Processing Regular Path Queries Using Views

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View-based query processing is the problem of processing queries over a database based on a set of materialized views, rather than on the raw data in the database. It is a fundamental problem in several settings, such as data warehousing, mobile computing, query optimization, and data integration. In the talk we discuss the different forms in which view-based query processing comes about. We start from the basic task of view-based query answering, which amounts to directly compute the answer to a query by exploiting, besides the query and the view definitions, also the data in the materialized views. A second form of view-based query processing is query rewriting, where we are given a query and a set of view definitions and the task is to reformulate the query in terms of the views. The rewritten query can then be directly evaluated over the materialized views. Finally, query containment and view-based query containment are the essential tasks for evaluating the quality of the obtained rewritings, by allowing one to compare queries and rewritings. We present and analyze basic techniques for the various forms of view-based query processing in the setting of semistructured data, which are an abstraction for data on the web and XML. In such a setting we need to resort to powerful query languages, namely regular path queries, that are equipped with flexible mechanisms for navigating the data.