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Introduction to Computer Science, Winter Semester 2017
Practice Assignment 7

Discussion: 9.12.2017 - 14.12.2017

Exercise 7-1   in class
                    Sum

Given two lists A and B of the form A0,...,A(n-1) and B0,...,B(n-1) respectively. Write an algorithm that stores the sum of the corresponding elements of the lists A and B in a new list C.

Exercise 7-2   in class
                    Search

The simplest algorithm to search a list of Numbers N0,....,N(m-1) for a given key Key is to test successively each element.

```
N = eval(input("Enter the list of elements:"))
Key = eval(input("Enter a key:"))
m=len(N)
i = 0
FOUND = False
while i < m and FOUND == False:
␣ if Key == N[i]:
␣ ␣ FOUND = True
␣ else:
␣ ␣ i = i+1
if FOUND == False:
␣ print("Key found")
else:
␣ print("Key not found")
```

If a list is already stored in increasing order, a modified sequential search algorithm can be used that compares against each element in turn, stopping if a list element exceeds the target value. Write an algorithm for the modified sequential search.

Exercise 7-3   in class
                    Reverse List

Write an algorithm that reverses the order of the elements and outputs the new list. **Example:**

```
Input:  [1,3,4,6,8,9]
Output: [9,8,6,4,3,1]
```

Exercise 7-4

Ordered

Given a list of integers, write an algorithm that checks whether a list is ordered in ascending order or not.

For example for the list consisting of

```
5 4 12 16 1
```

The algorithm should display

The list is not sorted

For the list

```
5 10 12 16
```

The algorithm should display

The list is sorted

Note: For the case where the list is not sorted, your algorithm should stop right away. For the example above, your algorithm should stop after comparing the 5 with the 4.