Practical – 2

A. Implement following prolog programs.
   a) To find the greatest variable among the three variables.
   b) To find a factorial of a given number.
   c) To check whether a given number is palindrome or not.
   d) To check whether a given number is prime or not.

- **To find the greatest variable among the three variables.**

Prolog program:

```
start:-
        write("Enter first number : "),
        read(X),
        write("Enter second number : "),
        read(Y),
        write("Enter third number : "),
        read(Z),
        max(X,Y,Z).
max(X,Y,Z):-X>Y,X>Z,write("Maximum Number is "),write(X).
max(X,Y,Z):-X<Y,Y>Z,write("Maximum Number is "),write(Y).
max(_,_,Z):-write("Maximum Number is "),write(Z).
```

Output:

```
?- start.
Enter first number : 45.
Enter second number : |: 87.
Enter third number : |: 12.
Maximum Number is 87
true .
```

- **To find a factorial of a given number .**

Prolog program:

```
start:-
        write('Enter a number : '),
        read(N),
        fact(N,R),nl,
        write('Factorial of given number is : '), write(R).

fact(0,1).

fact(N,R):-
        N>0,
        N1 is N-1,
        fact(N1,R1),
        R is N*R1.
```

Output:

```
?- start.
Enter a number : 6.

Factorial of given number is : 720
true .
```

- **To find the greatest variable among the three variables.**

Prolog program:

```
go:-
        write('Enter a number: '),
        read(N),
        palindrome(N).
palindrome(N):-
        revert(N,0,R),
        R =:= N, write('Given number is a palindrome number').
palindrome(_):-
         write('Given number is not a palindrome number').

revert(0,X,R):- R is X.
revert(N,X,R):- N > 0,
        X1 is (X*10)+(N mod 10),
        N1 is N//10,
        revert(N1,X1,R).
```

Output:

```
?- go.
Enter a number: 212.
Given number is a palindrome number
true .

?- go.
Enter a number: 4500.
Given number is not a palindrome number
true.
```

- **To find the greatest variable among the three variables.**

Prolog program:

```
start:-
        write("Enter first number : "),
                start:-
                write('Enter a number: '),  read(N),
                prime(N).
        prime(X):-
                X < 2,
                write('Given number is not prime number.').
        prime(2):-
                write('Given number is prime number.').
        prime(X):-
                X>2,
                divisible(X,2),
                write('Given number is not prime number.').
        prime(_):-
                write('Given number is prime number.').
        divisible(X,Y):-
                X mod Y =:= 0, true.
        divisible(X,Y):-
                Y+1 < X,divisible(X, Y+1).
```

Output:

```
?- start.
Enter a number: 99.
Given number is not prime number.
true .

?- start.
Enter a number: 97.
Given number is prime number.
true.

?-
```