Shri Vile Parle Kelavani Mandal's

INSTITUTE OF TECHNOLOGY

DHULE (M.S.)

DEPARMENT OF COMPUTER ENGINEERING

Subject : Artificial Intelligence Lab

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Class : B.tech Final Year **Batch : B2** **Division: -**

Expt. No. :02 **Date : 28/08/2025**

Title : Implement The N_Queens problem in Prolog.

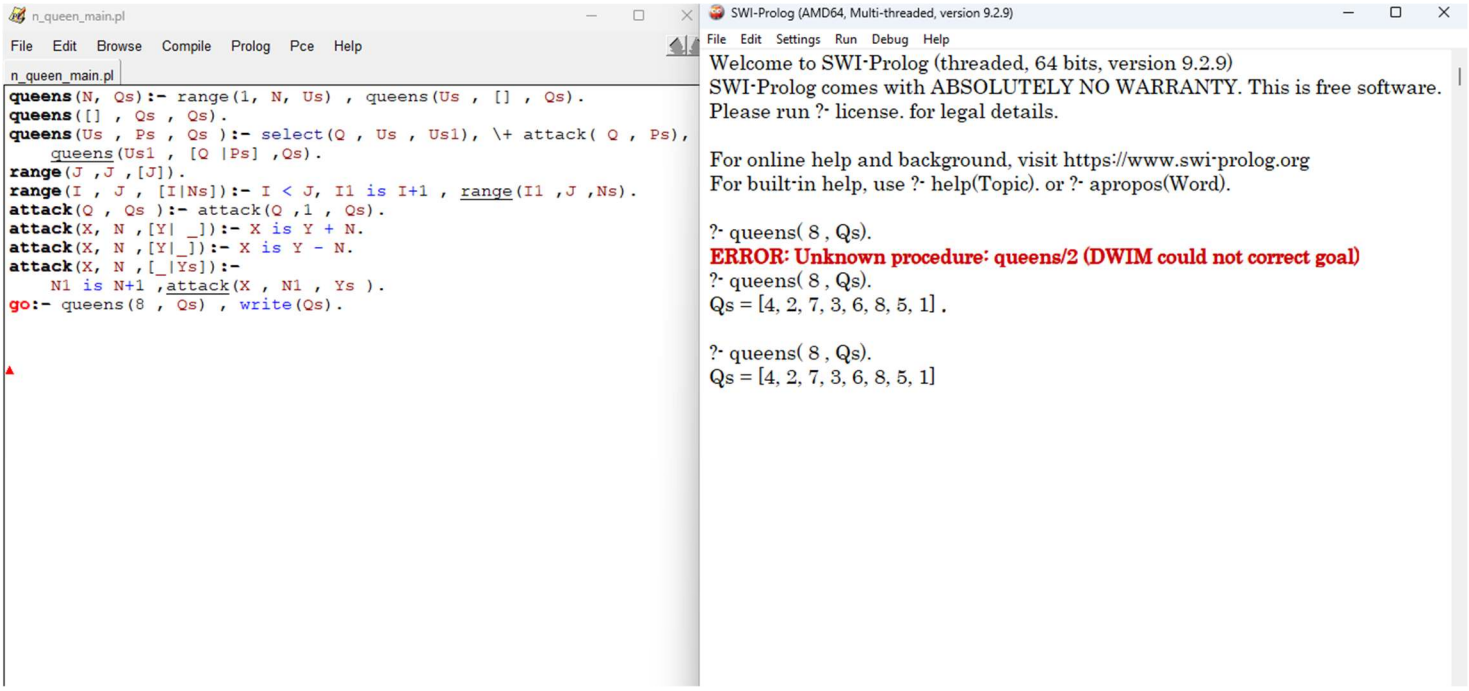
Remark

Signature

Code:

```
queens(N, Qs):- range(1, N, Us) , queens(Us , [] , Qs).
queens([] , Qs , Qs).
queens(Us , Ps , Qs ):- select(Q , Us , Us1), \+ attack( Q , Ps),
   queens(Us1 , [Q |Ps] ,Qs).
range(J ,J ,[J]).
range(I , J , [I|Ns]):- I < J, I1 is I+1 , range(I1 ,J ,Ns).
attack(Q , Qs ):- attack(Q ,1 , Qs).
attack(X, N ,[Y| _]):- X is Y + N.
attack(X, N ,[Y|_]):- X is Y - N.
attack(X, N ,[_|Ys]):-
   N1 is N+1 ,attack(X , N1 , Ys ).
go:- queens(8 , Qs) , write(Qs).
```

Output:



n_queen_main.pl

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SWI-Prolog (AMD64, Multi-threaded, version 9.2.9)

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```
Welcome to SWI-Prolog (threaded, 64 bits, version 9.2.9)
SWI-Prolog comes with ABSOLUTELY NO WARRANTY. This is free software.
Please run ?- license. for legal details.

For online help and background, visit https://www.swi-prolog.org
For built-in help, use ?- help(Topic). or ?- apropos(Word).

?- queens( 8 , Qs).
ERROR: Unknown procedure: queens/2 (DWIM could not correct goal)
?- queens( 8 , Qs).
Qs = [4, 2, 7, 3, 6, 8, 5, 1] .

?- queens( 8 , Qs).
Qs = [4, 2, 7, 3, 6, 8, 5, 1]
```