

# PATTERNS PEPCODING NADOS DOKHA

## 1. Pattern 1

Easy

1. You are given a number n.
2. You've to create a pattern of \* and separated by tab as shown in output format.

### Constraints

1 <= n <= 100

### Format

#### Input

A number n

#### Output



### Example

#### Sample Input

```
#include <iostream>
using namespace std;

int main(int argc, char **argv){
    int n;
    cin >> n;

    //write your code here
    for(int i{1};i<=n;i++){
        for(int j{1};j<=i;j++){
            cout<<"*\t";
        }
        cout<<endl;
    }

    return 0;
}
```

## 2.Pattern 2

Easy

1. You are given a number n.
2. You've to create a pattern of \* and separated by tab as shown in output format.

### Constraints

1 <= n <= 100

### Format

#### Input

A number n

#### Output



```
#include <iostream>
using namespace std;

int main(int argc, char **argv){
    int n;
    cin >> n;

    //write your code here
    for(int i{1};i<=n;i++){
        for(int j{1};j<=(n+1-i);j++){
            cout<<"*\t";
        }
        cout<<endl;
    }
    return 0;
}
```

## Pattern 3

Easy

1. You are given a number n.
2. You've to create a pattern of \* and separated by tab as shown in output format.

### Constraints

1 <= n <= 10

## Format

### Input

A number n

### Output



```
#include <iostream>
using namespace std;

int main(int argc, char **argv){
    int n;
    cin >> n;

    //write your code here
    // for(int i{1};i<=n;i++){
    //     for(int j{1};j<=n;j++){
    //         if((i+j)>n){
    //             cout<<"*\t";
    //         }else{
    //             cout<<"\t";
    //         }
    //     }
    //     cout<<endl;
    // }
    // cout<<endl;
    // cout<<endl;
    int sp{n-1};
    int st{1};
    for(int i {1};i<=n;i++){
        for(int j{0};j<sp;j++){
            cout<<"\t";
        }
        for(int j{0};j<st;j++){
            cout<<"*\t";
        }
        st++;
        sp--;
        cout<<endl;
    }
    return 0;
}
```

## Pattern 4

Easy

1. You are given a number n. 2. You've to create a pattern of \* and separated by tab as shown in output format.

## Constraints

1 <= n <= 100

## Format

### Input

A number n

### Output



```
#include <iostream>
using namespace std;
```

```
int main(int argc, char **argv){
    int n;
    cin >> n;

    //write your code here
    ////first way
    // for(int i{1};i<=n;i++){
    //     for(int j{1};j<=n;j++){
    //         if(j-i>=0){
    //             cout<<"*\t";
    //         }else{
    //             cout<<"\t";
    //         }
    //     }
    //     cout<<endl;
    // }

    int sp{0};
    int st{n};
    for(int i {1};i<=n;i++){
        for(int j{0};j<sp;j++){
            cout<<"\t";
        }
        for(int j{0};j<st;j++){
            cout<<"*\t";
        }
        st--;
    }
```

```

        sp++;
        cout<<endl;
    }
    return 0;
}

```

## Pattern 5

Easy

1. You are given a number n.
2. You've to create a pattern of \* and separated by tab as shown in output format.

### Constraints

1 <= n <= 100

Also, n is odd.

### Format

#### Input

A number n

#### Output



```

#include <iostream>
using namespace std;

```

```

int main(int argc, char **argv){
    int n;
    cin >> n;

    //write your code here
    int sp{n/2};
    int st{1};
    for(int i {1}; i<=n; i++){
        for(int j{0}; j<sp; j++){
            cout<<"\t";
        }
        for(int j{0}; j<st; j++){
            cout<<"*\t";
        }
        if(i<=(n/2)){
            st+=2;
            sp--;
        }else{
            st-=2;
            sp++;
        }
    }
}

```

```

        cout<<endl;
    }
    return 0;
}

```

## Pattern 6

Easy

1. You are given a number n.
2. You've to create a pattern of \* and separated by tab as shown in output format.

### Constraints

1 <= n <= 100

Also, n is odd.

