CHAPTER - IV

SUMMARY & CONCLUSIONS

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Fuzzy programming languages and fuzzy query processors are recent developments and rather important since they support expressive forms as used by humans. The fuzzy concepts 'young' and 'tall' are widely used in natural language. In the literature of fuzzy programming languages and fuzzy query processors they are frequently used[1,2]. While deciding the membership functions for the various fuzzy concepts, care should be taken that they reflect reality.

Here we have designed three membership functions for fuzzy concepts 'young', 'tall', & 'around_thirty'. While designing the membership functions additional attributes are considered to improve their degree of truth.

Normally while deciding the membership function for 'young', age is the only attribute taken into consideration. Similarly, while deciding the membership function for 'tall', height is the only attribute taken into consideration. Here we have considered additional attributes.

For fuzzy concept 'young', user age is an important attribute which affects the membership function value by about 10% to 40% for the persons of middle age group, thus making the fuzzy concept a 'user relative'. The other attributes like marital status, social status, habits, professional status, company he keeps, affect the membership

function value each by about 10%.

The fuzzy concept 'tall' is race dependent. A person tall in one race may not be tall in other race. Therefore, for each race a separate membership function for fuzzy concept tall is defined.

The hedges like 'very', 'more or less', 'not' can be attached to the fuzzy concept to get more membership functions for various fuzzy concepts like 'very young', 'old', 'very tall', 'short', 'very short', 'very old' .

These membership functions are simulated on computer by using 'C' programming language. Software developed, provides different options for the user. User can process the fuzzy query by selecting certain option. Efforts have been made to make the software user friendly, however its user friendliness can be improved further.

The query processing by menu returns the answer in the form of degree of truth which is a number between 0 & 1. The query by command option allows user to enter query in command format. This can be thought as a first step towards fuzzy compiler. The list option searches the data base and gives the list of records belonging to certain fuzzy concept. The data entry option allows the user to enter data into data file. A separate data file is maintained for each query, since the structure of each data file is different for each query.

With certain modifications software can be used as extension

for querying capabilities for any data base management system.

LIMITATIONS

1. The concept of membership function is itself a fuzzy concept, as soon as it has a good shape, it can be considered a satisfactory approximation. It is not always possible to give a very precise shape to membership function. The terms 'young' & 'tall' are very complex terms and they have subjective reference. By considering more attributes we go closer to the reality. There is no defined theory of how to assign values to different attributes of membership function. It may vary from person to person. Still more work is being done in this area so that membership functions can be expressed in a precise mathematical form.

2. The software developed requires data files in specific format. Presently no provision has been made to operate it on any general data base. So in order to use software to improve the querying capability of any data base system, certain modifications are necessary.

3. The on line help facility is not provided in software.

4. The software, after processing the query returns the degree of truth. For example, for the query -

Age(Young, Person, Anil)

the answer returned is of the form -

ANIL IS YOUNG WITH DEGREE OF TRUTH Ø.5

An effort may be made to interpret this degree of truth in linguistic form.

References :

[1]. James Bowen, FMUFL : A fuzzy multiparadigm language, Fuzzy sets and systems, 34, 263-291.

[2]. P.Bosc, M. Galibourge, Fuzzy querying with SQL , Fuzzy sets and systems, 28, 333-349.