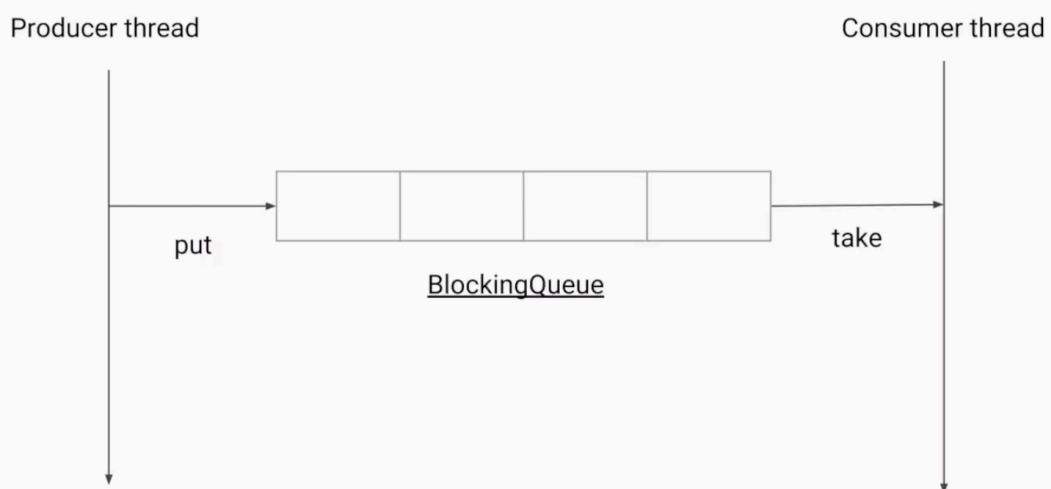


Multithreading 5 : Blocking/ Synchronous Queue

Blocking queue:

It is array of elements in which the producer thread keeps on add elements in it and consumer thread consume elements from it.

It is a thread-safe data structure which can have multiple producer thread as well as multiple consumer thread.

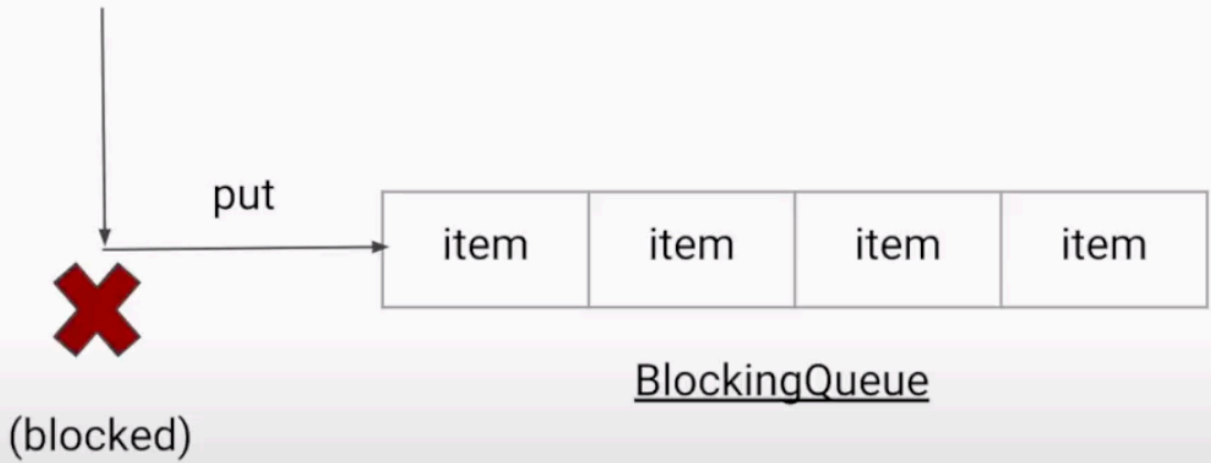


If consumer thread try to take elements from blocking queue and didn't get any any element then consumer thread comes under blocking state and wait untill a new element come under queue.

