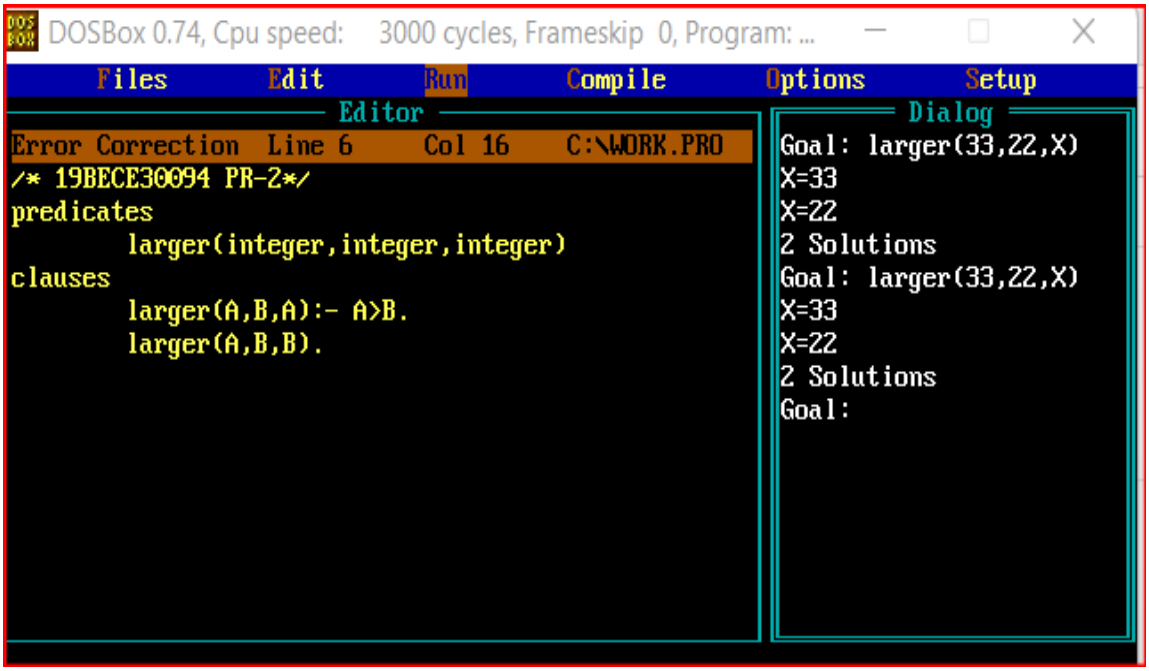
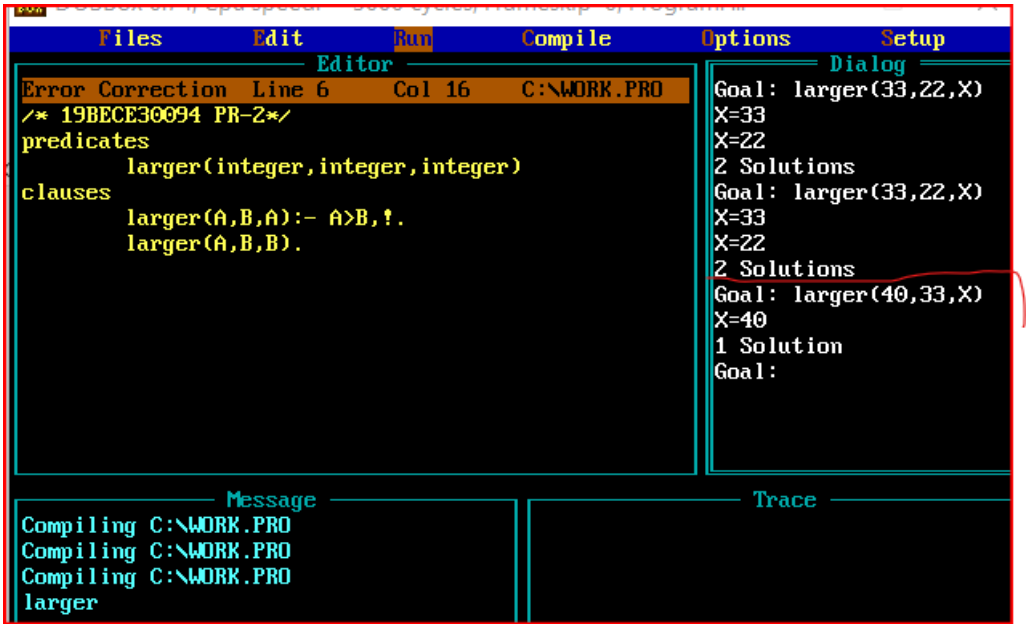
Practical-2

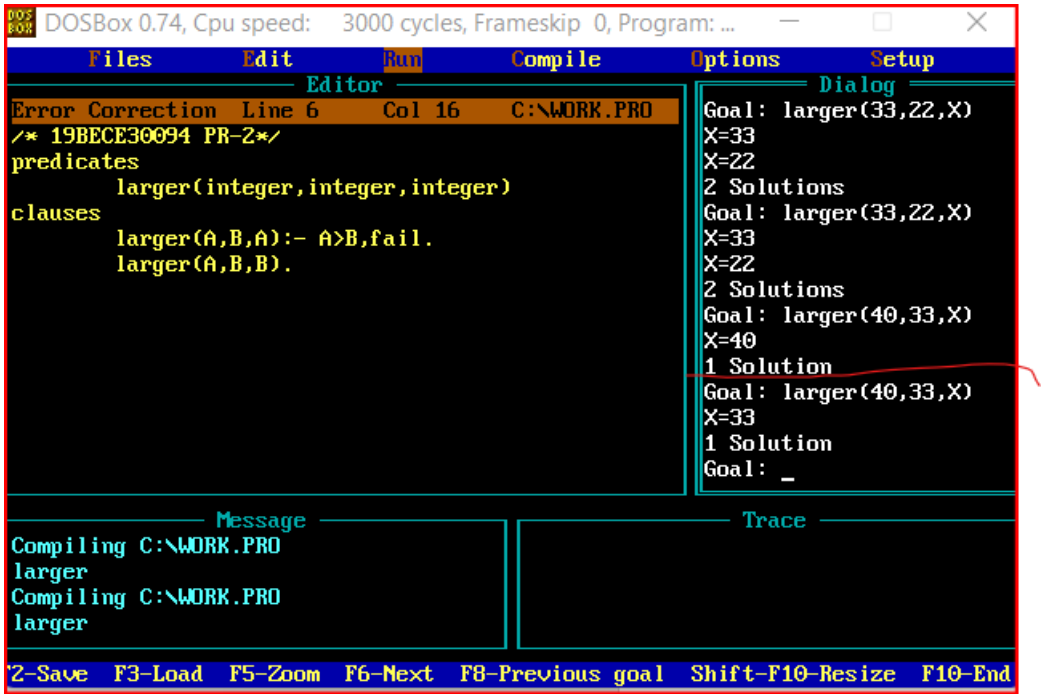
2. Write a program to implement “cut” and “fail” predicate in PROLOG.

Pro-1 :- Implement Minimum and Maximum Without Using Cut And Fail.



Pro-2 :- Implement Minimum and Maximum With Using Cut And Fail

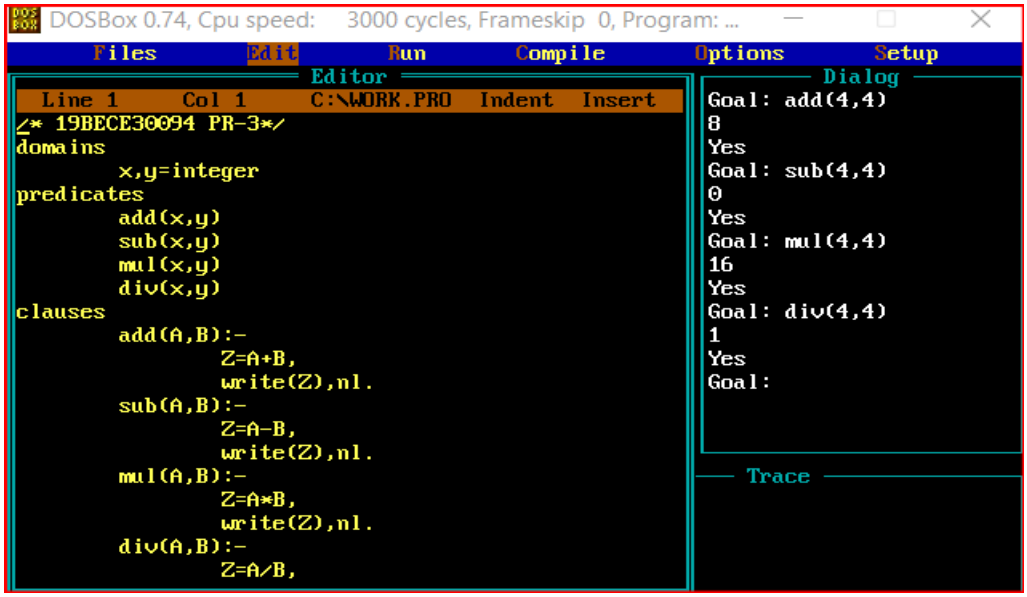


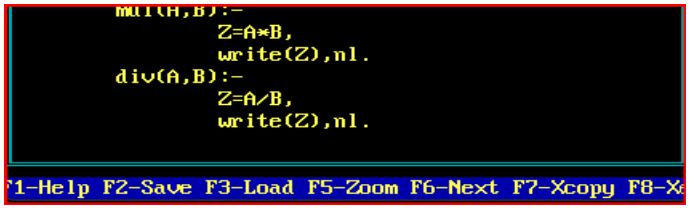

DOSBox 0.74, Cpu speed: 3000 cycles, Frameskip 0, Program: ...
Files Edit Run Compile Options Setup
Editor
Error Correction Line 6 Col 16 C:\WORK.PRO
/* 19BECE30094 PR-2*/
predicates
larger(integer,integer,integer)
clauses
larger(A,B,A):- A>B,fail.
larger(A,B,B).
Dialog
Goal: larger(33,22,X)
X=33
X=22
2 Solutions
Goal: larger(33,22,X)
X=33
X=22
2 Solutions
Goal: larger(40,33,X)
X=40
1 Solution
Goal: larger(40,33,X)
X=33
1 Solution
Goal: _
Message
Compiling C:\WORK.PRO
larger
Compiling C:\WORK.PRO
larger
Trace
F2-Save F3-Load F5-Zoom F6-Next F8-Previous goal Shift-F10-Resize F10-End

