int buffer [5]

Semaphore empty = S
Semaphore full = F
Semaphore mutex = M

Producer:
<produce item>
  empty -> down()
  mutex -> down()
  <add item to buffer>
  mutex -> up()
  full -> up()

Consumer:
<consume item>
  full -> down()
  mutex -> down()
  <take item from buffer>
  mutex -> up()
  empty -> up()
Semaphore mutex = 1  //access to buffer
Semaphore empty = N  //count of empty slots
Semaphore full = 0    //count of full slots
int buffer[N]

BoundedBuffer::Producer(){
  <produce item>
  empty->down() //get empty spot
  mutex->down() //get access to buffer

  <add item to buffer>

  mutex->up() //release buffer
  full->up()  //another item in buffer
}