1.2 Patterns from Strivers A2Z DSA COURSE

28.06.2022

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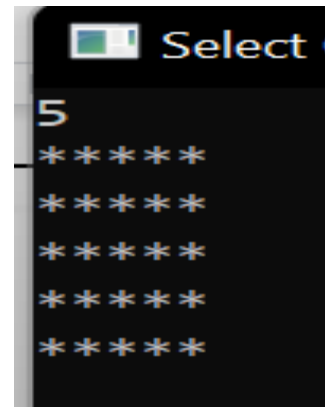
1.
    ★ ★ ★ ★ ★

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    ★ ★ ★ ★ ★

    ★ ★ ★ ★ ★

    ★ ★ ★ ★ ★

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

int main(){
    int n;
    cin>>n;

    for(int i=0;i<n;i++){
        for(int j=0;j<n;j++){
            cout<<"*";
        }
        cout<<endl;
    }
}
```

```
Select 
5
*****
*****
*****
*****
*****
```

2.
```
*
**
***
****
*****
```

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

int main(){
    int n;
    cin>>n;

    for(int i=0;i<n;i++){
        for(int j=0;j<=i;j++){
            cout<<"*";
        }
        cout<<endl;
    }
}
```

```
C:\Users\Sneh
10
*
**
***
****
*****
******
*******
********
*********
**********
```

3.

```
1
12
123
1234
12345
```

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

int main(){
    int n;
    cin>>n;

    for(int i=1;i<=n;i++){
        for(int j=1;j<=i;j++){
            cout<<j;
        }
        cout<<endl;
    }
}
```

```
8
1
12
123
1234
12345
123456
1234567
12345678
```

4.

```
1
22
333
4444
55555
```

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

int main(){
    int n;
    cin>>n;

    for(int i=1;i<=n;i++){
        for(int j=1;j<=i;j++){
            cout<<i;
        }
        cout<<endl;
    }
}
```

```
7
1
22
333
4444
55555
666666
7777777
```

5.

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

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

int main(){
    int n;
    cin>>n;

    for(int i=1;i<=n;i++){
        for(int j=n;j>=i;j--){
            cout<<"*";
        }
        cout<<endl;
    }
}
```

```
7
*******
******
*****
****
***
**
*
```

6.

```
12345
1234
123
12
1
```

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

int main(){
    int n;
    cin>>n;

    for(int i=n;i>=1;i--){
        for(int j=1;j<=i;j++){
            cout<<j;
        }
        cout<<endl;
    }
}
```

```
7
1234567
123456
12345
1234
123
12
1
```

7.

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

```
#include<bits/stdc++.h>
using namespace std;
int main(){
    int n;
    cin>>n;
    int j,i,k=0;
    for( i=1;i<=n;i++){
        for(j=0;j<=n-i;j++){
            cout<<" ";
        }
        for(int k=1;k<=(2*i)-1;k++){
            cout<<"*";
        }
        cout<<endl;
    }
}
```

```
5
    *
   ***
  *****
 *******
*********
```

8.

```
#include<bits/stdc++.h>
using namespace std;
int main(){
    int n;
    cin>>n;
    int j,i,k=0;
    for(int i=1;i<=n-1;i++){
        for(int j=1;j<=i;j++){
            cout<<" ";
        }
        for(int k=n+(n-1);k>(2*i);k--){
            cout<<"*";
        }
        cout<<endl;
    }
}
```
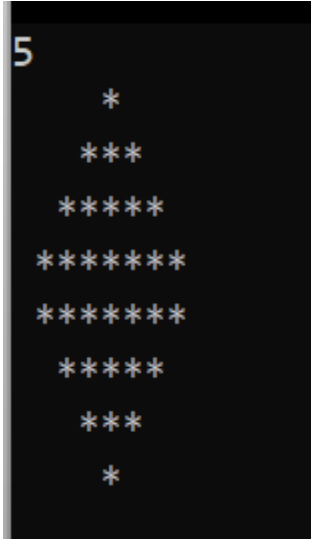
```
7
***********
 *********
  *******
   *****
    ***
     *
```

