RIGHT WAY

Date / /

Page No. /

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)

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

Query1 : ?- loves(x,mia)

output : X = vincent
X = marcellus

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

Query2 : ?- 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-bonny

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 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 lists.pl 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|T0], L) :-
nrev (T0, T)
append (T, [H], L)

query 1: ? - Sublist ([a, b, c, d, e], [c, d])

Explanation : A sublist Procedure looks for a match between the first elements of the sub-list and the main-list. Here [c, d] is the sob-list of the main list. [a, b, c, d, e] As the main list contains the sublist [c, d], the output is true, Else the output would 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 elimenates the front elements from a list. Here by using suffix Procedure, [a, b, c] elements are removed from a and continues 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 ,
N , is N - 1 ,
factorial (N , F1) ,
N is N F1

N is N F1

Query : ? factorial (3 , w)

output : w = 6

Q.4 In examples data set movies.Pt write query strings and results of query execution for any of 5 tasks.

a In which year was the move American Beauty released ?
query : ? - movie (american beauty, y)
output : y = 1999

b Find the moves related in year 2000
Query :- ? - movie (m , 2000)
m = down - from - the - mountain
m = o - brother - where - art - thou
m = ghost - world

c) Eon means released before 2000

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

output :- m = american - beauty

y = 1999

m = 2000

x = 1987

m = boston - tink

x = 1995

d) Find the movies released after 1990

query :- ? - movie (m, y) y > 1990

output : m = american - beauty

y = 1999

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

query :- ?- actress (m, Scarlett - Jossion - J)

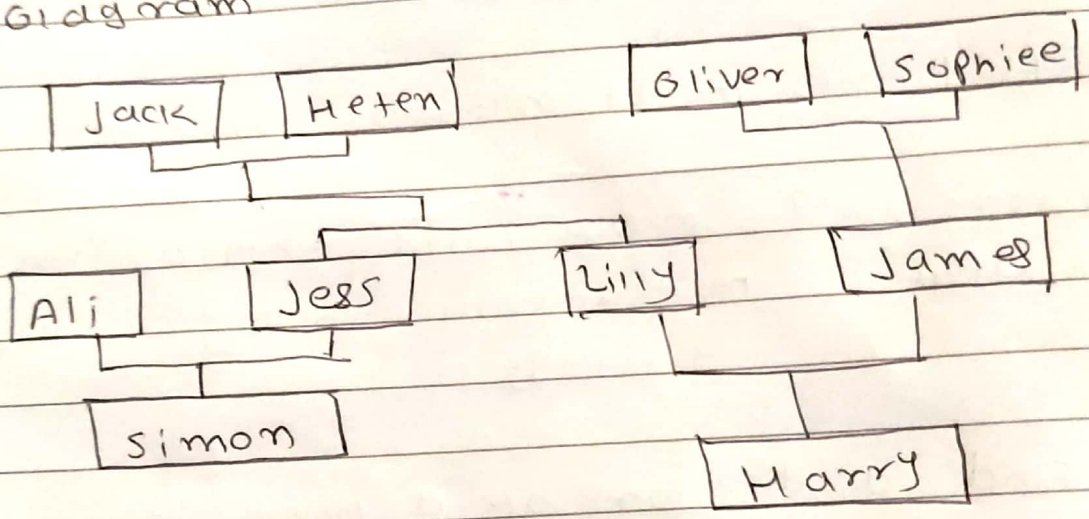
director (m, o)

output :- o = Peter - webber

m = girl - 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, grand mother, sibling, unde, person male, female. You need to convert it into KB and write atleast and 6 queries and query results on your KB

Diagram



Family tree.

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

output : x = helen

query 2 : ? Parent-of (X, simon)

output : x = Jess

RIGHT WAY
Date / /
Page No. /

query 3 : ? - sister_of (x, lily)

output : X = jegs

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