3. Implement “N-Queens Problem” using Backtracking

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


void main()
{
int n,k=1;
clrscr();
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]);
getch();
}
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;
}
```

OUTPUT:

```
Enter the number of queens to be placed: 4

Solution 1:
Row 1 <--> Column 2
Row 2 <--> Column 4
Row 3 <--> Column 1
Row 4 <--> Column 3

Solution 2:
Row 1 <--> Column 3
Row 2 <--> Column 1
Row 3 <--> Column 4
Row 4 <--> Column 2
```