

# N-QUEENS

```
#include<stdio.h>

#include<stdlib.h>

int board[20],count;

int main()

{

    int n,i,j;

    void queen(int row,int n);

    printf(" - N Queens Problem Using Backtracking -");

    printf("\n\nEnter number of Queens:");

    scanf("%d",&n);

    queen(1,n);

    return 0;

}

//function for printing the solution

void print(int n)

{

    int i,j;

    printf("\n\nSolution %d:\n\n",++count);

    for(i=1;i<=n;++i)

        printf("\t%d",i);

    for(i=1;i<=n;++i)

    {

        printf("\n\n%d",i);
```

```

    for(j=1;j<=n;++j) //for nxn board
    {
        if(board[i]==j)
            printf("\tQ"); //queen at i,j position
        else
            printf("\t-"); //empty slot
    }
}

/*function to check conflicts
If no conflict for desired position returns 1 otherwise returns 0*/
int place(int row,int column)
{
    int i;
    for(i=1;i<=row-1;++i)
    {
        //checking column and diagonal conflicts
        if(board[i]==column)
            return 0;
        else if(abs(board[i]-column)==abs(i-row))
            return 0;
    }
    return 1; //no conflicts
}

//function to check for proper positioning of queen

```

```

void queen(int row,int n)
{
    int column;

    for(column=1;column<=n;++column)
    {
        if(place(row,column))
        {
            board[row]=column; //no conflicts so place queen

            if(row==n) //dead end

                print(n); //printing the board configuration

            else //try queen with next position

                queen(row+1,n);
        }
    }
}

```

```

C:\Users\bmscel\Desktop\1BM2\CS220\queens.exe
- N Queens Problem Using Backtracking -
Enter number of Queens:4

Solution 1:
      1      2      3      4
1      -      Q      -      -
2      -      -      -      Q
3      Q      -      -      -
4      -      -      Q      -

Solution 2:
      1      2      3      4
1      -      -      Q      -
2      Q      -      -      -
3      -      -      -      Q
4      -      Q      -      -

Process returned 0 (0x0)   execution time : 2.594 s
Press any key to continue.

```