Practical-3

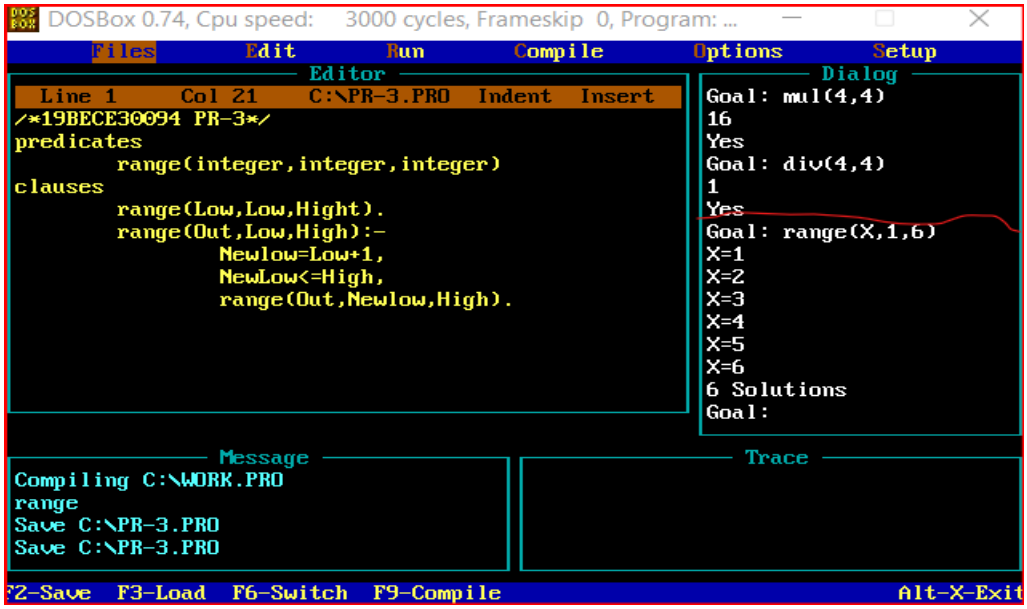
3. Write a program to implement arithmetic operators, simple input/output and compound goals in PROLOG.

Pro 1:-Implement Arithmetic Operator.

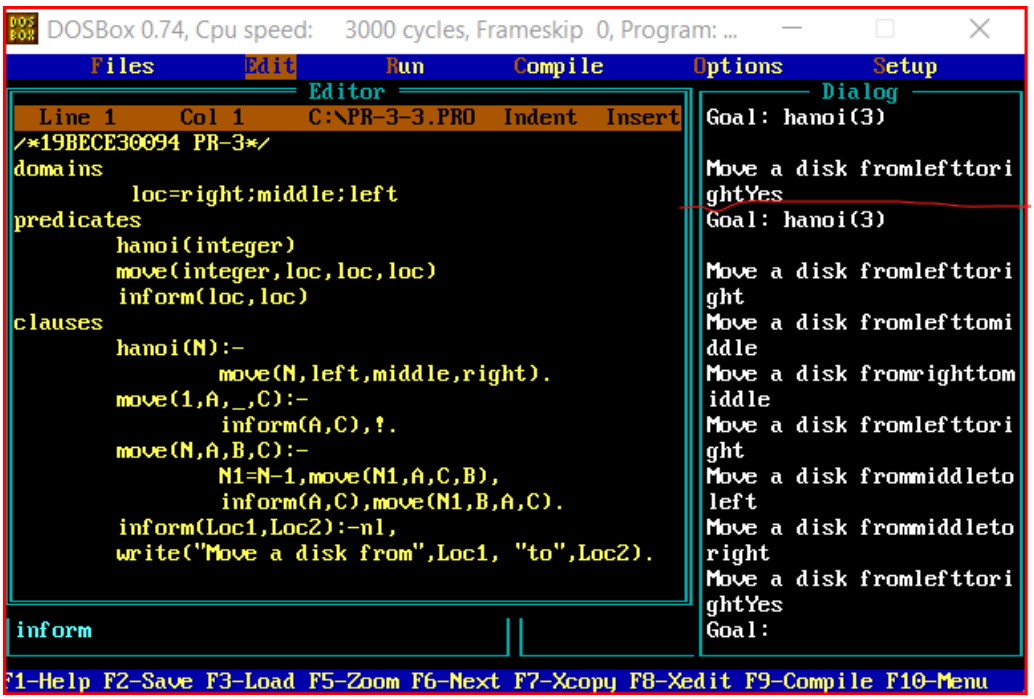




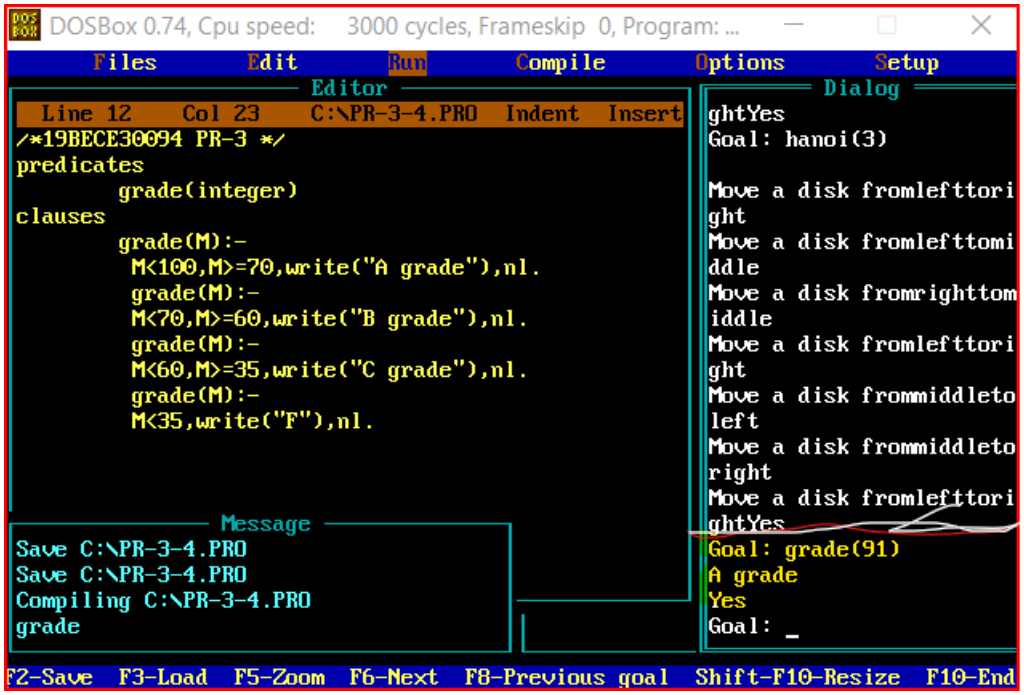
Pro 2:- To print the value between Range.



Pro 3:-Implement Tower Of hanoi.



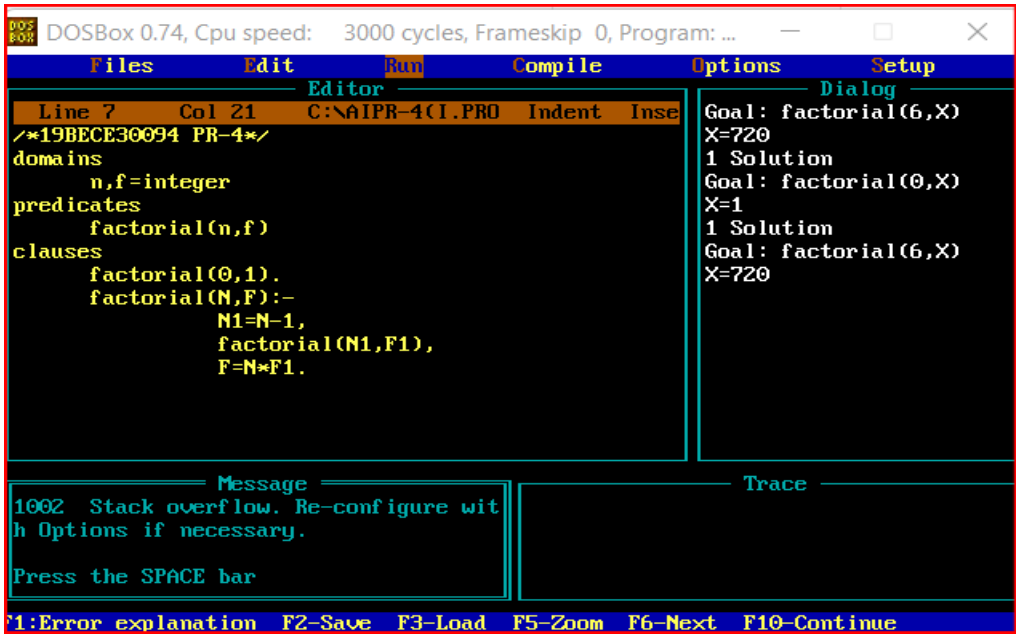
Pro 4:-To Find grade.



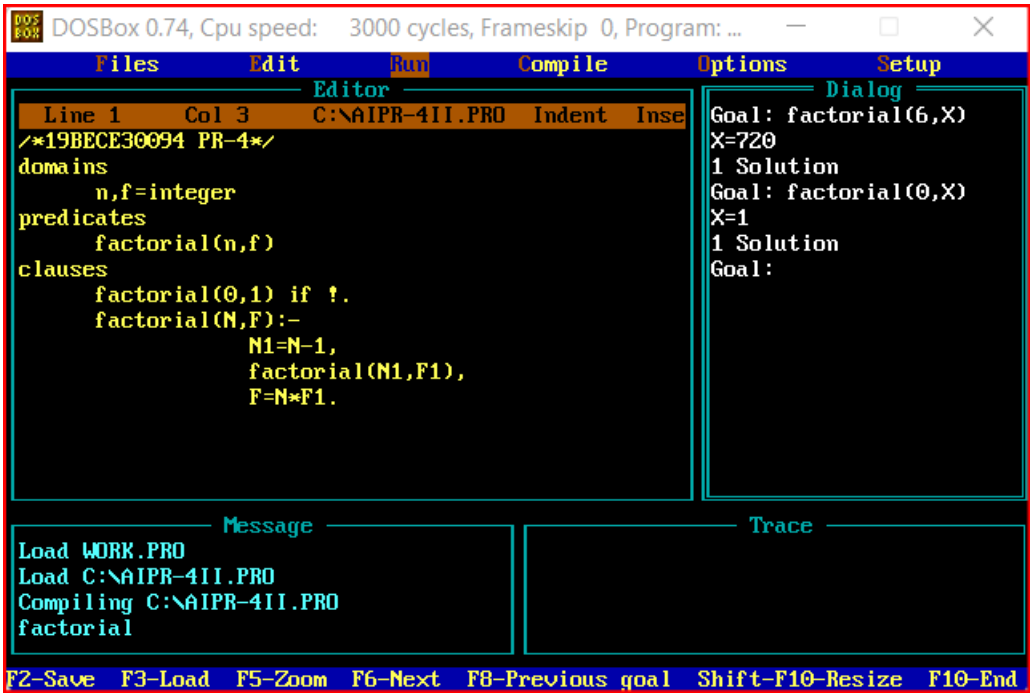
Practical-4

4. Write a program to implement recursion in PROLOG.

Pro 1:-Implement Factorial Program.



