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06.03.2019

Open Master Thesis

"Quality-Driven Querying of Web-APIs Using SPARQL"

In recent years the number of available application programming interfaces (APIs) on the Web has grown exponentially. APIs allow for retrieving and manipulating data on the Web in a programmatic fashion based on well-established standards and therefore, enable a plethora of applications on the Web leveraging this data. The available data covers a variety of domains ranging from weather data to transportation data.

Many applications integrate data available from these APIs in order to provide novel services or to gain new insights by analyzing the data. In either case, the added value of such applications greatly depends on the data quality provided by the APIs. SPARQL is the de-facto query language for data represented using the Resource Description Framework (RDF) and may be used to integrate data from several data sources. As a result, APIs which can be queried using SPARQL may be integrated in a standardized manner.

The goal of the thesis is investigating methods which enable quality-driven querying of Web-APIs using SPARQL. This includes studying the state-of-the-art solutions which enable querying APIs using SPARQL and means to generate quality-description for the APIs. Finally, an approach to leverage these quality descriptions should be devolved and evaluated.

Possible Tasks include:

- Investigation of state-of-the-art solutions to query APIs using SPARQL
- Investigation of data quality descriptions for APIs
- Development and implementation of an approach to leverage quality descriptions when querying data from APIs
- Evaluation of the proposed approach

Desired skills:

- Good communication skills in German or English
- Interest in (Semantic) Web Technologies
- Foundations in query languages (SQL, SPARQL, …)
- Proficient in programming with Python

Interested?

Please send an E-Mail with a short motivation, CV and the current grades to the contact address.

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