### Format

#### Input

A number n

#### Output



```

#include <iostream>
using namespace std;

```

```

int main(int argc, char **argv){
    int n;
    cin >> n;

    //write your code here
    int sp{1};
    int st{(n/2)+1};
    for(int i {1};i<=n;i++){
        for(int j{0};j<st;j++){
            cout<<"*\t";
        }
        for(int j{0};j<sp;j++){
            cout<<"\t";
        }
        for(int j{0};j<st;j++){
            cout<<"*\t";
        }
        if(i<=(n/2)){
            sp+=2;
            st--;
        }else{

```

```

        sp-=2;
        st++;
    }
    cout<<endl;
}
return 0;
}

```

## Pattern 7

Easy

1. You are given a number n.
2. You've to create a pattern of \* and separated by tab as shown in output format.

### Constraints

1 <= n <= 100

### Format

#### Input

A number n

#### Output



```

#include <iostream>
using namespace std;

```

```

int main(int argc, char **argv){
    int n;
    cin >> n;

    //write your code here
    ////first way

    for(int i{1};i<=n;i++){
        for(int j{1};j<=n;j++){
            if(i==j){
                cout<<"*\t";
            }else{
                cout<<"\t";
            }
        }
        cout<<"\n";
    }

    // ////second way
    // int sp{0};
    // for(int i {1};i<=n;i++){

```

```

        //      for(int j{0};j<sp;j++){
        //          cout<<"\t";
        //      }
        //      cout<<"*\t";
        //      sp++;
        //      cout<<endl;
        //  }
//      return 0;
}

```

## Pattern 8

Easy

1. You are given a number n.
2. You've to create a pattern of \* and separated by tab as shown in output format.

### Constraints

1 <= n <= 100

### Format

#### Input

A number n

#### Output



```

#include <iostream>
using namespace std;

```

```

int main(int argc, char **argv)
{
    int n;
    cin >> n;

```

```

    //write your code here
//original solution
    // for(int i{1};i<=n;i++){
    //     for(int j{1};j<=n;j++){
    //         if(i+j==n+1){
    //             cout<<"*\t";
    //         }else{
    //             cout<<"\t";
    //         }
    //     }
    //     cout<<"\n";
    // }
    cout<<"*"<<endl; //maybe there is some problem
    for(int i{2};i<=n;i++){

```



```

        for(int j{1};j<=n;j++){
            if(i+j==n+1){
                cout<<"*\t";
            }else{
                cout<<"\t";
            }
        }
        cout<<"\n";
    }
}

```

## Pattern 9

Easy

1. You are given a number n.
2. You've to create a pattern of \* and separated by tab as shown in output format.

### Constraints

1 <= n <= 100

Also, n is odd.

### Format

#### Input

A number n

#### Output



```

#include <iostream>
using namespace std;

```

```

int main(int argc, char **argv){
    int n;
    cin >> n;

    //write your code here
    for(int i{1};i<=n;i++){
        for(int j{1};j<=n;j++){
            if((i==j)||((i+j)==(n+1))){
                cout<<"*\t";
            }else{
                cout<<"\t";
            }
        }
        cout<<endl;
    }
    return 0;
}

```

# Pattern 10

Easy

1. You are given a number n.
2. You've to create a pattern of \* and separated by tab as shown in output format.

## Constraints

1 <= n <= 100

Also, n is odd.

## Format

### Input

A number n

### Output



```
#include <iostream>
using namespace std;
```

```
int main(int argc, char **argv){
    int n;
    cin >> n;

    //write your code here
    // int s{(n+1)/2};
    // int k{1};
    // for(int i{1};i<=n;i++){
    //     for(int j{1};j<=n;j++){
    //         if((j==s+1-k)|| (j==s-1+k)){
    //             cout<<"*\t";
    //         }else{
    //             cout<<"\t";
    //         }
    //     }
    //     cout<<endl;
    //     (i<s) ? k++ : k--;
    // }
    // return 0;
    int os{n/2};
    int is{-1};
    for(int i {1};i<=n;i++){
        for(int j{0};j<os;j++){
            cout<<"\t";
        }

        cout<<"*\t";
```

```

        for(int j{0};j<is;j++){
            cout<<"\t";
        }
        if(!((i==1)|| (i==n))){
            cout<<"*\t";
        }
        if(i<=(n/2)){
            os--;
            is+=2;
        }else{
            os++;
            is-=2;
        }
        cout<<endl;
    }
    return 0;
}

```

## Pattern 11

Easy

1. You are given a number n. 2. You've to create a pattern as shown in output format.

### Constraints

1 <= n <= 44

### Format

#### Input

A number n

#### Output

```

1
2   3
4   5   6
7   8   9   10
..

```

```

#include <iostream>
using namespace std;