Pro 2:-Implement Factorial Program using Cut and Fail.



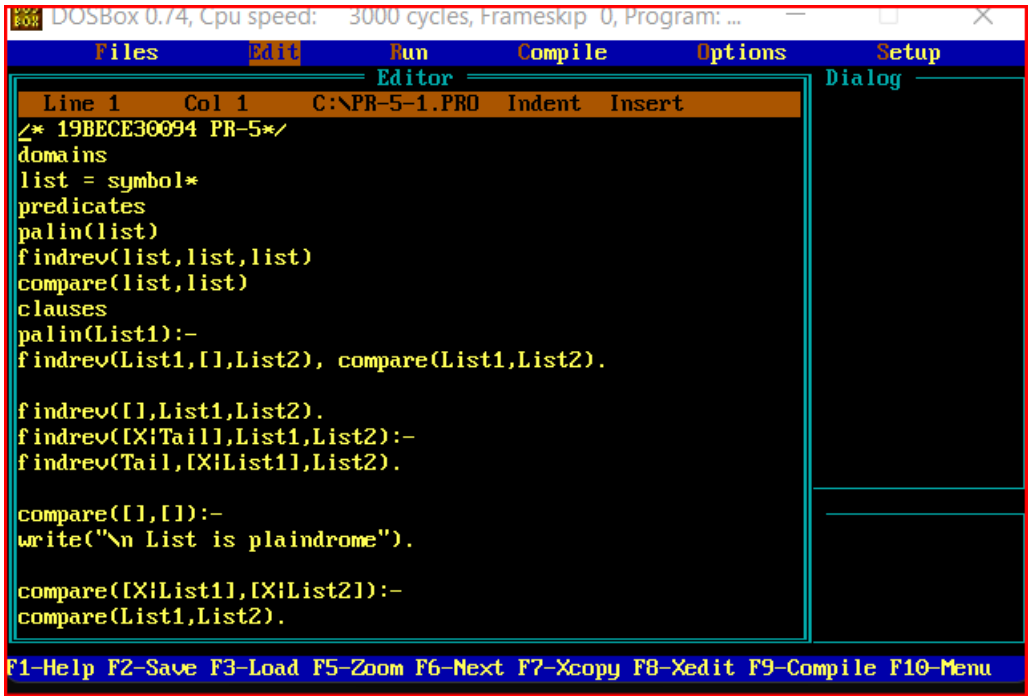
Practical-5

5. Write a program to implement Lists in PROLOG.

Program (1): Code for Prolog program to check whether a given list is palindrome or not in Artificial Intelligence

```
domains
list=symbol*
predicates
palin(list)
findrev(list,list,list)
compare(list, list)
clauses
palin(List1):-
findrev(List1,[],List2), compare(List1, List2).
findrev([],List1, List1).
findrev([X|Tail], List1,List2):-
findrev(Tail,[X|List1], List2).
compare([],[]):-
write("\nList is Palindrome").
compare([X|List1],[X|List2]):-
compare(List1, List2).
compare([X|List1],[Y|List2]):-
write("\nList is not Palindrome").
```

Output:-

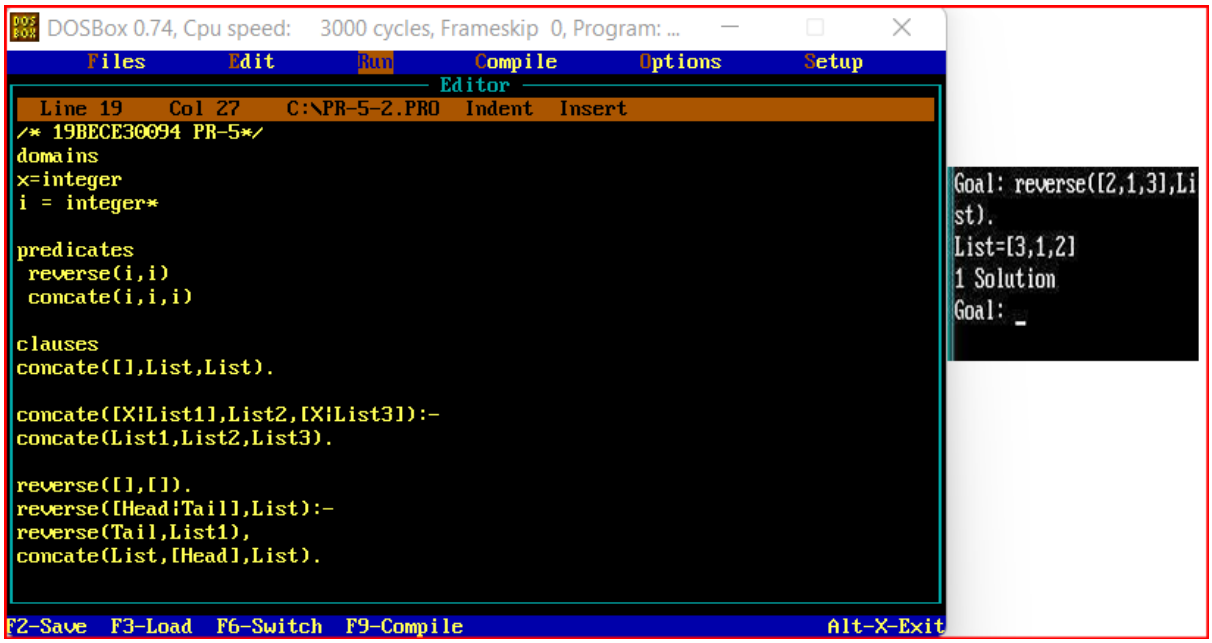

DOSBox 0.74, Cpu speed: 3000 cycles, Frameskip 0, Program: ...
Files Edit Run Compile Options Setup
Editor
Line 1 Col 1 C:\PR-5-1.PRO Indent Insert
/* 19BECE30094 PR-5*/
domains
list = symbol*
predicates
palin(list)
findrev(list,list,list)
compare(list,list)
clauses
palin(List1):-
findrev(List1,[],List2), compare(List1,List2).
findrev([],List1,List2).
findrev([X|Tail],List1,List2):-
findrev(Tail,[X|List1],List2).
compare([],[]):-
write("\n List is plaindrome").
compare([X|List1],[X|List2]):-
compare(List1,List2).
Dialog
F1-Help F2-Save F3-Load F5-Zoom F6-Next F7-Xcopy F8-Xedit F9-Compile F10-Menu


Dialog
Goal: palin([m,i,t]).
List is not PalindromeYe
s
Goal: palin([n,y,n]).
List is PalindromeYes
Goal:

Program (2): Code for Prolog program to reverse a list using concatenate in Artificial Intelligence

```
domains
x = integer
I = integer*

predicates
reverse(1,1)
concatenate(1,1,1)

clauses
concatenate([],List, List).

concatenate([X|List1], List2, [X|List3]) :-
concatenate(List1, List2, List3).

reverse([],[]).

reverse([Head |Tail], List) :-
reverse(Tail, List1),
concatenate(List1,[Head],List).
```

