Stream Programming - 2021
Laboratory 6

Task Implement the counting bloom filter. The program should take as an argument the stream of elements. Then, the counting bloom filter should be applied. Thus, the hash functions for each element can be called and the respected bloom filter elements updated. After inserting all stream elements, the program should give the possibility to remove items from the stream. As a consequence, the respected bloom filter elements may be decremented.

Hint In the standard Bloom it is not possible to delete the elements from the set. It can not be accomplished by changing ones to zeros, because every bit may correspond to multiply elements. To fix this deficiency, the counting bloom filter (CBF) were introduced. It uses a counter array instead of the bit array. Thus, each element inserted into the set increments the relevant counters in the Bloom filter. In the case of deletion, the counters may be simply decremented. The drawback of CBF is a big bloom filter size. The counters must be large enough to avoid overflow.

For the counting bloom filter, see here).