
The query language for graph database containing billing information

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The article presents a brief overview of Cypher and Gremlin query languages for graph databases. The requirements to the query language for billing information storages take into account special features of the billing data processing tasks. The necessity of creating a specialized query language is justified. A query language, which combines both convenience and clarity of declarative paradigm with the simplicity of functionality extension, is designed and implemented. Basic syntax and semantics of the language constructions are provided. We show the results of the test execution time of individual queries, which also reflect the performance of graph storage used.

Keywords: NoSQL, graph databases, billing data analysis, query language.

REFERENCES

- [1] Bartenev M.V., Vishnyakov I.E. *Inzhenernyi zhurnal: nauka i innovatsii — Engineering Journal: Science and Innovations*, 2013, iss. 11. Available at: <http://engjournal.ru/catalog/it/hidden/1058.html>
- [2] Robinson I., Webber J., Eifrem E. *Graph Databases*. O'Reilly Media, 2013, 224 p.
- [3] Dominguez-Sal D., Urbon-Bayes P., Gimenez-Vano A., Gomez-Villamor S., Martinez-Bazan N., Larriba-Pey J.L. Survey of graph database performance on the HPC scalable graph analysis benchmark. *Proceedings of the 2010 Int. Conf. on Web-age Information Management (WAIM'10)*. Berlin, Heidelberg, Springer-Verlag, 2010, pp. 37–48.
- [4] Alexiyants A., Korshunov A., Kuznetsov S. *Otkrytye sistemy: SUBD — Open Systems Journal: Databases*, 2014, no. 2. Available at: <http://www.osp.ru/os/2014/02/13040051> (accessed on 23.05.2014).
- [5] Golovkov V., Portnov V., Chernov V. *Otkrytye sistemy: SUBD — Open Systems Journal: Databases*, 2012, no. 9. Available at: <http://www.osp.ru/os/2012/09/13032513> (accessed on 23.05.2014).
- [6] *Cypher Query Language*. Available at: <http://docs.neo4j.org/chunked/stable/cypher-query-lang.html> (accessed on 23.05.2014).
- [7] *Gremlin Query Language*. Available at: <https://github.com/tinkerpop/gremlin/wiki> (accessed on 23.05.2014).
- [8] *Titan*. Available at: <https://github.com/thinkaurelius/titan/wiki> (accessed on 23.05.2014).
- [9] *Blueprints interfaces*. Available at: <http://blueprints.tinkerpop.com> (accessed on 23.05.2014).

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