CHAPTER VII

Conclusion and direction for Future work

7.1. Key results of this work.

1. An expert system approach to database design is proposed in this work.
2. A top-down design methodology for Logical Database Design is developed, formalized as a set of rules, and implements as an expert system using prolog.
3. The most important feature of this work is that the expert system VMITS developed in this work covers all the stages of logical database design, Starting from interactively obtaining the information requirements from the users and producing a set of 5NF relations that represents the logical schema of the required database.
4. The methodology is based on the well established ER-data model, and is described in a step-by-step manner that facilitates the design of the expert system VMITS.
5. The view modeling system (which is the first part of the system VMITS) provides a very simple interactive environment to the end users and guides them properly to use it without going through the intricacies of the database terminologies to create the views.

6. It is shown in this work that views can be designed by interactively obtaining the information requirements directly from the end user of the database.
7. The second component of VMITS is the view integration system VIS, which can also be used to create a global databases for a distributed database system by integrating the databases participating in the distributed DBMS.
8. The most difficult task of the view integration is the conflict resolution step. In this work this step is well tackled by using a number of heuristics.
9. One of the major problem that is faced in the relational database design is how to obtain 5NF relations. In this work by using EER model it is shown that it is possible to obtain practically 5NF relations more easily then the methodologies used in relational model.
10. The logical based language Turbo Prolog is used in this work for a very large design work.

7.2. Future developments

The improvement of the present research work will focus on the following three areas :

(1) Knowledge Base.

(2) User Interface.

(3) Database Design.

Knowledge Base

The effectiveness of the system can be greatly enhanced by incorporating more heuristics and general knowledge into the systems knowledge base. The knowledge acquisition module can be added to the system to automatically modify its knowledge base and to allow the database design experts to add more knowledge to the system without the help of the knowledge engineers. The efficiency of the system can be improved by incorporating a learning facility in the system to learn new rules and heuristics from experience.

User Interface

The second improvement involves the developments of the Natural_Languages interface and graphical editing capabilities to allow the user to express their information requirements more naturally and to design the database visually.

Database Design

In the present system we have not incorporated the schema conversion procedure, i.e. to convert an EER model into a well-formed EER model. We intend to incorporate this procedure in our future system so that the system will produce better relational schema for the required database system. The

system needs extensive field testing for developing real world databases to identify design errors, rules and heuristics, and other aspects of database design to improve its efficiency and to make it a fool proof system.