

AI

LAB-12

MAJJIGA JASWANTH

20BCD7171

Question:

Implement the 8 queens problem using the Prolog.

Code:

Prolog rules:

```
:- use_module(library(clpfd)).
```

```
n_queens(N, Qs) :-  
    length(Qs, N),  
    Qs ins 1..N,  
    safe_queens(Qs).
```

```
safe_queens([]).  
safe_queens([Q|Qs]) :-  
    safe_queens(Qs, Q, 1),  
    safe_queens(Qs).
```

```
safe_queens([], _, _).  
safe_queens([Q|Qs], Q0, D0) :-  
    Q0 #\= Q,  
    abs(Q0 - Q) #\= D0,  
    D1 #= D0 + 1,
```

safe_queens(Qs, Q0, D1).

The query:

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

Output:

```
⚙️ n_queens(N, Qs), label(Qs), N=8, Qs = [1,5,8,6,3,7,2,4].
```

N = 8,

Qs = [1, 5, 8, 6, 3, 7, 2, 4]

