EX.NO:6 **DATE:1/11/2024**
Reg.no:220701060

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: -

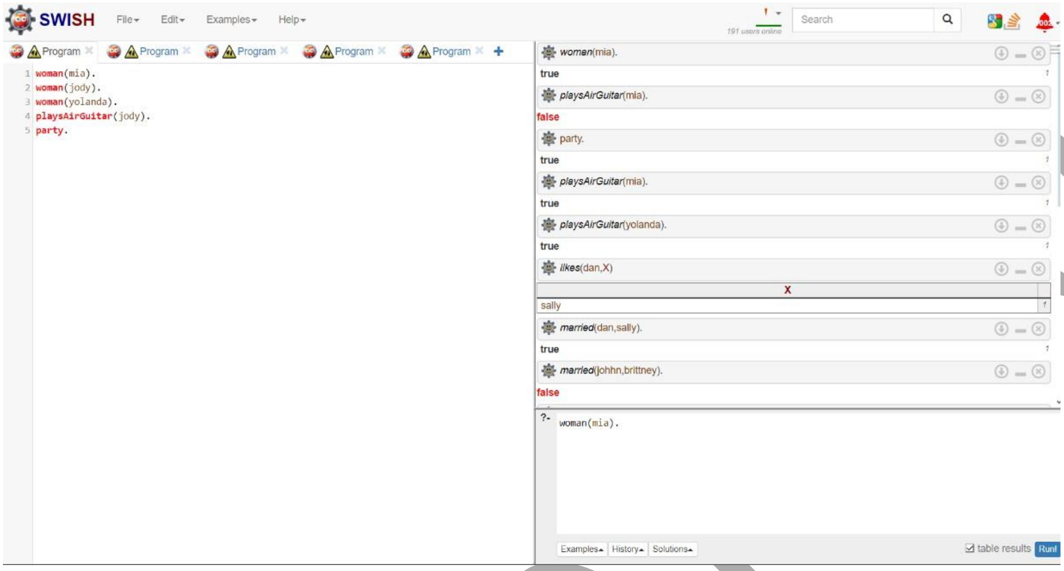
A rule consists of a head (a predicate) and a body (a sequence of predicates separated by commas).
Ex: is_smaller(X,Y):-is_bigger(Y,X).
aunt(Aunt,Child):-sister(Aunt,Parent),parent(Parent,Child).

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:

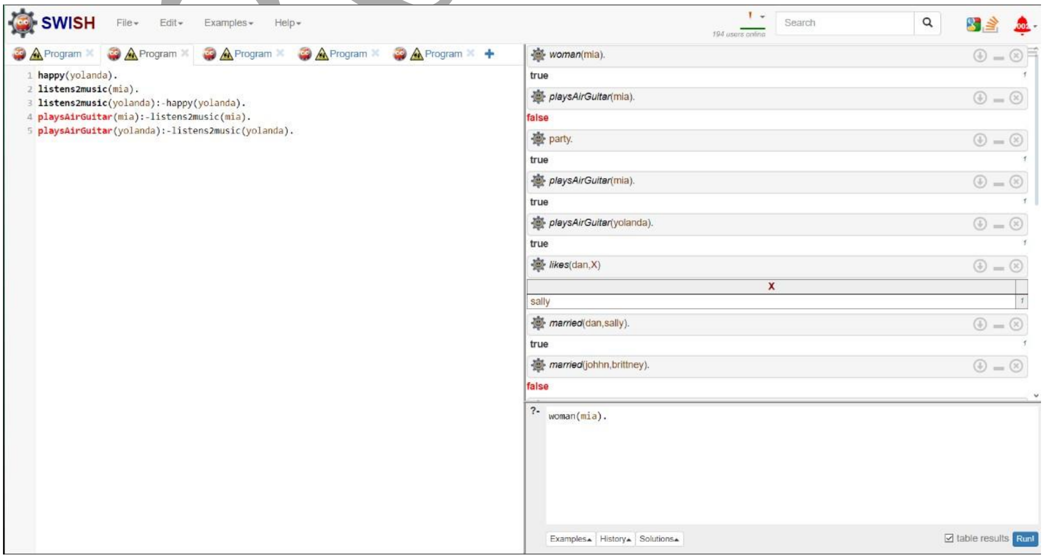


```
woman(mia).
woman(jody).
woman(yolanda).
playsAirGuitar(jody).
party.
```

```
woman(mia).
true
playsAirGuitar(mia).
false
party.
true
playsAirGuitar(mia).
true
playsAirGuitar(yolanda).
true
likes(dan,X).
X
sally
married(dan,sally).
true
married(johhn,brittney).
false
?- woman(mia).
```

KB2:
happy(yolanda).
listens2music(mia).
Listens2music(yolanda):-happy(yolanda).
playsAirGuitar(mia):-listens2music(mia).
playsAirGuitar(Yolanda):-listens2music(yolanda).

