30 Apr 2023

NS 30 Apr 2023

Main.java 2

Main.java > Main > main(String[])

```java
// WAP to find the sum of series
// 1, 3, 6, 10, ... (Triangular Numbers)
import java.util.Scanner;

public class Main {
    Run | Debug
    public static void main(String[] args) {
        Scanner sc = new Scanner(System.in);
        System.out.print("Enter n: ");
        int n = sc.nextInt();
        int sum = 0;


        System.out.println("Sum of the series is: "+sum);
    }
}
```

1, 3, 6, 10, ...

(1+2), (1+2+3), (1+2+3+4)

... n

(1+2+3+ ... +n)

i.e. $\frac{n(n+1)}{2}$

0 ⚠ 2 Live Share Ln 13, Col 7 Spaces: 3 UTF-8 LF Java

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Main.java 1

Main.java > Main

```java
import java.util.*;
public class Main
{
    Run | Debug
    public static void main(String[] args) {
        Scanner sc = new Scanner(System.in);
        int n = sc.nextInt(); n=5
        long sum = 0;
        for (int i = 1; i <= n; i++) {
            sum = i * (i + 1) / 2;
            System.out.print(sum + " ");
        }
    }
}
```

1, 3, 6, 10, 15

$\frac{i(i+1)}{2}$

sum=0

i = 1 2 3 4 5 6

$\frac{1 \times 2}{2} = 1$

$\frac{2 \times 3}{2} = 3$

$\frac{3 \times 4}{2} = 6$

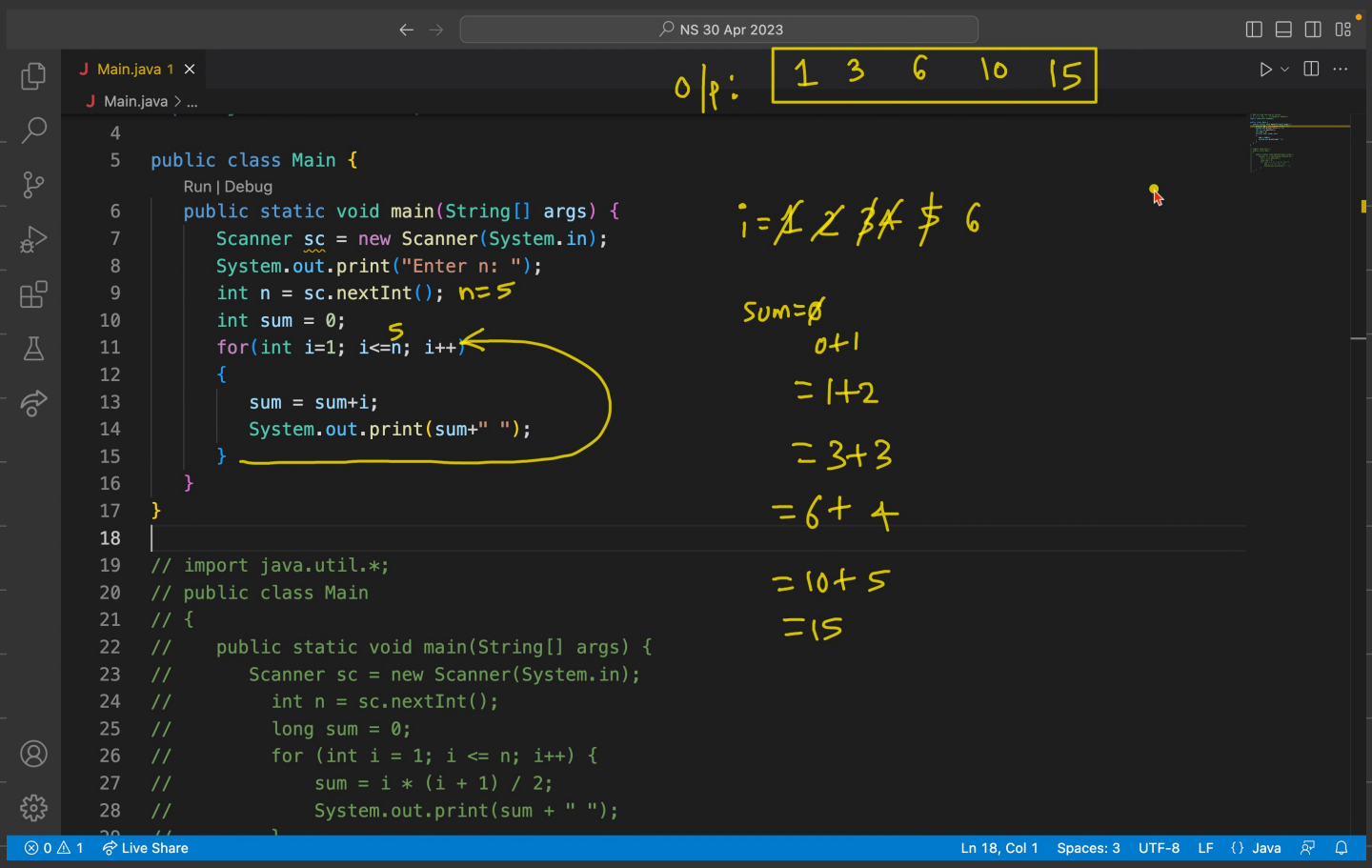
$\frac{4 \times 5}{2} = 10$

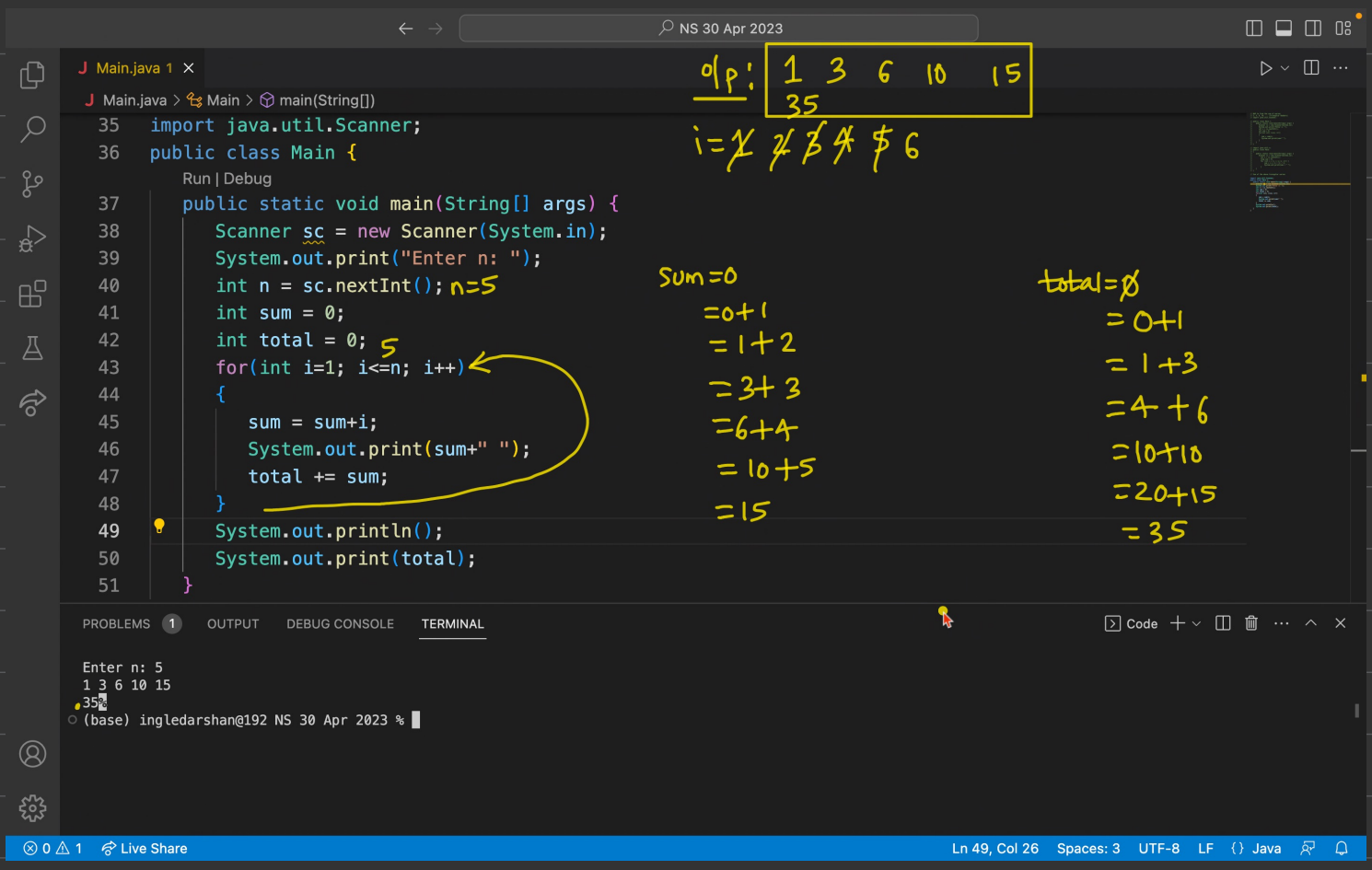
$\frac{5 \times 6}{2} = 15$

PROBLEMS 1 OUTPUT DEBUG CONSOLE TERMINAL

```
5
1 3 6 10 15
(base) ingledarshan@192 NS 30 Apr 2023 %
```

