# Logbook week 15

1)

**public** **T** **get**() **throws** **BufferError**, **SemaphoreLimitError** {

**T** **item**;

**try** {

criticalSection.poll(); // is the buffer available?

noOfElements.poll(); // is there at least one data item in the buffer?

// criticalSection.poll(); // is the buffer available?

item = getItem(); // add the data item

criticalSection.vote(); // make the buffer available again

noOfSpaces.vote(); // there is now one more space in the buffer

} **catch** (**InterruptedException** **ie**) {

**throw** **new** BufferError("Buffer: Data item could not be retrieved from the buffer.\n" +

"\t" + ie.getMessage());

}

**return** item;

}

Swapping the order of the criticalSection.poll() and the noOfElements.poll() causes an error situation

2) The error occurs as there are no permits available, so the Semaphore waits until one is available, which never occurs so it just stops after the 20 seconds as it is set to do. The original code starts with permits available, so it can proceed.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Put | Get | noOfSpaces | noOfElements | criticalSection |
|  |  | 10 | 0 | 1 |
|  | Critsec.poll() | 10 | 0 | 0 |
| noOfSpaces() |  | 9 | 0 | 0 |
| Critsec.poll() |  | 9 | 0 | 0 |
| END |  |  |  |  |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Put | Get | noOfSpaces | noOfElements | criticalSection |
|  |  | 10 | 0 | 1 |
|  | noOfElements.poll() | 10 | 0 | 1 |
| noOfSpaces() |  | 9 | 0 | 1 |
| Critsec.poll() |  | 9 | 0 | 0 |
| Critsec.vote() |  | 9 | 0 | 1 |
| noOfElements() |  | 9 | 1 | 1 |
|  | Critsec.poll() | 9 | 0 | 0 |
|  | Critsec.vote() | 9 | 0 | 1 |
|  | noOfSpaces.vote() | 10 | 0 | 1 |

3) It is not essential in the put() as shown in the table below.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Put | Get | noOfSpaces | noOfElements | criticalSection |
|  |  | 10 | 0 | 1 |
|  | noOfElements.poll() | 10 | 0 | 1 |
| Critsec.poll() |  | 10 | 0 | 0 |
| noOfSpaces() |  | 9 | 0 | 0 |
| Critsec.vote() |  | 9 | 0 | 1 |
| noOfElements() |  | 9 | 1 | 1 |
|  | Critsec.poll() | 9 | 0 | 0 |
|  | Critsec.vote() | 9 | 0 | 1 |
|  | noOfSpaces.vote() | 10 | 0 | 1 |