OUTPUT:



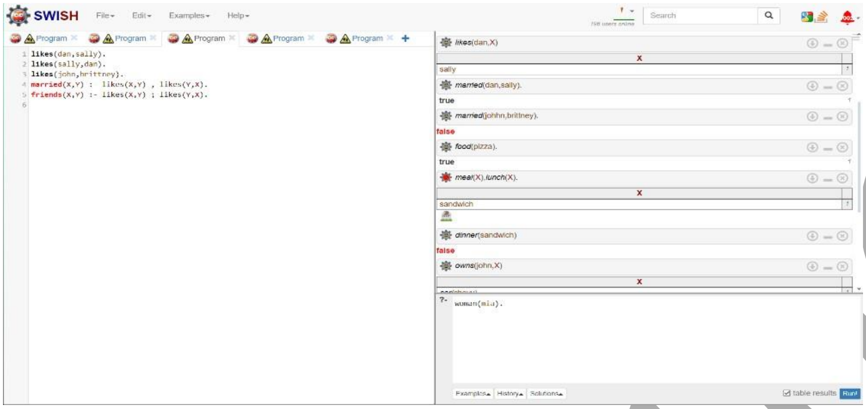
```
happy(yolanda).
listens2music(mia).
listens2music(yolanda):-happy(yolanda).
playsAirGuitar(mia):-listens2music(mia).
playsAirGuitar(yolanda):-listens2music(yolanda).
```

```
woman(mia).
true
playsAirGuitar(mia).
false
party.
true
playsAirGuitar(mia).
true
playsAirGuitar(yolanda).
true
likes(dan,X).
X
sally
married(dan,sally).
true
married(johhn,brittney).
false
?- woman(mia).
```

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,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).
```

```
likes(dan,X)
X
sally
married(dan,sally).
true
married(johhn,brittney).
false
food(pizza).
true
meal(X),lunch(X).
X
sandwich
dinner(sandwich)
false
owns(john,X)
X
car(chevy)
```

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

KB4:

food(burger).

food(sandwich).

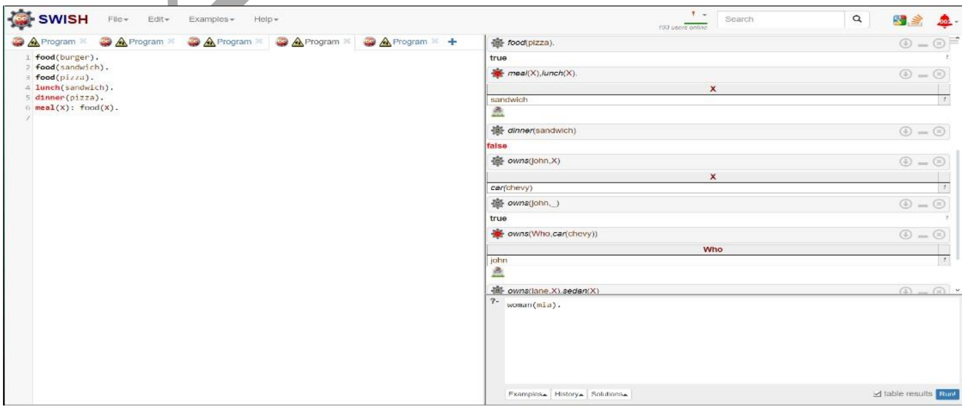
food(pizza).

lunch(sandwich).

dinner(pizza).

meal(X): -food(X).

OUTPUT:



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

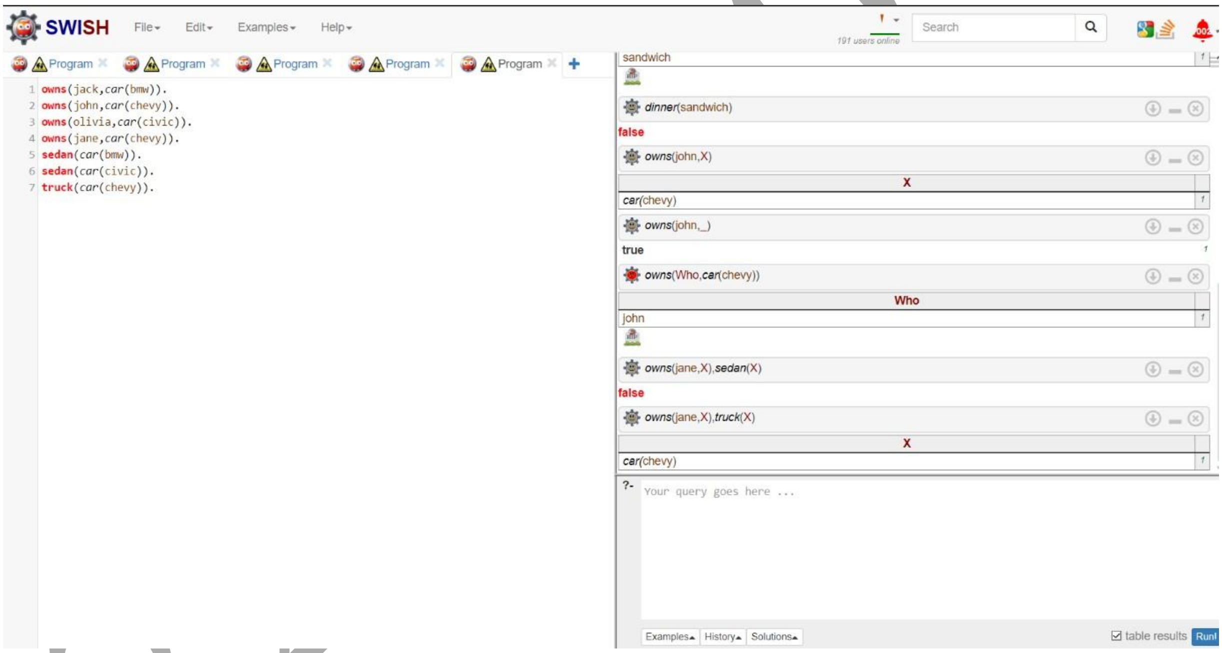
```
food(pizza).
true
meal(X),lunch(X).
X
sandwich
dinner(sandwich)
false
owns(john,X)
X
car(chevy)
owns(john,_)
true
owns(Who,car(chevy))
Who
john
owns(jane,X),sedan(X)
```

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

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

```
sandwich

dinner(sandwich)
false

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)

?- Your query goes here ...
```

RESULT:

Thus, the basic prolog programs have been implemented successfully.