Q: Print first 10 natural numbers via for loop

```
for(int i=1; i<=10; i++){
    SOP(i)
}
```

Q: Print N stars (*) in a row

```
for(int i=1; i<=N; i++){
    SOP("*");
}
```

Q: Given N. Print a square of size N*N.

N=3

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

N=4

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

```
// Loop over N rows
for(int row=1; row<=n; row++){
    // Print a row
    for(int col=1; col<=n; col++){
        SOP("*");
    }
    SOPln(); ⇒ System.out.println()
```

```
}
```

```
for(){
  for(){
  }
}
```

⇒ Nested Loops

Q: Given N and M
Print a rectangle of * of size N * M

N=2, M=3

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

N=4, M=2

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

```
for(int row=1; row<=n; row++){
    for(int col=1; col<=m; col++){
        SOP("*");
    }
    SOPln();
}
```

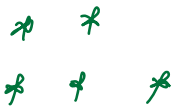
Q: Given an integer N. Print the following pattern.

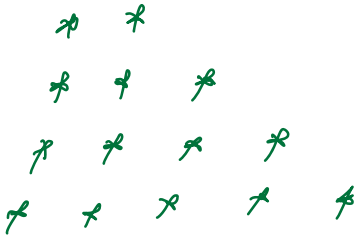
N=3

```
*
```

N=5

```
*
```





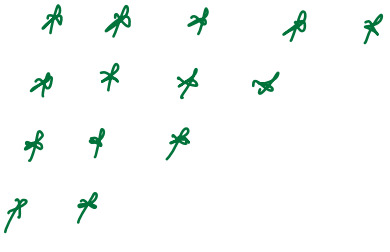
Row	Col	(N = 5)
1	1	
2	2	
3	3	
4	4	
5	5	

```
for(int row=1; row<=n; row++){

    for(int col=1; col<=row; col++){
        Sop("*");
    }
    Sopln();
}
```

Q: Given an integer N. Print the following pattern.

N = 3

N = 5



(N = 5)

Rows	Cols
1	5
2	4
3	3
4	2
5	1

(N = 3)

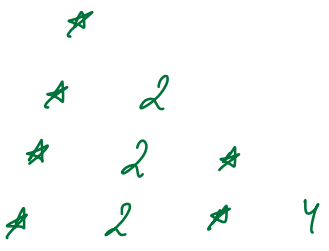
Rows	Cols
1	3
2	2
3	1

rows + cols = n + 1

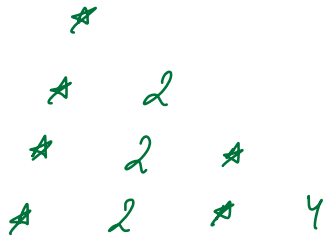
cols = n + 1 - rows

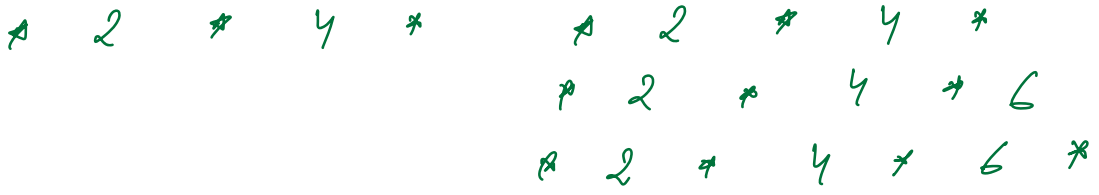
```
for( int row = 1; row <= n; row++ ){
    for( int col = 1; col <= n+1-row; col++ ){
        SOP("*");
    }
    SOPln();
}
```

Q: N = 5



N = 7



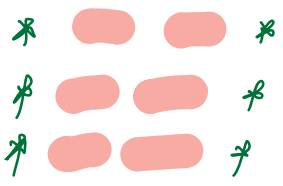


```
for(int row=1; row<=4; row++){

    for(int col=1; col<=row; col++){

        if( col%2==1){
            sop(*);
        }else{
            sop(col);
        }
    }
    sopln();
}
```

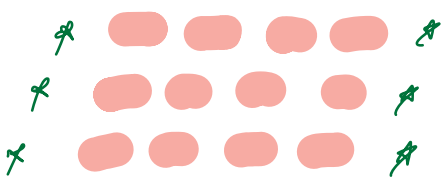
Break : 10:20

Patterns with spaces

N=3

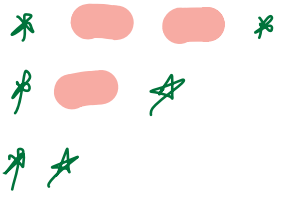


N=5

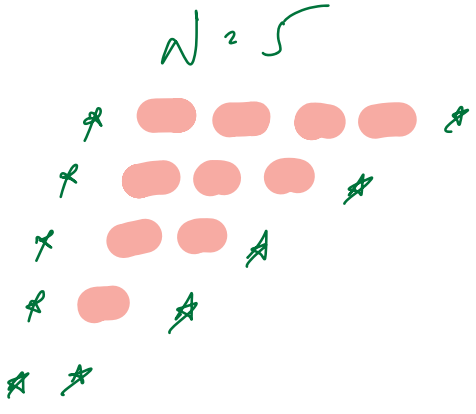


```
for(int row=1; row<=n; row++){

    SOP(*);
  for(int sp=1; sp<=n-1; sp++){
      SOP( );
  }
   SOP(*);
  SOP(nL);
}
```

N=3



N=5



Row	Spaces
1	4
2	3
3	2
4	1
5	0

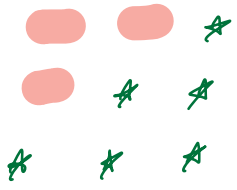
(N=5)

row + space = n

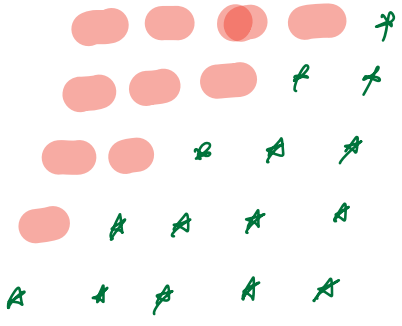
space = n - row

```
for(int row=1; row<=n; row++){

    SOP(*);
    for(int sp=1; sp<=n-row; sp++){
        SOP( );
    }
    SOP(*);
    SOP(nC);
}
```

N = 3



N = 5



Row	Spaces	Stars
1	4	1
2	3	2
3	2	3
4	1	4
5	0	5

(N = 5)

Stars = row

Spaces = n - row

```
for(int row=1; row<=n; row++){

    for(int sp=1; sp<=n-row; sp++){
        System.out.print(" ");
    }
    for(int st=1; st<=row; st++){
        System.out.print("*");
    }
    System.out.println();
}
```