The Quest for Schemas in Graph Databases

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Abstract

Property graphs are a widespread data model for representing interconnected multi-labeled data enhanced with properties as key/value pairs. These highly expressive graphs are used in a wide range of domains, such as social and transportation networks, biological networks, finance, cybersecurity, logistics and planning, to name a few. Property graphs are the building blocks of future graph ecosystems, in which OLTP and OLAP processes are intertwined with complex advanced processes, such as learning, scientific computing and business intelligence. While property graphs are currently used in a variety of graph databases, a rather fragmented landscape emerges in terms of the supported query and schema languages. In particular, the coverage of schema and constraints is limited if not completely lacking in these systems. In this talk, I will present recent advances in terms of schemas and constraints for property graphs, as part of our work within the LDBC community groups. I will also focus on graph schema discovery and constraint satisfaction following these proposals for property graph schema and constraints. Finally, I will pinpoint future directions of research in this new exciting area of data management.

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