

[illegible]

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D.O.P.

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## Sign

Remark

Q.1) How does the queries 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 : loves (X, mia)

O/P : X = vincent

Y = marcellus

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

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

→ Code : Suffix (Xs, Ys) :-

append ( \_, Ys, Xs).

Prefix (Xs, Ys) :-

append ( Ys, \_, Xs).

Sublist (Xs, Ys) :-

Suffix (Xs, Zs),

Prefix (Zs, Ys).

הנה (כ, כ)

hnev ([H][T<sub>0</sub>], L) :-

$$\eta_{\text{rev}}(T_0, T)$$

append (T, [H], L).

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

O/p : True

Explanation: A sublist procedure <sup>looks</sup> ~~works~~ for a match below between the first elements of the sublist & main list. Here  $[c, d]$  is the sublist of the main list  $[a, b, c, d, e]$ . As the main list contains the sublist, the  $Yp$  is true. Else the  $Op$  would have been false.

Query 2: ? - sublist (~~[a, b, c, d, e]~~, ~~ys~~). ([a, b, c], zs)

0/p :  $Z_S = [a, b, c]$ ,  $Z_S = [b, c]$ ,  $Z_S = [c]$ ,  $Z_S = []$

Explanation: Suffix in general eliminates front values from a list. Here by using suffix procedure are removed from front.

Q.3) ~~Prog~~ Create a Prolog code to find factorial of a number?

→ code : factorial (0, 1).

factorial (N, F): -

$$N > 0$$

$N_1$  is  $N-1$ .

factorial ( $N, F$ )

$F$  is  $N \cdot F1$ .



[illegible]

Qweny : 1 - Atonid (S, w)

b/p :  $w = 6$

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 (american - beauty, y)

O/p :  $y = 1999$ .

b) Find the movies released in the year 2000.

→ Query : ? - movie (m, 2000)

o/p : m = Queen - from - the - mountain .

$m = 0$  - brother - where - ant - thou.

$m = \text{ghost-bound.}$

c) Find movies released before 2000.

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

O/p :  $m = \text{american-beauty}$

$$y = 1999$$
$$m = a h n a$$

y = 1987

$$m = \text{bottom} - \text{BinK}$$
$$y = 1991$$

d) Find the movies released after 1990.

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

o/p:  $m = \text{american-beauty}$ ,  $y = 1999$

$$m = \text{bottom} - \text{pink}, y = 1991.$$

[illegible]

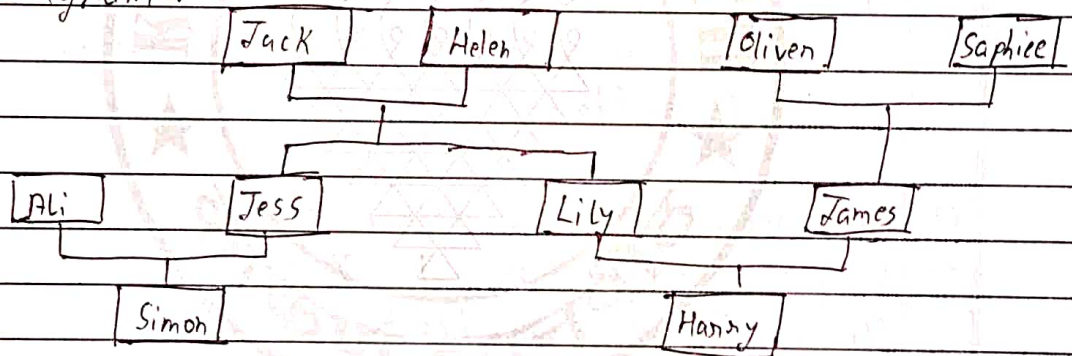
e) Find a director of a movie in which Scarlett Johansson appeared.

→ Query : ? - address (<sup>m</sup>~~ms~~ - Scarlett - Johansson), director (m, 0)  
o/p : 0 = peten. webben.

m = girl with a pearl earring.

Q.5) Draw a family tree of you /any arbitrary family. Which has following relations mother, father, daughter, son, grandson, grandmother, sibling, uncle, person, male, female. You need to convert it into KB & write ~~at~~ atleast 6 queries & query results on your KB.

→ Diagram:



## Family Tree

Query 1: ? - mother - of  $(x, Jess)$

O/p : He X = Helen.

Query 4: ? - father of (x, James)

o/p:  $X = 0$  Liven

Query 2: ? - parent of (x, Simon)

O/P :  $x = \text{Jessa}$ ,  $x = \text{AL}$ ;

Query 5: ? - parent of (x, Harry)

o/p:  $x = \text{James}$ ,  $x = \text{Lily}$

Query 3: ? - sister of (x, Lily)

o/p :  $x = \text{Jess}$

Query 6: ? - son of (x, Saphire)

o/p :  $x = \text{James}$ .