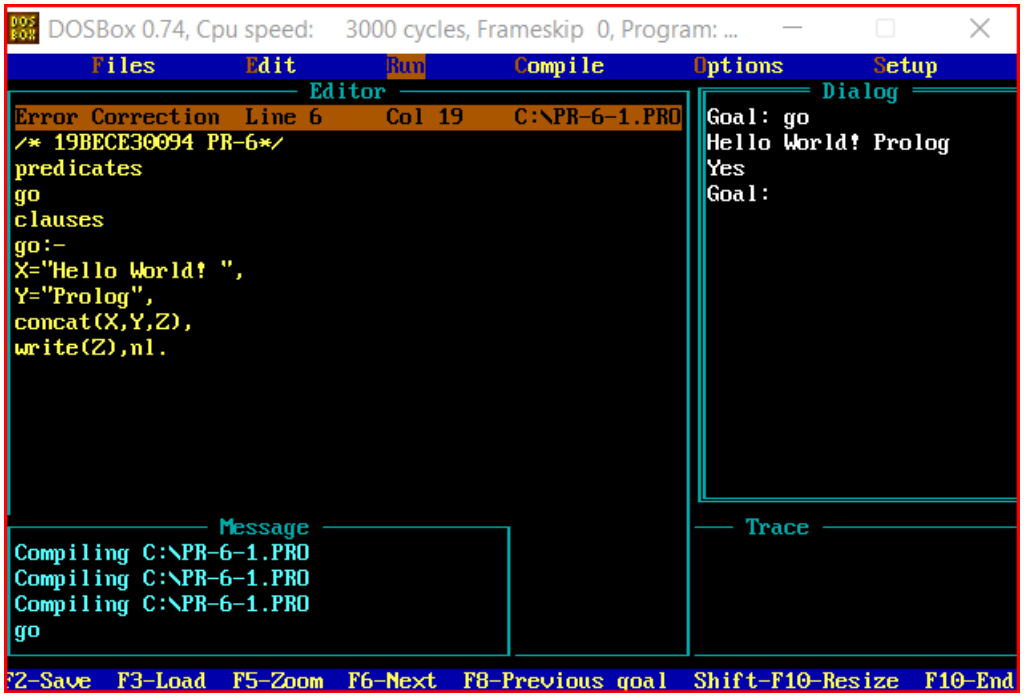
Output:-



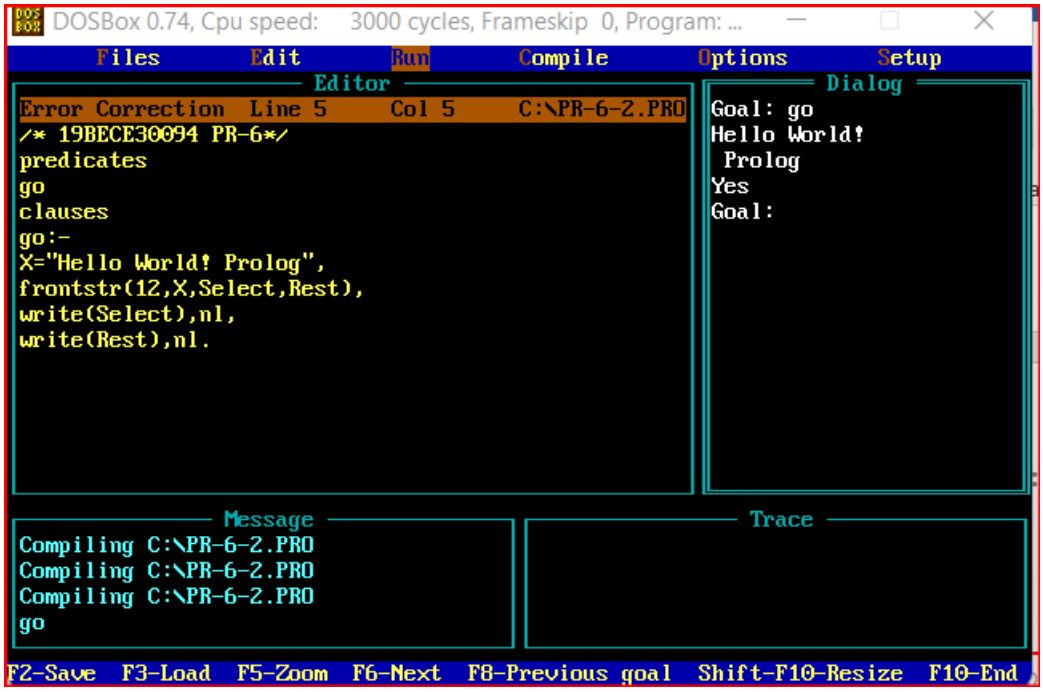
Practical-6

6. Write a program to implement string operations in PROLOG. Implement string operations like substring, String position, palindrome etc.)

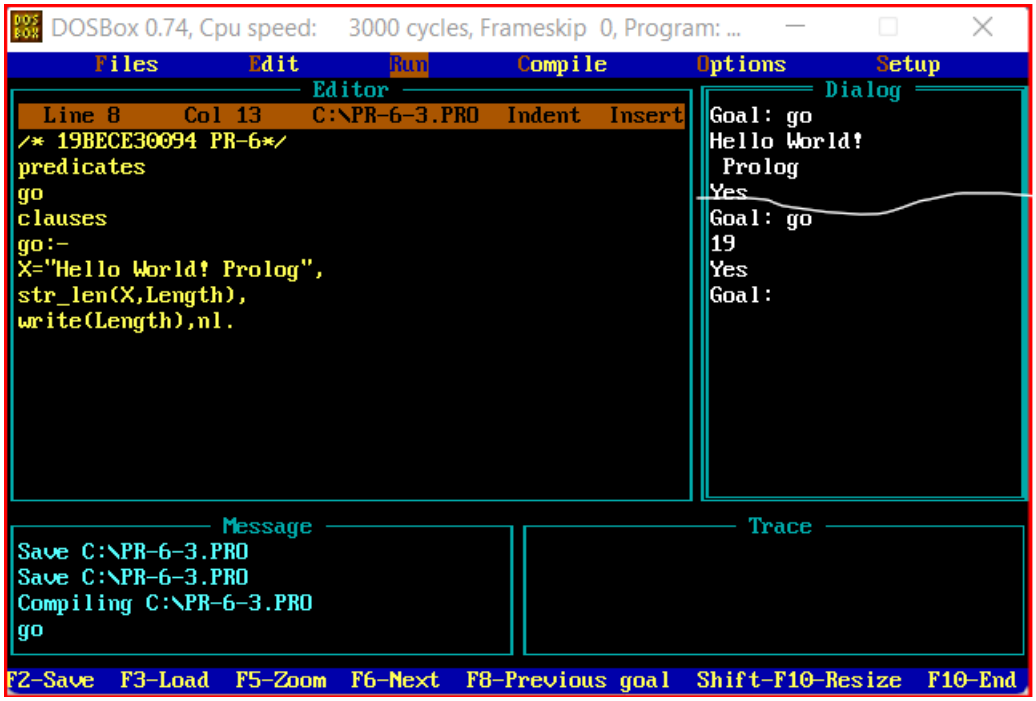
Pro-1. ConcatString



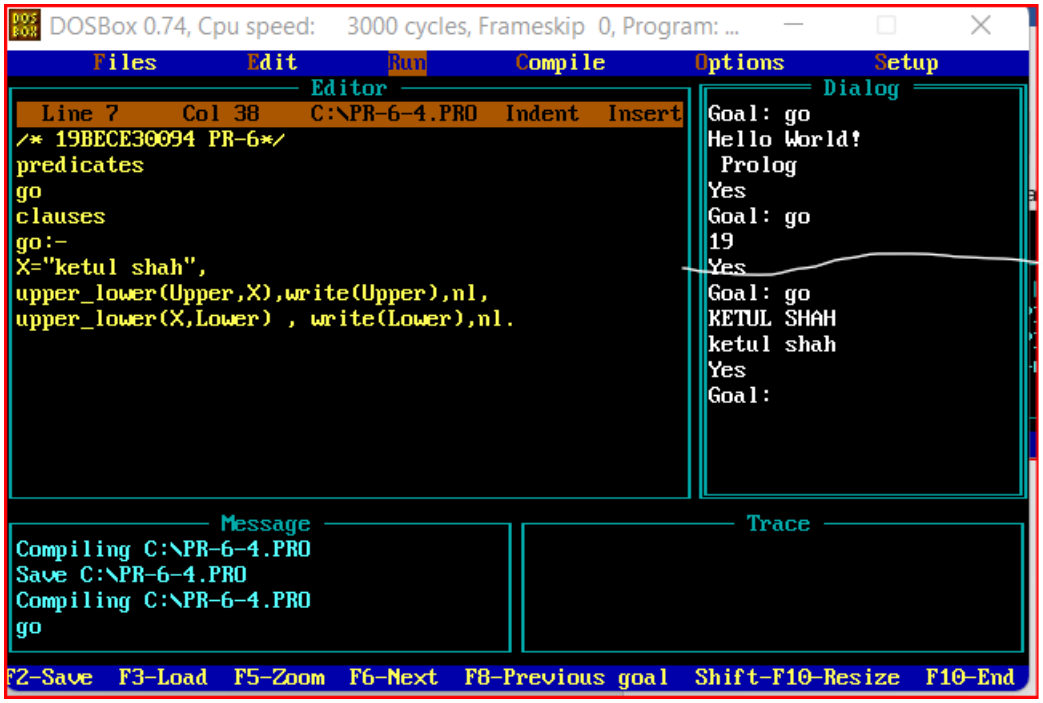
Pro-2. Split String:- frontstr().



Pro-3. Find Length Of String :- str_len().



Pro-4. Converting upper_lower()



Practical-7

7. Write a prolog program to maintain family tree.

Program : Code for Prolog program for family hierarchy in Artificial Intelligence

```
predicates
male(symbol).
female(symbol).
father(symbol,symbol).
husband(symbol,symbol).
brother(symbol,symbol).
sister(symbol,symbol).
listbrothers(symbol).
listsisters(symbol).
mother(symbol,symbol).
grandfather(symbol).
grandmother(symbol).
uncle(symbol).
aunt(symbol).
cousin(symbol).
listgrandsons(symbol).
listgranddaughters(symbol).
printmenu.
action(integer).
repeat.

clauses
male(dashrath).
male(ram).
male(laxman).
male(bharat).
male(luv).
```

```
male(kush).
male(son_of_laxman).
female(kaushalya).
female(sita).
female(urmila).
female(daughter_of_dashrath).
father(dashrath,ram).
father(dashrath,laxman).
father(dashrath,bharat).
father(ram,luv).
father(ram,kush).
father(laxman,son_of_laxman).
father(dashrath,daughter_of_dashrath).
husband(dashrath,kaushalya).
husband(ram,sita).
husband(laxman,urmila).
mother(X,Y):- husband(Z,X),
father(Z,Y).
brother(X,Y):- father(Z,X),
father(Z,Y),
X<>Y,
male(X).
sister(X,Y):- father(Z,X),
father(Z,Y),
X<>Y,
female(X).
listbrothers(X) :- brother(Z,X),
write(Z).
listsisters(X):- sister(Z,X),
write(Z).
```

```
grandfather(X):- father(Y, Z),
father(Z,X),
write(Y, " is the grandfather of ",X,"\n").
grandmother(X):- husband(Z,X),
father(Z,V),
father(V,Y),
write(Y, " is the grandmother of ",X,"\n").

listgrandsons(X):- father(X,Z),
father(Z,Y),
male(Y),
write(Y,"\n"),
fail.
listgrandsons(X):- husband(Y,X),
father(Y,V),
father(V,Z),
male(Z),
write(Z,"\n"),
fail.
listgranddaughters(X):- father(X,Z),
father(Z,Y),
female(Y),
write(Y,"\n"),
fail.
listgranddaughters(X):- husband(Y,X),
father(Y,V),
father(V,Z),
female(Z),
write(Z,"\n"),
fail.
```

```
uncle(X):- brother(Z,Y),
father(Z,X),
male(Y),
write(Y,"\n"),
fail.
aunt(X):- husband(Z,Y),
brother(Z,V),
father(V,X),
write(Y,"\n"),
fail.
cousin(X):- father(Z,X),
father(V,Y),
Z<>V,
brother(V,Z),
write(Y,"\n").

repeat.
repeat:- repeat.
action(1):- write("\nEnter name of person whose father is to be found : "),
readln(X),
write("\n"),
write("Father of ",X," is:"),
father(Z,X),
write(Z,"\n"),
fail.
action(2):- write("\nEnter name of person whose mother is to be found : "),
readln(X),
write("\n"),
write("Mother of ",X," is:"),
mother(Z,X),
```

```
write(Z,"\n"),
fail.
action(3):- write("\nEnter name of person whose brothers are to be found : "),
readln(X),
write("\n"),
write("Brothers of ",X," are:\n"),
listbrothers(X),
write("\n"),
fail.
action(4):- write("\nEnter name of person whose sisters are to be found : "),
readln(X),
write("\n"),
write("Sisters of ",X," are:\n"),
listsisters(X),
write("\n"),
fail.
action(5):- write("\nEnter name of person whose grandsons are to be found : "),
readln(X),
write("\n"),
write("Grandsons of ",X," are:\n"),
listgrandsons(X),
write("\n"),
fail.

action(6):- write("\nEnter name of person whose granddaughters are to be found : "),
readln(X),
write("\n"),
write("Granddaughters of ",X," are:\n"),
listgranddaughters(X),
write("\n"),
```

```
fail.
action(7):- write("\nEnter name of person whose uncles are to be found : "),
readln(X),
write("\n"),
write("Uncles of ",X," are:\n"),
uncle(X),
write("\n"),
fail.
action(8):- write("\nEnter name of person whose aunties are to be found : "),
readln(X),
write("\n"),
write("Aunties of ",X," are:\n"),
aunt(X),
write("\n"),
fail.

action(9):- write("\nEnter name of person whose cousins are to be found : "),
readln(X),
write("\n"),
write("Cousins of ",X," are:\n"),
cousin(X),
write("\n"),
fail.
action(0).
printmenu :-
repeat,
write("\n1. Display Father of?\n"),
write("2. Display Mother of?\n"),
write("3. List all brothers of?\n"),
write("4. List all sisters of?\n"),
```

```
write("5. List all grandson of?\n"),
write("6. List all granddaughter of?\n"),
write("7. List all uncles of?\n"),
write("8. List all aunty of?\n"),
write("9. list all cousins of?\n"),
write("0. exit\n"),
write("Enter your choice : "),
readInt(Choice),
action(Choice),
write("\n"),
repeat.
goal
makewindow(1,2,3,"Family Tree",0,0,25,80),
printmenu.
```

