CHAPTER 6

CONCLUSION AND FUTURE SCOPE

6.1 Conclusion

After a detailed study of the GEFRED model and the FQ software, we can define a set of rules, which when applied, achieve the transformation according to the fuzzy attributes types. In fact, the treatment in the DB and in the FMB depends on the FSQL command and the fuzzy attributes type.

In this thesis, a new idea for storing fuzzy and non-fuzzy information in traditional database is presented. It puts forward the adoption of a series of approaches for representing fuzzy information in databases and implementing this representation through the use of the available mechanisms in the traditional database.

With these approaches it has been pursued to satisfy the following general objectives.

1. To provide representation to an extensive range of fuzzy information for storage in database.

2. To center our approach on the mechanisms provided by the conventional database at the moment of deciding the way in which we can represent this information.

3. To select those approach which support the efficiency in the treatment of the fuzzy information in the framework of these systems.

To implement the fuzzy information the structure of data available in any database (domain, attributes, relations and catalogue of system) is used. The mechanism used to extend the capacity of representation of a conventional database is integrated perfectly in the system. It establishes an adequate implementation scheme and operations of fuzzy manipulation, obtaining satisfactory results and reaching a high grade of efficiency.
When users work with usual software tools they have to change their many valued logical thinking (approximate reasoning) into the two-valued computer logic. The SQL requires the crisp specification of a query criterion, while for users a query is best described in terms of a natural language with ambiguities and uncertainties. The gradation is imminent for many-valued logic and one sentence based on many-valued logic is as powerful as infinite number of sentences based on two-valued logic. With this approach the user is given a powerful and easy to use data mining tool which allows him to query data from databases by using linguistic expressions in order to improve the quality of selection process.

Expressions like high rate of unemployment or high migration level etc, are very often used in statistics. In many cases, users also want to obtain data that are very close to satisfy queries and to know the index of distance to full query satisfaction. The goal of this research is to capture these expressions and make them suitable for database queries.

The SQL is used in all major RDBMS and also in all major information systems. The SQL is optimized to work with RDBMS. A fuzzy query interpreter is developed to transform fuzzy queries to the classical ones. In this way, queries based on linguistic expressions on client side are supported and are accessing relational databases in the same way as with the classical SQL. No modification of databases has to be undertaken. Another advantage is that the user does not need to learn a new query language.

6.2 Future Scope
As a step towards future work, the automatic mapping of existing relational DB to FRDB can be done. This point is theoretically done but not implemented yet, so we think that it will contribute to make easier the use of the FRDB in real applications.
The fuzzy SQL is in this approach an independent module and it can be used when the user wants to use a linguistic expression in queries. The research done in this work can be continued in following directions:

- Implementation of the IBA in querying process is very interesting topic for further research. The IBA in data selection will cause that the whole querying process would be in the frame of the Boolean algebra.

- The web application with a fuzzy module for data dissemination is another way of improvement of this fuzzy query approach. For example, statistical institutions put vast amount of data onto their websites. Providing a selection criterion by linguistic expression gives natural way for data selection and sites with big amount of data and metadata would become more user friendly in processes of data selection.

Future research will focus on providing indexing mechanisms for fuzzy data in order to increment the performance of fuzzy query processing. Additionally, the optimization of fuzzy queries should also be addressed, as it could contribute to an additional increase of fuzzy query processing performance.