Prolog Programming

Q1 How does the queries in kb.pl file are executed

→

```
Code:- loves(vincent, mia)
       loves(marcellus, mia)
       loves(pumpkin, honey-bunny)
       loves(honey-bunny, pumkin)

       jealous(X,Y):-
              loves(X,Y)
              loves(X,Y)
```

Query:- ? loves(X, mia)
o/p:- X = vincent
X = marcellus

explanation:- Here as we know vincent loves mia as well as marcellus loves mia. Thus the kb assume that X is either vincent or marcellus

Query 2:- ? jealous(X,Y)
o/p:- 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 parameter in query. The query will produce output of every jealous (X, Y) pair on our prolog code
The jealous () rule follow
Jealous (X, Y) :- loves (X, Z), loves (Y, Z)
initially, x and y both were associated to vincent i.e self association It then follow relative property for the rest of the prolog code.

Q 2 How does the queries in lists.pl file are executed
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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|T0], L) :-
nrev (T0, T)
append (T, [H], L)

Query 1: ? Sublist ([a,b,c,d,e], [c,d]).
o/p:- True

Explanation:- A Sublist procedure look for a match between the first element of the Sublist & the main-list. Here [c,d] is the Sublist of the main list [a,b,c,d,e]. As the main list contaiat the Sublist [c,d] the output is true Else the output would have been false

Query 2:- ? Suffix ([a,b,c], zs)
o/p:-

zs = [a,b,c]
zs = [b,c]
zs = [c]
zs = []
false

explanation:- Suffix in general eliminate the front element from a list Here by using Suffix procedure [a,b,c] element are removed from a and continue until all the element are removed. As there are no more element in the list the o/p will 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)
O/P :- w=6

Q4 In example data set movies.pl write query String and result of query execute for any of 5 task

a In which year was the movie American Beauty released

Query : ?- movie (american_beauty, Y)
O/P :- Y = 1999

b find the movies released in year 2000
Query : ? movie (M, 2000)
O/P :- M = down_from_the_mountain
M = B_brother_where_art_thou
M = ghost_world

c) find mouse released before 2000

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

o/p:-

m = american_beauty
y = 1999

m = anna
y = 1987

m = barton-fink
y = 1991

d) find the movie relased after 1990

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

o/p:- m = american_beauty
y = 1999
m = barton_fink
y = 1991

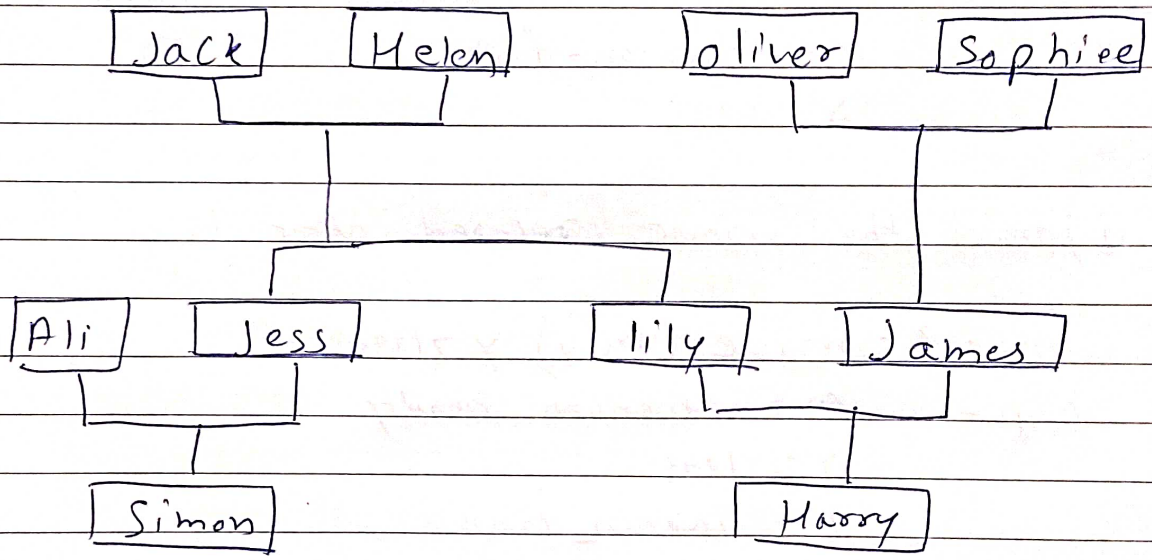
e) find a director of a movie in which Scalets Johansson appended

Query:- actress (m, Scarlett-Johansson), director (m, D)

o/p:- D = peter_webber
m = girl_with_a_pearl_earring

Qs Draw a family tree of your any arbitrary family which has the following relation mother, father daughter, son, grandson, grand mother, Sibling person, male, female. you need to convert into KS & write atleast 6 queries & query result on your KB

→ Diagram



~~fig~~ family Tree

query1:- ? mother_of (x, jess)
o/p:- x = helen

query2:- ? parent_of (x, simon)
o/p:- x = jess

Query 3:- ? _ sister_of (x, lily)
o/p:- x = jess.

Query 4:- ? - parent_of (x, harry)
o/p:- x = lily
x = james

Query 5:- ? - aunt_of (x, simon)
o/p:- x = lily

Query 6:- ? grandfather_of (x, harry)
o/p:- x = jack