King Saud University
College of Computer and Information Sciences
Department of Computer Science

Design and Analysis of Algorithms (CSC311) – Spring 2017
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Tutorial 4 (Brute force algorithms)
Thu. Mar. 16th, 2017

1. Consider the problem of counting, in a given text, the number of substrings that start with an A and end with a B. (For example, there are four such substrings in CABAAXBYA.)

   Design a brute-force algorithm for this problem and determine its efficiency class.

2. The closest-pair problem can be posed in k-dimensional space in which the Euclidean distance between two points $P' = (x'_1, x'_2, ..., x'_k)$ and $P'' = (x''_1, x''_2, ..., x''_k)$ is defined as $d(P', P'') = \sqrt{\sum_{s=1}^{k}(x'_s - x''_s)^2}$.
   (a) Modify the brute algorithm for the 2-dimensional closest-pair problem to handle the general case of k-dimensional space.
   (b) What is the time-efficiency class of the brute-force algorithm for the k-dimensional closest-pair problem?