ABSTRACT

Database which was originally called the Integrated Data Storage has developed to meet the needs of complex data. But the relational database cannot always reliable because as time passes the user's application services relational database access speed slowed. As an alternative to these problems, the relational database was developed into a graph representation belong to a group NoSQL which called graph database.

Graph database was growing and need a method to make the query processing run more efficiently. Therefore indexing algorithm is needed.For large-scale data, indexing problem lies in filtering and verification is essential. Lindex was choosed to this research because based on sources are cited, index construction time Lindex was more faster than Gindex and have good filtering power than SwiftIndex. Graph data type for this research is molecule because molecule has a node label, no weight and undirect edges, compatible with sources are cited, and molecule has big database size suitable with the problem.

Theresearch have 4 datasets that have 3 different path lengths. After testing, the result was analyzed about index construction time, candidate set search time, and response time for every different path lengths.

Key words: graph, graph database, graph indexing, Lindex, filtering, verification, path length