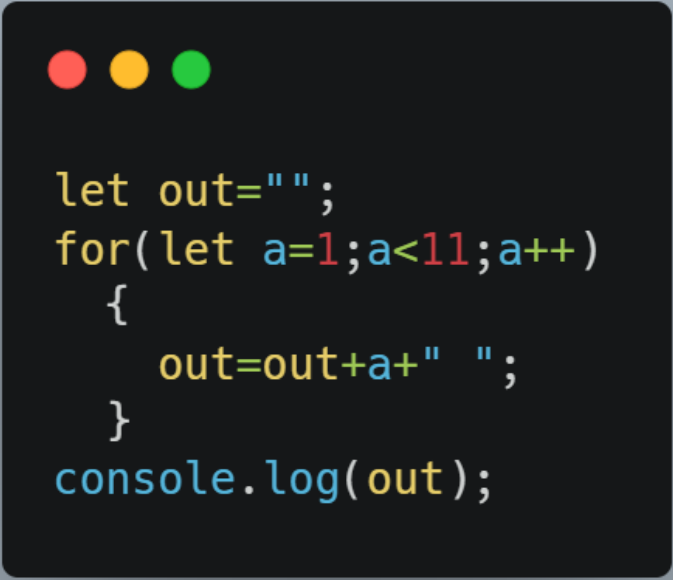


Programming Problems-Loops 2

- Write a program to display the first 10 natural numbers.

Expected Output :

1 2 3 4 5 6 7 8 9 10



```
let out="";
for(let a=1;a<11;a++)
{
    out=out+a+" ";
}
console.log(out);
```

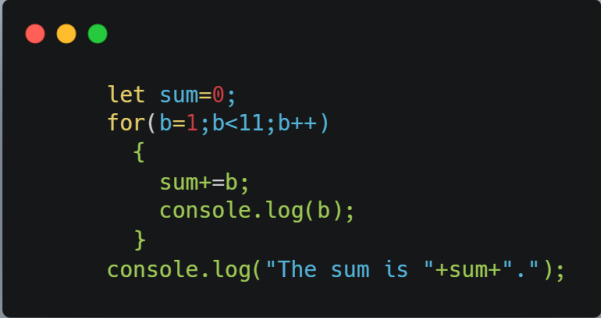
- Write a program to find the sum of the first 10 natural numbers.

Expected Output:

The first 10 natural number is :

1 2 3 4 5 6 7 8 9 10

The Sum is : 55



```
let sum=0;
for(b=1;b<11;b++)
{
    sum+=b;
    console.log(b);
}
console.log("The sum is "+sum+".");
```

- Write a program to display n terms of natural numbers and their sum.

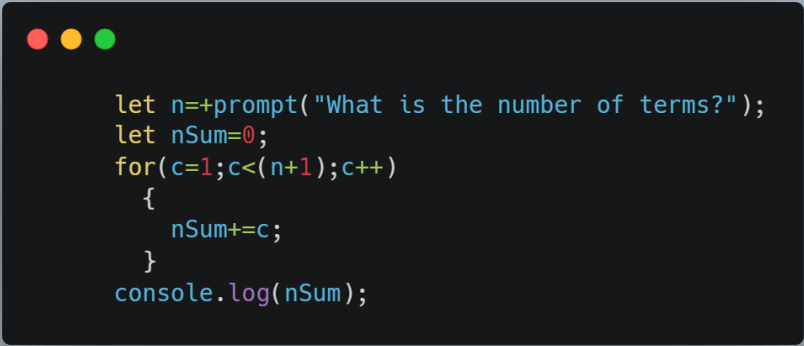
Test Data: 7

Expected Output :

The first 7 natural number is :

1 2 3 4 5 6 7

The Sum of Natural Number up to 7 terms : 28



```
let n=+prompt("What is the number of terms?");
let nSum=0;
for(c=1;c<=(n+1);c++)
{
    nSum+=c;
}
console.log(nSum);
```

```

let natNumInput=+prompt('Enter your choice of natural numbers!');
let sum=0;
let output='';
for(let i=1; i<=natNumInput;i++){
    output=output+i+' ';
    sum+=i;
}
console.log('The first ' + natNumInput + ' natural numbers is:\n' + output
+'\nThe sum is: ' + sum);

```

- Write a program to read 10 numbers from the keyboard and find their sum and average.

Test Data : the 10 numbers the user provides ex. 1,1,1,1,1,10,10,20,2,3,5

Expected Output :

The sum of 10 no is : 55

The Average is : 5.500000

```

let tenSum=0;
let tenAverage=0
for(d=0;d<11;d++){
    {
        let tenNumbers=+prompt("Please enter a number.");
        tenSum+=tenNumbers;
    }
}
tenAverage=tenSum/10;
console.log("The sum of your 10 numbers is "+tenSum+".");
console.log("The average of your 10 numbers is "+tenAverage+".");

```

- Write a program to display the cube of the number up to an integer. Test Data :
Input number of terms : 5

Expected Output :

Number is : 1 and cube of the 1 is :1
Number is : 2 and cube of the 2 is :8
Number is : 3 and cube of the 3 is :27
Number is : 4 and cube of the 4 is :64
Number is : 5 and cube of the 5 is :125

```
//Write a program to display the cube of the number up to an integer.
let cube=0;
let n=+prompt("What is the nth term?")
for(x=1;x<=n;x++){
  cube=x*x*x
  console.log("Number is:"+x+" and cube of the "+x+" is:"+cube);
}
```

//Better solution :D (jk)-declare your variables first i.e. cube!

```
let userReq=+prompt('Enter the amount of numbers you want to cube?');

for(let i=1;i<=userReq;i++){
  cube=i**3;
  console.log('Number is: ' + i + ' and the cube of ' + i + ' is: ' + cube);
}
```

- Write a program to display the multiplication table of a given integer.

