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**Introduction to Data Structures and Algorithms**

# Exercise sheet 12

## Exercise 35:

In the Hire-Assistant algorithm (H-A), the number of times we hire a new office assistant differs for different inputs, and it depends on the ranks of the various candidates.

Assume the applicants come in random order.

We can compare any two candidates an decide which one is 'better' by ranking with a unique number from *1* to *n*: *rank(i)* to mark the rank of applicant *i* with convention: a higher rank means a better qualified applicant. So we get an ordered list [*rank(1), rank(2), …, rank(n)*] as permutation of the list (1, 2, …, n).

For example be given the permutation results (rank lists)

$A_1 = \langle 1,2,3,4,5,6,7,8,9,10 \rangle$, $A_2 = \langle 10,9,8,7,6,5,4,3,2,1 \rangle$ and $A_3 = \langle 5,2,1,8,4,7,10,9,3,6 \rangle$.

Execute the H-A with input $A_1$, $A_2$ and $A_3$.

How often are lines 5-6 of H-A executed, respectively ?