

# 13. N queens

```
#include<stdio.h>
#include<math.h>
int x[20],count=1;
void queens(int,int);
int place(int,int);

void main()
{
    int n,k=1;

    printf("\n enter the number of queens to be placed\n");
    scanf("%d",&n);
    queens(k,n);
}

void queens(int k,int n)
{
    int i,j;
    for(j=1;j<=n;j++)
    {
        if(place(k,j))
        {
            x[k]=j;
            if(k==n)
            {
                printf("\n %d solution",count);
                count++;
                for(i=1;i<=n;i++)
                    printf("\n \t %d row ←→ %d column",i,x[i]);

            }
            else
            {
                queens(k+1,n);
            }
        }
    }
}

int place(int k,int j)
{
    int i;
```


```
for(i=1;i<k;i++)  
if((x[i]==j) || (abs(x[i]-j))==abs(i-k))  
return 0;  
return 1;  
}
```

Enter the number of queens to be placed: 4

1 solution

1 row  2 column

2 row  4 column

3 row  1 column

4 row  3 column