



INF2220: algorithms and data structures

Series 10

Topic Text algorithms

Issued: 26. 10. 2017

Exercise 1 Use a *brute force* algorithm to search for the string pattern (“needle”) BAOBAB in the text

BESS_KNEW_ABOUT_BAO_AND_BAOBABS

Exercise 2 (Bad character shift) Use *bad character shift* to search for the pattern

1. BAOBAB in the text BESS_KNEW_ABOUT_BAOBABS.
2. TCCTATTCTT in the text TTATAGATCTCGTATTCTTTTATAGATCTCCTATTCTT.

Exercise 3 (Good suffix shift)

1. Construct the *good suffix table* for the pattern TCCTATTCTT.
2. Use *good suffix shift* to search for the above pattern in the text

TTATAGATCTCGTATTCTTTTATAGATCTCCTATTCTT.

Exercise 4 (Bad character shift & brute force) Is it possible that using *bad character shift* makes more character comparisons than the *brute force* algorithm would make in searching for the same pattern in the same text?

Exercise 5 (Multiple match) Suppose that one or more matches of a pattern exist in a piece of text. By using *bad character shift*, after one match of the pattern is found, how large should a shift be made to search for a next possible match?

Lab

Exercise 6 Design a *brute force* substring search algorithm that scans the pattern from *right to left*.