Practical Assignment For Prolog

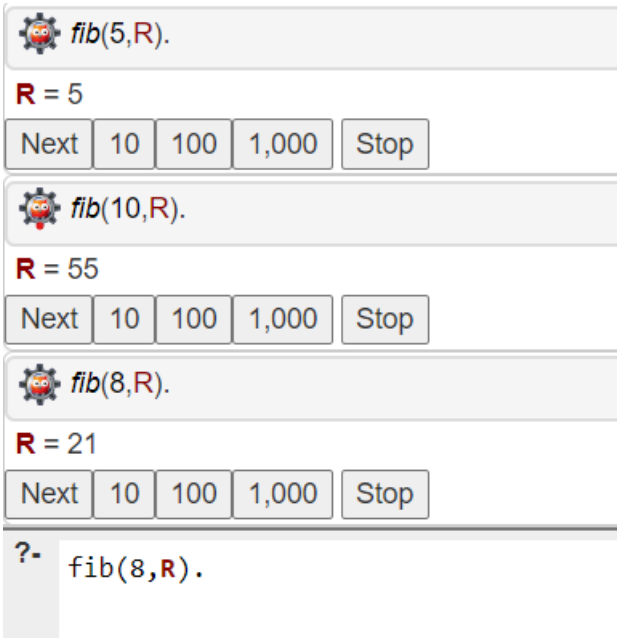
1)Write a Prolog predicate fibonacci/2 to compute the nth Fibonacci number.

ANS:

- **Code:**

```
fib(0,0).
fib(1,1).
fib(N, Result) :-
    N>0,
    N1 is N-1,
    N2 is N-2,
    fib(N1, R1),
    fib(N2, R2),
    Result is R1+R2.
```

- **Output:**



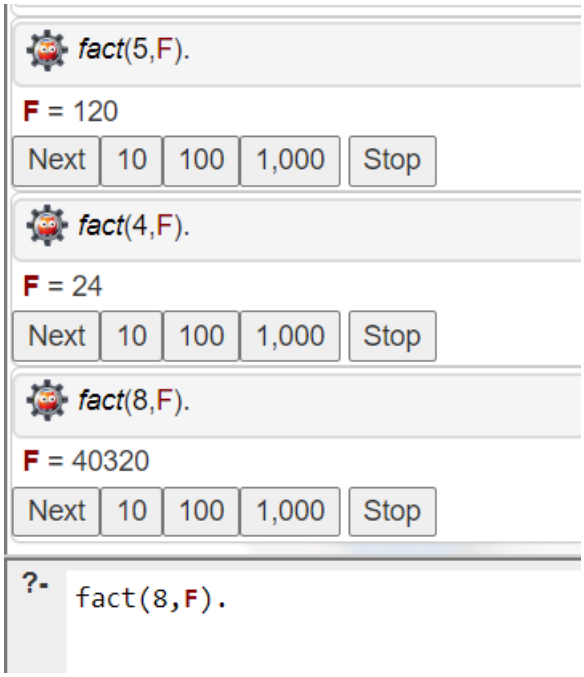
2) Write Prolog program to print Factorial

ANS:

- **Code:**

```
fact(0, 1).
fact(N, F) :-
    N > 0,
    N1 is N - 1,
    fact(N1, F1),
    F is N * F1.
```

- **Output:**

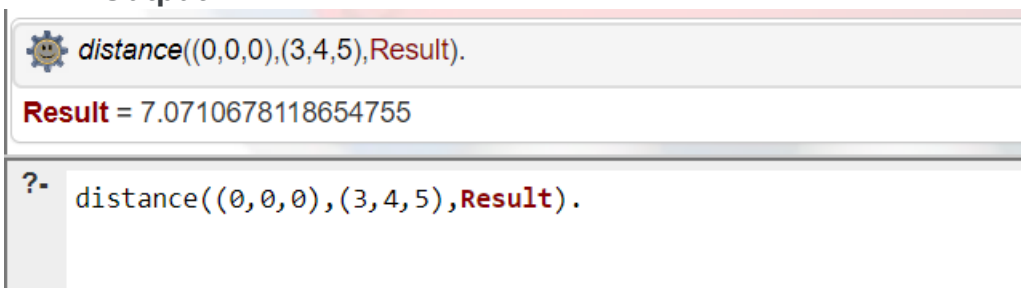


3) Calculate distance between two points in 3D Plane
ANS:

- **Code:**

distance((X1,Y1,Z1),(X2,Y2,Z2),D):-D is sqrt((X2-X1)^2+(Y2-Y1)^2+(Z2-Z1)^2).