9.

```
int main(){
    int n;
    cin>>n;
    for(int i=1;i<=n-1;i++){
        for(int j=n-1; j>=i;j--){
            cout<<" ";
        }
        for(int k=1;k<=(2*i)-1;k++)
            cout<<"*";
        }
        cout<<endl;
    }
    for(int i=1;i<=n-1;i++){
        for(int j=1;j<=i;j++){
            cout<<" ";
        }
        for(int k=n+(n-1);k>(2*i);k
            cout<<"*";
        }
        cout<<endl;
    }
}
```

```
5
      *
     ***
    *****
   *******
   *******
    *****
     ***
      *
```

10.

```
int main(){
    int print=1,n;
    cin>>n;
    cout<<1<<endl;
    for(int i=2;i<n;i++){
        if(i%2==1)
            print=1;
        else
            print=0;
        for(int j=1;j<=i;j++){
            cout<<print;
            if(print==1)
                print=0;
            else
                print=1;
        }
        cout<<endl;
    }
}
```
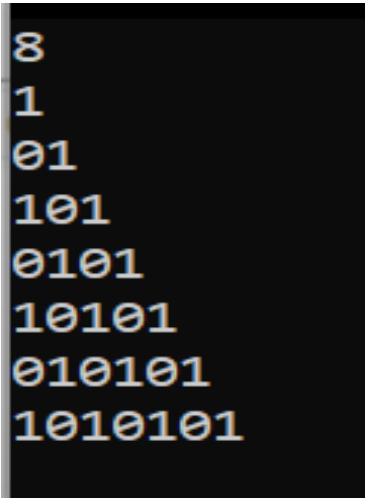
```
8
1
01
101
0101
10101
010101
1010101
```

11.

```cpp
#include<bits/stdc++.h>
using namespace std;
int main(){
    int n;
    cin>>n;
    for(int i=1;i<=n;i++){
        for(int j=1;j<=i;j++){
            cout<<"*";
        }
        cout<<endl;
    }
    for(int i=1;i<=n;i++){
        for(int j=n;j>=i;j--){
            cout<<"*";
        }
        cout<<endl;
    }
}
```

```
5
*
**
***
****
*****
*****
****
***
**
*
```

12.

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

int main(){
    int n,k;
    cin>>n;
    for(int i=1;i<=n;i++){
        for(int j=1;j<=i;j++){
            cout<<j;
        }
        for(k=1;k<=(2*n)-(2*i);k++){
            cout<<" ";
        }
        for(int s=i;s>=1;s--){
            cout<<s;
        }
        cout<<endl;
    }
}
```

```
5
1          1
12        21
123      321
1234    4321
1234554321
- - - - - - - - - - - - - -
```

13.

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

int main(){
    int n;
    cin>>n;
    int count=1;
    for(int i=1;i<=n;i++){
        for(int j=1;j<=i;j++){
            cout<<count<<" ";
            count++;
        }
        cout<<endl;
    }
}
```

```
5
1
2 3
4 5 6
7 8 9 10
11 12 13 14 15
```

14.

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

int main(){
    int n;
    cin>>n;
    char c='A';
    for(int i=1;i<=n;i++){
        for(int j=1;j<=i;j++){
            cout<<c;
            c++;
        }
        c='A';
        cout<<endl;
    }
}
```
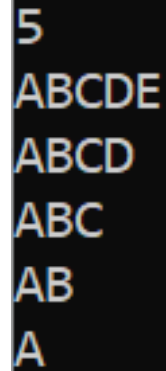
```
5
A
AB
ABC
ABCD
ABCDE
```

15.

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

int main(){
    int n;
    cin>>n;
    char c='A';
    for(int i=1;i<=n;i++){
        for(int j=n;j>=i;j--){
            cout<<c;
            c++;
        }
        c='A';
        cout<<endl;
    }
}
```
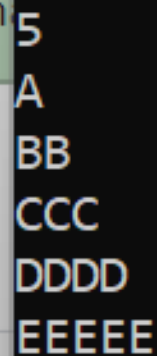
```
5
ABCDE
ABCD
ABC
AB
A
```

16.

