

# Analysis of Algorithms: Assignment 2

Due date: January 18 (Thursday)

## Problem 1

Suppose that  $A[1..n]$  is an integer array, and some integers occur several times in this array. For example, if  $A$  is  $\langle 4, 1, 4, 6, 1, 4, 7, 8 \rangle$ , then 1 occurs two times and 4 occurs three times.

Write an algorithm for counting integers that occur several times; note that each of these integers must be counted only once. For instance, if the input array is  $\langle 4, 1, 4, 6, 1, 4, 7, 8 \rangle$ , then your algorithm should return 2, since there are two integers (1 and 4) that occur several times. As another example, if the array is  $\langle 1, 1, 3, 4, 3, 6, 4, 4 \rangle$ , the algorithm should return 3.

## Problem 2

Estimate the worst-case running time of your algorithm, using the method described in class.