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Computing Continuous Skyline Queries without Discriminating between Static and Dynamic Attributes

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Abstract : Although most of the existing skyline queries algorithms focused basically on querying static points through static databases; with the expanding number of sensors, wireless communications and mobile applications, the demand for continuous skyline queries has increased. Unlike traditional skyline queries which only consider static attributes, continuous skyline queries include dynamic attributes, as well as the static ones. However, as skyline queries computation is based on checking the domination of skyline points over all dimensions, considering both the static and dynamic attributes without separation is required. In this paper, we present an efficient algorithm for computing continuous skyline queries without discriminating between static and dynamic attributes. Our algorithm in brief proceeds as follows: First, it excludes the points which will not be in the initial skyline result; this pruning phase reduces the required number of comparisons. Second, the association between the spatial positions of data points is examined; this phase gives an idea of where changes in the result might occur and consequently enables us to efficiently update the skyline result (continuous update) rather than computing the skyline from scratch. Finally, experimental evaluation is provided which demonstrates the accuracy, performance and efficiency of our algorithm over other existing approaches.

Keywords : continuous query processing, dynamic database, moving object, skyline queries
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