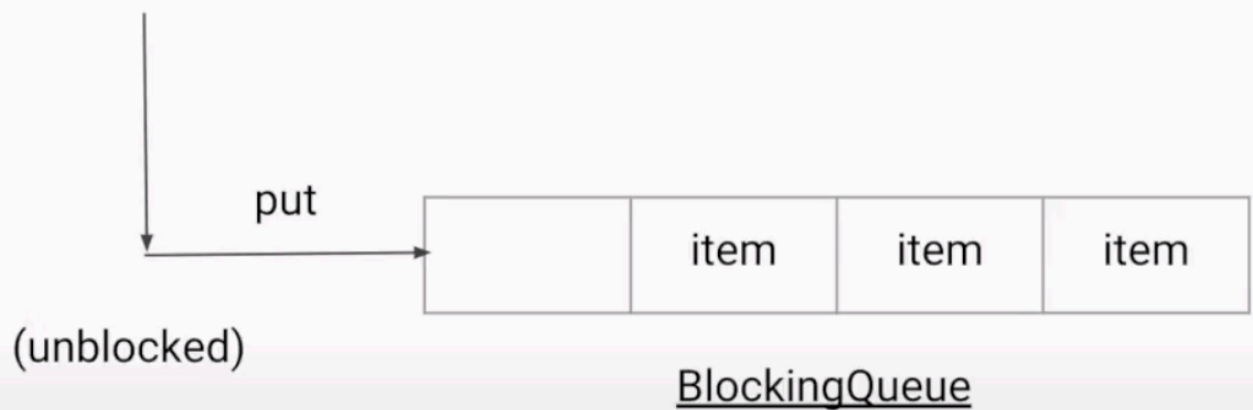
As soon as item come inside blocking queue then consumer thread is no more blocked and start taking element.

Simillarly if blocking queue is full then it doesn't allow to put element in queue and producer thread comes under blocked state and as soon as their is vacancy in queue then producer thread gets unblocked.

Producer thread



Producer thread

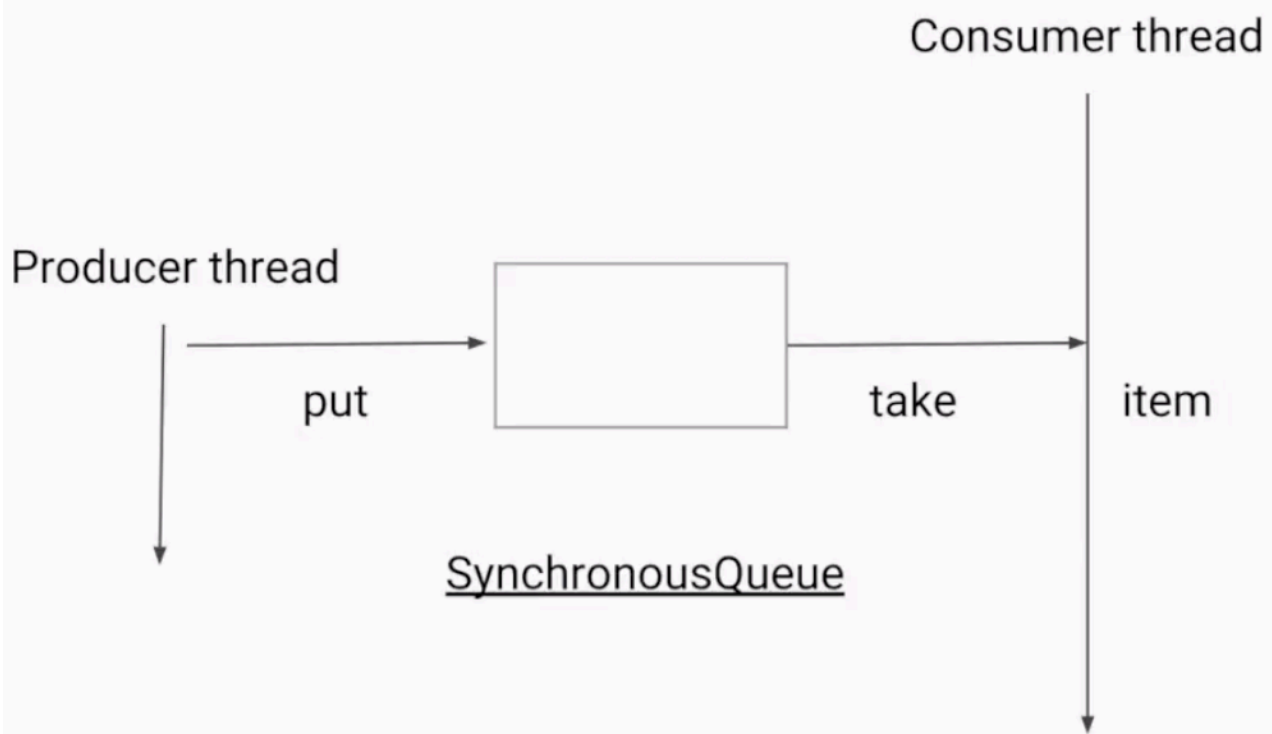
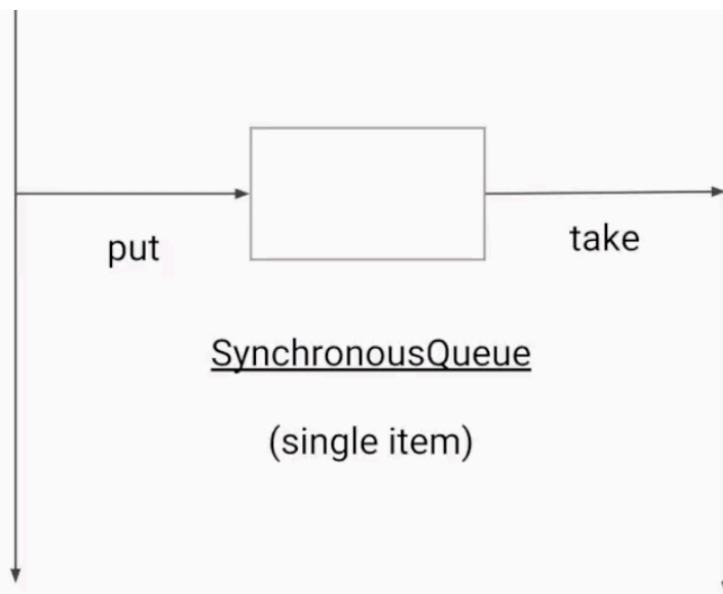


