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| **Theory Assignment-2** |
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# Knowledge Acquisition and Elicitation

**Knowledge Acquisition:**

Knowledge acquisition is the process of extracting, organizing, and organizing information from a single source, usually human specialists, for usage in software like an ES. This is frequently the most difficult part of creating an ES.

All ES projects must take into account three primary issue areas that are crucial to knowledge acquisition. First, the domain must be assessed to see if the domain's type of knowledge is appropriate for an ES. Second, the source of expertise must be identified and assessed to ensure that the project's specific degree of knowledge is met. Third, if a person is the primary source of expertise, particular knowledge acquisition procedures and participants must be determined.

**Technique of Knowledge Acquisition:**

The interview is at the center of the procedure. The domain's heuristic model is often derived through a series of in-depth, systematic interviews conducted over several months. It's important to note that the expert and the knowledge engineer aren't the same individual. It's better if the expert and the knowledge engineer aren't the same person, because the more information an expert has, the less able they are to describe their logic. Experts also have a tendency to rationalize their expertise in order to describe their techniques, which can be misleading**.**

1. Watch the person solve real-life problems.

2. Identify the sorts of data, expertise, and processes needed to solve various types of problems through conversations.

3. Collaborate with the expert to create scenarios that can be linked to various problem kinds.

4. Have the expert speak solve a series of problems while you inquire about the reasoning behind each step.

5. Create rules based on the interviews and use them to solve challenges.

6. Review the guidelines and the basic problem-solving approach with the expert.

7. Compare outside experts' responses to a set of scenarios developed by the project's expert and the ES.

**Knowledge Elicitation :**

Assuming we've carefully analyzed our domain of interest and specified the expert system's bounds, the first and most important stage is knowledge collection.

The process of extracting information from an expert's head or from a chosen source and representing it in the form required by the expert system is known as knowledge acquisition.

As a result, we may distinguish two parts of this process: knowledge elicitation, in which the expert's knowledge is extracted, and knowledge representation, in which the expert's knowledge is encoded in the expert system.

The knowledge engineer is unlikely to be a specialist in the field.

As a result, the engineer's initial responsibility is to familiarize himself with the area by speaking with domain experts and reading important background material.

**Technique of Knowledge Elicitation:**

The interview can capture qualitative information, which is crucial for knowledge elicitation, and so serves as a major method for knowledge acquisition. There are several different sorts of interviews, each of which can be used to elicit different types of data.

# Meta Knowledge

Replanning uses preceding techniques to construct a plan, but it monitors the execution process and replan when necessary.

EXAMPLE:

SCENARIO: -> Given an initial state with a chair, a table, and some cans of paint, with everything of unknown color, achieve the state where the chair and table have the same color.

* LookAt (Table), LookAt (Chair)
* If Color (Table, c) ^ Color (Chair, c) then NoOp
* Else RemoveLid (Can1), LookAt (Can1)
* If Color (Table, c) ^ Color (Can1, c) then Paint (Chair, Can1)
* Else replan

Example: Vacuum World

Single-state, start in #5. Solution? [Right, Suck]

Multi-state, start in #[1, 2, …, 8]. Solution? [Right, Suck, Left, Suck]