Test Data :

Input the number (Table to be calculated) : 15

Expected Output :

15 X 1 = 15

...

...

15 X 10 = 150

```
let userInput=prompt('What number do you want to multiply?');
let product=0;

for(let i=1; i<=10; i++){
    product=userInput*i;
    console.log(userInput + ' x ' + i + ' = ' + product);
}
```

```
//Write a program to display the multiplication table of a given integer.
let n=prompt("What is the nth term?")
let mult=0;
for(x=1; x<=n; x++){
    mult=x*n
    console.log(n+" x "+x+" = "+mult);
}
```

- Write a program to display the n terms of odd natural numbers and their sum .

Test Data

Input number of terms : 10

Expected Output :

The odd numbers are :1 3 5 7 9 11 13 15 17 19

The Sum of odd Natural Number up to 10 terms : 100

```

let oddNum=+prompt('How many odd numbers you want??');
let increasing=1;
let output='';
let sum=0;

for(let o=1; o<=oddNum; o++){
    output=output + increasing + ' ';
    sum+=increasing;
    increasing+=2;
}
console.log('The odd numbers are ' + output + '\nThe Sum of odd natural nu
oddNum + ' terms: ' + sum);

```

```

//Write a program to display the n terms of odd natural number and their sum .
let sum=1;
let output="";
let total=1;
let n=+prompt("What is the nth term?")
for(let a=2; a<=n; a++){
    sum+=2;
    output=output+sum+" ";
    total+=sum;
}
console.log("1 "+output);
console.log("The sum of your odd numbers up to "+n+" terms :"+total);

```

- Write a program to display the pattern like a right angle triangle using an asterisk.

The pattern like :

*

**


```
let userAmount=+prompt('How many stars does thy user request?');
let stars='';

for(let i=1; i<=userAmount; i++){
  for(let x=1; x<=i; x++){
    stars+='*';
  }
  stars+='\n';
}
console.log(stars);
```

```
let amount=4
let stars=' ';
  for(s=1;s<=amount;s++)
  {
    for( let f=1; f<=s; f++)
    {
      stars+='*';
    }
    stars+="\n";
  }
  console.log(stars)
```

- Write a program to display the pattern like a right angle triangle with a number. The pattern like:

1
12
123
1234

```
let userAmount=+prompt('How many rows of numbers does thy user request?');  
let nums='';  
  
for(let i=1; i<=userAmount; i++){  
    for(let x=1; x<=i; x++){  
        nums+=x;  
    }  
    nums+='\n';  
}  
console.log(nums);
```

- Write a program to make such a pattern like a right angle triangle with a number which will repeat a number in a row. The pattern like :

1
22
333
4444


```

let out="";
for(let i=1;i<=4;i++)
{
    for(let n=1;n<=i;n++)
    {
        out+=i;
    }
    out+="\n";
}
console.log(out);

```

- Write a program to display the n terms of even natural numbers and their sum.

Test Data :

Input number of terms : 5

Expected Output :

The even numbers are :2 4 6 8 10

The Sum of even Natural Number up to 5 terms : 30

```

let n=+prompt("Enter the nth term");
let sum=0;let out="";

for(let i=2;i<=(n*2);i+=2)
{
    sum+=i;
    out+=i+" ";
}
console.log("The even numbers are: "+out);
console.log("The Sum of even Natural Number up to "+n+" terms :"+sum);

```

- Write a program to display the n terms of harmonic series and their sum.

$1 + 1/2 + 1/3 + 1/4 + 1/5 \dots 1/n$ terms

Test Data :

Input the number of terms : 5

Expected Output :

$1/1 + 1/2 + 1/3 + 1/4 + 1/5 +$

Sum of Series up to 5 terms : 2.283334

```
let n=+prompt("Enter the nth term");
let sum=0;
let out="";
let fraction="";
for(let i=1;i<=(n);i++)
{
    sum+=1/i;
    fraction=" 1/"+i+" ";
    console.log(fraction);
    if(i!=n)
    {
        out+=fraction+" + ";
    }
    else
    {
        out+=fraction;
    }
}
console.log(out);
console.log("Sum of Series up to 5 terms : "+sum);
```

- Write a program to display the sum of the series [9 + 99 + 999 + 9999 ...].

Test Data :

Input the number or terms :5

Expected Output :

9 99 999 9999 99999

The sum of the series = 111105



```
let n=+prompt("Enter a number");
let term="9";
let i=1;
while(i<=n)
{   console.log(term+" ");
    sum+=+term;
    term+="9";
    i++;
}
console.log("The sum of the series = "+ sum);
```

- Write a program to print the Floyd's Triangle.

1

01

101

0101

10101



```
let out="";
let termRow=1;
let termCol=0;
for(let row=0;row<=5;row++)
{
    out+=termRow;
    if(termRow==1)
    {
        termRow=0;
        termCol=1;
    }
    else
    {
        termRow=1;
        termCol=0;
    }
    for(let col=1;col<=row;col++)
    {
        if(termCol==1)
        {
            termCol=0;
        }
        else
        {
            termCol=1;
        }
        out+=termCol;
    }
    out+="\n";
}
console.log(out);
```



```
let term=1;
let output="";
for(let y=1;y<=5;y++)
{
    for(let x=1;x<=y;x++)
    {
        output+=term;
        if(term==1){term=0;}
        else{term=1};
    }
    if((y+1)%2==1)
    {term=1;}
    output+="\n";
}
console.log(output);
```