

Re: Anyone interested in being paid to find a solution to a commercial problem?

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On 28 Feb 2006 02:33:03 -0800, [josh@xxxxxxxxxxxxx](mailto:josh@xxxxxxxxxxxxx) wrote:

We are software developers for the vacation rental business. We need to code an availability search (in Microsoft SQL Server) to find the cheapest combination of properties that will accommodate a given capacity. Testing all possible combinations is not an option as forty properties will yield roughly a trillion combinations. We have got to the point where we take each property in turn, starting with the cheapest in terms of cost per head, and then adding the next cheapest and so on, until greater than or equal to the required capacity is reached. If that capacity is reached EXACTLY, we then have a solution. So far so good. But if we have gone over the required capacity, there is a possibility that a different mix with a lower capacity will be cheaper, even if the cost per head of capacity is higher, as a result of the spare capacity in going over what is required rather than matching it exactly.

This sounds like fairly elementary binary linear programming. Of course, actual implementation could be difficult if the properties have complicated dependencies with each other (like "if you want X you need Y unless you get Z, in which case you can't get W"). If you can get all the constraints sorted out there are well-known algorithms for solving the problem.

We also need to be able to implement a solution WITHIN SQL Server as it is extremely complex and difficult to call external software (we have attempted unsuccessfully to do this with commercial linear programming solutions).

However, from experience I can tell you that writing it all in T-SQL is a non-trivial task. I think if you proceed in this way you'll face more technical difficulties with the SQL Server implementation than the actual optimization algorithms.

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