

Re: Problem on an nxn grid

Source: <http://sci.tech--archive.net/Archive/sci.math/2007-05/msg02907.html>

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 - *Date:* 17 May 2007 10:49:58 -0700
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Hah! This is actually for the "minimum-weight matching" problem, with all non-negative weights.

An idea to speed up solution of some "weight matching" problems where the weights vary considerably from each other.

There are n matches (edges) in the solution set.

1. Sort the weights.
2. Call the sum of the $n-1$ lowest weights w_{\min} .
3. Go through the weights from the lowest, selecting the first n that don't disobey the selection criteria.
4. Sum this selection and call it ts_{\max} .
- 4a. If $ts_{\max} = w_{\min} + \text{weight}(\text{low}_n)$, you're done. Lucky!
- 4b. Steps 3 and 4 might be repeated with variations (such as rejecting the first weight out of hand) and if the value is less than ts_{\max} , it becomes ts_{\max} .
5. Any weight greater than $ts_{\max} - w_{\min}$ cannot be part of the solution set.
6. Use your favourite algorithm on remaining weights.

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