

Homework Assignment 8

CS 535 Design and Analysis of Algorithms
Fall Semester, 2016

Due: Thursday, October 20, 2016

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| Remember the Honesty Pledge! |
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- Prove the claim in the footnote on page 725: If the capacities are rational, the Ford-Fulkerson algorithm does not fail. Give an example in which it does fail (clearly you will need to have irrational capacities).
 - Give an example in which it fails *and does not converge to the maximum flow*.
- Problem 26.2-10 on page 731. The hint given means that you are to prove the *existence* of the sequence of augmentations, not that they could be found before you have already found the max flow.
- Prove Lemma 26.19 (bottom of page 743) by induction on the number of push/relabel steps.
- PhD Qualifying Exam Section Problem 9.** Problem 26.3-3 on page 735.