World Academy of Science, Engineering and Technology
International Journal of Information and Communication Engineering
Vol:8, No:05, 2014

# Applying Spanning Tree Graph Theory for Automatic Database Normalization

**Authors :** Chetneti Srisa-an

**Abstract :** In Knowledge and Data Engineering field, relational database is the best repository to store data in a real world. It has been using around the world more than eight decades. Normalization is the most important process for the analysis and design of relational databases. It aims at creating a set of relational tables with minimum data redundancy that preserve consistency and facilitate correct insertion, deletion, and modification. Normalization is a major task in the design of relational databases. Despite its importance, very few algorithms have been developed to be used in the design of commercial automatic normalization tools. It is also rare technique to do it automatically rather manually. Moreover, for a large and complex database as of now, it make even harder to do it manually. This paper presents a new complete automated relational database normalization method. It produces the directed graph and spanning tree, first. It then proceeds with generating the 2NF, 3NF and also BCNF normal forms. The benefit of this new algorithm is that it can cope with a large set of complex function dependencies.

**Keywords :** relational database, functional dependency, automatic normalization, primary key, spanning tree
**Conference Title :** ICCIT 2014 : International Conference on Communication and Information Technology
**Conference Location :** Tokyo, Japan
**Conference Dates :** May 29-30, 2014