Q1: Print N *

```
for( int i=1; i<=N; i++){        0 → N-1
    SOP("*");                    1 → N
}
```

Q2: Given N, print a square of *

N = 3

N = 4

```
// Print all rows
for(int row=0; row<N; row++){
    // Prin N stars in a row
    for( int col=0;col<N;col++){
        SOP("*");
    }
    SOPln();
}
```

Q3: Given N & M, print a rectangle of *

N = 2
M = 3

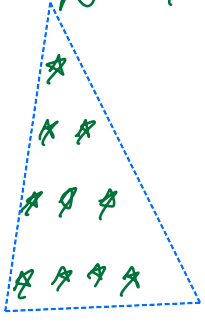
N = 3
M = 4

```
// Print all rows
for(int row=0; row<N; row++){
    // Print M stars in a row
    for(int col=0;col<M;col++){
        sop("*");
    }
    sopln();
}
```

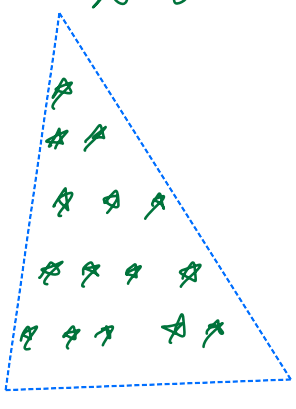
Nested loops ⇒ loop inside a loop

Q4: Given N, print staircase pattern

N = 4



N = 5



N = 4

Row	Stars
1	1
2	2
3	3
4	4

row

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

Q5: Given N, print inverse staircase pattern

N = 4

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

N = 3

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

N = 4

Row	Star
1	4
2	3
3	2
4	1

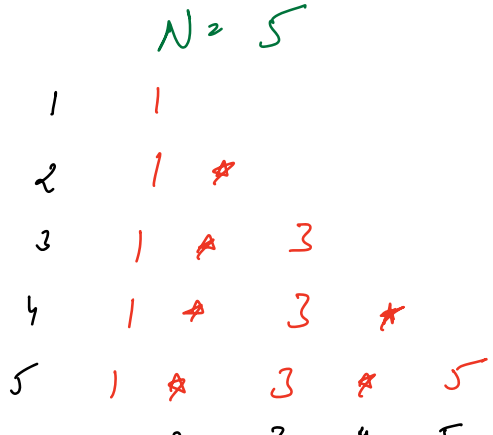
Star = n+1-row

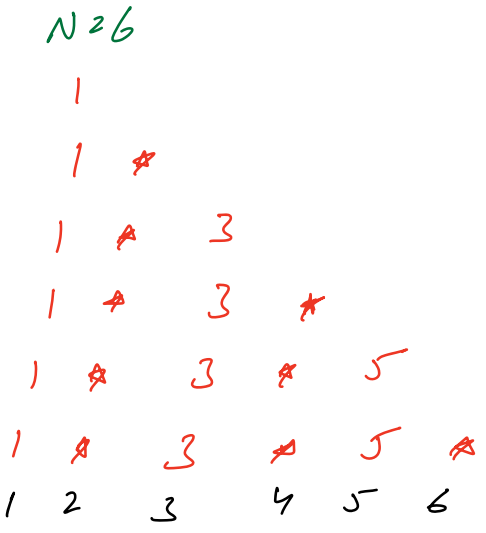
row + star = N+1

star = N+1 - row

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

Q6: Given N, print the following pattern





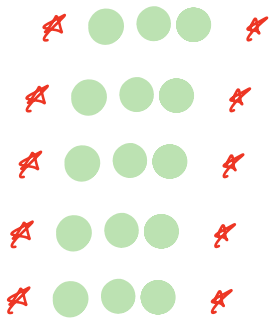

```
for( int row=1; row<=N; row++){
    for( int col=1; col<=row; col++){
        if(col%2==1){
            SOP(col);
        }else{
            SOP(*);
        }
    }
}
```

```
    }
    SOPln();
}
```

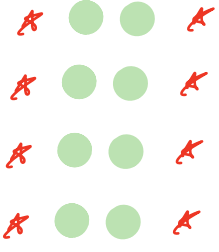
Break 10:10pm

Q7: Given N, print the following pattern

N = 5



N = 4



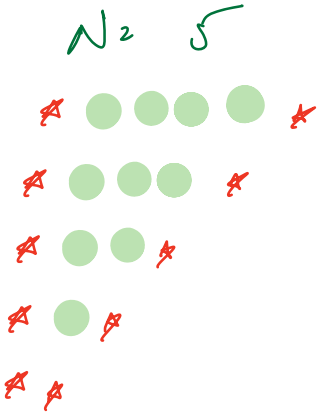
N-2 spaces in each row

● ⇒ space

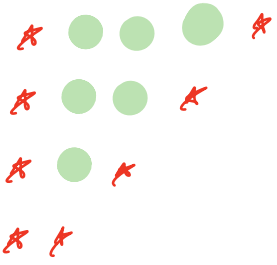
```
for(int row=1; row<=N; row++){
    SOP(*);
    for(int sp=1; sp<=N-2; sp++){
        SOP( );
    }
    SOP(*);
    SOPln();
}
```

Q8 : Given N, print the following pattern

N = 5



N = 4



N = 5

Row	star	space	star
1	1	4	1
2	1	3	1
3	1	2	1
4	1	1	1
5	1	0	1
	1	n-row	1

row + space = N

Space = N - row

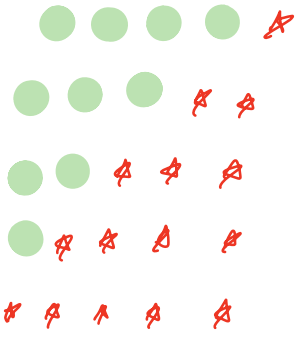
```
for(int row=1; row<=N; row++){

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

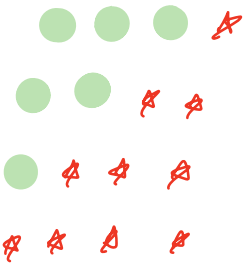
```
SOP(*);
SOPln();
}
```

Q9 : Given N, print the following pattern

N = 5



N = 4



N = 5

Row	spaces	stars
1	4	1
2	3	2
3	2	3
4	1	4
5	0	5
	n-row	row

row + spaces = N

spaces = N - row

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

    for(int sp=1; sp<=N-row; sp++){
        SOP( );
```

```
    }

    for(int st=1; st<=row; st++){
        SOP(*);
    }
    SOPLn();
}
```