

Loops

Exercise : Count by 2

In this exercise, you are going to count by 2, starting at 2 and ending with the provided number.

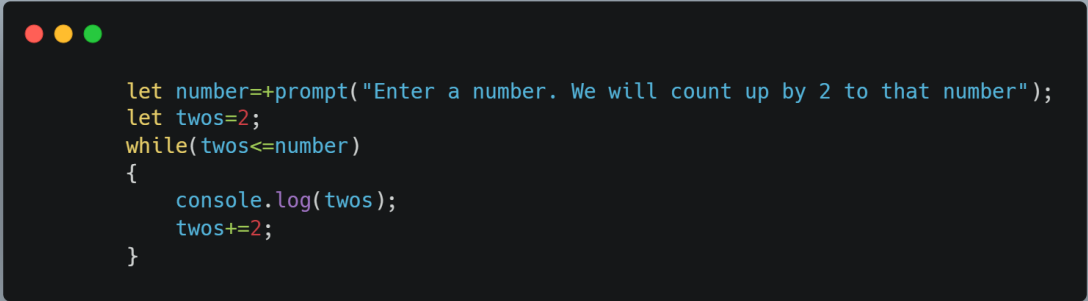
You should return the numbers as a space separated string.

Example:

```
(10) --> "2 4 6 8 10 "
```

```
(4) --> "2 4 "
```

*use `carbon.now.sh` to create nice snapshots of your code!



```
let number=prompt("Enter a number. We will count up by 2 to that number");
let twos=2;
while(twos<=number)
{
  console.log(twos);
  twos+=2;
}
```


Exercise : How many times?

In this exercise, you are given a starting value, an ending value, and an increment. Display how many times the loop executes given these parameters.

Example:

```
(3, 10, 3) --> 3
```

```
(5, 15, 1) --> 11
```



```
let start=+prompt("Enter a starting number")
let end=+prompt("Enter a ending number")
let incre=+prompt("Enter a incremnt number")
let loop=0;
for(let a=start;a<=end;a=a+incre)
{
  loop++
}
console.log("Ur thing looped "+loop+" times!")
```



```
let startNumber=+prompt("enter the starting number");
let endNumber=+prompt("enter the ending number");
let increment=+prompt("enter the amount by which to change the numbers i.e its
increment value");
let sum=0;
let output="";
while(startNumber<=endNumber)
{
    sum=sum+startNumber;
    if(startNumber<endNumber)
        output=output+startNumber+" ";
    startNumber=startNumber+increment;
}
else
{
    output==output+startNumber;
}
startNumber=startNumber+increment;
}
output=sum + "#"+output;
console.log(output);
```



```
let startNumber=+prompt("Give me the start number");
let endNumber=+prompt("Give me the end number");
let increment=+prompt("Give me the increment");
let count=0;//count the iterations

while(startNumber<=endNumber)
{
    console.log("startNumber is "+startNumber);
    console.log("count="+count);
    count++;
    startNumber+=increment;
    console.log("startNumber is "+startNumber);
    console.log("count="+count);
}
console.log("The number of iterations is "+count);
```

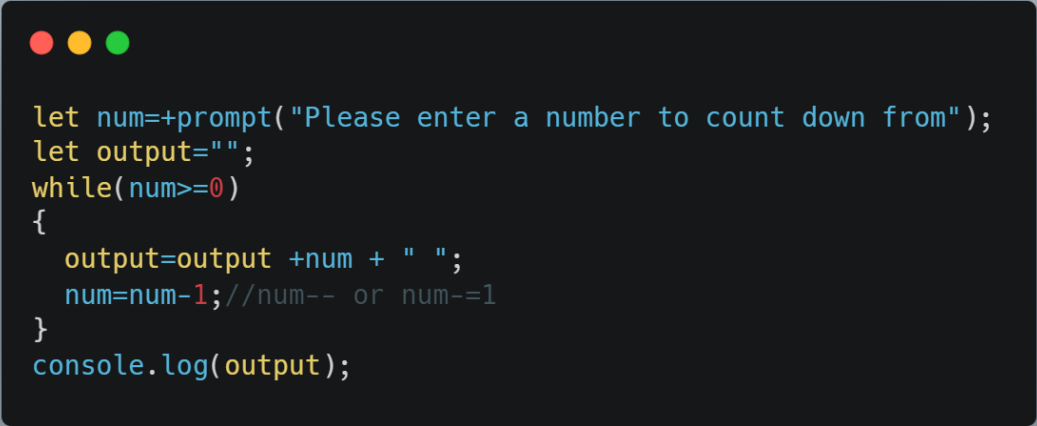
Exercise : Countdown

For this exercise, you are going to return an output that counts down from a provided starting value. Each number should be space separated.