```

```

int main(int argc, char **argv){
    int n;
    cin >> n;

    //write your code here
    int a{1};
    for(int i{1};i<=n;i++){

```

```

        for(int j{1};j<=i;j++){
            cout << a<<"\t" ;
            a++;
        }
        cout << endl;
    }

    return 0;
}

```

## Pattern 12

Easy

1. You are given a number n.
2. You've to create a pattern as shown in output format.

### Constraints

1 <= n <= 5

### Format

#### Input

A number n

#### Output

```

0
1      1
2      3      5
8      13     21    34
..

```

```

#include <iostream>
using namespace std;

int main(int argc, char **argv){
    int n;
    cin >> n;

    //write your code here
    int a{0};
    int b{1};
    int c{};
    // cout<<a<<endl;
    // for(int i{2};i<=n;i++){
    //     for(int j{1};j<=i;j++){
    //         cout << b <<"\t" ;
    //         c=a+b;
    //         a=b;
    //         b=c;
    //     }
    //     cout << endl;
    // }
}

```

```

        for(int i{1};i<=n;i++){
            for(int j{1};j<=i;j++){
                cout << a <<"\t" ;
                c=a+b;
                a=b;
                b=c;
            }
            cout << endl;
        }

        return 0;
}

```

## Pattern 13

Easy

1. You are given a number n.
2. You've to create a pattern as shown in output format

### Constraints

1 <= n <= 10

### Format

#### Input

A number n

#### Output

```

1
1      1
1      2      1
1      3      3      1
1      4      6      4      1
1      5      10     10     5      1
..

```

```

#include <iostream>
using namespace std;
int factorial(int a){
    if(a==0){
        return 1;
    }else{
        int f{1};
        for (int k{1};k<=a;k++){
            f *= k;
        }
        return f;
    }
}

int main (){
    int n{};

```

```

        //cout<<"Enter the value of n for creating the patern :";
        cin>>n;
        for(int i{0};i<n;i++){
            for(int j{0};j<=i;j++){
                cout<<factorial(i)/(factorial(i-
j)*factorial(j))<<"\t";
            }
            cout<<endl;
        }

        return 0;
    }

```

## Pattern 14

Easy

1. You are given a number n. 2. You've to write code to print it's multiplication table up to 10 in format given below.

### Constraints

1 <= n <= 10

### Format

#### Input

A number x

#### Output

```

x * 1 = x
x * 2 = 2x
. .
x * 10 = 10x

```

```

#include<iostream>
using namespace std;
int main(int argc, char** argv){
    int n;
    cin >> n;

    //write your code here
    for(int i{1};i<=10;i++){
        cout<<n<<" * "<<i<<" = "<<n*i<<"\n";
    }
}

```

## Pattern 15

Easy

1. You are given a number n.
2. You've to write code to print the pattern given in output format below.

## Constraints

1 <= n <= 10

Also, n is odd.

## Format

### Input

A number n

### Output

```
    1
  2 3 2
3 4 5 4 3
  2 3 2
    1
```

```
#include <iostream>
using namespace std;
int main(int argc, char**argv){
    int n;
    cin >> n;

    //write your code here
    int sp{n/2};
    int st{1};
    int s{0};
    int u{1};

    for(int i{1};i<=n;i++){
        for(int j{1};j<=sp;j++){
            cout<<"\t";
        }

        s=u;

        for(int j{1};j<=st;j++){
            cout<<s<<"\t";
            if(j<=st/2){
                s++;
            }else{
                s--;
            }
        }
        cout<<endl;

        if(i<=n/2){
            u++;
        }else{
            u--;
        }
    }
}
```

```

    }

    if(i<=n/2){
        st+=2;
        sp--;
    }else{
        st-=2;
        sp++;
    }
}

```

```

    return 0;
}

```

## Pattern 16

Easy

1. You are given a number n.
2. You've to write code to print the pattern given in output format below

### Constraints

1 <= n <= 10

### Format

#### Input

A number n

#### Output

```

1                                     1
1   2                               2   1
1   2   3                           3   2   1
1   2   3   4                       4   3   2   1

```

```

#include <iostream>
using namespace std;
int main(int argc, char**argv){
    int n;
    cin >> n;

    //write your code here
    int sp{2*n-3};
    int st{1};
    int n1{1};

    for(int i{1};i<=n;i++){
        n1=1;
        for(int j{1};j<=st;j++){
            cout<<n1<<"\t";
            n1++;
        }
    }
}

```



```

        for(int j{1};j<=sp;j++){
            cout<<"\t";
        }

        if(i==n){
            st--;
        }
        if(i==n){
            n1--;
        }

        for(int j{1};j<=st;j++){
            n1--;
            cout<<n1<<"\t";
        }
        cout<<endl;
        sp -=2;
        st++;
    }
    return 0;
}

```

## Pattern 17

Easy

1. You are given a number n.
2. You've to write code to print the pattern given in output format below.

### Constraints

1 <= n <= 10

Also, n is odd.

