Exploratory Search on Graph Databases through Subgraph Query Feedback

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OBJECTIVES
1. To formally analyze the feedback (WIFSSQ and WNSSQ) and propose novel querying algorithms
2. To efficiently integrate the feedback as a generic module into a GUI for graph platforms
3. To formulate the optimal opportunities for delivering feedback
4. To conduct comprehensive performance and usability evaluations

HIGHLIGHTS
A prototype of exploratory search via query Autocompletion for subGraph query (AutoG)
- User draws a small part of their subgraph queries
- User requests feedback from AutoG
- Feedback is given to user in the form of query suggestions for completing their queries

Major steps in deriving helpful suggestions
- Decompose a query $q$ into a set of embeddings of subgraph features in $q$
- Generate candidate suggestions
- Rank the suggestions based on the users’ preference (e.g. selectivity-oriented and diversity-oriented), with an approximation bound to the optimal suggestions

Result discussions on simulations and usability test with real users
- Alleviate users from the potentially painstaking task of graph query formulation (e.g. saved at least 42% mouse clicks)
- The user test shows that TPM has a positive correlation with the users’ agreement to the statement “AutoG is useful”.

SELECTED PUBLICATIONS