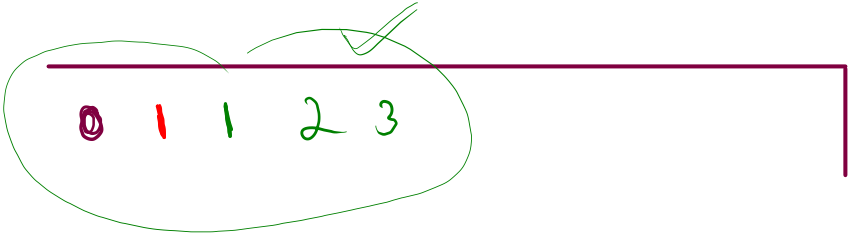
Fibonacci Series.

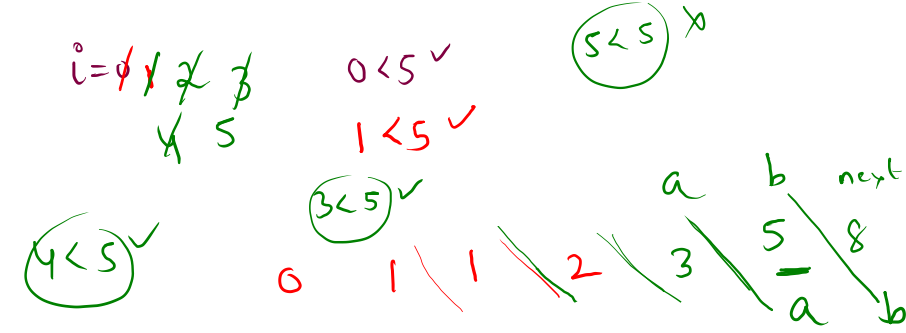
$$T_n = T_{n-1} + T_{n-2}$$

Theory:

0 1 1 2 3 5 8 ------

```java
public class Main
{
    public static void main(String[] args) {

        // a & b defined as previous two members o

        int a = 0;
        int b = 1;

        for(int i = 0; i < 5; i++){
            System.out.print(a + " ");

            int next = a + b;
            a = b;
            b = next;

        }
```





a = b
b = next

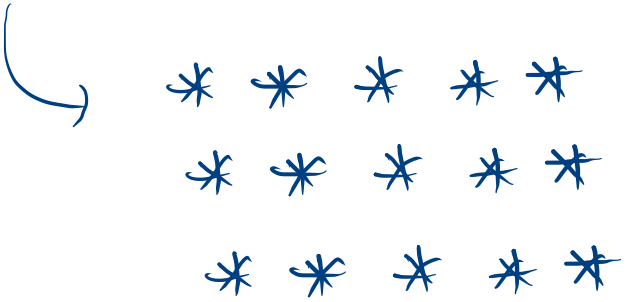
0 1 1 2 3 5 8 .....

nth Tribonacci

$T_n = T_{n-1} + T_{n-2} + T_{n-3}$

```java
import java.io.*;
import java.util.*;

public class Solution {

    public static void main(String[] args) {
        Scanner scn = new Scanner(System.in);
        int n = scn.nextInt();
        // a & b defined as previous two members of the series

        int a = 0;
        int b = 1;
        int c = 1;

        for(int i = 0; i < n; i++){
            int next = a + b  + c;
            a = b;
            b = c;
            c = next;


        }
        System.out.print(a  + " ");
    }
```

$n = 0$



Pattern 1 - Print Stars in same line

n = 3

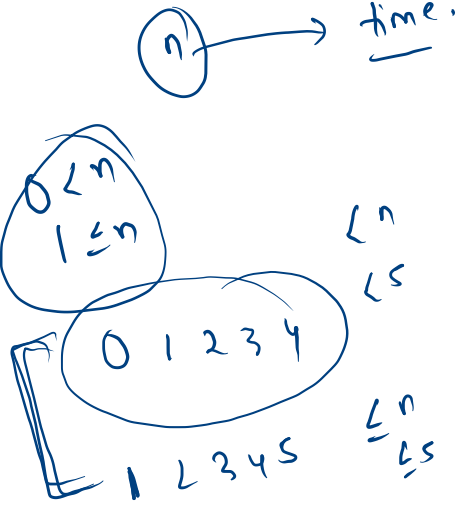
* * *

n = 4

* * * *

n = 5

* * * * *




```java
import java.io.*;
import java.util.*;

public class Solution {

    public static void main(String[] args) {
        Scanner scn = new Scanner(System.in);
        int n = scn.nextInt();

        for(int i = 1; i <= n; i++){
            System.out.print("*");
        }


    }
}
```

Nested loops.

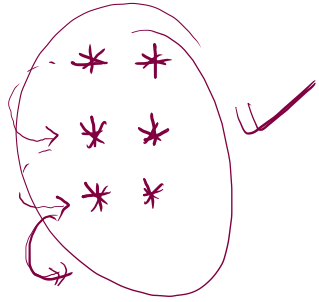
↳ loop inside loop.

```
    for (int j = 1; j <= 3; j++)
    {

        for (int i = 1; i <= 2; i++)
        {
            System.out.print ("*");
        }
        System.out.println ();

    }

  }
}
```

j = 1 2 3 4

1 ≤ 3 ✓
2 ≤ 3 ✓
3 ≤ 3 ✓
4 ≤ 3 ✗

n = 12



12 x n stars.

```java
public class Solution {

    public static void main(String[] args) {
        Scanner scn = new Scanner(System.in);
        int n = scn.nextInt();

        // n is total number of stars each line

        for(int i = 1; i <= 12; i++){

            for(int j = 1; j <= n; j++){
                System.out.print("*");
            }
            System.out.println();

        }


    }
}
```

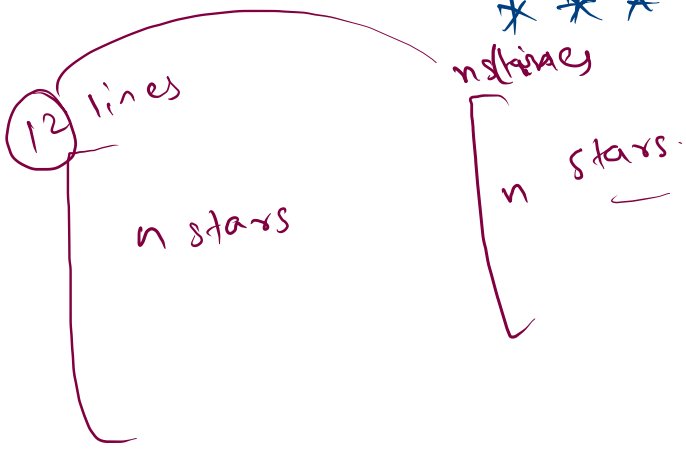
Pattern 3 - nxn star rectangle

Problem | Submissions | Leaderboard | Discussions

Take **n** as an integer input. Then print **nxn** star **rectangle** as mentioned below.

In each line, **n** stars should be printed.

And there should be **n** such lines.



```java
import java.io.*;
import java.util.*;

public class Solution {

    public static void main(String[] args) {
        Scanner scn = new Scanner(System.in);
        int n = scn.nextInt();

        // n is total number of stars each line

        for(int i = 1; i <= n; i++){

            for(int j = 1; j <= n; j++){
                System.out.print("*");
            }
            System.out.println();

        }


    }
}
```