- **Output:**



4) Check Precedence and associativity of various operators and define new operator.
ANS:

- **Code:**

```
current_op(P,A,+).
current_op(P,A,*).
current_op(P,A,/).
```

current_op(P,A,-).

current_op(P,A,**).

current_op(P,A,=:=).

current_op(P,A,:-).

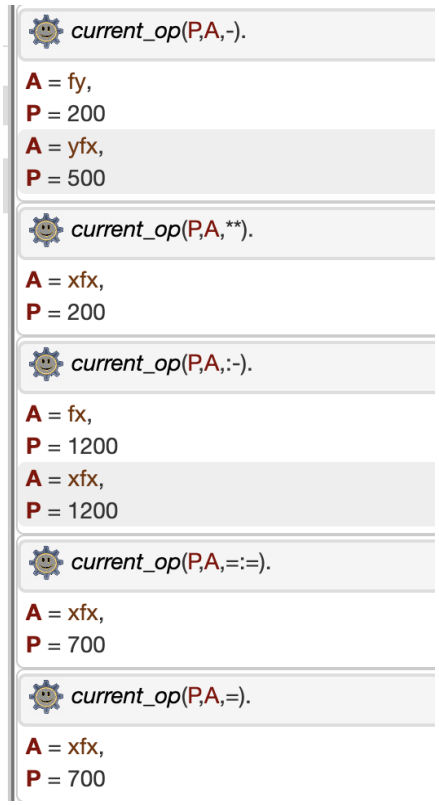
current_op(P,A,=).

- **Code :**

  op(300, xfx, is_bigger).

  elephant is_bigger dog.

- **Output:**




```
% c:/Users/DELL/Documents/Prolog/newop1.pl compiled 0.00 sec, 1 clauses
?- op(300, xfx, is_bigger).
true.

?- elephant is_bigger dog.
true.

?-
```

5) Write a Prolog program to print out a square of n × n given characters on the screen.

?- square(5, '* ').

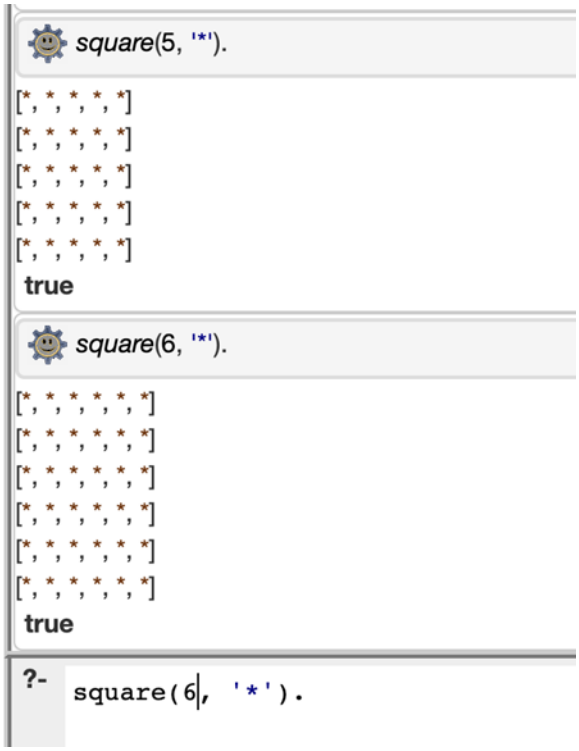
```
* * * * *
* * * * *
* * * * *
* * * * *
* * * * *
```

ANS:

- **Code:**

```
square(N, Char) :-
length(Row, N),
maplist(=(Char), Row),
length(Square, N),
maplist(=(Row), Square),
maplist(writeln, Square).
```

- **Output:**


square(5, '*').
[*, *, *, *, *]
[*, *, *, *, *]
[*, *, *, *, *]
[*, *, *, *, *]
[*, *, *, *, *]
true
square(6, '*').
[*, *, *, *, *, *]
[*, *, *, *, *, *]
[*, *, *, *, *, *]
[*, *, *, *, *, *]
[*, *, *, *, *, *]
[*, *, *, *, *, *]
true
?- square(6, '*').