

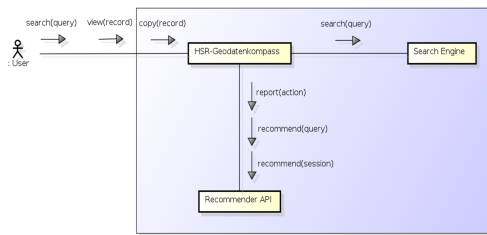


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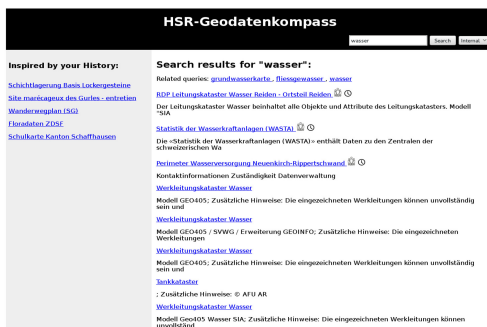
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Subject Area	Software and Systems

# Recommender System for Geometadata

## Improving Geodiscovery in the HSR-Geodatenkompass by using Recommender Systems



The communication diagram of the application, showing how the HSR-Geodatenkompass interacts with the recommender system.



A sample user interface of the HSR-Geodatenkompass, showing personal recommendations on the left and recommended search results in the result page.

**Problem:** The HSR-Geodatenkompass is a geometadata application which is used by students and employees of the HSR in order to retrieve geodata for their projects and tasks. Today's implementation consists of a simple full-text search engine. A major deficiency of this approach is that it does not adapt to the users' interests. Further, the searches that have been executed in the past by other users are not incorporated in the search process. However, in the case of the HSR-Geodatenkompass, these features would be of high interest, as users (groups) often have similar information needs. An utilisation of the application could be the study sessions of some modules in which students have to work with geodata records that were chosen by the instructor.

**Objective:** The above described utilisation of the HSR-Geodatenkompass creates the demand for recommender systems. These systems are able to predict users' interests in particular items by incorporating their past interests in other items. In the case of the HSR-Geodatenkompass, a recommender system is required that recognizes when a user is searching for geodata that was previously retrieved by other users. If this is true, it should be able to recommend the requested data to the user. Moreover, it is desirable that the system weights previous searches by their actuality. In this way, users are predominantly recommended geodata that has been retrieved more recently.

**Solution:** In this work, an own implementation of such a recommender system is presented. The system learns users' interests by recording their individual search queries against the HSR-Geodatenkompass and their accompanied selections of items from the search result page. The recommendations are generated by two different recommendation algorithms. The first one is an implementation of an item-based collaborative filtering approach. This algorithm recommends geodata records that have been often selected together with the records of the users' search histories. The second one is a case-based recommendation algorithm. This algorithm is capable of recommending search results to a particular query that was entered by a user. This is done by observing what users have selected in the past when they entered the same or a similar query.