Number: 209, Name:

random random random random

random random random random random random random  
random random random

>>Executing Command : reserve random B Cannot find empty  
table

>>Executing Command : reserve random B Cannot find empty  
table

>>Executing Command : status Table A Number: 100, Name:  
random Number: 101, Name: random Number: 102, Name:  
random Number: 103, Name: random

Number: 104, Name: Number: 105, Name: Number: 106, Name:  
Number: 107, Name: Number: 108, Name: Number: 109, Name:

Table B Number: 200, Name: Number: 201, Name: Number:  
202, Name: Number: 203, Name: Number: 204, Name: Number:  
205, Name: Number: 206, Name: Number: 207, Name: Number:  
208, Name: Number: 209, Name:

random random random random random random random  
random random random

>>Executing Command : exit