Output:-

```
+---------------------------------Family Tree ----------------------------- +
¦ ¦
¦1. Display Father of? ¦
¦2. Display Mother of? ¦
¦3. List all brothers of? ¦
¦4. List all sisters of? ¦
¦5. List all grandson of? ¦
¦6. List all granddaughter of? ¦
¦7. List all uncles of? ¦
¦8. List all aunty of? ¦
¦9. list all cousins of? ¦
¦0. exit ¦
¦Enter your choice : 1 ¦
¦ ¦
¦Enter name of person whose father is to be found : ram ¦
¦ ¦
¦Father of ram is:dashrath ¦
¦ ¦
¦1. Display Father of? ¦
¦2. Display Mother of? ¦
¦3. List all brothers of? ¦
¦4. List all sisters of? ¦
¦5. List all grandson of? ¦
¦6. List all granddaughter of? ¦
¦7. List all uncles of? ¦
¦8. List all aunty of? ¦
¦9. list all cousins of? ¦
¦0. exit ¦
¦Enter your choice : 3 ¦
```

¦ ¦

¦Enter name of person whose brothers are to be found : ram ¦

¦ ¦

¦Brothers of ram are: ¦

¦laxman ¦

¦bharat ¦

¦ ¦

¦1. Display Father of? ¦

¦2. Display Mother of? ¦

¦3. List all brothers of? ¦

¦4. List all sisters of? ¦

¦5. List all grandson of? ¦

¦6. List all granddaughter of? ¦

¦7. List all uncles of? ¦

¦8. List all aunty of? ¦

¦9. list all cousins of? ¦

¦0. exit ¦

¦Enter your choice : 5 ¦

¦ ¦

¦Enter name of person whose grandsons are to be found : dashrath ¦

¦ ¦

¦Grandsons of dashrath are: ¦

¦luv ¦

¦kush ¦

¦son_of_laxman ¦

¦ ¦

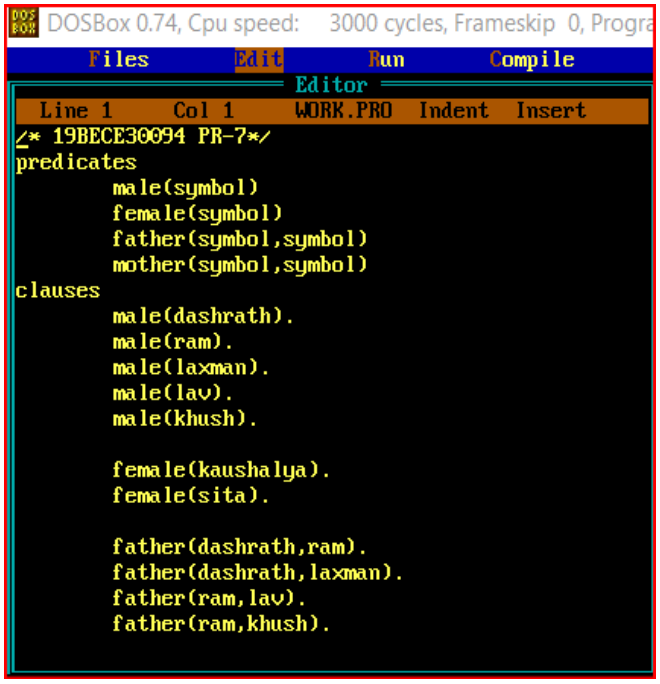
¦1. Display Father of? ¦

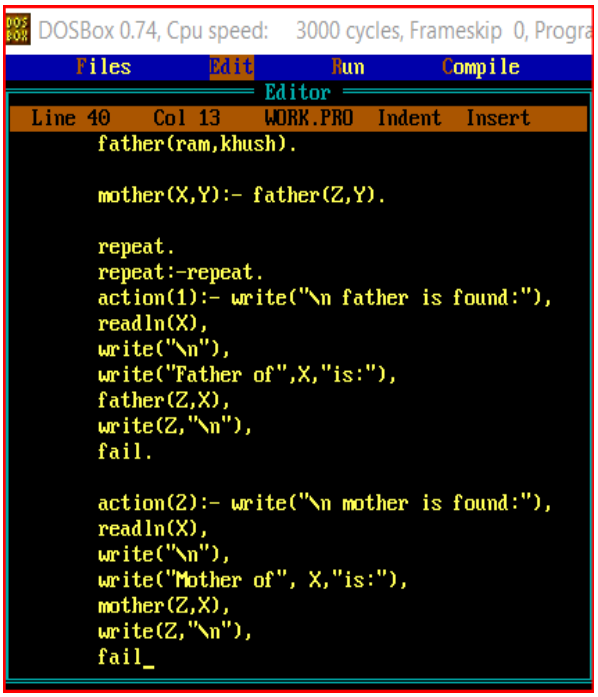
¦2. Display Mother of? ¦

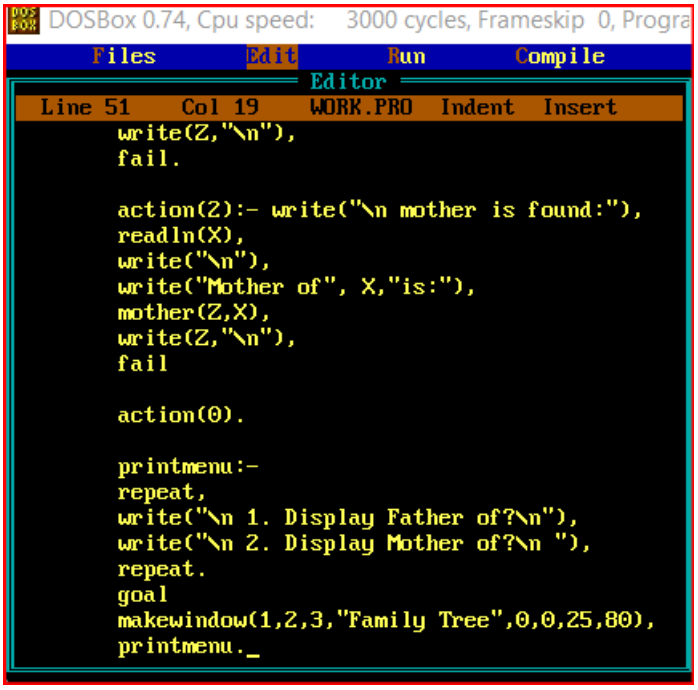
¦3. List all brothers of? ¦

¦4. List all sisters of? ¦

```
¦5. List all grandson of? ¦
¦6. List all granddaughter of? ¦
¦7. List all uncles of? ¦
¦8. List all aunty of? ¦
¦9. list all cousins of? ¦
¦0. exit ¦
¦Enter your choice : 7 ¦
¦ ¦
¦Enter name of person whose uncles are to be found : kus ¦
¦ ¦
¦Uncles of kush are: ¦
¦laxman ¦
¦bharat ¦
¦ ¦
¦1. Display Father of? ¦
¦2. Display Mother of? ¦
¦3. List all brothers of? ¦
¦4. List all sisters of? ¦
¦5. List all grandson of? ¦
¦6. List all granddaughter of? ¦
¦7. List all uncles of? ¦
¦8. List all aunty of? ¦
¦9. list all cousins of? ¦
¦0. exit ¦
¦Enter your choice : ¦
¦ ¦
¦ ¦
¦Press the SPACE bar ¦
+-----------------------------------------------------------------------------+
```


DOSBox 0.74, Cpu speed: 3000 cycles, Frameskip 0, Progra
Files Edit Run Compile
Editor
Line 1 Col 1 WORK.PRO Indent Insert
/* 19BECE30094 PR-7*/
predicates
male(symbol)
female(symbol)
father(symbol,symbol)
mother(symbol,symbol)
clauses
male(dashrath).
male(ram).
male(laxman).
male(lav).
male(khush).
female(kaushalya).
female(sita).
father(dashrath,ram).
father(dashrath,laxman).
father(ram,lav).
father(ram,khush).


DOSBox 0.74, Cpu speed: 3000 cycles, Frameskip 0, Progra
Files Edit Run Compile
Editor
Line 40 Col 13 WORK.PRO Indent Insert
father(ram,khush).
mother(X,Y):- father(Z,Y).
repeat.
repeat:-repeat.
action(1):- write("\n father is found:"),
readln(X),
write("\n"),
write("Father of",X,"is:"),
father(Z,X),
write(Z,"\n"),
fail.
action(2):- write("\n mother is found:"),
readln(X),
write("\n"),
write("Mother of", X,"is:"),
mother(Z,X),
write(Z,"\n"),
fail


DOSBox 0.74, Cpu speed: 3000 cycles, Frameskip 0, Progra
Files Edit Run Compile
Editor
Line 51 Col 19 WORK.PRO Indent Insert
write(Z,"\n"),
fail.
action(2):- write("\n mother is found:"),
readln(X),
write("\n"),
write("Mother of", X,"is:"),
mother(Z,X),
write(Z,"\n"),
fail
action(0).
printmenu:-
repeat,
write("\n 1. Display Father of?\n"),
write("\n 2. Display Mother of?\n "),
repeat.
goal
makewindow(1,2,3,"Family Tree",0,0,25,80),
printmenu.

