A Novel Framework for User-Friendly Ontology-Mediated Access to Relational Databases

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Abstract : A large amount of data is typically stored in relational databases (DB). The latter can efficiently handle user queries which intend to elicit the appropriate information from data sources. However, direct access and use of this data requires the end users to have an adequate technical background, while they should also cope with the internal data structure and values presented. Consequently the information retrieval is a quite difficult process even for IT or DB experts, taking into account the limited contributions of relational databases from the conceptual point of view. Ontologies enable users to formally describe a domain of knowledge in terms of concepts and relations among them and hence they can be used for unambiguously specifying the information captured by the relational database. However, accessing information residing in a database using ontologies is feasible, provided that the users are keen on using semantic web technologies. For enabling users form different disciplines to retrieve the appropriate data, the design of a Graphical User Interface is necessary. In this work, we will present an interactive, ontology-based, semantically enable web tool that can be used for information retrieval purposes. The tool is totally based on the ontological representation of underlying database schema while it provides a user friendly environment through which the users can graphically form and execute their queries.

Keywords : ontologies, relational databases, SPARQL, web interface

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