**DATA STRUCTURES AND ALGORITHMS**

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**REG.NO: 20352017**

**EXERCISE:**

8 QUEENS PROBLEM USING BACKTRACKING APPROACH.

**PROGRAM:**

#include<stdio.h>

#include<math.h>

int a[30],count=0;

int place(int pos)

{

int i;

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

{

if((a[i]==a[pos])||((abs(a[i]-a[pos])==abs(i-pos))) )

return 0;

}

return 1;

}

void prints(int n)

{

int i,j;

count ++;

printf("\n\n\n\nsolution\n",count);

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

{

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

{

if(a[i]==j)

printf("q\t");

else

printf("\*\t");

}

printf("\n");

}

}

void queen(int n)

{

int k=1;

a[k]=0;

while(k!=0)

{

do

{

a[k]++;

}

while((a[k]<=n)&& !place(k));

if(a[k]<=n)

{

if(k==n)

prints(n);

else

{

k++;

a[k]=0;

}

}

else

k--;

}

}

void main()

{

int n=8;

clrscr();

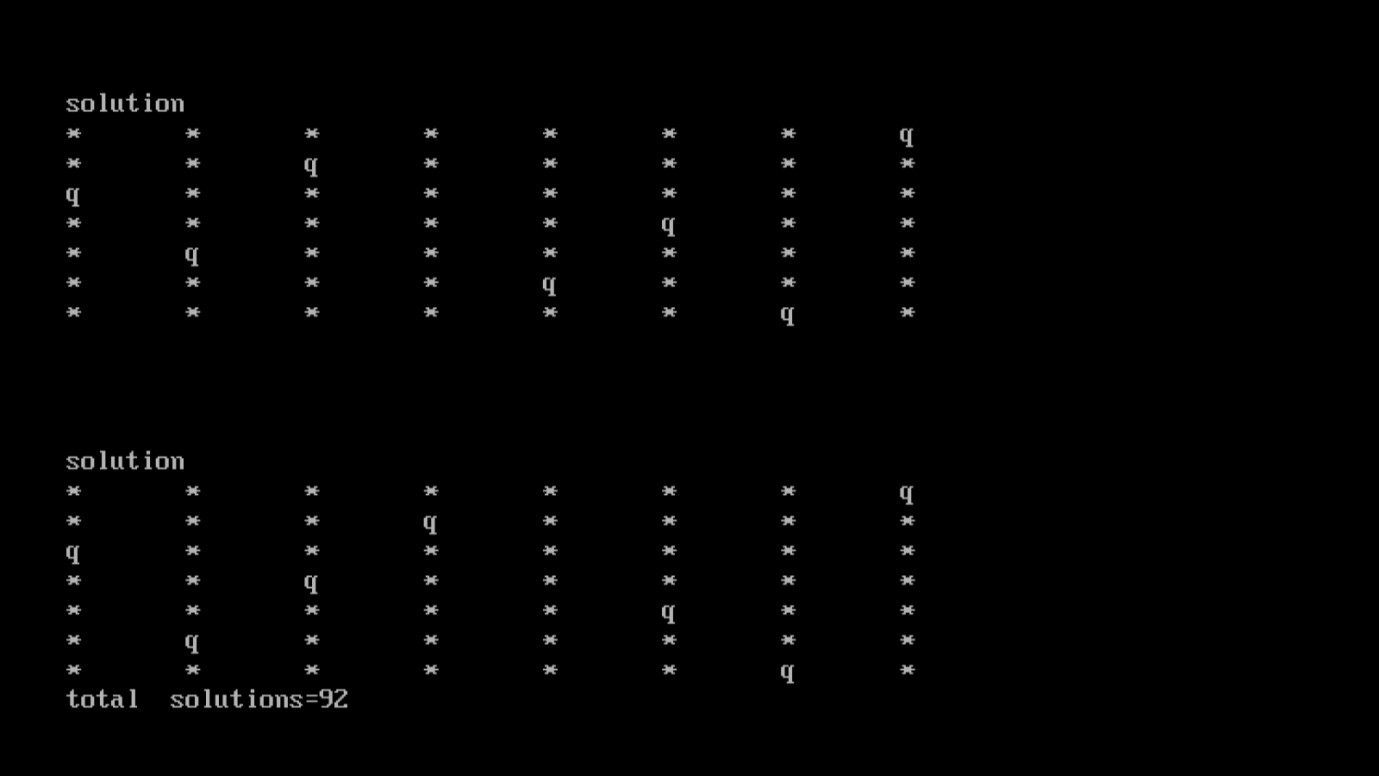
queen(n);

printf("total solutions=%d\n",count);

getch();

}

**Output:** (2 possible solutions)

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