Practical-8

Program : Write a program to implement BFS (for AI search problem)

```
domains
        X, H, N, ND=symbol
        P, L, T, Z, Z1, L1, L2, L3, PS, NP, ST, SOL=symbol*

predicates
        solve(L, L) member(X,L) extend(L, L) conc(X, L, L) breadthfirst(L, L) goal(X)


clauses

          solve(start, solution):-/*solution is a state from start to a goal*/ breadthfirst ([[start]],
                                                                                                  solution).

        breadthfirst([[node|path]| _ ] ,[node|path]):- /*solution is an extension to a
        goal*/  /*of one of path*/

        goal(node).


        breadthfirst(path1,solution).

        extend([node|path],newpaths):- bagof([newnode, node|path],(s(node,
        newnode),notmember(newnode,[node|path])), newpaths),!.
        extend(path, []).  conc([], L, L).

        conc([X|L1], L2, [X|L3]):- conc(L1, L2, L3).

        member(X, [X|T]).

        member(X, [H|T]):-
        member(X, T).
```

OUTPUT:-

```
goal: solve([a, e], S)
L= ["a", "b", "c", "d", "e"]

goal: solve([a, h],S)
L= ["a", "b", "c", "d", "e", "f", "g", "h"]
```

DOSBox 0.74, Cpu speed: 3000 cycles, Frameskip 0, Program: ...

Files Edit Run Compile Options Setup

Editor

Line 1 Col 1 C:\PR-8.PRO Indent Insert

```
/* 19BECE30094 PR-8*/
domains
X,H,N,ND = symbol
P,L,T,Z,Z1,L1,L2,L3,PS,NP,ST,SOL = symbol*

predicates
 solve(L,L)
 member(X,L)
 extend(X,L,L)
 conc(X,L,L)
 breadthfirst(L,L)
 goal(X)

 clauses
 solve(start,solution):- breadthfirst([[start]],solution).
 breadthfirst([[node|path]|_],[node|path]):-goal(node).
 breadthfirst([path|paths],solution):-extend(path,newpath),conc(paths,
 breadthfirst(path1,solution).

 extend([node|paths],newpaths):-badof([new node,node|path],
 (s(node,newmode),notmember(newmode,[node|path])),newpaths),!.
```

DOSBox 0.74, Cpu speed: 3000 cycles, Frameskip 0, Program: ...

Files Edit Run Compile Options Setu

Editor

Line 28 Col 1 C:\PR-8.PRO Indent Insert

```
 member(X,L)
 extend(X,L,L)
 conc(X,L,L)
 breadthfirst(L,L)
 goal(X)

 clauses
 solve(start,solution):- breadthfirst([[start]],solution).
 breadthfirst([[node|path]|_],[node|path]):-goal(node).
 breadthfirst([path|paths],solution):-extend(path,newpath),conc(paths,
 breadthfirst(path1,solution).

 extend([node|paths],newpaths):-badof([new node,node|path],
 (s(node,newmode),notmember(newmode,[node|path])),newpaths),!.
 extend(path,[]).
 conc([],L,L).
 conc([X|L1],L2,[X|L3]):-conc(L1,L2,L3).
 member(X,[X|T]).
 member(X,[H|T]):-
 member(X,T).
```

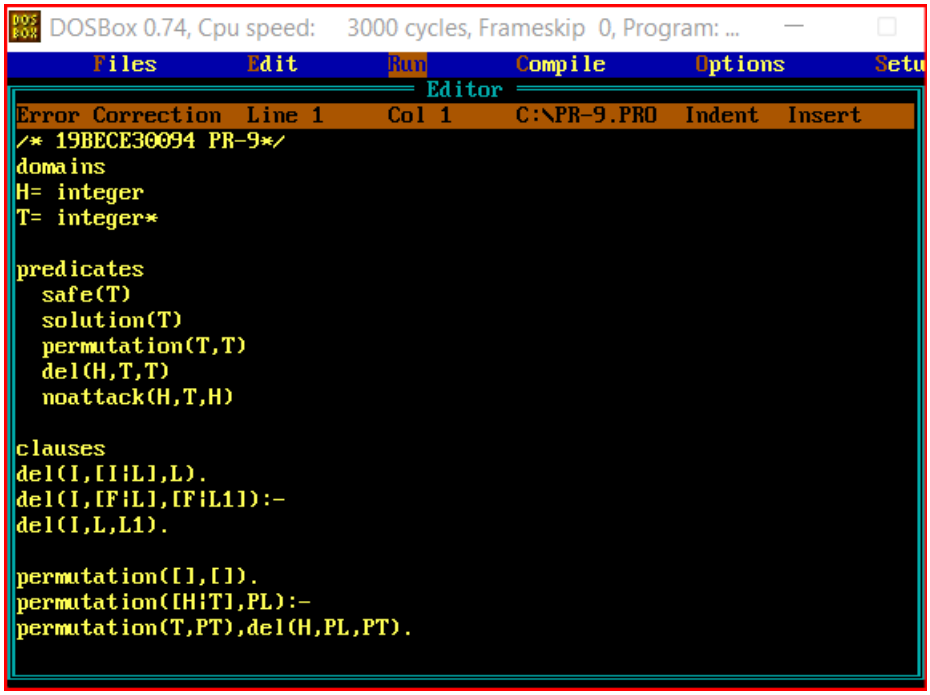
Practical : 9

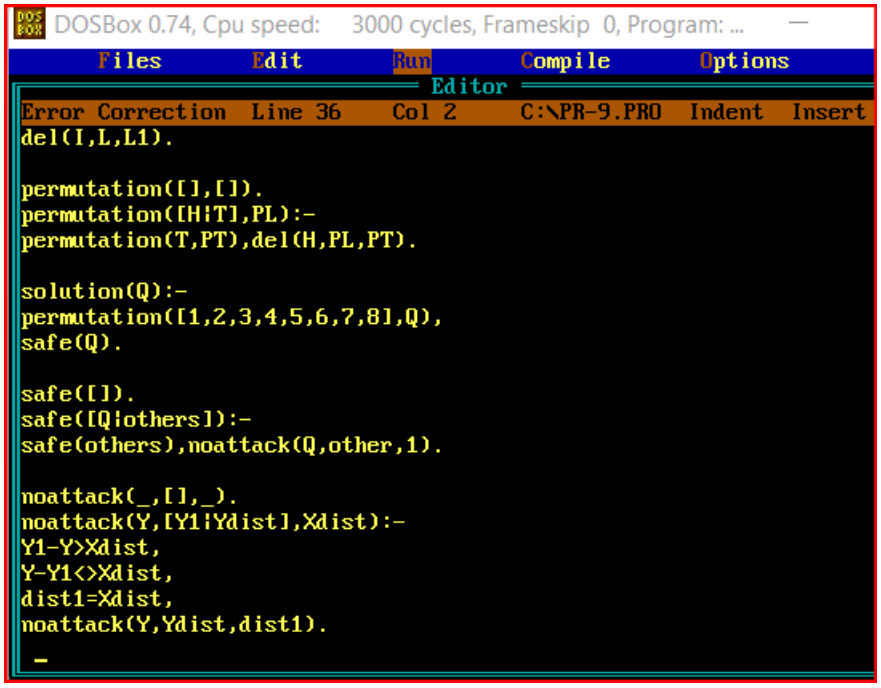
Program : Write a program to implement DFS (for 8 puzzle problem)

```
domains
        H=integer T=integer*

predicates
        safe(T)
        solution(T)
        permutation(T,T)
        del(H,T,T)
        noattack(H,T,H)


clauses


        del(I,[I|L],L). /*to take a position from the permutation of
        list*/  del(I,[F|L],[F|L1]):-
        del(I,L,L1).

        permutation([],[]). /*to find the possible positions*/
         permutation([H|T],PL):-
        permutation(T,PT),\ del(H,PL,PT).

        solution(Q):- /*final solution is stored in Q*/
        permutation([1,2,3,4,5,6,7,8],Q),
        safe(Q).

        safe([]). /*Q is safe such that no queens attack each other*/
        safe([Q|others]):-
        safe(others), noattack(Q,others,1).

        noattack(_,[],_)./*to find if the queens are in same row, column or
        diagonal*/

        noattack(Y,[Y1|Ydist],Xdist):-
        Y1-Y >Xdist,
        Y-Y1<>Xdist,
        dist1=Xdist,
        noattack(Y,Ydist,dist1)
```

OUTPUT:-

```
goal:-solution(Q). Q=["3","8","4","7","1","6",2","5"]
```


DOSBox 0.74, Cpu speed: 3000 cycles, Frameskip 0, Program: ...
Files Edit Run Compile Options Setu
Editor
Error Correction Line 1 Col 1 C:\PR-9.PRO Indent Insert
/* 19BECE30094 PR-9*/
domains
H= integer
T= integer*
predicates
safe(T)
solution(T)
permutation(T,T)
del(H,T,T)
noattack(H,T,H)
clauses
del(I,[I|L],L).
del(I,[F|L],[F|L1]):-
del(I,L,L1).
permutation([],[]).
permutation([H|T],PL):-
permutation(T,PT),del(H,PL,PT).

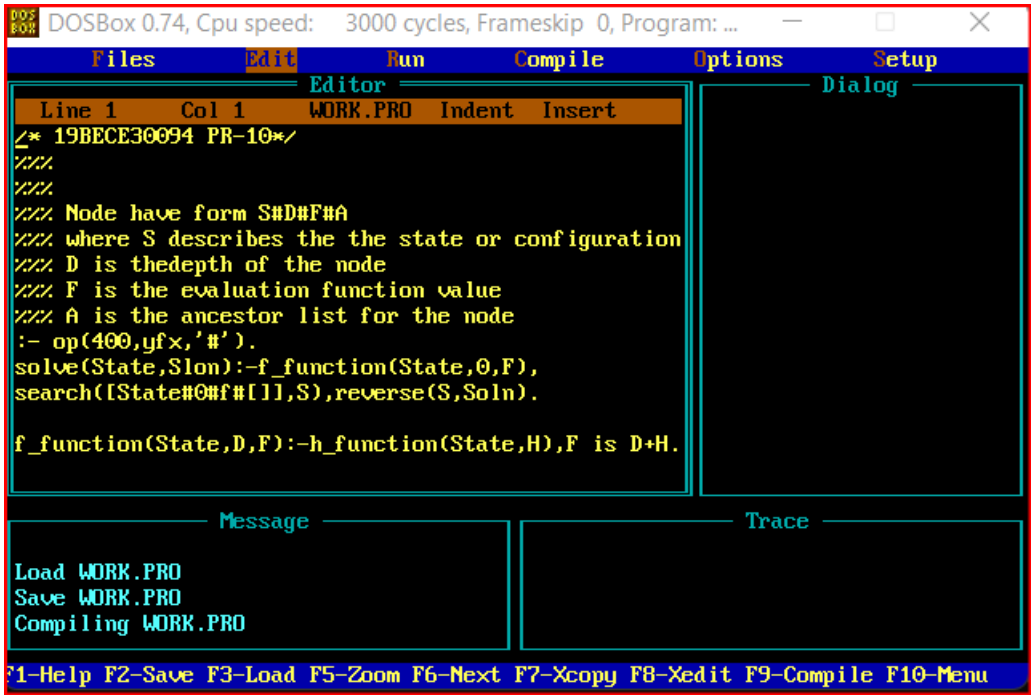

DOSBox 0.74, Cpu speed: 3000 cycles, Frameskip 0, Program: ...
Files Edit Run Compile Options
Editor
Error Correction Line 36 Col 2 C:\PR-9.PRO Indent Insert
del(I,L,L1).
permutation([],[]).
permutation([H|T],PL):-
permutation(T,PT),del(H,PL,PT).
solution(Q):-
permutation([1,2,3,4,5,6,7,8],Q),
safe(Q).
safe([]).
safe([Q|others]):-
safe(others),noattack(Q,other,1).
noattack(_,[],_).
noattack(Y,[Y1|Ydist],Xdist):-
Y1-Y>Xdist,
Y-Y1<>Xdist,
dist1=Xdist,
noattack(Y,Ydist,dist1).

