Title

Computer Science 604

The Assignment Problem

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The Assignment Problem

Given a bipartite graph that has a perfect matching, find the minimum (maximum) weight perfect matching.

This problem can also be solved in polynomial-time, but maximum flow doesn't help. (Minimum Cost Maximum Flow can help.)

Several Algorithms

There are several algorithms that we can use to solve the assignment problem.

The Hungarian Algorithm is probably the most well-known of these: Hungarian Algorithm Wiki. The running time of the Hungarian Algorithm is high ($O(n^4)$)

However, problem can be solved $O(n^2 \log n)$ steps using n applications of the shortest path algorithm described on Page 410-411 by Kleinberg and Tardos.

Other Resources

There is a good tutorial on this problem on TopCoder.