Personalized Multi-Criteria Decision Strategies in Location-Based Decision Support

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Abstract
Location-based services (LBS) assist people in decision-making during the performance of tasks in space and time. Current LBS support spatial and attribute queries, such as finding the nearest Italian restaurant from the current location of the user, but they are limited in their capacity to evaluate decision alternatives and to consider individual decision-makers' user preferences. We suggest that LBS should provide personalized spatial decision support to their users. In a prototype implementation, we demonstrate how user preferences can be translated into parameters of a multi-criteria evaluation method. In particular, the Ordered Weighted Averaging (OWA) operator allows users to specify a personal decision strategy. A traveler scenario investigating the influence of different types of users and different decision strategies on the outcome of the analysis serves as a case study.

Keywords
Location-Based Services (LBS), Multi-Criteria Evaluation, Ordered Weighted Averaging (OWA), Personalization, Spatial Decision Support Systems (SDSS)