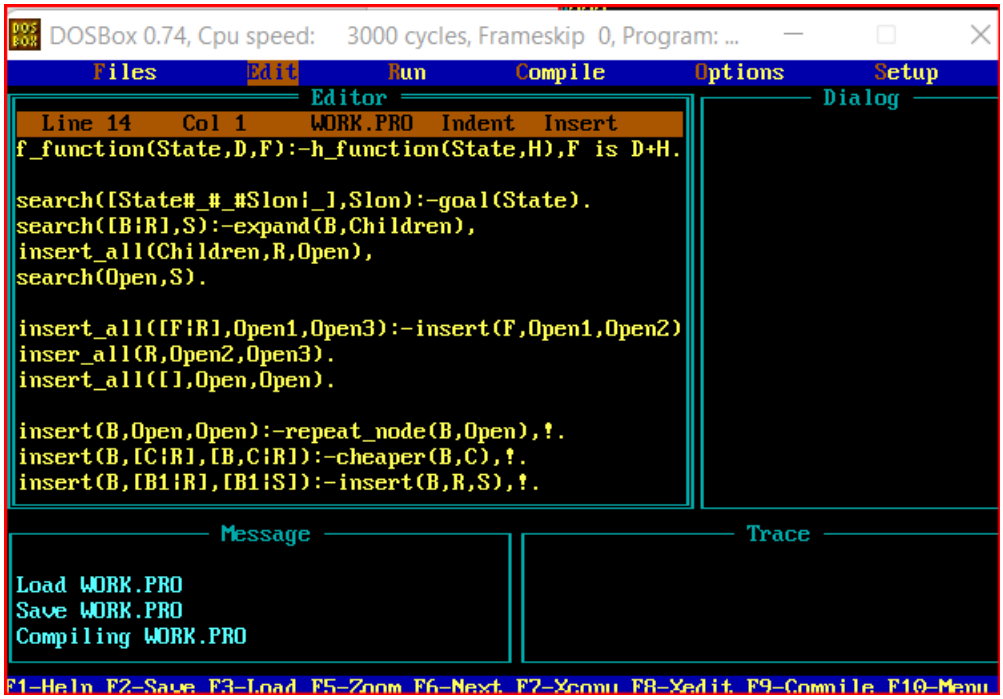
Practical-10

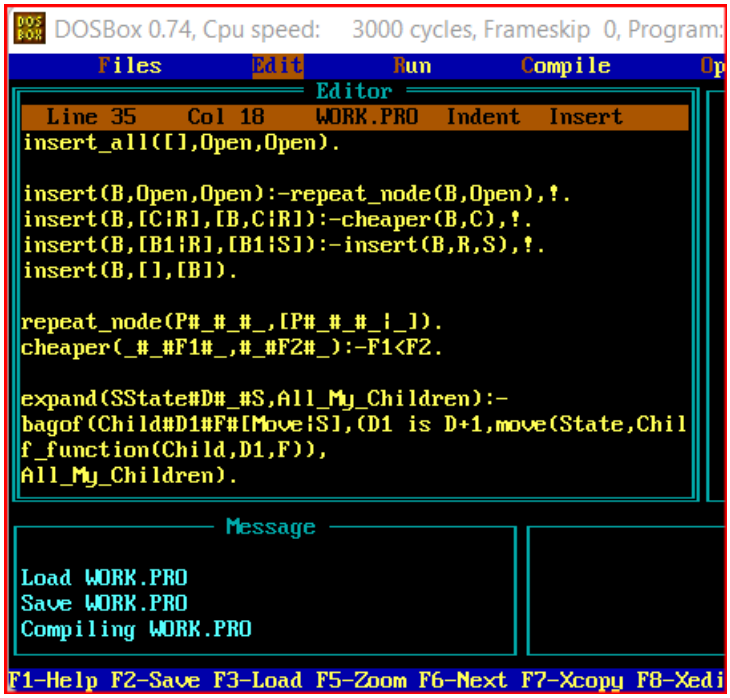
Program : Write a program to implement A* Algorithm.

```
%%%
%%%
%%% Nodes have form S#D#F#A
%%% where S describes the state or

configuration
%%% D is the depth of the node
%%% F is the evaluation function value
%%% A is the ancestor list for the node

:- op(400,yfx,'#'). /* Node builder notation */

solve(State,Soln) :- f_function(State,0,F),
            search([State#0#F#[]],S), reverse(S,Soln).

f_function(State,D,F) :- h_function(State,H),
              F is D + H.

search([State#_#_#Soln|_], Soln) :- goal(State).
search([B|R],S) :- expand(B,Children),
           insert_all(Children,R,Open),
           search(Open,S).
insert_all([F|R],Open1,Open3) :- insert

(F,Open1,Open2),
                    insert_all(R,Open2,Open3).
insert_all([],Open,Open).

insert(B,Open,Open) :- repeat_node(B,Open), ! .
insert(B,[C|R],[B,C|R]) :- cheaper(B,C), ! .
insert(B,[B1|R],[B1|S]) :- insert(B,R,S), !.
insert(B,[],[B]).

repeat_node(P#_#_#_, [P#_#_#_|_]).

cheaper( _#_#F1#_ , _#_#F2#_ ) :- F1 < F2.

expand(State#D#_#S,All_My_Children) :-
   bagof(Child#D1#F#[Move|S],
      (D1 is D+1,
        move(State,Child,Move),
      f_function(Child,D1,F)),
      All_My_Children).
```

Output:-


DOSBox 0.74, Cpu speed: 3000 cycles, Frameskip 0, Program: ...
Files Edit Run Compile Options Setup
Editor
Line 1 Col 1 WORK.PRO Indent Insert
/* 19BECE30094 PR-10*/
%%%
%%%
%%% Node have form S#D#F#A
%%% where S describes the the state or configuration
%%% D is thedepth of the node
%%% F is the evaluation function value
%%% A is the ancestor list for the node
:- op(400,yfx,'#').
solve(State,Slon):-f_function(State,0,F),
search([State#0#f#[]],S),reverse(S,Soln).
f_function(State,D,F):-h_function(State,H),F is D+H.
Dialog
Message
Load WORK.PRO
Save WORK.PRO
Compiling WORK.PRO
Trace
F1-Help F2-Save F3-Load F5-Zoom F6-Next F7-Xcopy F8-Xedit F9-Compile F10-Menu

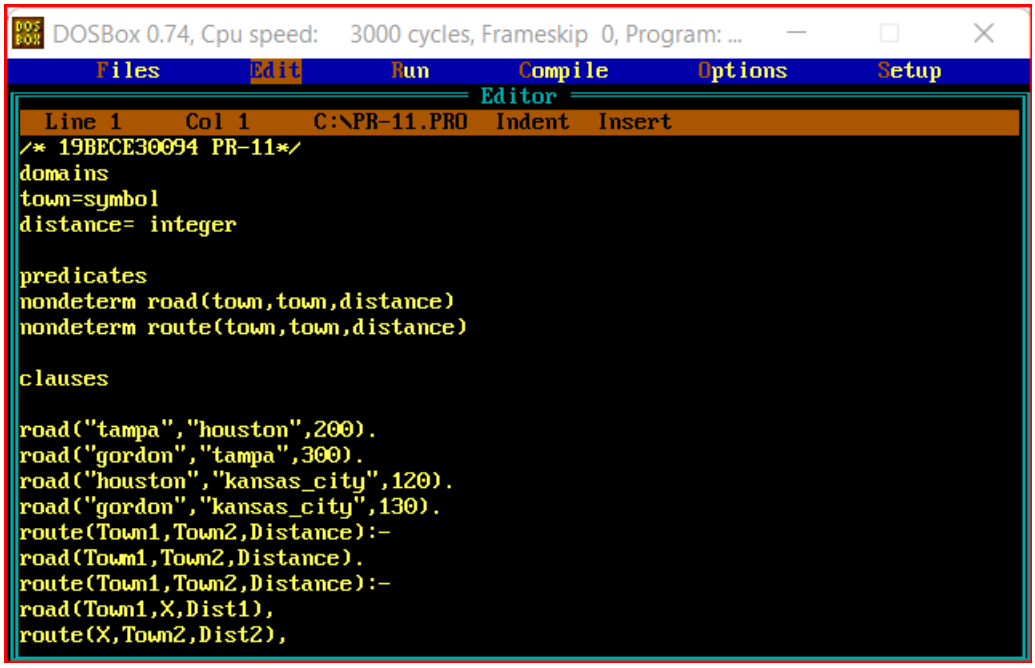

DOSBox 0.74, Cpu speed: 3000 cycles, Frameskip 0, Program: ...
Files Edit Run Compile Options Setup
Editor
Line 14 Col 1 WORK.PRO Indent Insert
f_function(State,D,F):-h_function(State,H),F is D+H.
search([State#_#_#Slon|_],Slon):-goal(State).
search([B|R],S):-expand(B,Children),
insert_all(Children,R,Open),
search(Open,S).
insert_all([F|R],Open1,Open3):-insert(F,Open1,Open2)
inser_all(R,Open2,Open3).
insert_all([],Open,Open).
insert(B,Open,Open):-repeat_node(B,Open),!.
insert(B,[C|R],[B,C|R]):-cheaper(B,C),!.
insert(B,[B1|R],[B1|S]):-insert(B,R,S),!.
Dialog
Message
Load WORK.PRO
Save WORK.PRO
Compiling WORK.PRO
Trace


