

Lab 5

Problem Statement:

Prolog

- 1.KB 1 to KB 5 (SWI prolog)
- 2.Prolog- Tiny expert system

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BATCH: 2

KB 1:

```
woman(mia).  
woman(jody).  
woman(yolanda).  
playsAirGuitar(jody).  
party.
```

▲

Output:

```
?- woman(X).  
X = mia ;  
X = jody ;  
X = yolanda.  
  
?- woman(X).  
X = mia ,  
  
?- playsAirGuitar(Z).  
Z = jody.  
  
?- playsAirGuitar(jody).  
true.  
  
?- playsAirGuitar(X).  
X = jody.
```

KB 2:

```
happy(yolanda) .  
listens2music(mia) .  
listens2music(yolanda) :- happy(yolanda) .  
playsAirGuitar(mia) :- listens2music(mia) .  
playsAirGuitar(yolanda) :- listens2music(yolanda) . ▲
```

Output:

```
% c:/Users/Admin/OneDrive/Documents/Prolog/KB2.pl compiled 0.00 sec, 6 clauses  
?- happy(X).  
X = yolanda.  
  
?- listens2music(X)  
|  
X = mia ;  
X = yolanda.  
  
?- playsAirGuitar(X).  
X = mia ;  
X = yolanda.  
  
?- happy(X), playsAirGuitar(X).  
X = yolanda.  
  
?- happy(mia).  
false.  
  
?- happy(X), playsAirGuitar(Y).  
X = yolanda,  
Y = mia ;  
X = Y, Y = yolanda.  
  
?-
```

KB 3

```
happy(vincent) .  
listens2music(butch) .  
playsAirGuitar(vincent) :- listens2music(vincent), happy(vincent) .  
playsAirGuitar(butch) :- happy(butch) .  
playsAirGuitar(butch) :- listens2music(butch) .
```

▲

Output:

```
% c:/Users/Admin/OneDrive/Documents/Prolog/KB3.pl compiled 0.00 sec, 5 clauses
?-
|   playsAirGuitar(X).
X = butch.

?- happy(X).
X = vincent.

?-
```

KB4:

```
woman(mia).
woman(jody).
woman(yolanda).
loves(vincent, mia).
loves(marsellus, mia).
loves(pumpkin, honey_bunny).
loves(honey_bunny, pumpkin).

▲
```

Output:

```

% c:/Users/Admin/OneDrive/Documents/Prolog/KB4.pl compiled 0.00 sec, 7 clauses
?- woman(X).
X = mia ;
X = jody ;
X = yolanda.

?- loves(X,Y).
X = vincent,
Y = mia ;
X = marsellus,
Y = mia ;
X = pumpkin,
Y = honey_bunny ;
X = honey_bunny,
Y = pumpkin.

?- loves(mia,Y).
false.

?- loves(Y,mia).
Y = vincent ;
Y = marsellus.

?- loves(marsellus,X),woman(X).
X = mia.

?- loves(X,pumkin),woman(X).
false.

?- loves(X,pumpkin),woman(X).
false.

?- loves(pumpkin,X),woman(X).
false.

?-

```

KB5:

```

loves(vincent,mia).
loves(marsellus,mia).
loves(pumpkin, honey_bunny).
loves(honey_bunny, pumpkin).
jealous(X,Y) :- loves(X,Z), loves(Y,Z).

```



```

% c:/Users/Admin/OneDrive/Documents/Prolog/KB5.pl compiled 0.00 sec, 5 clauses
?- jealous(marsellus,X).
X = vincent ;
X = marsellus.

?- loves(X,mia).
X = vincent ;
X = marsellus.

?- jealous(X,Y).
X = Y, Y = vincent ;
X = vincent,
Y = marsellus ;
X = marsellus,
Y = vincent ;
X = Y, Y = marsellus ;
X = Y, Y = pumpkin ;
X = Y, Y = honey_bunny.

?-

```

Tiny Expert System:

```

observation(james,slow_service).
observation(james,procastinate).
observation(james,conflict).
observation(james,incorrect_order).
observation(jessica,polite).
observation(jessica,fast_sevice).
observation(jessica,multitask).
observation(jared,polite).
observation(jared,fast_sevice).
observation(jared,multitask).

hypothesis(Person,very_good_employee):-observation(Person,polite),
                                         observation(Person,fast_service),
                                         observation(Person,multitask).

hypothesis(Person,good_employee):-observation(Person,polite),
                                     observation(Person,fast_service),
                                     observation(Person,conflict),
                                     observation(Person,slow_service).

hypothesis(Person,average_employee):-observation(Person,slow_service),
                                         observation(Person,procastinate).

hypothesis(Person,bad_employee):-observation(Person,incorrect_order),
                                     observation(Person,conflict),
                                     observation(Person,slow_service).

```

Output:

```
?- hypothesis(X,Y).  
X = james,  
Y = average_employee ;  
X = james,  
Y = bad_employee.
```