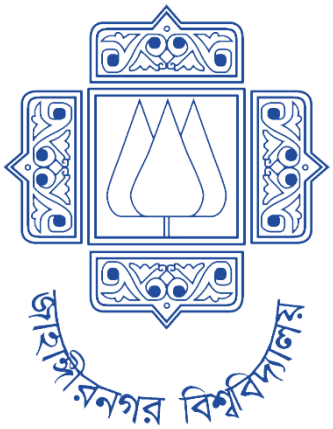
Institute of Information Technology (IIT)

Jahangirnagar University



Lab Report: 01

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Lab Report # Day 01

Example 1:

Knowledge Base 1.

Clause:

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

Queries:

?- woman(mia).

?- playsAirGuitar(jody).

?- playsAirGuitar(mia).

?- tattoed(jody).

?- party.

?- rockConcert.

Result:

```
?- woman(mia).
true.

?- playsAirGuitar(jody).
true.

?- playsAirGuitar(mia).
false.

?- tattoed(jody).
ERROR: Unknown procedure: tattoed/1 (DWIM could not correct goal)
?- party.
true.

?- rockConcert.
ERROR: Unknown procedure: rockConcert/0 (DWIM could not correct goal)
?-
```

Example 2:

Knowledge Base 2.

Clause:

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

Queries:

?- playsAirGuitar(mia).

?- playsAirGuitar(yolanda).

Result:

```
?-
|    playsAirGuitar(mia).
true.

?- playsAirGuitar(yolanda).
true.

?-
```

Example 3:

Knowledge Base 3.

Clause:

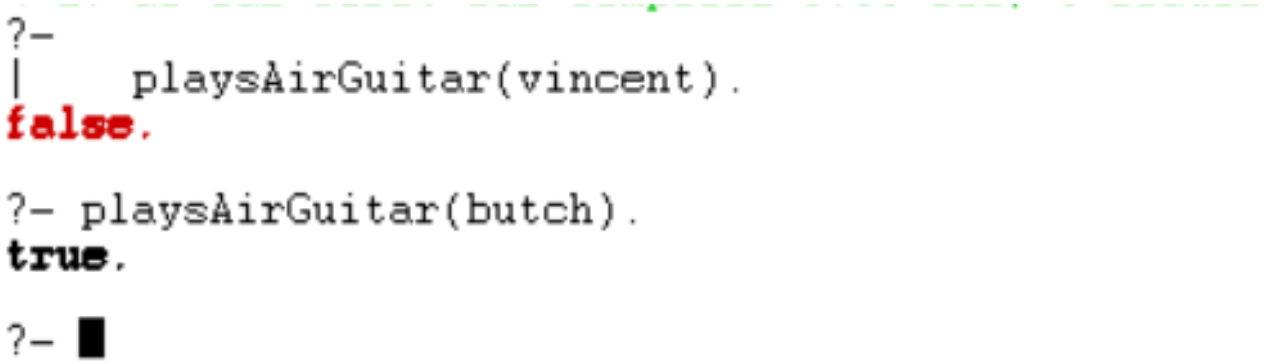
happy(vincent).
listens2music(butch).
playsAirGuitar(vincent):- listens2music(vincent), happy(vincent).
playsAirGuitar(butch):- happy(butch).
playsAirGuitar(butch):- listens2music(butch).

Queries:

?- playsAirGuitar(vincent).

?- playsAirGuitar(butch).

Result:



Example 4:

Knowledge Base 4.

Clause:

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

Queries:

?- woman(X).

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

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

Result:

```
?-
|     woman(X).
X = mia ;
X = jody ;
X = yolanda.

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

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

Example 5:

Knowledge Base 5.

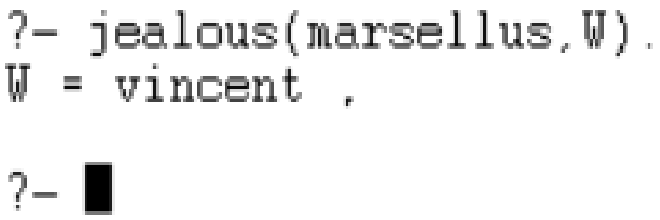
Clause:

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

Queries:

?- jealous(marsellus,W).

Result:



Example 6:

Exercise 1: Read & write two numbers

Clause:

```
start:-
write('enter your first num'),nl,
read(X),nl,
write('enter your second num'),nl,
read(Y),nl,
write('here is your numbers'),nl,
write(X),nl,
write(Y).
```

Queries:

?- start.

Result:

```
?- start.
enter your first num
|: 2.

enter your second num
|: 3.

here is your numbers
2
3
true.
```

Example 7:

Exercise 2: Sum of two numbers

Clause:

```
go:-
write('enter your first num'),nl,
read(X),nl,
write('enter your second num'),nl,
read(Y),nl,
sum(X,Y).
sum(X,Y):-S is (X+Y),
write('sum is'),nl,
write(S).
```

Queries:

?- go.

Result:

```
?- go.
enter your first num
|: 3.

enter your second num
|: 4.

sum is
7
true.