Example:

(10) --> "10 9 8 7 6 5 4 3 2 1 0 "

(5) --> "5 4 3 2 1 0 "



```
let num=+prompt("Please enter a number to count down from");
let output="";
while(num>=0)
{
    output=output +num + " ";
    num=num-1;//num-- or num-=1
}
console.log(output);
```

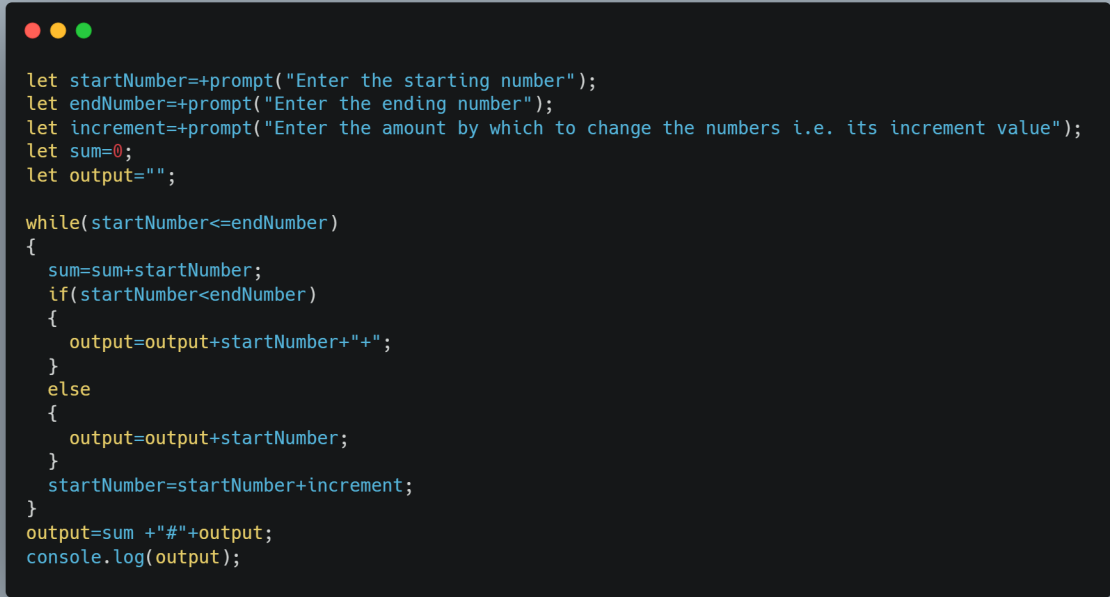
Exercise : Sum Numbers

Given a starting value, ending value, and an increment value, add up all the numbers in the range (inclusive of the end points).

Example:

```
(0, 10, 2) --> 30 # 2 + 4 + 6 + 8 + 10
```

```
(25, 30, 5) --> 55 # 25 + 30
```



```
let startNumber=+prompt("Enter the starting number");
let endNumber=+prompt("Enter the ending number");
let increment=+prompt("Enter the amount by which to change the numbers i.e. its increment value");
let sum=0;
let output="";

while(startNumber<=endNumber)
{
    sum=sum+startNumber;
    if(startNumber<endNumber)
    {
        output=output+startNumber+" ";
    }
    else
    {
        output=output+startNumber;
    }
    startNumber=startNumber+increment;
}
output=sum +"#"+output;
console.log(output);
```

