

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: -

dog ab_c_321

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.

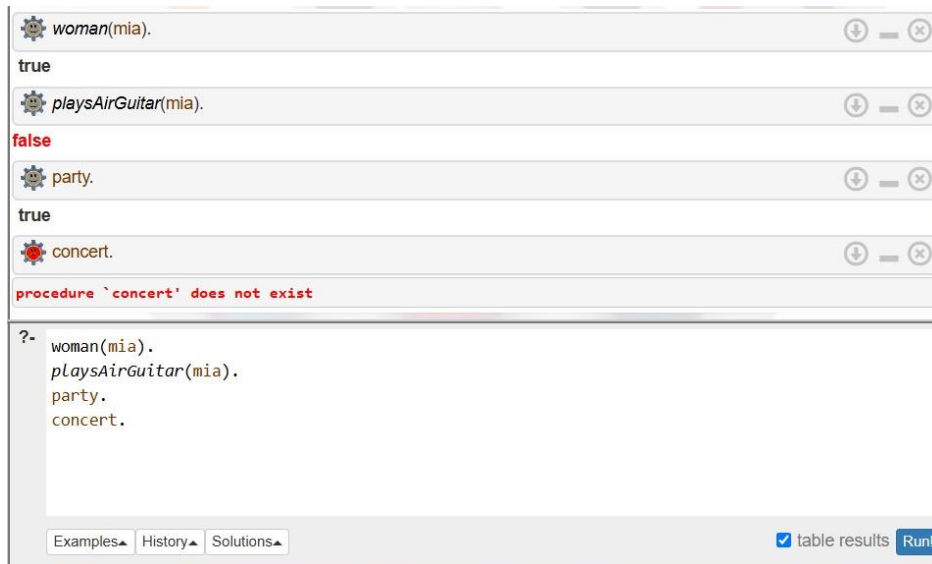
Query 1: ?-woman(mia).

Query 2: ?-playsAirGuitar(mia).

Query 3: ?-party.

Query 4: ?-concert.

OUTPUT: -



woman(mia).
true
playsAirGuitar(mia).
false
party.
true
concert.
procedure `concert` does not exist

?- woman(mia).
playsAirGuitar(mia).
party.
concert.

Examples History Solutions table results Run!

KB2:

happy(yolanda).

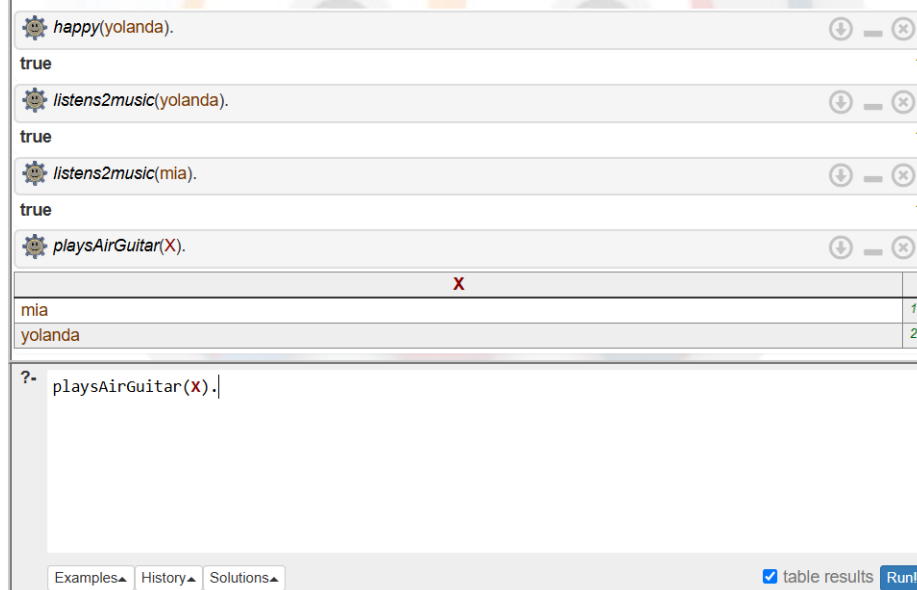
listens2music(mia).

Listens2music(yolanda):-happy(yolanda).

playsAirGuitar(mia):-listens2music(mia).

playsAirGuitar(Yolanda):-listens2music(yolanda).

OUTPUT: -



happy(yolanda).
true
listens2music(yolanda).
true
listens2music(mia).
true
playsAirGuitar(X).
mia
yolanda

?- playsAirGuitar(X).

Examples History Solutions table results Run!

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: -

married(dan, sally).
true

likes(dan,X)

	X
sally	1

married(john, brittney).
false

?- married(dan, sally).
likes(dan,X)
married(john, brittney).

Examples History Solutions ☒ table results Run!

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	1

dinner(sandwich)
false

?- food(pizza)
meal(X),lunch(X)
dinner(sandwich)

Examples History Solutions ☒ table results Run!

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:

The screenshot shows a Prolog interpreter window with the following content:

owns(John,X)		
John	X	
jack	car(bmw)	1
john	car(chevy)	2
olivia	car(civic)	3
jane	car(chevy)	4

owns(John,_)		
John		
jack		1
john		2
olivia		3
jane		4

owns(Who,car(chevy))		
Who		
john		1
jane		2

false

owns(jane,X),truck(X)		
X		
car(chevy)		1

?- owns(John,X)
owns(John,_)
owns(Who,car(chevy))
owns(jane,X),sedan(X)
owns(jane,X),truck(X)|

Examples History Solutions ☒ table results Run!

RESULT:

Thus the introduction of prolog is studied and executed successfully.