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

int main(){
    int n;
    cin>>n;
    char c='A';
    for(int i=1;i<=n;i++){
        for(int j=1;j<=i;j++){
            cout<<c;
        }
        c++;
        cout<<endl;
    }
}
```

```
5
A
BB
CCC
DDDD
EEEEE
```

17.

```cpp
int main(){
    int n;
    cin>>n;
    char c='A';
    int count=0;
    for(int i=1;i<=n-1;i++){
        for(int j=n-1; j>=i;j--){
            cout<<" ";
        }
        for(int k=0;k<i;k++){
            cout<<char(c+k);
        }
        for(int s=i-2;s>=0;s--){
            cout<<char(c+s);
        }
        c='A';
        cout<<endl;
    }
}
```

```
5
    A
   ABA
  ABCBA
 ABCDCBA
```

18.

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

int main(){
    int n;
    cin>>n;
    int c='A';
    int count;
    for(int i=1;i<=n;i++){
        for(int j=1;j<=i;j++){
            cout<<char((c+n)-1)<<" ";
            c++;
            count++;
        }
        c=c-i-1;
        cout<<endl;
    }
}
```

```
C:\Users\Shena Das
5
E
D E
C D E
B C D E
A B C D E
```

19.

```cpp
int main(){
    int n;
    cin>>n;
    for(int i=1;i<=n;i++){
        for(int j=n; j>=i;j--){
            cout<<"*";
        }
        for(int k=1;k<=(2*i)-1;k++){
            cout<<" ";
        }
        for(int j=n; j>=i;j--){
            cout<<"*";
        }
        cout<<endl;
    }
    for(int i=1;i<=n;i++){
        for(int j=1;j<=i;j++){
            cout<<"*";
        }
        for(int k=1;k<=(2*n)-(2*i)+1;k++){
            cout<<" ";
        }
        for(int s=i;s>=1;s--){
            cout<<"*";
        }
        cout<<endl;
```

```
5
***** *****
****   ****
***     ***
**       **
*         *
*         *
**       **
***     ***
****   ****
***** *****
```

20.

```cpp
int main(){
    int n;
    cin>>n;
    for(int i=1;i<=n;i++){
        for(int j=1;j<=i;j++){
            cout<<"*";
        }
        for(int k=1;k<=(2*n)-(2*i)+1;k++){
            cout<<" ";
        }
        for(int s=i;s>=1;s--){
            cout<<"*";
        }
        cout<<endl;
    }
    for(int i=1;i<=n;i++){
        for(int j=n;j>=i;j--){
            cout<<"*";
        }
        for(int k=1;k<=(2*i)-1;k++){
            cout<<" ";
        }
        for(int j=n; j>=i;j--){
            cout<<"*";
        }
        cout<<endl;
```
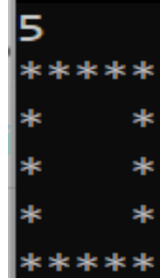
```
5
*             *
**           **
***         ***
****       ****
***** *****
***** *****
****       ****
***         ***
**           **
*             *
```

21.

```cpp
#include<bits/stdc++.h>
using namespace std;
int main(){
    int n;
    cin>>n;
    for(int i=1;i<=n;i++){
        for(int j=1;j<=n;j++){
            if(i==1||i==n||j==1||j==n)
                cout << "*";
            else
                cout << " ";
        }
        cout << endl;
    }
}
```

```
5
*****
*   *
*   *
*   *
*****
```