### Format

#### Input

A number n

#### Output



```

#include <iostream>
using namespace std;
int main(int argc, char**argv){
    int n;
    cin >> n;

    //write your code here
    int h{(n+1)/2};

```

```

int sp{n/2};
int st{1};
int spt{0};
for(int i{1};i<=n;i++){
    if(i!=h){
        for(int j{1};j<=sp;j++){
            cout<<"\t";
        }
    }else{
        spt=n/2;
        for(int j{1};j<=spt;j++){
            cout<<"*\t";
        }
    }
    for(int j{1};j<=st;j++){
        cout<<"*\t";
    }
    if(i<=(n/2)){
        st++;
    }else{
        st--;
    }
    cout<<endl;
}
return 0;
}

```

## Pattern 18

Easy

1. You are given a number n.
2. You've to write code to print the pattern given in output format below

### Constraints

1 <= n <= 10

Also, n is odd.

### Format

#### Input

A number n

#### Output



```
#include <iostream>
```

```

using namespace std;
int main(int argc, char**argv){
    int n;
    cin >> n;

    //write your code here
    int sp{0};
    int st{n};
    for(int i{1};i<=n;i++){
        for(int j{1};j<=sp;j++){
            cout<<"\t";
        }
        for(int j{1};j<=st;j++){
            if((i>1)&&(i<=(n+1)/2)){
                if((j!=1)&&(j!=st)){
                    cout<<"\t";
                }else{
                    cout<<"*\t";
                }
            }else{
                cout<<"*\t";
            }
        }

        if(i<=n/2){
            sp++;
            st-=2;
        }else{
            sp--;
            st+=2;
        }
        cout<<endl;

    }
    return 0;
}

```

## Pattern 19

Easy

1. You are given a number n.
2. You've to write code to print the pattern given in output format below

### Constraints

1 <= n <= 10

Also, n is odd.

### Format

#### Input

A number n

## Output



```
#include <iostream>
using namespace std;
int main(int argc, char** argv){
    int n;
    cin >> n;

    //write your code here
    // int m{((n+1)/2)};
    // for(int i{1};i<=n;i++){
    //     for(int j{1};j<=n;j++){
    //         if(i==1){
    //             if(j<=m||j==n){
    //                 cout<<"*\t";
    //             }else{
    //                 cout<<"\t";
    //             }
    //         }else if(i<m){
    //             if(j==m||j==n){
    //                 cout<<"*\t";
    //             }else{
    //                 cout<<"\t";
    //             }
    //         }else if(i==m){
    //             cout<<"*\t";
    //         }else if(i<n){
    //             if(j==1||j==m){
    //                 cout<<"*\t";
    //             }else{
    //                 cout<<"\t";
    //             }
    //         }else if(i==n){
    //             if(j==1||j>=m){
    //                 cout<<"*\t";
    //             }else{
    //                 cout<<"\t";
    //             }
    //         }
    //     }
    //     cout<<endl;
```

```

// }
//
int sp1{0};
int sp2{0};
int st1{0};
int st2{0};
int m{((n+1)/2)};
for(int i{1}; i<=n; i++){

    if((i>1)&&(i<m)){
        sp1=n/2;
    }else {
        sp1=0;
    }
    for(int j{1}; j<=sp1; j++){
        cout<<"\t";
    }

    if((i==1)|| (i==m)){
        st1=m;
    }else {
        st1=1;
    }
    for(int j{1}; j<=st1; j++){
        cout<<"*\t";
    }

    if(i==m){
        sp2=0;
    }else {
        sp2 = (n/2)-1;
    }
    for(int j{1}; j<=sp2; j++){
        cout<<"\t";
    }

    if(i<m){
        st2 = 1;
    }else if(i==m){
        st2 = n/2;
    }else if(i==n){
        st2 = m;
    }else{
        st2=1;
    }
    for(int j{1}; j<=st2; j++){
        cout<<"*\t";
    }
}

```

```

        cout<<endl;
    }
    return 0;
}

```

## Pattern 20

Easy

1. You are given a number n.
2. You've to write code to print the pattern given in output format below.

### Constraints

1 <= n <= 10

Also, n is odd.

