Prolog Programming Assignment.

1.] How does the query in kbpl file are executed?

→

code : % knowledge bases

```
lovers (vincent, mia)
lovers (marcellus, mia)
lovers ( pumpkin, honey_bunny)
lovers (honey-bunny , pumpkin)

jealous (x,y)
 lovers (x,z)
 lovers (y,z).
```

Query : lovers (x, mia)
o/p : x = Vincent
x = marcellus

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

Query 2 : ? = jealous (x,y)
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 our query. The query will produce output of every ~~jelous~~ jelous (x, y) pair on our prolog code. The jelous () rule follows:

jelous (x, y) : lovers (x, z), lovers (y, z).

Initially, x & y both were associated to Vincent i.e, self association it then follows reflexive property for the rest of the prolog code.

2.] How does the queries in list are executed?

→

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

Query : ? 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 & the main-list. Here [c, d] is the sublist of the main list [a, b, c, d, e]. As the main list contains the sublist [c d] the o/p is true else, the o/p would have been false.

Query 2 : ? suffix ([a,b,c], zs).

output : zs [a,b,c]
zs = [b,c]
zs = [c]
zs = [ ]

Explation : Suffix general eleiminates the fuont elements fuom a list, there by using suffix procedure, [a,b,c] elements are removed fuom a & continues until all the elements are remoued as there are no moue elements in the list, the o/p 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 (N,F1)
N is N* F1.

Query : ? Factorial (3,w)

output : w = 6.

q4. In example data set moves.P, write query strings & results of query execution for any of 5 tasks:

a) In which year was the move american Beauty released?

query : ?- move (American, beauty, y)

output : y = 1999.

b) find the movies released in year 2000

query : ?- movie (M, 2000)
output : M = down_from-the-maintain.
M = O-brother-where-art-thou.
M = ghost-would.

c) find movies ~~related~~ released before 2000

query : ?- movie (M, y), y < 2000

output : M = american-beauty.
y = 1999.

M = anna
y = 1987

M = barton_fink.
y = 1991

d) find the movies relased after 1990

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

o/p : M = american_beauty.
y = 1999

M = barton_fink
y = 1991

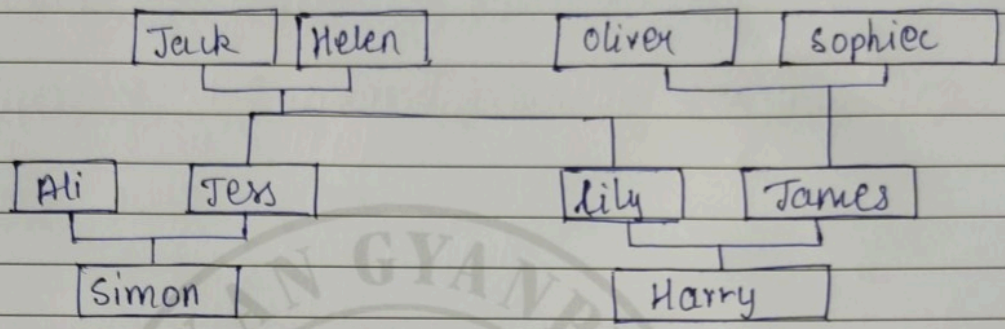
e) find director of a movie in which scalett Johansson appeared.

query : ?- actress (M; scarlett - johansson) _)
director (M, O).

o/p : O = Peter_webber
M = girl_with_a_pearl_earring.

g5) 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 write atleast 6 queries & query result on your KB.

→ Diagram :-



family tree.

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

o/p : x = helen

Query 2 : ? 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 : ? guand father-of (x, harry)

o/p : x = jack.