EX.NO: 7

INTRODUCTION TO PROLOG

AIM

To learn PROLOG terminologies and write basic programs.

TERMINOLOGIES

1. Atomic Terms: -

   Atomic terms are usually strings made up of lower- and uppercase letters, digits, and the underscore, starting with a lowercase letter.

   Ex:

   ```
   dog
   ab_c_321
   ```

2. Variables: -

   Variables are strings of letters, digits, and the underscore, starting with a capital letter or an underscore.

   Ex:

   ```
   Dog
   Apple_420
   ```

3. Compound Terms: -

   Compound terms are made up of a PROLOG atom and a number of arguments (PROLOG terms, i.e., atoms, numbers, variables, or other compound terms) enclosed in parentheses and separated by commas.

   Ex:

   ```
   is_bigger(elephant,X)
   f(g(X,_),7)
   ```

4. Facts: -

   A fact is a predicate followed by a dot.

   Ex:

   ```
   bigger_animal(whale).
   life_is_beautiful.
   ```

5. Rules: -

   A rule consists of a head (a predicate) and a body (a sequence of predicates separated by commas).

   Ex:

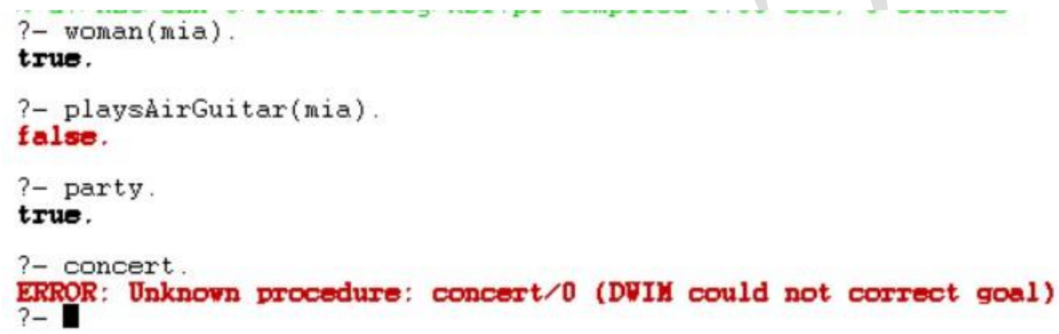
is_smaller(X,Y):-is_bigger(Y,X).
aunt(Aunt,Child):-sister(Aunt,Parent),parent(Parent,Child).

SOURCE CODE:

KB1:

woman(mia). woman(jody).
woman(yolanda).
playsAirGuitar(jody).
party.
Query 1: ?-woman(mia).
Query 2: ?-playsAirGuitar(mia).
Query 3: ?-party.
Query 4: ?-concert.

OUTPUT: -

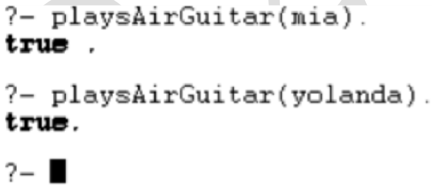


```
?- woman(mia).
true.

?- playsAirGuitar(mia).
false.

?- party.
true.

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

KB2:

happy(yolanda). listens2music(mia).
Listens2music(yolanda):-happy(yolanda). playsAirGuitar(mia):-listens2music(mia).
playsAirGuitar(Yolanda):-listens2music(yolanda).

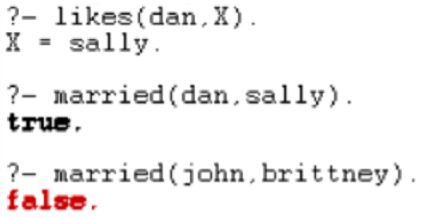
OUTPUT: -



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

?- playsAirGuitar(yolanda).
true.

?- █
```

KB3: likes(dan,sally). likes(sally,dan).
likes(john,brittney). married(X,Y) :-
likes(X,Y) , likes(Y,X). friends(X,Y) :-
likes(X,Y) ; likes(Y,X).

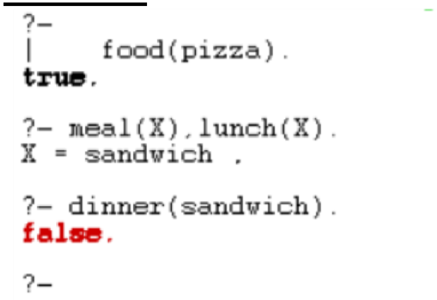
OUTPUT: -



```
?- likes(dan,X).
X = sally.

?- married(dan,sally).
true.

?- married(john,brittney).
false.
```

KB4: food(burger).
food(sandwich).
food(pizza).
lunch(sandwich).
dinner(pizza).
meal(X):-food(X).

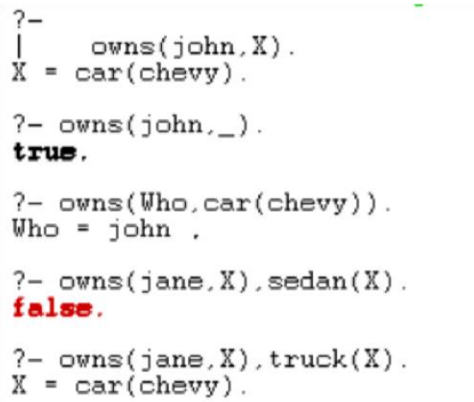
OUTPUT:



```
?-
|    food(pizza).
true.

?- meal(X),lunch(X).
X = sandwich .

?- dinner(sandwich).
false.

?-
```

KB5:
owns(jack,car(bmw)).
owns(john,car(chevy)).
owns(olivia,car(civic)).
owns(jane,car(chevy)).
sedan(car(bmw)). sedan(car(civic)).
truck(car(chevy)).

OUTPUT:



```
?-
|    owns(john,X).
X = car(chevy).

?- owns(john,_).
true.

?- owns(Who,car(chevy)).
Who = john .

?- owns(jane,X),sedan(X).
false.

?- owns(jane,X),truck(X).
X = car(chevy).
```

RESULT: Thus the above python code is executed successfully and output is verified.