DOSBox 0.74, Cpu speed: 3000 cycles, Frameskip 0, Program:
Files Edit Run Compile Op
Editor
Line 35 Col 18 WORK.PRO Indent Insert
insert_all([],Open,Open).
insert(B,Open,Open):-repeat_node(B,Open),!.
insert(B,[C|R],[B,C|R]):-cheaper(B,C),!.
insert(B,[B1|R],[B1|S]):-insert(B,R,S),!.
insert(B,[],[B]).
repeat_node(P#_#_#_,[P#_#_#_|_]).
cheaper(_#_#F1#_,#_#F2#_):-F1<F2.
expand(SState#D#_#S,All_My_Children):-
bagof(Child#D1#F#[Move|S],(D1 is D+1,move(State,Chil
f_function(Child,D1,F)),
All_My_Children).
Message
Load WORK.PRO
Save WORK.PRO
Compiling WORK.PRO
F1-Help F2-Save F3-Load F5-Zoom F6-Next F7-Xcopy F8-Xedi

Practical-11

Program : Write a program to solve travelling salesman problem using Prolog.

```
domains
town = symbol
 distance = integer
predicates
nondeterm road(town,town,distance)
nondeterm route(town,town,distance) clauses
road("tampa","houston",200).
road("gordon","tampa",300).
road("houston","gordon",100).
road("houston","kansas_city", 120).
road("gordon","kansas_city",130).
route(Town1,Town 2,Distance):- road(Town1,Town2, Distance).
route(Town1, Town 2,Distance):- road(Town1,X, Dist1), route(X,Town2,Dist2),
Distance=Dist1+Dist2, I.
```



```
DOSBox 0.74, Cpu speed:   3000 cycles, Frameskip  0, Program: ...
Files   Edit   Run   Compile   Options   Setup
Editor
Line 21   Col 24   C:\PR-11.PRO   Indent   Insert
domains
town=symbol
distance= integer

predicates
nondeterm road(town,town,distance)
nondeterm route(town,town,distance)

clauses

road("tampa","houston",200).
road("gordon","tampa",300).
road("houston","kansas_city",120).
road("gordon","kansas_city",130).
route(Town1,Town2,Distance):-
road(Town1,Town2,Distance).
route(Town1,Town2,Distance):-
road(Town1,X,Dist1),
route(X,Town2,Dist2),
Distance=Dist1+Dist2,!._
F1-Help F2-Save F3-Load F5-Zoom F6-Next F7-Xcomp F8-Xedit F9-Compile F10-Menu
```

OutPut:-

```
Goal: route("tampa","kan
sas_city",X),write("Dist
ance is",X),nl.
Distance is320
X=320
1 Solution
Goal:
```

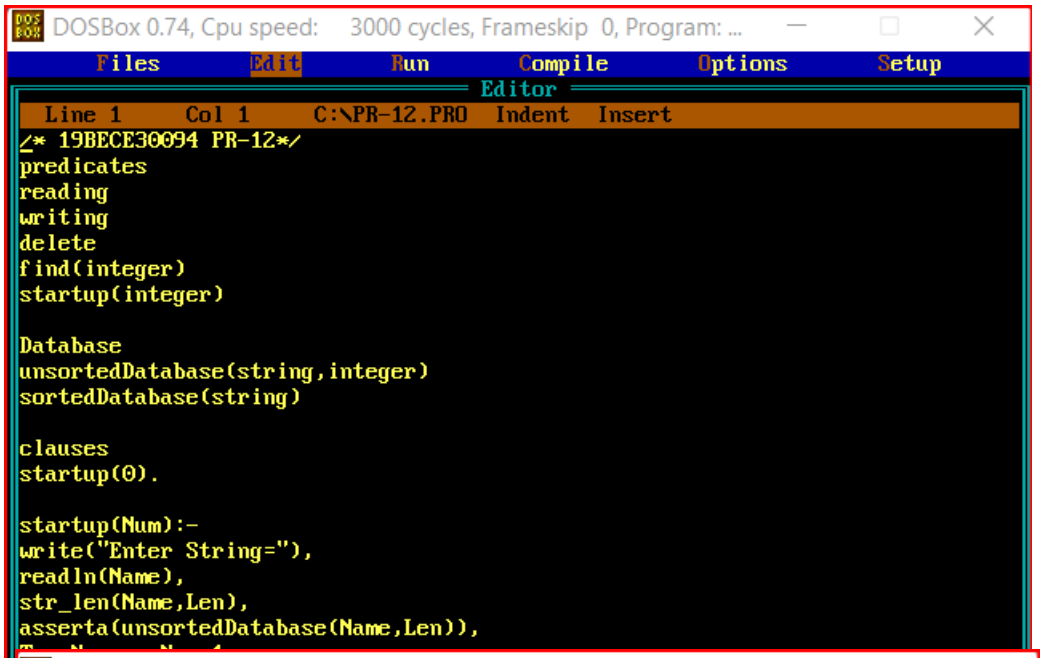
PRACTICAL : 12

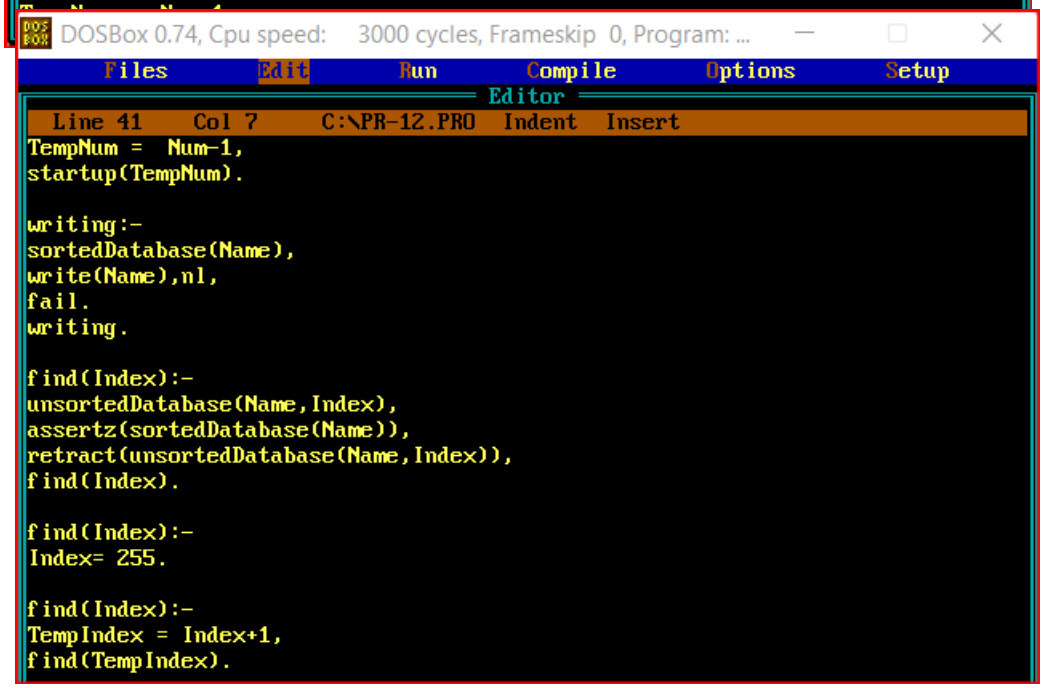
Program : Study of dynamic database in PROLOG.

```
Predicates
reading
writing
delete
find(integer)
startup(integer)

Database
unsortedDatabase(string, integer)
sortedDatabase(string)

clauses
startup(0).

startup(Num):-
write("Enter String = "),
readln(Name),
str_len(Name,Len),
asserta(unsortedDatabase(Name, Len)),
TempNum = Num - 1,
startup(TempNum).

writing:
sortedDatabase(Name),
write(Name),nl,
fail.
writing.

find(Index):
unsortedDatabase(Name,Index),
assertz(sortedDatabase(Name)),
retract(unsortedDatabase(Name,Index)),
find(Index).

find(Index):-
Index = 255.

find(Index):-
TemplndEx = Index + 1,
```

```
find(TemplIndex).

reading:-
NumRead = 10,
startup(NumRead).

delete :
retract(sortedDatabase(_)),
fail.
delete.

Goal
Clearwindow,
makewindow(1,2,3,"String Operations",0,0,25,80),
reading,!,
find(1),
write("\nString In Increasing Order Of Their Length Are : \n"),
writing,
delete.
```

OutPut:-


DOSBox 0.74, Cpu speed: 3000 cycles, Frameskip 0, Program: ...
Files Edit Run Compile Options Setup
Editor
Line 1 Col 1 C:\PR-12.PRO Indent Insert
/* 19BECE30094 PR-12*/
predicates
reading
writing
delete
find(integer)
startup(integer)
Database
unsortedDatabase(string,integer)
sortedDatabase(string)
clauses
startup(0).
startup(Num):-
write("Enter String="),
readln(Name),
str_len(Name,Len),
asserta(unsortedDatabase(Name,Len)),


DOSBox 0.74, Cpu speed: 3000 cycles, Frameskip 0, Program: ...
Files Edit Run Compile Options Setup
Editor
Line 41 Col 7 C:\PR-12.PRO Indent Insert
TempNum = Num-1,
startup(TempNum).
writing:-
sortedDatabase(Name),
write(Name),nl,
fail.
writing.
find(Index):-
unsortedDatabase(Name,Index),
assertz(sortedDatabase(Name)),
retract(unsortedDatabase(Name,Index)),
find(Index).
find(Index):-
Index= 255.
find(Index):-
TempIndex = Index+1,
find(TempIndex).

```
DOSBox 0.74, Cpu speed:   3000 cycles, Frameskip  0, Program: ...
Files   Edit   Run   Compile   Options   Setup
Editor
Line 59   Col 8   C:\PR-12.PRO   Indent   Insert
find(Index):-
TempIndex = Index+1,
find(TempIndex).

reading:-
NumRead =10,
startup(NumRead).

delete:-
retract(sortedDatabase(_)),
fail.
delete.

Goal
Clearwindow,
makewindow(1,2,3,"String Operations",0,0,25,80),
reading,!,
find(1),
write("\n String In Increasing Order Of Their Length Are:- \n"),
writing,
delete._
```

```
DOSBox 0.74, Cpu speed:   3000 cycles, Frameskip  0, Program: ...
String Operations
Enter String=Kesha
Enter String=Zunobio
Enter String=slna
Enter String=salna
Enter String=Anukul
Enter String=Payal
Enter String=Shwetambari
Enter String=rahul
Enter String=raj

 String In Increasing Order Of Their Length Are:-
raj
slna
rahul
Payal
salna
Kesha
Anukul
Mitesh
Zunobio
Shwetambari

Press the SPACE bar
```