Prolog Assignment.

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Class - BE·IT

RollNo - 46.

Batch - J_2

Subject - AI Prolog Programming Assignment.

1) How does the queries in kb.pl Files are Created?

→ Code: loves (Vincent, mia)
   loves (marcellus, mia)
   loves (Pumpkin, honey-bunny)
   loves (honey-bunny, pumpkin)

   jealous (x,y):-
      loves (x,y)
      loves (y,z)

   Query: ? - loves(x,mia)
   output: x = Vincent
           x = Marcellus
   Explaination: Here as we know Vincent loves
                 mia as well as Marcellus loves
                 mia. Thus kb assumes 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
   Exp^n : here no fixed parameters in our query.
           The query will produce o/p of every

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Jelaous (x,y) pair on our prolog code.
The Jelaous (x,y) pair () rule follows
Jelaous (x,y) - loves (x,z), loves (y,z)
initially, x & y both were associated to
Vincent ie, self association it then follows
replexive property for the rest of prolog code.

2) How does the queries in lists P1 are executed?

→ Code: Suffix (xs, xs)
append (-,ys, xs).

Prefix (xs, ys):-
append (ys, -, xs)

Sublist (xs, ys)
Suffix (xs, zs)
Prefix (zs, ys)

rev ([], [])
rev ([H] T0], L)
rev (T0, T)
append (T, [H], L)

Query! ?- Sublist ([a,b,c,d,e], [c,d])
O/P : True.

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Exp^n : It is the procedure bet^n first element & main list element. As 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)

O/P : zs = [a,b,c]
      zs = [b,c]
      zs = [c]
      ∠ false

Exp^n : Suffix is general eleminates the front element from a list, heare by using Suffix procedure, [a,b,c] elements are removed from a and continues untill all the elements are removed.

Q.3) Programming Create a prolog code to find factorial of a number?

---> Code : Factorial (a,1)
           Factorial (N,F) :
           N > 0
           N, is N-1
           Factorial (N, 1F,)
           N is N F,.

Query = ? - Factorial (3,w).
O/P :   w = 6.

Q.4) In ex. data set movies. pl write query strings & 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 movies released in year 2000.

Query : ? — movie (M, 2000)
O/P : M = down-from-the-mountain.
       M = O-brother-where-ant-thou.
       M = ghost-world.

c) Find movies released before 2000.

Query: ?—movie (M,y), y<2000.
o/p :   M = american-beauty
          y = 1999.

          M = anna
          y = 1987

          M = bontton-fink.
          y = 1991

d) Find the movies released after 1990.

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

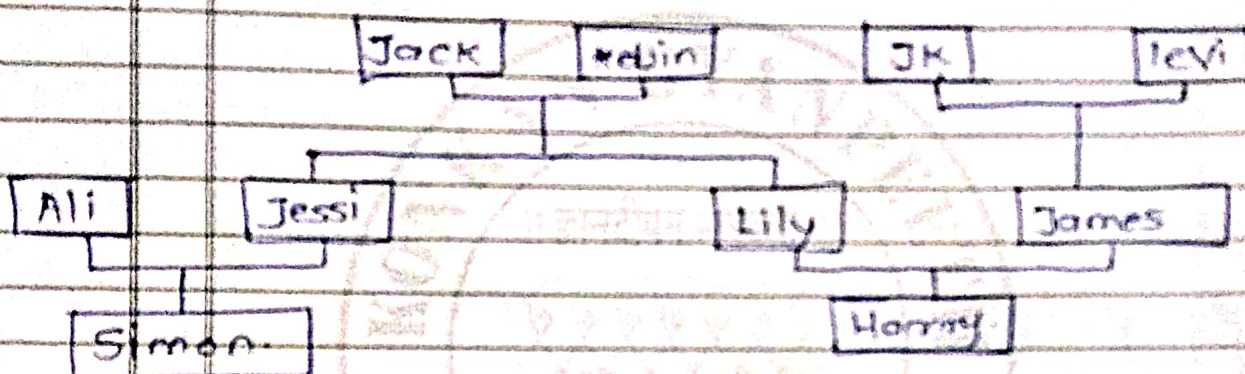o/p : M = american _beauty
Y = 1999.

M = barton_fink
Y = 1991.

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

Query : ?- acteress(M; scarlette -johanasson,)-)
director(M,o)

o/p : D = peter_webber
M = girl -with -a, peart, earing.

Q.5) Draw a family tree of your arbitary family which has the following relatn mother, father, daughter, son, grandson, g.mother, Sibling, uncle, person, male, female you need to convert it into ks b write atleast 6queries &quers results on your KB.

| Jack | elvin | | JK | levi |

| Ali | | Jessi | | Lily | | James |

| Simon | | Harry |

Family Tree

Query 1 : ? - mother _ of (x, jessi)
O/P : x = elvin.

Query 2 : ? parent - of (x, Simon)
O/P : x = jessi

Query3 : ? - sister _ of (x, lily)
O/P : x = jessi

Query 4 : ? _ parent _ of (x, harry)
O/P : x = lily
x = james

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Query 5 = ? . aunt _ of (x , simon)
O|P : x = lily

Query 6 : ? g.father _ of (x , harry)
O|P : x = Jack .