Synchronous QUEUE:

It is a kind of blocking queue with size 1.

Producer thread

Consumer thread

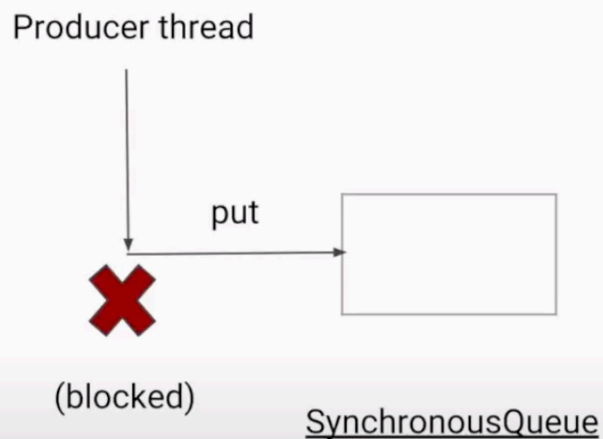


Synchronous queue consumer operation is similar to blocking queue.

If any element is queue then consumer take it otherwise it is blocked state.

But put operation(Producer thread) is different:

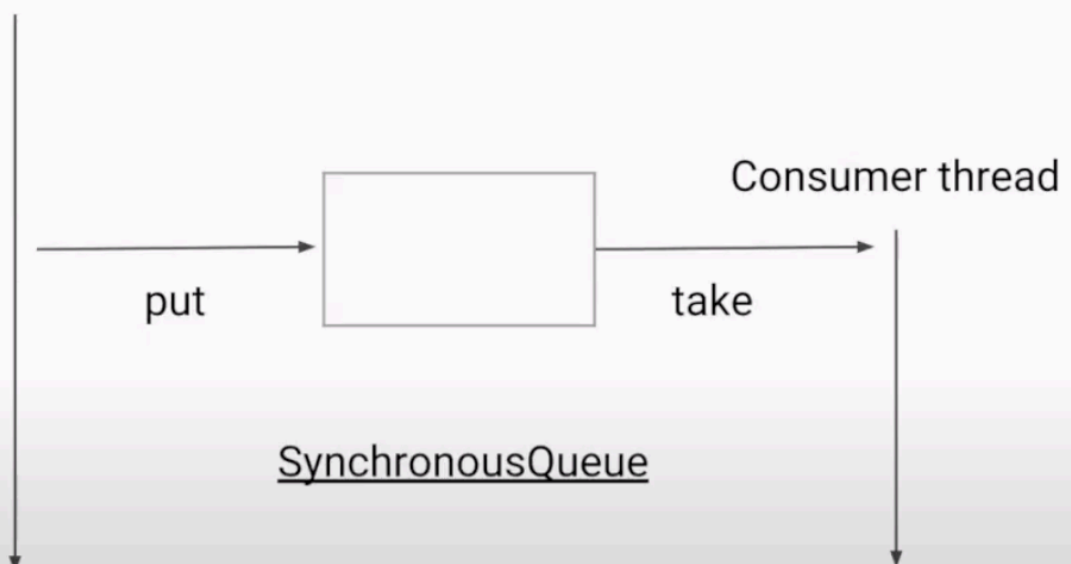
SynchronousQueue put... is different though!



