Prolog Programming Assignment.

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Prolog Programming Assignment

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)

jealovs (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 Macellous loves Mia. Thus the kb assumes that x is enter vincent or Marcellus.

Query 2: ?- jealous (x, y)
Output x = y, x = 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 every jealous (x, y) Pair on our prolog code, The jealous () rule follows jealous(x, y) :- loves(x, z) loves(y, z) initially, x and y both were ossociated to uncent, i.e, self association. If then Follows reflexive Property for the rest of the prolog code.

2] How does the queries in lists.Pl file are excuted?

→

Code :

```
suffix (xs, ys) :-
 append (-, ys, xs).

prefix (xs, ys) :-
 append (ys, -, xs).

Sublist (xs, ys) :-
  suffix (xs, zs)
  prefix (zs, ys).

nrev ([], []).
nrev [H] TO
nrev ([H | TO], L) :-
 nrev (TO, 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 between the first elements 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 the true. Else, the output would b 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] elements are removed from a and continoues until all the elements are removed. As there are no more elements in the list, the output will be displayed as false.

Q.3. 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 examples 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 Camerican-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 ~~Means~~ 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] Find the movies relased after 1990

query : ?- movie (M, Y) Y > 1990.

Output : M = american_beauty
Y = 1999

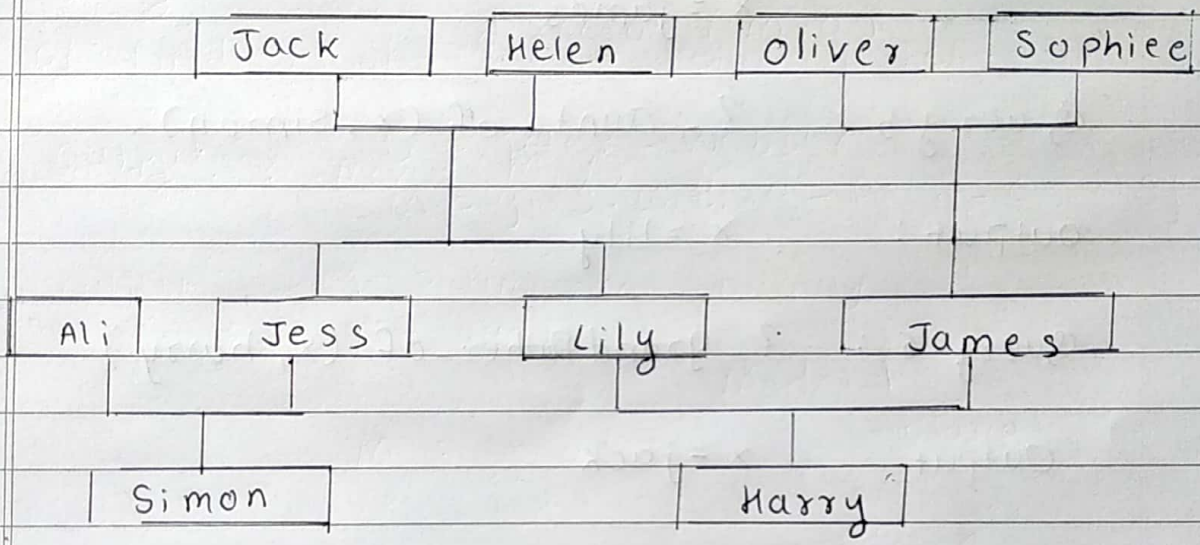
M1 = barton_fink
Y = 1991

e] Find a director of a movie in which Scarlett Johansson appared.

Query: ?- actress(M, Scarlett_Johansson),
director(M, O)

Output: D = peter - Webber,
M = girs - with - a - Pearl - earring

Q.5 Draw a family tree of you / any arbitrary family. which has the following relations. Mother, father, daughter, son, grandson, grandmother, sibling, uncle, Person, male, female, you need to Convert it into KB and write atleast ~~Six~~ Queries and query ~~issu~~ is results on your KB.



Family Tree

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

Output : x = helen.

Query 2 : ?- Parent_of (x, Simon)

Output : x = jess

Query 3 : ? - Sit 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