

Name : Ruchi R. Shaikh

Class : BE - IT

Roll no : 59

Subject : TS Lab

DOP	DOA	Remark	Sign
	x x x x x		
	X X X X X		
	X X X X X		
	X X X X X		

Prolog Programming Assignment .

1. How does the query in kb.pl file are executed ?

Code : :- knowledge bases

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)

O/p : X = vincent

X = marcellus

Explanation : True 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)

O/P : X = Y, Y = vincent

X = vincent

Y = marcellus

$X = \text{marcellus}$

$Y = \text{vincent}$

$X = Y, Y = \text{marcellus}$

$X = Y, Y = \text{pumpkin}$

$X = Y, Y = \text{honey-bunny}$

Explain : Since there is \neq no proper relation mentioned b/w the clauses, the predicate can also be derived as vincent is jealous of marcellus as well as by itself, and vice versa for marcellus. Thus the kb. assumes that X can either be vincent, marcellus or the person itself.

Q. 2. How does the queries in list.pl file are executed?

Code :-
 $\text{suffix}(Xs, Ys) :-$
 $\text{append}(-, Ys, Xs)$

$\text{prefix}(Xs, Ys) :-$
 $\text{append}(Ys, -, Xs)$.

$\text{substr}(Xs, Ys) :-$
 $\text{suffix}(Xs, Zs),$
 $\text{prefix}(Zs, Ys)$.

$\text{prev}([T], [])$.

$\text{prev}([H|T0], L) :-$

$\text{prev}(T0, T),$

append (T, [H], T)

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

O/p : True

False

Expln : Here it check if the variable are the part of the list . If yes it provides with the value true . Thus we can say that Ys is the sublist of Xs .

|| जास्तीपैन मार्गता ||

Query : numlist (1, 1000, -L), time(new (-L, -)).

O/p : True (0.064 (PV) in 0.064 sec)

Expln : Here the query is divided into two parts i.e numlist (1, 1000, -L) & time (new (-L, -)).

In this we can create a list of no from 1 to 1000 , store it in variable L and then we can the list and reverse it . The query includes '-' i.e 'dont care' for the result but we ^{need} time the result i.e how much time is required for processing the query . Thus the time obtained is 0.064 sec ie the time req to run the query .

Q. 3. programming create a prolog code to find Factorial of a no.

Code : factorial (0, 1) .

factorial (N, F) : -

$N > 0$,

N_1 is $N-1$,

factorial (N_1, F_1),

F is $N * F_1$

Query : ? - factorial (3, w)
O/p : $w = 6$

Q. 4. In eg. data get movies.pl write query string
and results of query exec? for any 5 tasks.

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

Query : movie (american-beauty, Y).

O/p : movie (american-beauty 1999).

b. Find the movies released in the year 2000.

Query : movie (M, 2000)

O/p : M = down-from-the-mountain

M = o-brother-where-art-thou

M = ghost-world

c. Find an actor who has also directed a movie.

→ Query : actor (-A, -), director (-, A) .

O/p : A = joseph - d - leucan
 A = g - rand - depardieu

b. Find an actor or actress who has also directed a movie

Query : (actor (-, A, -); actor(-A, -)), director(-, A)

O/p : A = joseph - d - leucan
 A = g - rand - depardieu
 A = joel - coen

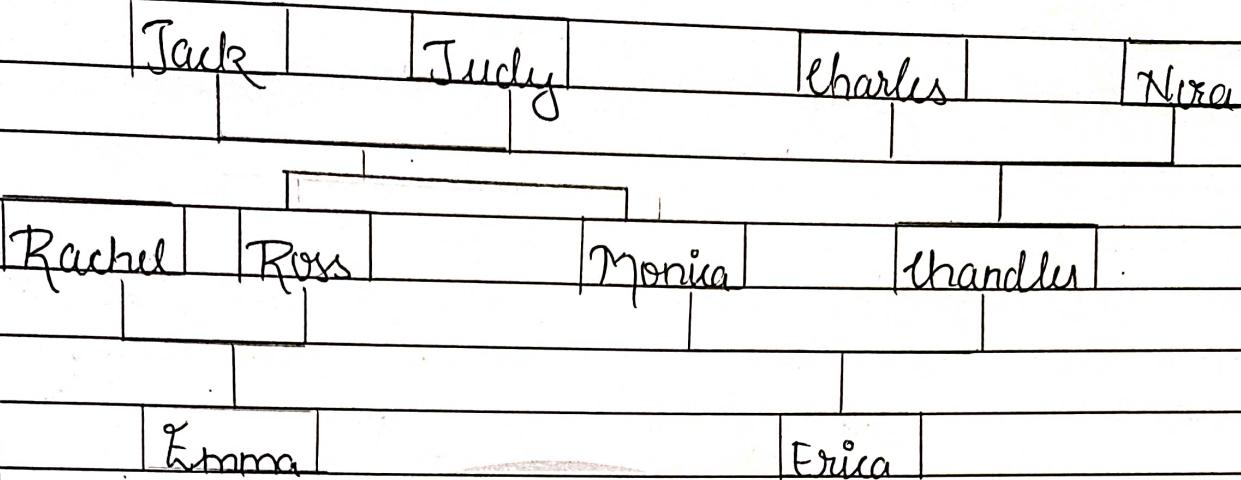
i. Find the movie in which John Goodman & Jeff were co-stars

Query : actor(M, john - goodman, -) \rightarrow actor(M, jeff - bridges, -).

O/p : M = the - big - lebowski.

Q. 5. Draw a family tree of you/any arbitrary family. Which has following relat? mother, father, daughter, son, grandson, grandmother, sibling, uncle, cousin, male, female. You need to convert it into kb and write atleast 6 queries.

The family tree are as follows :



1. Query : mother - of (X, Ross)

O/p : X = Judy

2. Query : parent - of (X, Emma)

O/p : X = ~~Rachel~~ Rachel

X = Ross

3. Query : sister - of (X, Monica)

O/p : X = Ross

4. Query : parent - of (X, Erica)

O/p : X = Monica

X = Chandler

5. Query : aunt - of (X, Emma)

O/p : X = Monica

6. Query : grandfather - of (X, Erica)

O/p : X = Charles