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SEA 42

Experiment 8

N Queens:

```c
#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 print_sol(int n) {
int i,j;
count++;
printf("\n\nSolution #%d:\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) {
a[k]=a[k]+1;
while((a[k]<=n)&&!place(k))
a[k]++;
if(a[k]<=n) {
if(k==n)
print_sol(n);
else {
k++;
a[k]=0;}}
else
k--;}}
void main() {
int i,n;
printf("Enter the number of Queens\n");
scanf("%d",&n);
queen(n);
```

```
        printf("\nTotal solutions=%d",count);
}
```

Output:

Enter the number of Queens

4

Solution #1:

* Q * *

* * * Q

Q * * *

* * Q *

Solution #2:

* * Q *

Q * * *

* * * Q

* Q * *

Total solutions=2