Experiment No.7
Implement knowledge base in Prolog.
Date of Performance:
Date of Submission:

Aim: Implement knowledge base in Prolog.

Objective: To study and use AI programming language to create knowledge base.

Theory:

Prolog is a logic programming language. It has important role in artificial intelligence. Unlike many other programming languages, Prolog is intended primarily as a declarative programming language. In prolog, logic is expressed as relations (called as Facts and Rules). Core heart of prolog lies at the logic being applied. Formulation or Computation is carried out by running a query over these relations.

In prolog, We declare some facts. These facts constitute the Knowledge Base of the system. We can query against the Knowledge Base. We get output as affirmative if our query is already in the knowledge Base or it is implied by Knowledge Base, otherwise we get output as negative. So, Knowledge Base can be considered similar to database, against which we can query. Prolog facts are expressed in definite pattern. Facts contain entities and their relation. Entities are written within the parenthesis separated by comma (,). Their relation is expressed at the start and outside the parenthesis. Every fact/rule ends with a dot (.)

Take any problem and represent the knowledge (facts) in prolog. Also you can use this for reasoning purpose.

SWI-Prolog offers a comprehensive free Prolog environment. Since its start in 1987, SWI-Prolog development has been driven by the needs of real world applications. SWI-Prolog is widely used

in research and education as well as commercial applications.

SWI-
Prolog, **a free implementation of the programming language Prolog**. Susce
ptibility
weighted imaging, in magnetic resonance imaging (MRI) used in medical conte
xts.

, of which
(programming in logic) is the best known, state a program as a set of logical
relations (e.g., a grandparent is the parent of a parent of
someone). Such languages are similar to the
database language. A program is executed by
an "inference engine" that answers a query by searching these relations systemat
ically to make
that will answer a query. PROLOG has been used extensively in natural language
processing and other   programs.

CSL502: Artificial Intelligence
Lab

Example: The problem of murder mystery.

Five persons Alice, her husband, brother, son and daughter

Event: One murder. One of the five is victim and one is Killer.

Rules:

1) Husband and Alice was not together on the night of murde

r. 2) The killer and victim were on the beach.

3) On the night of murder, one male and one female was in t

he bar.

4) The victim was twin and the counterpart was innocent.

5) The killer was younger than the victim.

6) One child was alone at home.

Code for Prolog problem of murder mystery in Artificial Intelligence: predicates

```
%   pair(symbol,symbol)
    iskiller(symbol,symbol)
    male(symbol)
    female(symbol)
    isvictim(symbol)
    not_at_bar(symbol,symb
    ol)
    not_at_beach(symbol,sy
    mbo l)
    not_alone(symbol)
    twin(symbol,symbol)
    younger(symbol,symbol)
    child(symbol)
```

clauses

```
    male(husban
    d)  .
    male(brother
    ). male(son).
    female(alice).

    female(daughter
    ).
    twin(brother,alic
    e).
    twin(son,daught
    er).
```

Conclusion:

Comment on Programs you have implemented using prolog language for knowledge declaration.