### Format

#### Input

A number n

#### Output



```

#include <iostream>
using namespace std;
int main(int argc, char**argv){
    int n;
    cin >> n;

    //write your code here
    // int m{((n+1)/2)};
    // int k{};
    // for(int i{1};i<=n;i++){
    //     if(i>m){
    //         k++;
    //     }
    //     for(int j{1};j<=n;j++){
    //         if(i<m||i==n){
    //             if(j==1||j==n){
    //                 cout<<"*\t";
    //             }else{
    //                 cout<<"\t";
    //             }
    //         }else if(i==m){
    //             if(j==1||j==m||j==n){
    //                 cout<<"*\t";
    //             }else{
    //                 cout<<"\t";
    //             }
    //         }
    //     }
    // }

```

```

//          }
//      }else{
//          if(j==1 || j==(m-k) || j==(m+k) || j==n){
//              cout<<"*\t";
//          }else{
//              cout<<"\t";
//          }
//      }
//  }
//  cout<<endl;
// }
////second way (pepcoding)
int m{((n+1)/2)};
for(int i{1}; i<=n; i++){
    for(int j{1}; j<=n; j++){
        if(j==1 || j==n){
            cout<<"*\t";
        }else if ((i>=m)&&((i==j) || (i+j==n+1))){
            cout<<"*\t";
        }else{
            cout<<"\t";
        }
    }
    cout<<endl;
}

return 0;
}

```

## Pattern M

Easy

you are given a number N and you have to print the generalized given pattern.

for n=5

```

*
*      *      *      *
*          *      *      *
*              *      *      *
*                  *      *      *
*                      *      *      *

```

### Constraints

N is an odd number

```

#include<bits/stdc++.h>
using namespace std;
int main(){
    int n{};
    cin>>n;
}

```

```
//problem in test_cases(invalide input 12)
// int m{((n+1)/2)};
// int k{};
// for(int i{1};i<=n;i++){
//     if(i>1){
//         k++;
//     }
//     for(int j{1};j<=n;j++){
//         if(i>m||i==1){
//             if(j==1||j==n){
//                 cout<<"*\t";
//             }else{
//                 cout<<"\t";
//             }
//         }else if(i==m){
//             if(j==1||j==m||j==n){
//                 cout<<"*\t";
//             }else{
//                 cout<<"\t";
//             }
//         }else{
//             if(j==1||j==(1+k)||j==(n-k)||j==n){
//                 cout<<"*\t";
//             }else{
//                 cout<<"\t";
//             }
//         }
//     }
// }
// cout<<endl;
// }

//$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$
int m{((n+1)/2)};
for(int i{1};i<=n;i++){
    for(int j{1};j<=n;j++){
        if(j==1||j==n){
            cout<<"*\t";
        }else if ((i<=m)&&((i==j)|| (i+j==n+1))){
            cout<<"*\t";
        }else{
            cout<<"\t";
        }
    }
    cout<<endl;
}

return 0;
```



# Pattern Inverted Hour Glass

Easy

1. You are given a number n.
2. You've to write code to print the pattern given in output format below

## Constraints

1 <= n <= 15

Also, n is odd.

## Format

### Input

A number n Example n = 7

### Output

\* \* \* \* \*

## Example

### Sample Input

9

### Sample Output

```
*      *      *      *      *      *      *      *      *
      *      *      *      *      *      *      *
        *      *      *      *      *      *
          *      *      *      *      *
            *      *      *      *
              *      *      *
                *      *
                  *
                    *
                      *
                        *
                          *
```

```
#include<iostream>
using namespace std;
```

```
int main(){
    int n{};
    cin >>n;
    // write your code here
```

```

int sp{0};
int st{n};
for(int i{1};i<=n;i++){
    for(int j{1};j<=sp;j++){
        cout<<"\t";
    }
    for(int j{1};j<=st;j++){
        if((i>((n+1)/2))&&(i<n)){
            if((j!=1)&&(j!=st)){
                cout<<"\t";
            }else{
                cout<<"*\t";
            }
        }else{
            cout<<"*\t";
        }
    }

    }

    if(i<=n/2){
        sp++;
        st-=2;
    }else{
        sp--;
        st+=2;
    }
    cout<<endl;

}
return 0;

}

```