Name - Alok Bhawankar
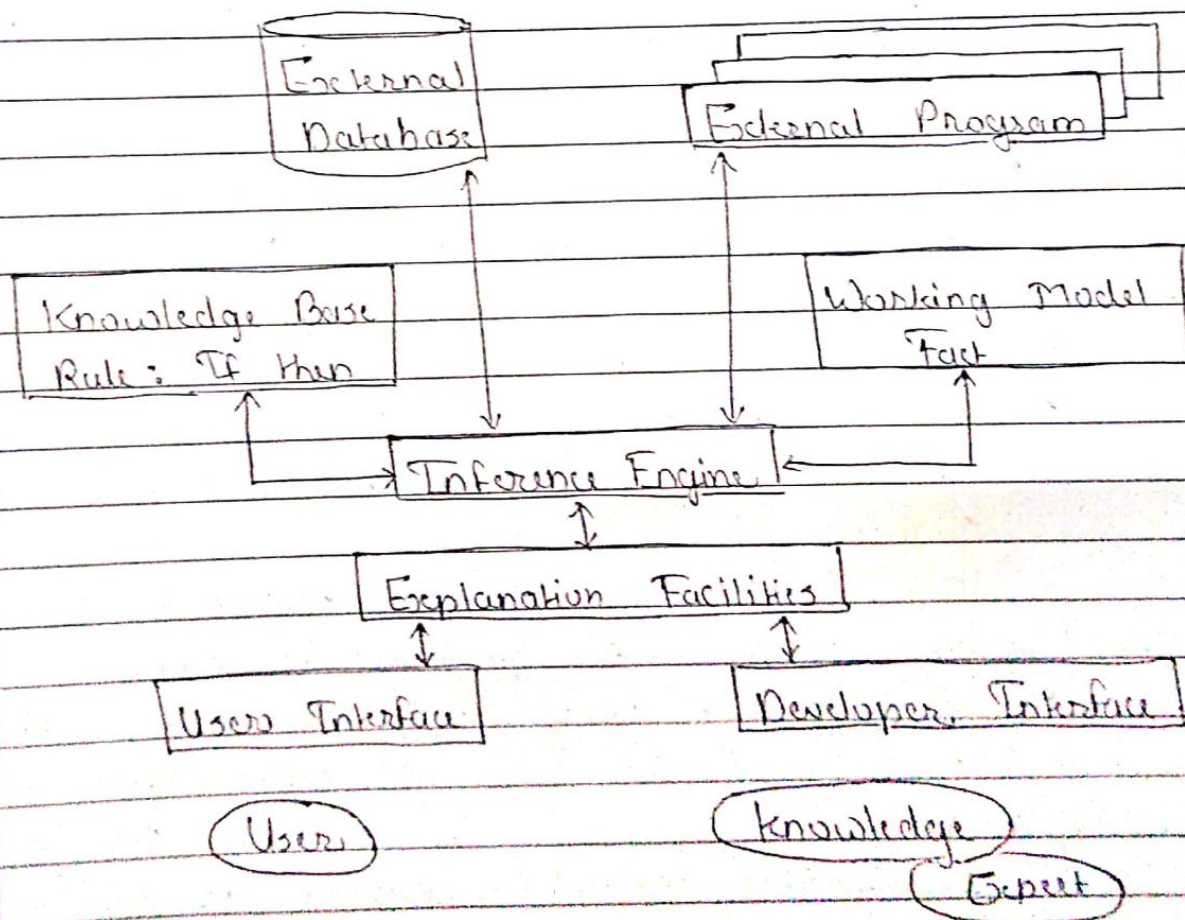Roll no. - PA06
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ASSIGNMENT 5

Aim : Implementation of Expert System

Requirement : Swl Prolog

Objective : To study the concept of Expert system and Inference engine.

Theory :

1] ARCHITECTURE OF EXPERT SYSTEM

[2] MAIN PLAYERS IN EXPERT SYSTEM

Five members of expert system

1] Domain Expert

- Domain expert is a knowledgeable and skilled person capable of striving problems in specific area or domain.

- This experts must be able to communicate his/her knowledge, be willing to participate in expert system development and commit a substantial amount of time into the project.

- Domain expert is most important player in expert system development team.

2] Knowledge Engineer

- Knowledge Engineer in someone who is capable of designing, building and testing on expert system.
- He/She interviews domain expert to find out how a particular problem is solved
- It established what reasoning method the expert uses to handle facts and rules and decides how to represent them in expert system.
- And finally, knowledge engineer is responsible for testing resising and integrating Expert System into workplace.

3] Programmer,

- Programmer is the person responsible for actual programming, describing domain knowledge in that computer can understand.
- Programmer needs to have skills in symbolic programming in such AI language as Prolog, LISP and also some experience in application of different types of expert system shells.

4] Project Manager

- Project Manager is the leader of Expert system development team responsible for keeping the project on track.
- He/she makes severe that all deliverables and milestones are met, interacts with expert, knowledge engineer, programmers and end user.

5] End User,

- User in the person who uses expert system whom it in developed.
- The user must not only be confident in expert system performance but also feel comfortable using it.
- Therefore, the design of user interface of expert system in also vital for project's success.

Input : Run program on swl Prolog

Output : Give decision based on rules provided
in program

Platform : Linux / Windows

PAQ

Q1] Write in brief forward chaining and Backward
chaining of Inference engine.

Ans Inference engine

1] Forward chaining
- Forward chaining mode of operation means that
a rule is triggered when changes in the working
memory produce a situation that matches all of its
antecedents.
- It is the pattern of inferring then patterns from
if - pattern, that in consequents from antecedents
- When an antecedent matches an assertion the
antecedent is satisfied.
- When all antecedents of a rule are satisfied the
rule is triggered. In deduction systems all triggered
rules are allowed and may fire.

2] Backward chaining

- The Backward chaining mode of operation means that the systems beings with goal and successively examines any rules are considered one at a time.

- The unmet conditions are in turn reintroduced as new goals. The control procedure then shifts attention recuesively towards new goal.

* It is goal Driven → starts with something to find out and looks for rules that will help in answering.

Q3] List down application of Expert System.

Ans. Application of Expert System
1] Diagnosis and Troubleshooting of devices

- Medical diagnosis was one of the first knowledge area to which ES technology was applied, but diagnosis of engineered systems quickly surpassed medical diagnosis.

2] Planning and Scheduling
- ES can also be used for planning and scheduling some particular take for achieving goals of the task.

3) Design and manufacturing

- These systems asist in design and manufacturing of physical devices, such as camera lenses, automobiles and process, ranging from high speed conceptual design of abstract entries all the way to factory floor configuration of manufacturing processes.

4) Finance Domain

- In financ inductruions, it is used to detect any type of possible fraud, susptcian activity and admise bankers that if they should provide loans for bussiness.

5. Knowledge Domain

- These systems are pumarily used for publishing relenant knowledge to the users. The two popular ES used for thin domain in admisar and Tax advisor

- Advisor counsils a user an appropriate grammatical usage in a tead and Tax Advisar accompanies a tax preparation program & advisers users can tax strategy, Tactics and individual tax policy.