

Name :- Aishwarya Y. charan

Roll no :- 11

Class :- BE / IT

Subject :- AI

DOP

Doc

Marks

Sign.

Q.1] How does the queries in kb.pl file are executed?
 → code :

loves (vincent, mia)

loves (marcellus, mia)

loves (Pumpkin, honey-bunny)

loves (honey-bunny, Pumpkin)

Jealous (x,y)

loves (x,z),

loves (y,z)

Query 1 : ? - loves (x, mia)

Output : x = vincent

x = marcellus

Explanation : Here as we know vincent loves mia as well as marcellus loves mia. Thus the kb assumes that x is either vincent or marcellus

Query 2 : ? - jealous (x,y)

Output : x = y, y = vincent

x = vincent

y = Marcellus

x = Marcellus

x = Y, Y = Marcellus

x = Y, Y = Pumpkin

x = Y, Y = Honey-bunny

Explanation :

As there is no fixed parameters in our query.

The query will produce output of query jealous (x,y) pair on our prolog code. The jealous (\cdot)' rule follows.

jealous (x,y) :- loves (x,z), loves (y,z)

initially, x and y both were associated to vincent, i.e., self-association. It then follows reflexive property for the rest of the prolog code.

Q2] How does the queries in lists.pl file are executed?

→ Code : suffix (X_S, Y_S):-
append ($- , Y_S, X_S$)

Prefix (X_S, Y_S):-
append ($Y_S, -, X_S$).

Sublist (X_S, Y_S):-
suffix (X_S, Z_S),
prefix (Z_S, Y_S).

nrev ([], []).
nrev ([H | T₀], L) :-
nrev (T₀ | T),
append (T, [H], L)

Query 1: ?- sublist ([a,b,c,d,e] , [c,d]).

Output : True

Explanation : A sublist procedure looks for a match bet'n the first element of the sublist and the main-list. Here [c,d] is the sub-list of the main list [a,b,c,d,e]. As the main list contains the sublist [c,d], the output is true. Else, the output would have been false.

Query 2 : ?- Suffix ([a,b,c], Zs)

Output : Zs = [a,b,c]

Zs = [b,c]

Zs = [c]

Zs = []

false

Explanation : suffix in general eliminates the front elements from a list. Here, by using suffix procedure, [a,b,c] element are removed from a and continues until all the elements are removed. As there are no more elements in the list, the output will be displayed as ('false').

Q3] Programming create a Prolog code to find Factorial of a number?

→ Code : Factorial (0,1),
Factorial (N,F) :-

N > 0,

N1 is N-1,

Factorial (N1,F1),

N is N * F1.

Query : ? - Factorial (3, w).

Output : w = 6

q.4] In example data set movies. pl write query strings and results of query execution for any of 5 tasks:

a) In which year was the movie American Beauty released?

Query : ? - movie (american-beauty, y).

Output : y = 1999

b) Find the movies released in year 2000

Query : ? movie (m, 2000)

Output : m = down - from - the - mountain

m = o - brother - where - art - thou

m = ghost - world

c) Find movies released before 2000

Query : ? - movie (m, y), y < 2000

Output : m = american-beauty

y = 1999

m = anna

x = 1987

m = barton-fink

y = 1991

d) ~~d)~~ Find the movies released after 1990

Query : ? - movie (m,y), y > 1990

Output :- m = american-beauty

y = 1999

m = barton-fink

y = 1991

e) Find a director of a movie in which scarlett Johansson appeared.

Query : ? - actress (m, scarlett-johansson) -,
director (m, o)

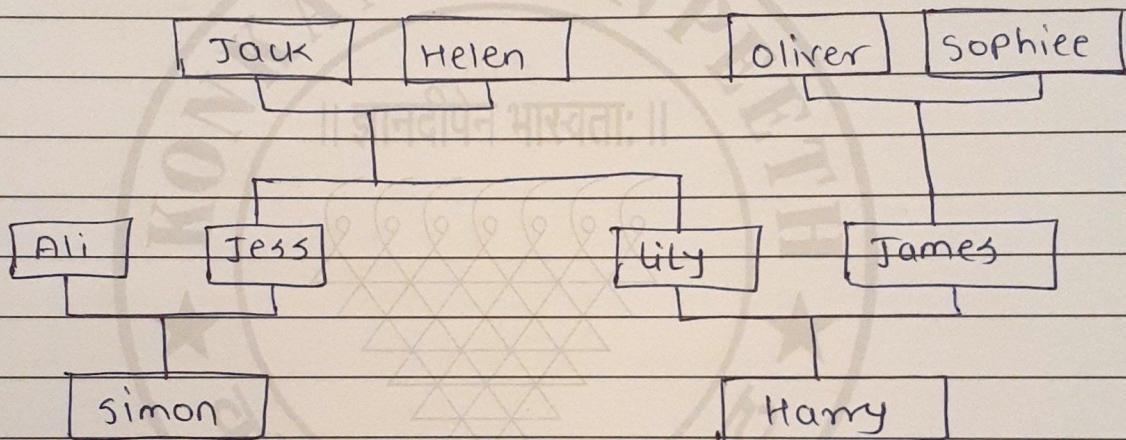
Output : o = peter-webber,

m = girl-with-a-pearl-earring

Q7) Draw a family tree of your any arbitrary family which has the following relation mother, father, daughter, son, grandson, grandmother, sibling, uncle, person, male, female, you need to convert it into KB and write atleast 6 queries and query result on your KB.



Diagram :



* Family Tree *

Query 1 : ?-mother-of (x, jess)

Output : x = helen

Query 2 : ? parent_of (x, simon).

Output : x = jess

Query 3 : ?-sister_of (x, lily).

Output : x = jess

Query 4 : ?- parent - of (x, harry)

Output : x = lily

x = James

Query 5 : ?- aunt - of (x, simon)

Output : x = lily

Query 6 : ?- grandfather - of (x, harry).

Output : •

x = Jack.