CSE 222 (ADA) Homework Assignment 1 (Theory)

Deadline : Feb 5 (Friday) 10am.

The theory assignment has to be done in a team of at most two members, as already selected by you. The solutions are to be typed either as a word document or latex-ed and uploaded as pdf on GC. We shall strictly not accept solutions written in any other form. Remember that both team members need to upload the HW solution on GC. Collaboration across teams or seeking help from any sources other than the lectures, notes and texts mentioned on the homepage will be considered an act of plagiarism

The problems below are from the text by Jeff Erickson. You can find an online copy here. The number of $\star$ indicates the relative hardness of the problems (as per our opinion).

Problem 1. Solve Question 31 from the above text. *7 points for part (a) and 3 points for (b)*

Problem 2*. Solve Question 12 parts (a), (d) and (e) from the above text. *5 points for part (a), 3 points for (d) and 2 points for (e)*

Problem 3**. Solve Question 14 parts (b) and (c) from the above text. *7 points for part (b) and 3 points for (c)*

For all the questions (unless mentioned otherwise), you need to show the following.

Algorithm. This can be in the form of pseudocode or clear and brief precise description in English or a particular syntax.

Runtime. Formally argue the best possible asymptotic runtime.

Correctness. You should give precise arguments for why your algorithm works. Ideally you should use proof techniques like induction, contradiction etc.