Abstract

Personalized healthcare requires recombining heterogeneous publicly available data with a patient’s or group of patient’s profile. A well-known problem in state-of-the-art information management is the overwhelming amount of information available. Besides, state-of-the-art solutions do not take advantage of modern semantic processing to adequately transform data into knowledge. This issue is especially relevant in the health domain, as key processes depend dramatically on the access to high quality, complete, up-to-date, and relevant content (e.g. diagnostics, risk assessment, public health interventions, etc.). This proposal aims to provide novel information management and retrieval solutions in the domain of health sciences to address the situation discussed above. More specifically, we introduce semantic reasoning to retrieve the most relevant knowledge available according to the health profile of a given person. For this, we developed a semantic model to represent health profiles of people and to characterize existing sources of relevant information in order to crawl them to populate a semantic repository with content references and properties. We outline the tools needed to query the knowledge base using the semantic profiles of individuals to get the most relevant content. The proposed solution, discussed here as a proof-of-concept, aims to contribute to the realm of personal health and evidence-based medicine technologies. The tools developed could also be used to take advantage of existing knowledge to facilitate a systematic review of reports, studies and analysis that may be relevant to the health conditions of single patients or patient profiles.

Keywords

Medical informatics, Knowledge bases, Integrated advanced information, Management systems, Automatic data processing, Semantics.