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Advanced Algorithms
WS 2019/20
Homework 6
13.11.2019

Exercise 1:

Show that each suffix pointer is used by the agent at most once.

Exercise 2:

Develop an algorithm which obtains a suffix tree for x as input and constructs a position tree for x in linear time.

Exercise 3:

Develop algorithms for the four operations which should be supported by the index of a text string x. Show that the suffix tree for a text string x can be prepared in linear time such that the number of occurrences of any string $y \in \Sigma^+$ in x can be determined in $O(|y|)$ time.

Exercise 4:

a) Work out the algorithm for the solution of the longest common substring problem.

b) Generalize the algorithm such that a longest common substring of k strings $x_1, x_2, \ldots, x_k$ can be computed in $O(kn)$ time where $n := |x_1| + |x_2| + \ldots + |x_k|$.