

A decorative border of palm trees surrounds the entire page. The border is composed of a repeating pattern of palm trees with green fronds and brown trunks, set against a yellow background. The border is thicker on the left and right sides and thinner on the top and bottom.

PROLOG LAB MANUAL

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Aim 4 :

WAP in turbo prolog for medical diagnosis and show the advantages and disadvantages of green and red cuts.

Solution :

% Facts

/* Description:

In the 4 Queens problem the object is to place 4 queens on a chessboard in such a way that no queens can capture a piece. This means that no two queens may be placed on the same row, column, or diagonal.

*/

% Domains:

queen = q(integer, integer)

queens = queen*

freelist = integer*

board = board(queens, freelist, freelist, freelist, freelist)

% Predicates:

nondeterm placeN(integer, board, board)

nondeterm place_a_queen(integer, board, board)

nondeterm nqueens(integer)

nondeterm makelist(integer, freelist)

nondeterm findandremove(integer, freelist, freelist)

nextrow(integer, freelist, freelist)

% Clauses

nqueens(N):-

makelist(N,L),

Diagonal=N*2-1,

makelist(Diagonal,LL),

placeN(N,board([],L,L,LL,LL),Final),

write(Final).

placeN(_board(D,[],[],D1,D2),board(D,[],[],D1,D2)):-!.

placeN(N,Board1,Result):-

place_a_queen(N,Board1,Board2),

placeN(N,Board2,Result).

place_a_queen(N,

board(Queens,Rows,Columns,Diag1,Diag2),

board([q(R,C) | Queens],NewR,NewC,NewD1,NewD2)):-

nextrow(R,Rows,NewR),

findandremove(C,Columns,NewC),

D1=N+C-R,findandremove(D1,Diag1,NewD1),

D2=R+C-1,findandremove(D2,Diag2,NewD2).

findandremove(X,[X | Rest],Rest).

findandremove(X,[Y | Rest],[Y | Tail]]:-

findandremove(X,Rest,Tail).

makelist(1,[1]).

makelist(N,[N | Rest]) :-

N1=N-1,makelist(N1,Rest).

A decorative border of palm trees surrounds the text. The border consists of 20 palm trees on each of the four sides (top, bottom, left, and right), totaling 80 palm trees.

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nextrow(Row,[Row | Rest],Rest).
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Output:

% Goal

nqueens(4),nl.

board([q(1,2),q(2,4),q(3,1),q(4,3),[],[],[7,4,1],[7,4,1])

yes