9th International Conference on Theory and Application of Soft Computing, Computing with Words and Perception, ICSCCW 2017, 24-25 August 2017, Budapest, Hungary

Flight information system by using fuzzy expert inference

Elbrus Imanov[a],*, Orhan Ozkilic[b], Gunay Imanova[c]

[a] *Near East University Department of Computer Engineering North Cyprus via Mersin 10, Turkey.*
[b] *Near East University Department of Information Systems North Cyprus via Mersin 10, Turkey.*
[c] *Near East University Department of Business Administration North Cyprus via Mersin 10, Turkey.*

Abstract

In this paper we explain some concept of fuzzy expert systems and its applications in business process. Moreover this article is written to be dedicated to the put of Esplan system in practice to gain information about flights and system of ticket services. The review and the analysis of information and expert system are given. The recognition of features of a research of data domain is carried out, and their informative values, as well as the properties are analyzed. Knowledge base is realized in environment expert system sell Esplan. The example of application of fuzzy expert system on base of Esplan for using in decision making problem is given. The paper also aims to develop the knowledge of rules to process the information about the decision making process in flight services information system.

1. Introduction

Knowledge and data is the information base of intelligent systems. We regard knowledge as the Information, which describe the main regularities of problem area to allow the human to solve certain problems. The different facts, concepts, interrelations, estimations, rules, heuristics and decision making strategies are examples of knowledge, The information, saved in knowledge bases reflects human-specialist know-how of certain problem

* Corresponding author. Tel.: +090-392-2236622; fax: +090-392-2236464.
  E-mail address: elbrus.imanov@neu.edu.tr

area, current states of objects. L.A Zadeh (2009) suggested that there is no perfect information in real life that is presented in any parts of the decision making problem. There is almost never perfect or ideal information, such as for determination of states of nature, outcomes, and probabilities. Transition methods from description of one object to others related to intelligent system which includes, concepts of knowledge.

Esplan is the expert system shell used in this paper. This shell includes all properties that make it convenience and easy to run the expert system. Inference system is used with KB to give answers to questions. User interface that is able to process and run queries, also ask the users questions needed, and give the required explanations. The technologies enter to every phase of our daily life. Therefore, people needed to develop hardware and software for problem solving. Saving and using time efficiently are important in today's life. Therefore the automation is becomes a main part of our life. The considered software is used for the flight information system. The basic objective in this article is to supply the user with useful information system about the different Airline Companies which have different features, in North Cyprus.

2. Expert Systems

Expert Systems are a class of Artificial Intelligence. Fakhteddine O. et al.(2004) conceived that AI is a scientific establishment in which machines imitate the human beings with intelligence. The process of descriptive information and knowledge in symbolic manipulation is the base for conventional Artificial Intelligence. Poonam T. et al. (2011) proposed that for making the computer intelligent as human being think like human, it is needed to represent knowledge in a reasonable form (act like human). Fakhteddine O. et al. (2004) proposed that there is a particular interest in usage of AI techniques to control complicated processes as a result of constant developments in AI due to the progress in knowledge or practical expert systems.

The expert systems are able to perform various functions, namely, they can consult and advise, analyze and classify, learn and teach, make search, exchange information between systems and represent it in the required form, identify and interpret, diagnose and test. They also can control, design, explain, investigate, generate concepts, predict and schedule. ES normally the solve problems, which always require human expert's participation. There are a large number of expert systems which have attained such a "qualification" level that they ES may be considered as the real experts in their domains. Stuart Russell et al. (2003) conceived that a person who examine a particular environment (domain), study which ideas are worthy in there, and produce a formal presentation of the objects and relations in that domain is called a knowledge engineer. ES are created with participation of specialists who are able to explain their sequence of thoughts during concrete problem solving process. An important problem in research on ES is the attainment of functioning level similar to human expert who are able to solve separate problems in various situations. The specialist achieves high quality results in possibly minimal time. Poonam Tanwar et al. (2011) brought forward that the development of AI system is very important for the solution of the problems to develop a knowledge, efficient knowledge base, and inference engine human. ES consist of user Interface, inference subsystem, knowledge base, knowledge acquisition module, solutions display. In figure1 the structure of expert system is represented.
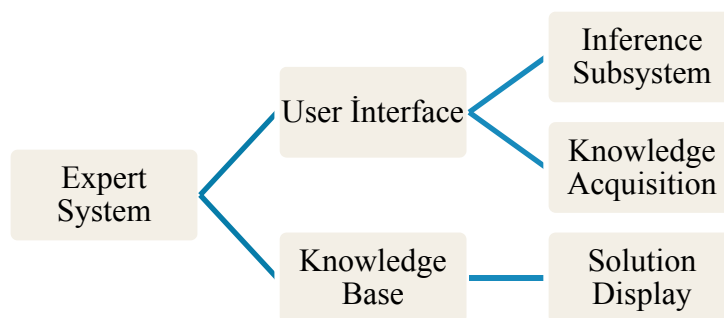

Fig. 1. Structure of Expert Systems