

# Homework 1

1. **SOLUTION:**

We suppose the list  $L$  has members:  $length$  denoting the length of the list, or number of elements in the list;  $data[i]$  denoting the  $i$ -th element of the list. Assuming the index starts from 1.

Therefore, just cut down the length of  $l$  to disable elements after the  $i$ -th in the list and we obtain  $L.length := L.length - k$ , so the elements  $data[i + 1, i + 2, \dots, length]$  will be "ignored", or deleted.

Since this only requires one instruction thus the complexity has nothing to do with  $k$ , the answer should be  $\Theta(1)$ .

2. (a) **SOLUTION:**

Solution to 2(i)

(b) **SOLUTION:**

Solution to 2(ii)

(c) **SOLUTION:**

Solution to 2(iii)

3. **SOLUTION:**

4. **SOLUTION:**

Please refer to the code bundle submitted.