CHAPTER 7
CONCLUSION AND FUTURE WORK

Fuzzy XQuery is an extension of the XQuery language that allows users to write flexible conditions in XQueries. The thesis deals with the problem of giving more flexibility to XQuery by means of Fuzzy logic use. Fuzzy XQuery provides the output satisfying the intent of users rather than the strict algebraic rules of the XQuery. The thesis proves that Fuzzy XQuery overcomes data retrieval problems in Normal XQuery operations. Fuzzy XQueries are useful for decision making in E-Commerce business transactions. Fuzzy XQuery mimics human decision making in retrieving records from the XML database. The users can use linguistic terms such as very good, good, poor, very poor, very high, very low and medium in the Fuzzy XQuery operations.

Fuzzy XQuery mimics human decision-making in retrieving records from the XML Database. Fuzzy XQuery is useful for knowledge discovery in the very large XML document. Even a user having less knowledge in XML also can generate XQuery without any difficulties by using the proposed GUI tool. Moreover, the users are not necessary to memorize the syntax of XQuery. The research on the performance issue of Fuzzy XQueries and optimization of Fuzzy XQueries will be carried out in future.

The thesis proposes a general XML Schema definition for representing Fuzzy information in XML documents. A Fuzzy constraint-based framework is introduced to validate the XML document against the XML schema. The mechanism to represent Fuzzy data along with crisp data in XML Schema is defined in this thesis. The proposed approach is able to handle uncertainty in schema matching by exploiting Fuzzy constraints. Since the Domain Integrity constraint is an important control for XML based applications for implementing data consistency, the Domain Integrity constraints using Fuzzy Logic is only
focused in this thesis. Research on Entity Integrity Constraints and Referential Integrity Constraints for XML Databases will be carried out in future.

This research work implemented the two different distributions Triangular and Trapezoidal that can be made part of the Fuzzy active rules and automatic firing of timer rules. Fuzzy Triggers involving the Primitive events, Temporal Events and Composite Events into a XML database system is implemented in this thesis. The proposed Fuzzy trigger system was implemented using Java and Oracle Berkeley DB XML. The proposed application provides the user with the facility to input Rules, Temporal events and Composite Events. It also provides the Event handler interface that accepts the events for the XML database. Events can trigger one or more rules in the repository and corresponding condition action will be executed on the database based on their priority. The future work would include enhancements to user interface for the entire application. The user interface is a Console based interface. A user friendly web interface will be developed replacing the console application.

The data set used currently, restricts the error handling functionality. A much more refined version of data set will be introduced in future to cover a wide range of events and Fuzzy rules. Most of the exception handling in the current implementation is limited to query results and corresponding changes to the database. A better automated testing mechanism might catch a few more corner cases.