Into The Wild Blue Yonder: Researching Skyline Processing

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I. Target Research

I propose doing research on skyline processing, ie. either queries that request an extrema or establishing the extrema for a query. I plan to explore this problem and some of its history.

II. Why Skyline?

I don't think that skylines are too interesting in the context of answering queries that request an extrema. However, I think that this is super interesting in the context of an approximate answer, or using this as a pruning condition. In general, I think that approximate querying is pretty interesting. As we get more and more data, I like the tradeoff of completeness for speed.

III. Got Refs?

Yes I do. Four come from SIGMOD 2011. However, only two are strictly about skyline processing [7][1]. Another one is about a specific skyline computation product (from the industry track)[5]. One is actually about computing the k-skip shortest path [6], but I think that it may be related. I have another three that range from 2005 to 2010 which clearly shows the progression of this problem [3][4][2].

References

[1] Köhler, H., Yang, J., and Zhou, X. Efficient parallel skyline processing using hyperplane projections. In *Proceedings of the 2011 ACM SIGMOD International Conference on Management of data* (New York, NY, USA, 2011), SIGMOD '11, ACM, pp. 85–96.

[2] Lian, X., and Chen, L. Reverse skyline search in uncertain databases. *ACM Trans. Database Syst. 35*, 1 (Feb. 2008), 3:1–3:49.

[3] Papadias, D., Tao, Y., Fu, G., and Seeger, B. Progressive skyline computation in database systems. *ACM Trans. Database Syst. 30*, 1 (Mar. 2005), 41–82.

[4] Sharifzadeh, M., Shahabi, C., and Kazemi, L. Processing spatial skyline queries in both vector spaces and spatial network databases. *ACM Trans. Database Syst. 34*, 3 (Sept. 2009), 14:1–14:45.

[5] Stoyanovich, J., Lodha, M., Mee, W., and Ross, K. A. Skylinesearch: semantic ranking and result visualization for pubmed. In *Proceedings of the 2011 ACM SIGMOD International Conference on Management of data* (New York, NY, USA, 2011), SIGMOD '11, ACM, pp. 1247–1250.

[6] Tao, Y., Sheng, C., and Pei, J. On k-skip shortest paths. In *Proceedings of the 2011 ACM SIGMOD International Conference on Management of data* (New York, NY, USA, 2011), SIGMOD '11, ACM, pp. 421–432.

[7] Vlachou, A., Doulkeridis, C., and Polyzotis, N. Skyline query processing over joins. In *Proceedings of the 2011 ACM SIGMOD International Conference on Management of data* (New York, NY, USA, 2011), SIGMOD '11, ACM, pp. 73–84.