Wide Area of Expert Systems in Artificial Intelligence

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ABSTRACT
This paper analyzes the use of expert systems and artificial intelligence to real estate forecasting.One of the largest areas of applications of artificial intelligence is in expert systems (ESs), or knowledge based systems. The basic idea of this approach is designing a model for examining and measuring the studentcapabilities like intelligence, translating, mathematical concepts and others. This paper provides an overview of this technology, highlights the major characteristics of expert systems and application in the area of science.

Keyword: **Artificial Intelligence, Expert System**

INTRODUCTION
An expert system is a computer program that is designed to hold the compiled knowledge of one or more domain experts. An expert system is a system that employs human knowledge appropriated in a computer to solve problems that ordinarily require human expertise. A computer program that simulates the behaviour of human experts who are solving real-world problems connected with a particular domain of knowledge.

OPERATION OF THE SYSTEM
There are three modes to this:

- **Knowledge acquisition**
- **Consultation**
- **Explanation**

KNOWLEDGE ACQUISITION
The designer of the system must Intermediatewith People in order to gain Knowledge and these Peoplemust be Recognizedexperts in theappropriate area Of activity, for example Physicians, lawyers Orinvestment analysts. The knowledge Engineer acts as anIntermediary between thehuman expert and the expert system.

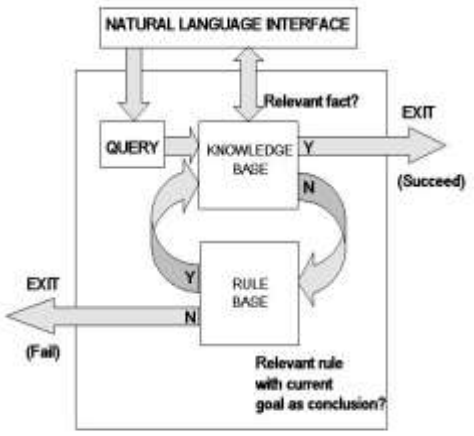
CONSULTATION
The system is in this mode when a user is interacting with it. Theuser interacts by acceding data in English and the system respondsusing a backward chaining (deductive reasoning) process to derivean answer to the questions posed by the user.

EXPLANATION
This mode allows the system to explain its decisions and itsreasoning process. This ability comes from the AND/OR treescreated during the deduction process.

Expert Systems Types
- Expert Systems Versus Knowledge-based Systems
- Rule-based Expert Systems
- Frame-based Systems
- Hybrid Systems

- Model-based Systems
- Ready-made (Off-the-Shelf) Systems
- Real-time Expert Systems

STRUCTURE



ES Development Life Cycles (ESDLC)ESDLC contains the following phases**:**

- Assessment
- Knowledge Acquisition
- Design
- Testing
- Documentation
- Maintenance

The Human Element in Expert Systems

- Builder and User
- Expert and Knowledge engineer.
- The Expert
  - Has the special knowledge, judgment, experience and methods to give advice and solve problems
  - Provides knowledge about task performance

Problem Areas Addressed by Expert Systems

- Interpretation systems
- Prediction systems
- Diagnostic systems
- Design systems
- Planning systems
- Monitoring systems
- Debugging systems
- Repair systems

- Instruction systems
- Control systems

Expert SystemsBenefits

- Improved Decision Quality
- Increased Output and Productivity
- Decreased Decision Making Time
- Increased Process(es) and Product Quality
- Capture Scarce Expertise
- Can Work with Incomplete or Uncertain Information
- Enhancement of Problem Solving and Decision Making
- Improved Decision Making Processes
- Knowledge Transfer to Remote Locations
- Enhancement of Other MIS

Applications of Expert Systems

Expert systems can be created almost for any domain for which there exists a human expert. Some of the expert systems which have been created are:

DENDRAL-It Identifies the molecular structure of unknown compounds.
MYCIN –Mycin Provides assistance to physicians in the diagnosis and treatment of meningitis and acterial infections.
PROSPECTOR – It used successfully to locate deposits of several minerals, including copper and uranium.
ALTREX – It helps diagnose engine troubles of certain models of Toyota cars. Used in a central servicedepartment which can be called up by those actually servicing the cars for assistance, if required.
PREDICTE – Given information about a high-rise building to be constructed, it provides estimates of thetime required to construct it.

Conclusion

The uses of AI and ES have been suggested for a wider range of usesis currently being research to any great extent. This behavior of expert system provides independent learning procedure for both student and teacher, where teachers act as mentor and students can judge their own performance. The fact is ensuring abilities and capabilities of the student accurately are complex process. A large number of expert systems
are in real use and quite a few even being sold for individual use.In the future one is likely to see more expert systems packaged withdomain knowledge being sold.

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