Personalization in Web Search and Data Management

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We address issues on web search personalization by exploiting users' search histories to train and combine multiple ranking models for result reranking. These methods aim at grouping users' clickthrough data (queries, results lists, clicked results), based either on content or on specific features that characterize the matching between queries and results and that capture implicit user search behaviors. After obtaining clusters of similar clickthrough data, we train multiple ranking functions (using Ranking SVM model), one for each cluster. Finally, when a new query is posed, we combine ranking functions that correspond to clusters similar to the query, in order to rerank/personalize its results.

We also present how to support personalization in data management systems by providing users with mechanisms for specifying their preferences. In the past, a number of methods have been proposed for ranking tuples according to user-specified preferences. These methods include for example top-k, skyline, top-k dominating queries etc. However, neither of these methods has attempted to push preference evaluation inside the core of a database management system (DBMS). Instead, all ranking algorithms or special indexes are offered on top of a DBMS, hence they are not able to exploit any optimization provided by the query optimizer. In this talk we present a framework for supporting user preference as a fist-class construct inside a DBMS, by extending relational algebra with preference operators and by appropriately modifying query plans based on these preferences.

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