Exercise RTOS-12P. FreeRTOS – synchronization 2

REAL TIME OPERATING SYSTEMS
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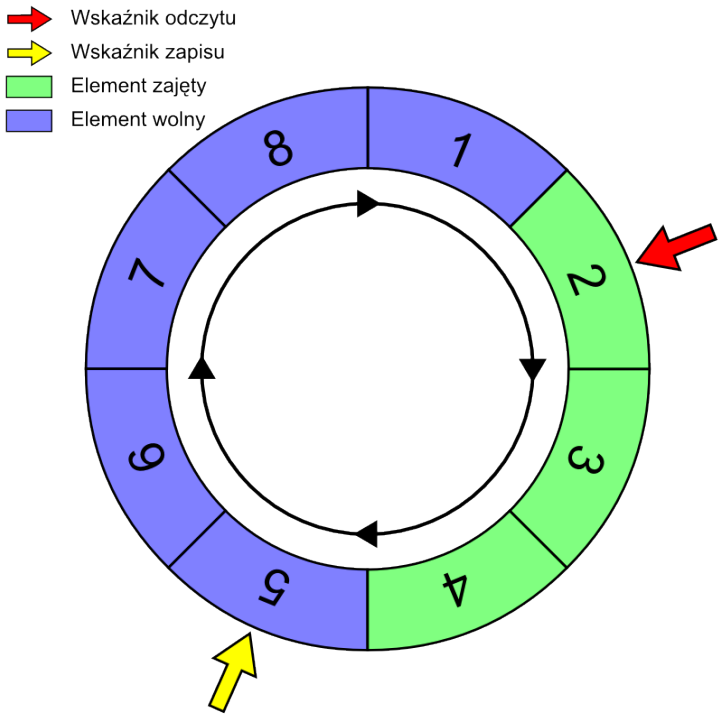
Subject:	**FreeRTOS real time operating system – consumer and producer problem - synchronization methods**
Tools:	**Visual Studio Express, FreeRTOS sources**
Required skills:	**Basic knowledge of issues related to programming in C language and real-time systems**

Introduction.

Producer and consumer problem with the so-called limited buffer:

- one process (producer) produces data
- the second process (consumer) retrieves the data

One solution is to use a circular buffer (which really is an array in which we return to the first after the last element), which allows data transfer also in the event of differences in the speed of operation of the producer and consumer.



An example of a circular buffer (source: Wikipedia)

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Purpose of the exercise.

The purpose of the exercise is to become familiar with the synchronization mechanisms.

Exercise program.

1. Use project 001-Basic_Tasks and implement an application that solves the problem of the producer and consumer with the so-called limited buffer. Test the operation in various cases e.g.:
   1.1. Speed of work for the producer and consumer is the same
   1.2. Producer is faster than consumer
   1.3. The producer is slower than the consumer