Managing and analysing hypergraph data – A survey and comparison

To support the researchers in analysing, browsing and visualizing certain aspects in the collected data using the hypergraph paradigm and algorithms developed not only restricted to the WossiDiA graph data, the master thesis should aim at presenting the state of the art in database systems and frameworks supporting hypergraph data. Additionally, systems using the property graph model [7] and providing different graph mining techniques [8, 9, 10] should be investigated if the can extended to handle hypergraph data. Requirements shall be derived from scenarios of the ISEBEL project, i.e. from the narrative cultural heritage and folkloristics [11].

The thesis should provide an intensive comparison of systems and frameworks for storing, managing, processing and analysing hypergraph data

Road map •

1 Presenting the state-of-the-art in directed hypergraphs [12, 13] •

2Develop a catalogue of criteria and requirements for comparison of graph databases and frameworks based on applications in the WossiDiA and ISEBEL projects

3• Selecting a set of database systems and frameworks beside Hydra.PowerGraph for the analysis and comparison

4• Analysis and comparison of the data models based on the hypergraph paradigm

5• Analysis and comparison of retrieval, querying, processing, and analysis functionalities

6• Offer a critique of the Hydra.PowerGraph system and presenting a redesign proposal

Prerequisites and technologies

Graph models and databases, programming language Java or Python

References

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5. Meyer, Holger, Alf-Christian Schering, and Andreas Heuer. The Hydra.PowerGraph System. Datenbank-Spektrum (2017): 1-17.

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