Department of Computer Science and Engineering (Data Science)

Academic Year 2022-23 (Even)

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Experiment no. 9

CODE:

```
main.c
      #include <stdio.h>
      #define N 10
     int attacked(int board[N][N], int row, int col, int n) {
          int i, j;
          //row
          for (i = 0; i < row; i++) {
              if (board[i][col]) {
                  return 1;
  10
          for (i = row, j = col; i >= 0 && j >= 0; i--, j--) {
  11 -
              if (board[i][j]) {
  12 -
                  return 1;
  13
  14
  15
          for (i = row, j = col; i >= 0 && j < n; i--, j++) {
 16 -
              if (board[i][j]) {
  17 -
  18
                  return 1;
  19
  20
  21
          return 0;
  22 }
```



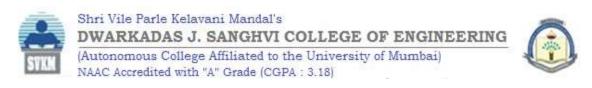
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```
void solve(int board[N][N], int row, int n, int *count) {
25
        int col;
26 ~
        if (row == n) {
27
            (*count)++;
             orintf("Solution %d:\n", *count);
28
            int i, j;
29
            for (i = 0; i < n; i++) {
30 -
31 -
                for (j = 0; j < n; j++) {
                     printf("%c ", board[i][j] ? 'Q' : '.');
32
33
                printf("\n");
34
35
36
            printf("\n");
37
            return;
38
39 -
        for (col = 0; col < n; col++) {
40 -
            if (!attacked(board, row, col, n)) {
41
                board[row][col] = 1;
42
                solve(board, row+1, n, count);
43
                board[row][col] = 0;
44
            }
45
    }
46
47
48 int main() {
         int n, board[N][N], i, j, count = 0;
49
         printf("Enter number of queens (max %d): ", N);
50
         scanf("%d", &n);
51
52
         // Initialize the board
         for (i = 0; i < n; i++) {
53 -
             for (j = 0; j < n; j++) {
54 ~
55
                 board[i][j] = 0;
56
57
58
         solve(board, 0, n, &count);
         if (count == 0) {
59 -
             printf("No solution found.\n");
60
61
62
         return 0;
63
```



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OUTPUT:

Ľ			· _	-							
							of	queens	(max	10):	8
Solution 1:											
Q	٠	٠	٠	٠		٠	٠				
				Q							
	٠	٠	•			٠	Q				
			٠		Q	٠					
	٠	Q	٠	٠		٠	٠				
						Q					
	Q					٠					
			Q								
Solution 2:											
Q						٠					
					Q						
			٠								
		Q									
			٠	٠		Q					
			Q								
	Q	٠				٠					
				Q	٠	٠	٠				
So	olı	ıt	LOI	1	3:						
Q			٠			٠	٠				
						Q					
			Q								
	•				Q	٠					
		٠					Q				
	Q				٠						
				Q							
		Q									
		~									



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				_			it of Compu	ter Science an	id Engineering	g (Da	
Solution 90:											
•	•	•	•	•	•	•	Q				
	Q	٠	٠	٠	٠	٠					
	٠	•	٠	Q	٠	٠					
	٠	Q	٠	٠	٠	٠					
Q	٠	٠	٠	٠	٠	٠					
•	٠	٠	•	٠	٠	Q					
•	٠	٠	Q	٠	٠	٠					
٠	٠	٠	•	٠	Q	٠	•				
Solution 91:											
	•	•	•		•	•	Q				
•	•	Q	٠	٠	٠	٠					
Q	٠	٠	٠	٠	٠	٠	•				
•	•	٠	•	٠	Q	٠	•				
٠	Q	٠	٠	٠	٠	٠					
٠	•	•	٠	Q	٠	٠	•				
٠	٠	•	٠	٠	٠	Q	•				
٠	•	٠	Q	٠	٠	٠	•				
Sc	olı	ıti	loi	n S	92						
							Q				
		٠	Q								
Q	•	•	•	•		•					
		Q	•	٠	٠	٠					
•	٠	٠	٠	•	Q	٠					
٠	Q	٠	٠	٠	٠	٠	•				
•	٠	٠	٠	٠	٠	Q	•				
٠	٠	٠	٠	Q	٠	٠	•				
Program finished with exit code 0											
Pı	es	SS	El	ľľ	€R	to	exit c	onsole.			