# **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).
 ?- 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).
?- married(john,brittney).
false.
KB4: food(burger).
food(sandwich).
food(pizza).
lunch(sandwich).
dinner(pizza).
meal(X):-food(X).
OUTPUT:
       food(pizza).
 ?- 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).
```

**<u>RESULT:</u>** Thus the above python code is executed successfully and output is verified.