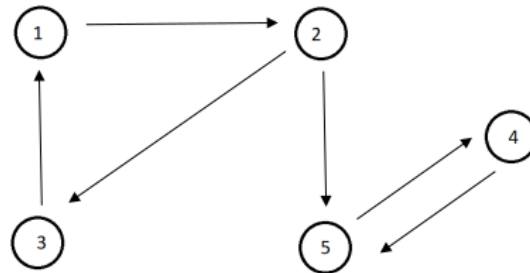


1 \rightarrow 2 (Q)
 2 \rightarrow 5 (Q)
 5 \rightarrow 1 (Q)
 5 \rightarrow 3 (Q)
 1 \rightarrow 5 (R)
 3 \rightarrow 2 (Q)
 2 \rightarrow 3 (R)

3 -> 5 (R)
 5 -> 1 (R) => 1 detecta deadlock

Exercise 2:



```

lucas@lucas-HP-14-Notebook-PC:~/Desktop/ITA/CES_27/5_Deadlock$ ./run.s
h 1
Process: 1
Process :1 :2
Read from keyboard: Process :1 :2
start
Read from keyboard: start
Starting Q: 1 1 1 2
P10002: Sending {"QR":"Q","I":1,"M":1,"J":1,"K":2} to 2
P10002: Received {"QR":"Q","I":1,"M":1,"J":3,"K":1}
P10002: Sending {"QR":"R","I":1,"M":1,"J":1,"K":3} to 3
P10002: Received {"QR":"R","I":1,"M":1,"J":2,"K":1}
P 1 is Deadlocked !!
[]

lucas@lucas-HP-14-Notebook-PC:~/Desktop/ITA/CES_27/5_Deadlock_Detection$ ./run.s
h 4
Process: 4
Process :4 :5
Read from keyboard: Process :4 :5
P10005: Received {"QR":"Q","I":1,"M":1,"J":5,"K":4}
P10005: Sending {"QR":"Q","I":1,"M":1,"J":4,"K":5} to 5
P10005: Received {"QR":"R","I":1,"M":1,"J":5,"K":4}
P10005: Sending {"QR":"R","I":1,"M":1,"J":4,"K":5} to 5
[]

lucas@lucas-HP-14-Notebook-PC:~/Desktop/ITA/CES_27/5_Deadlock_Detection$ ./run.s
h 5
Process: 5
Process :5 :4
Read from keyboard: Process :5 :4
P10006: Received {"QR":"Q","I":1,"M":1,"J":2,"K":5}
P10006: Sending {"QR":"Q","I":1,"M":1,"J":5,"K":4} to 4
P10006: Received {"QR":"R","I":1,"M":1,"J":5,"K":4}
P10006: Sending {"QR":"R","I":1,"M":1,"J":4,"K":5} to 4
[]

lucas@lucas-HP-14-Notebook-PC:~/Desktop/ITA/CES_27/5_Deadlock_Detection$ ./run.s
h 2
Process: 2
Process :2 :3 :5
Read from keyboard: Process :2 :3 :5
P10003: Received {"QR":"Q","I":1,"M":1,"J":3,"K":1}
P10003: Sending {"QR":"Q","I":1,"M":1,"J":1,"K":3} to 1
P10003: Received {"QR":"R","I":1,"M":1,"J":3,"K":1}
P10003: Sending {"QR":"R","I":1,"M":1,"J":1,"K":3} to 2
P10003: Received {"QR":"R","I":1,"M":1,"J":1,"K":3}
P10003: Sending {"QR":"R","I":1,"M":1,"J":3,"K":2} to 2
[]

lucas@lucas-HP-14-Notebook-PC:~/Desktop/ITA/CES_27/5_Deadlock_Detection$ ./run.s
h 3
Process: 3
Process :3 :1
Read from keyboard: Process :3 :1
P10004: Received {"QR":"Q","I":1,"M":1,"J":2,"K":3}
P10004: Sending {"QR":"Q","I":1,"M":1,"J":3,"K":1} to 1
P10004: Received {"QR":"R","I":1,"M":1,"J":1,"K":3}
P10004: Sending {"QR":"R","I":1,"M":1,"J":3,"K":2} to 2
[]
  
```

Figura 2: O processo 1 acusa a detecção de deadlock

Simulação

1 -> 2 (Q)
 2 -> 3 (Q)
 2 -> 5 (Q)
 3 -> 1 (Q)
 1 -> 3 (R)
 3 -> 2 (R)
 5 -> 4 (Q)
 4 -> 5 (Q)
 5 -> 4 (R)
 4 -> 5 (R)
 5 -> 2 (R)
 2 -> 1 (R) => 1 detecta deadlock