Abstract

Graphs are the ubiquitous models for constructing both natural and human-made structures. Many practical problems can be represented by graphs. They can be used to model many applications such as physical, biological and social systems. With the emergence of these applications, developments of graph databases are very useful to store graph data. Due to the
existence of noise (e.g., duplicated graphs) in the graph database, we investigate the problem of storing the same graphs in the single graph database. Therefore, detecting and eliminating of automorphic graphs in a graph database become an important research area. In this paper, we propose a novel DAGC algorithm to identify and removal of automorphic graph storing into the graph database using AdE index structure. AdE index structure incorporates graph structural information of each graph in the database. The computational time complexity is significantly reduced compared to canonical labeling approach used in most graph matching algorithms and F-GAF algorithm. This paper demonstrates the effectiveness and efficiency of the proposed method through experiments on various types of graphs.

Reference


Index Terms

Computer Science

Algorithms
Key words

Graph Database            Graph Automorphism              Graph
Mining                    Canonical Adjacency Matrix

Chemical Compound