

**In the name of God**  
**Os Lab #Hw3**

The Producer-Consumer problem:

The problem is defined as follows: there is a fixed-size buffer and a Producer process, and a Consumer process.

The Producer process creates an item and adds it to the shared buffer. The Consumer process takes items out of the shared buffer and consumes them.

Certain conditions must be met by the Producer and the Consumer processes to have consistent data synchronization:

1. The Producer process must not produce an item if the shared buffer is full.
2. The Consumer process must not consume an item if the shared buffer is empty.
3. Access to the shared buffer must be mutually exclusive; this means that at any given instance, only one process should be able to access the shared buffer and make changes to it.

**Send your answers in a zip file and send it to this email: [soroush.kimia@cse.shirazu.ac.ir](mailto:soroush.kimia@cse.shirazu.ac.ir)**

**(email & zip file title: oslab\_hw3\_stuNum)**