

Handout #8: The Simplex Algorithm

Deadline: Monday 06/01/03.

1. Consider the following problems: (1) shortest path from s to t in an undirected graph, (2) maximum flow, (3) minimum cut, and (4) minimum cost flow. [You can also try minimum spanning tree.]
 - For each problem, write a linear program formulation of the problem. You may need to relax the problem (instead of a constraint $x_i \in \{0, 1\}$ allow $x_i \in [0, 1]$).
 - For each problem, pick a non-trivial instance, and write down the corresponding linear program.
 - Run the Simplex Algorithm on these examples. You may use your favorite demo to assist you. Make sure you follow closely at least the first 3 steps of the algorithm.
2. Answer Questions 3.1,3.2,3.3,3.6,3.7 from the book of Bertsimas & Tsitsiklis.