Even though synchronous queue is empty but produce thread won't add element until their would be consumer queue which would consume elements from it.

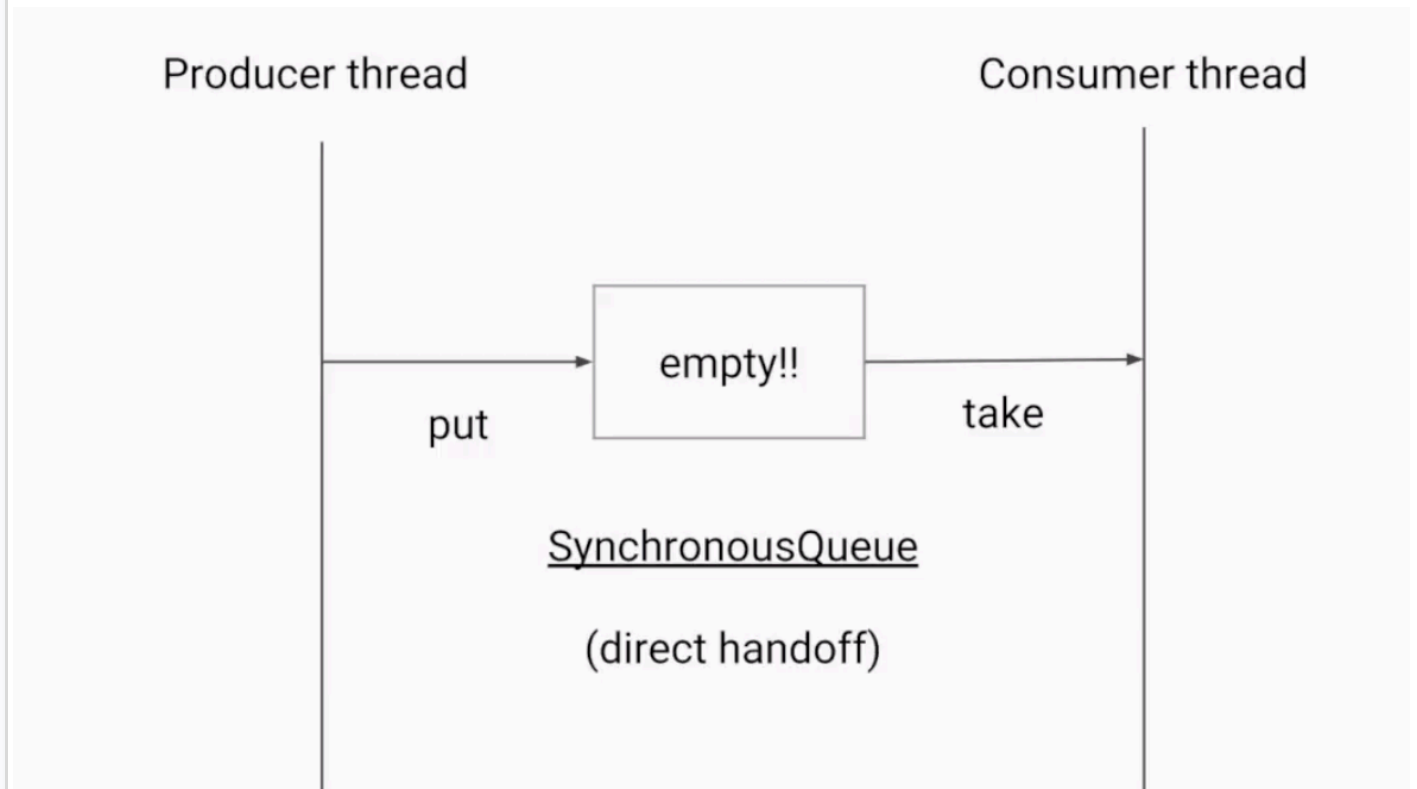
Once consumer thread will be there, producer thread will add element in it.

Producer thread



In fact :

Synchronous queue has no size at all. It just has a direct handshake between consumer and producer threads.



As synchronous queue does not hold element so

1. No peek method
2. No iterate method
3. Perfect for handshakes

