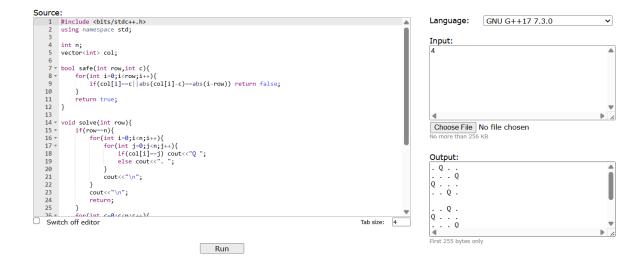# Assignment 3

```cpp
#include <bits/stdc++.h>
using namespace std;

int n;
vector<int> col;

bool safe(int row,int c){
    for(int i=0;i<row;i++){
        if(col[i]==c||abs(col[i]-c)==abs(i-row)) return false;
    }
    return true;
}

void solve(int row){
    if(row==n){
        for(int i=0;i<n;i++){
            for(int j=0;j<n;j++){
                if(col[i]==j) cout<<"Q ";
                else cout<<". ";
            }
            cout<<"\n";
        }
        cout<<"\n";
        return;
    }
    for(int c=0;c<n;c++){
        if(safe(row,c)){
            col[row]=c;
            solve(row+1);
        }
    }
}

int main(){
    cin>>n;
    col.resize(n);
    solve(0);
}
```

Test Case 1 :

Source:

```
1   #include <bits/stdc++.h>
2   using namespace std;
3
4   int n;
5   vector<int> col;
6
7   bool safe(int row,int c){
8       for(int i=0;i<row;i++){
9           if(col[i]==c||abs(col[i]-c)==abs(i-row)) return false;
10      }
11      return true;
12  }
13
14  void solve(int row){
15      if(row==n){
16          for(int i=0;i<n;i++){
17              for(int j=0;j<n;j++){
18                  if(col[i]==j) cout<<"Q ";
19                  else cout<<". ";
20              }
21              cout<<"\n";
22          }
23          cout<<"\n";
24          return;
25      }
26      for(int c=0;c<n;c++){
```

Switch off editor   Tab size: 4

Language: GNU G++17 7.3.0

Input:
```
4
```

Choose File   No file chosen
No more than 256 KB

Output:
```
. Q . .
. . . Q
Q . . .
. . Q .

. . Q .
Q . . .
. . . Q
. Q . .
```
First 255 bytes only

Run

Output :

```
. Q . .
. . . Q
Q . . .
. . Q .

. . Q .
Q . . .
. . . Q
. Q . .
```

Test Case 2 :

Source:

```
1   #include <bits/stdc++.h>
2   using namespace std;
3
4   int n;
5   vector<int> col;
6
7   bool safe(int row,int c){
8       for(int i=0;i<row;i++){
9           if(col[i]==c||abs(col[i]-c)==abs(i-row)) return false;
10      }
11      return true;
12  }
13
14  void solve(int row){
15      if(row==n){
16          for(int i=0;i<n;i++){
17              for(int j=0;j<n;j++){
18                  if(col[i]==j) cout<<"Q ";
19                  else cout<<". ";
20              }
21              cout<<"\n";
22          }
23          cout<<"\n";
24          return;
25      }
26      for(int c=0;c<n;c++){
```

Switch off editor   Tab size: 4

Language: GNU G++17 7.3.0

Input:
```
3
```

Choose File   No file chosen
No more than 256 KB

Output:
```
=====
Used: 15 ms, 0 KB
```