0 ⚠ 1 Live Share Ln 30, Col 2 Spaces: 3 UTF-8 LF Java


NS 30 Apr 2023
Main.java 1
Main.java > ...
o/p: 1 3 6 10 15
public class Main {
Run | Debug
public static void main(String[] args) {
Scanner sc = new Scanner(System.in);
System.out.print("Enter n: ");
int n = sc.nextInt(); n=5
int sum = 0;
for(int i=1; i<=n; i++)
{
sum = sum+i;
System.out.print(sum+" ");
}
}
}
// import java.util.*;
// public class Main
// {
// public static void main(String[] args) {
// Scanner sc = new Scanner(System.in);
// int n = sc.nextInt();
// long sum = 0;
// for (int i = 1; i <= n; i++) {
// sum = i * (i + 1) / 2;
// System.out.print(sum + " ");
Sum=0
0+1
=1+2
=3+3
=6+4
=10+5
=15
Ln 18, Col 1 Spaces: 3 UTF-8 LF Java Live Share


NS 30 Apr 2023
Main.java 1
Main.java > Main > main(String[])
o/p: 1 3 6 10 15
35
import java.util.Scanner;
public class Main {
Run | Debug
public static void main(String[] args) {
Scanner sc = new Scanner(System.in);
System.out.print("Enter n: ");
int n = sc.nextInt(); n=5
int sum = 0;
int total = 0;
for(int i=1; i<=n; i++)
{
sum = sum+i;
System.out.print(sum+" ");
total += sum;
}
System.out.println();
System.out.print(total);
}
Sum=0
=0+1
=1+2
=3+3
=6+4
=10+5
=15
total=0
=0+1
=1+3
=4+6
=10+10
=20+15
=35
PROBLEMS 1 OUTPUT DEBUG CONSOLE TERMINAL
Enter n: 5
1 3 6 10 15
35
(base) ingledarshan@192 NS 30 Apr 2023 %
Ln 49, Col 26 Spaces: 3 UTF-8 LF Java Live Share

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Main.java 1

Main.java > ...

```java
// Sum of the series 1 + x/1 + x^2/2 + x^3/3 + ... + x^n/n
import java.util.*;
public class Main
{
    Run | Debug
    public static void main(String[] args) {
        Scanner sc = new Scanner(System.in);
        int n = sc.nextInt();//3
        double x = sc.nextDouble();//2
        double sum = 1;
        for(int i=1; i<=n; i++){
            sum += Math.pow(x,i)/i;
        }
        System.out.print(sum);
    }
}
```

$1+\frac{2}{1}+\frac{2^2}{2}+\frac{2^3}{3}$

i = 1 2 3 4

x=2 n=3

$Sum=1+\frac{2^1}{1}+\frac{2^2}{2}+\frac{2^3}{3}$

PROBLEMS 1 OUTPUT DEBUG CONSOLE TERMINAL

```
3
2
7.666666666666666%
(base) ingledarshan@192 NS 30 Apr 2023 %
```

0 ⚠ 1 Live Share Ln 55, Col 1 Spaces: 3 UTF-8 LF Java

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Main.java 1

Main.java > ...

$\frac{5}{1}+\frac{5}{2}+\frac{5}{3}+\frac{5}{4}+\frac{5}{5}=?$

```java
// Sum of series (n/1) + (n/2) + (n/3) + (n/4) + ... + (n/n)
import java.util.Scanner;
public class Main {
    Run | Debug
    public static void main(String[] args) {
        Scanner sc = new Scanner(System.in);
        System.out.print("Enter n: ");
        int n = sc.nextInt();
        double sum = 0;
        for(int i=1; i<=n; i++)
        {
            sum += n*1.0/i;
        }
        System.out.print(sum);
    }
}
```

n=5

i = 1 2 3 4 5 6

$Sum=0+\frac{5.0}{1}+\frac{5.0}{2}+\frac{5.0}{3}+\frac{5.0}{4}+\frac{5.0}{5}$

=29.2896

PROBLEMS 1 OUTPUT DEBUG CONSOLE TERMINAL

```
Enter n: 10
29.289682539682538%
(base) ingledarshan@192 NS 30 Apr 2023 %
```

0 ⚠ 1 Live Share Ln 86, Col 1 Spaces: 3 UTF-8 LF Java

H/W: Sum of Series

① $\frac{2}{3} - \frac{4}{5} + \frac{6}{7} - \frac{8}{9} + \ldots$ upto 'n' terms

② 0.6, 0.06, 0.006, 0.0006 to 'n' terms

③ 2, 12, 36, 80, 150 ....