?-
```

Example 8:

Task 1: Average of three numbers.

Clause:

```
go:-
write('enter your first num'),nl,
read(X),nl,
write('enter your second num'),nl,
read(Y),nl,
write('enter your third num'),nl,
read(Z),nl,
sum(X,Y,Z).
sum(X,Y,Z):-S is ( X+Y+Z )/3,
write('average is'),nl,
write(S).
```

Queries:

?- go.

Result:

```
?- go.
enter your first num
|: 9.

enter your second num
|: 9.

enter your third num
|: 9.

average is
9
true.

?- go.
enter your first num
|: 5.

enter your second num
|: 3.

enter your third num
|: 2.

average is
3.3333333333333335
true.
```

Example 9:

Task 2: Family Tree

Clause:

```
ml(jamil).
ml(sohel).
ml(rafi).
ml(rumi).
ml(raj).
ml(orko).
ml(jarif).
ml(ovi).

femle(runa).
femle(riya).
femle(najia).
femle(ridima).
femle(sufi).
femle(saki).

parent(jamil,runa).
parent(jamil,sohel).

parent(runa,rafi).
parent(runa,rumi).
parent(runa,riya).

parent(sohel,najia).
parent(sohel,ridima).

parent(rafi,raj).

parent(rumi,sufi).

parent(najia,saki).
parent(najia,orko).

parent(sufi,jarif).

parent(orko,ovi).

siblings(X,Y):- parent(Z,X),parent(Z,Y),X\=Y.
moter(X,Y):-parent(X,Y),femle(X).
```

Queries:

?- ml(runa).

?- ml(sohel).

?- ml(jarif).

?- femle(sufi).

?- femle(ridima).

?- parent(jamil,_).

?- parent(sufi,_).

?- parent(saki,_).

?- parent(rumi,_).

?- parent(runa,X).

?- parent(jamil,X).

?- siblings(rafi,X).

?- siblings(najia,X).

?- moter(X,riya).

?- moter(X,orko).

Result:

```
?- ml(runa).
false.

?- ml(sohel).
true.

?- ml(jarif).
true.

?- femle(sufi).
true.

?- femle(ridima).
true.

?- parent(jamil,_).
true ;
true.

?- parent(sufi,_).
true.

?- parent(saki,_).
false.

?- parent(rumi,_).
true.

?- parent(runa,X).
X = rafi ;
X = rumi ;
X = riya.

?- parent(jamil,X).
X = runa ;
X = sohel.

?- siblings(rafi,X).
X = rumi ;
X = riya.

?- siblings(najia,X).
X = ridima.

?- moter(X,riya).
X = runa.

?- moter(X,orko).
X = najia.
```

Example 10:

Problem Name : Addition/Subtraction/Multiplication/Division/Power

Queries :

1) A is 1023+34+98.

2) S is 64-89

3) M is 78*54.

4) D is 67/34.

Results:

```
?-  A is 1023+34+98.
A = 1155.

?-  S is 64-89.
S = -25.

?- M is 78*54.
M = 4212.

?- D is 67/34.
D = 1.97058823529411 78.
```

Example 11:

Problem Name:

Min/Max **Queries:**

MAXIMUM is

max(23,-9).

1) MAXIMUM is max(-23,-9).
2) MINIMUM is min(2014,2450).

Result:

```
?-  MAXIMUM is max(23,-9).
MAXIMUM = 23.

?-  MAXIMUM is max(-23,-9).
MAXIMUM = -9.

?-  MINIMUM is min(2014,2450).
MINIMUM = 2014.

?-
```

Example 12:

Problem Name

:Underscore**Clause :**

division(dhaka,rajshahi,khulna).

Queries:

1) division(X,Y,Z).

2) division(_,_,Z).

Result:

```
% c:/Users/Asus/Desktop/woman(mia).pl compiled 0.00 sec, -13 clauses
?- division(X,Y,Z).
X = dhaka,
Y = rajshahi,
Z = khulna.

?- division(_,_,Z).
Z = khulna.

?-
```