

**RARE**

**A DATABASE MODEL  
TO  
AUTOMATE THE INFORMATION SYSTEMS DEVELOPMENT**



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FGS/06/02/03/2013/02

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**A thesis submitted to the Faculty of Graduate Studies, University of Kelaniya,  
In the fulfillment of the requirement for the degree of  
Master of Philosophy in Information Technology**

**March, 2017**

## ABSTRACT

This research proposes a mechanism to generate database, which is an essential component of any Information System (IS), automatically from the given set of business forms. This eliminates all the technical complexities of database design and development from end users. Further, it will enable developing ISs for Small and Medium Enterprises (SMEs) by themselves. Though there are software products available which can automate the IS development process, all of them request the technical details of database model which depends on the domain / application as an input. Relational database model is the most commonly used database model, but its design and development process is difficult for non-technical users.

Thus, this research proposes a new data model called Set Based Data Model (SBDM), which is a generic model for any domain, and it is free from intermediate technical steps. The theoretical foundation of this model is the relationship between fields/attributes of forms used in IS and the values/data of the business domain used in the business transactions. Hence, the data requirement of the model is already available in forms.

There are two types of data storages in this model: one to keep the business knowledge (data layer) and the other to keep the transaction details (reference layer). These data storages consist with tables and keys as in the relational database model. Separate tables are generated for each distinct field/attributes (excluding the derived fields/attributes) in all forms to maintain the data layer while separate tables are generated for each form with all attributes to maintain the reference layer. The tables in the data layer maintain a key value for each record while the tables in the reference layer refer the relevant key values at the data layer to maintain records of each transaction. Tables in these two layers can be implemented using existing relational database management systems.

*Key Words:* Information Systems, Database Model, Conceptual Model, Logical Model, Normalization, Set theory, Data Model