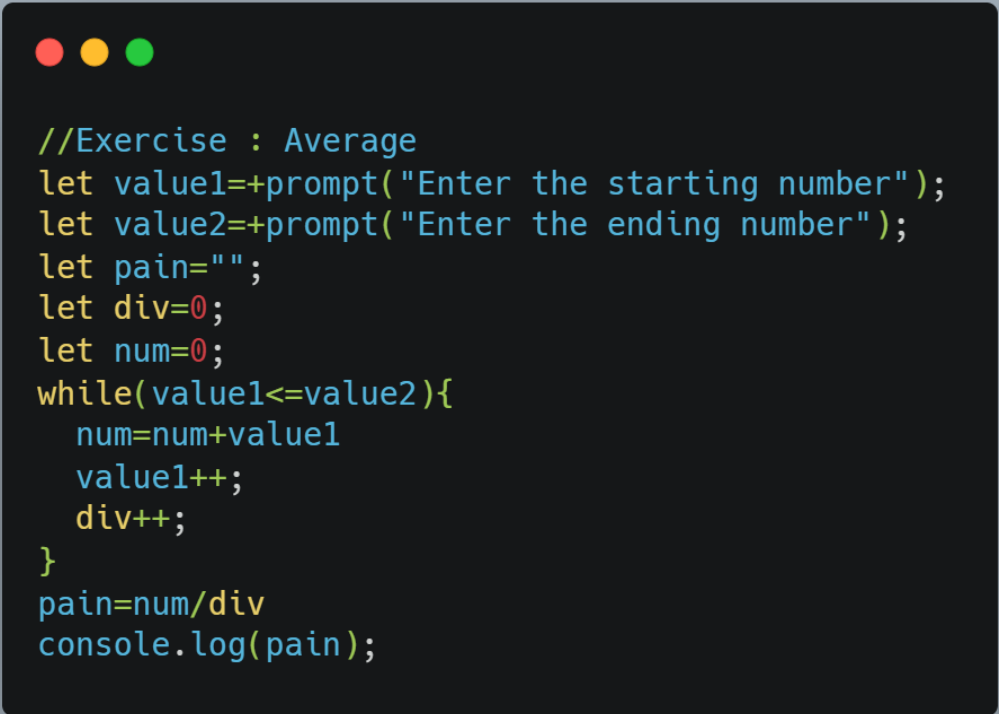
Exercise : Average

In this exercise, you are going to return the average over a range of numbers, from the start value to the end value (inclusive of both end points).

Example:

(10, 20) --> 15

(0, 1000) --> 500



```
//Exercise : Average
let value1=+prompt("Enter the starting number");
let value2=+prompt("Enter the ending number");
let pain="";
let div=0;
let num=0;
while(value1<=value2){
    num=num+value1
    value1++;
    div++;
}
pain=num/div
console.log(pain);
```

Exercise : Factorial

In this exercise, you are given a number. You should print the factorial of the number. Remember factorial is multiplying that number times all of the numbers below it.

5 factorial = $5 * 4 * 3 * 2 * 1$

Example:

(5) --> 120

(3) --> 6



```
let number=+prompt("Enter a number to find the factorial of.");
let product=1;
while(number>=1)
{
    //console.log("number="+number);
    product=product*number;
    //console.log("product="+product);
    number--;//or number-=1 or number=number-1
}
console.log("Final answer="+product);
```

Exercise : Fibonacci sequence

For this exercise, you are going to create a Fibonacci sequence for a given number of terms. The Fibonacci sequence starts with 0 and 1, then the next number is the addition of the previous two numbers. Here is part of the sequence:

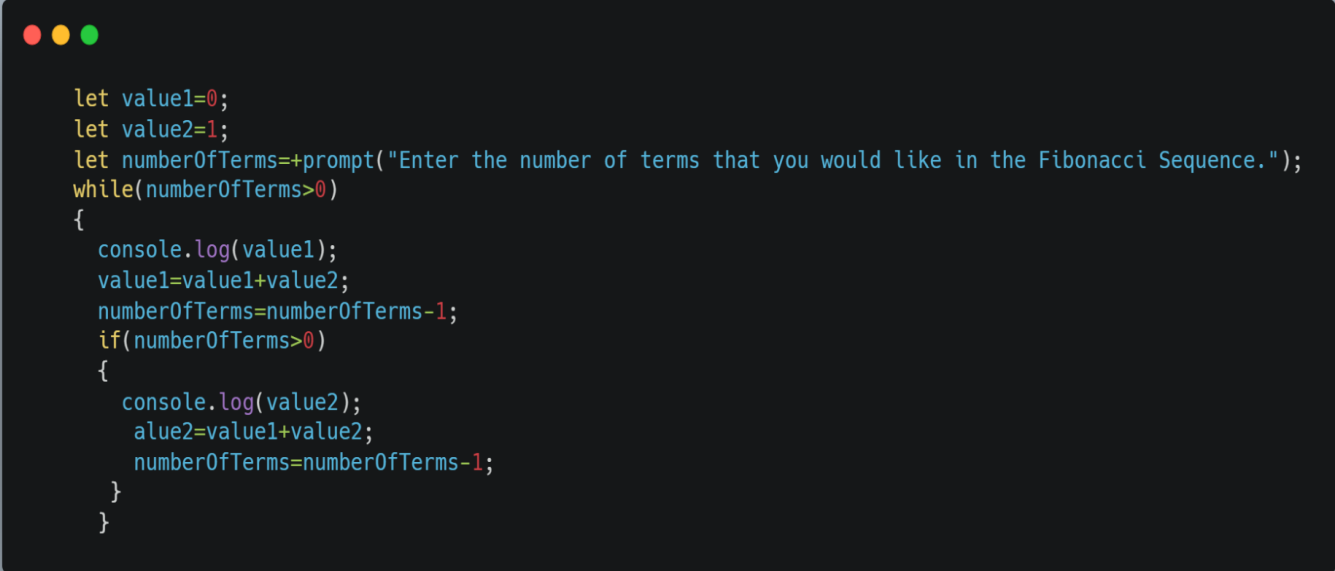
0, 1, 1, 2, 3, 5, 8, 13, ...

Given a number > 2 , return that many terms of the sequence, separated by space.

Example:

```
(5) --> "0 1 1 2 3 "
```

```
(9) --> "0 1 1 2 3 5 8 13 21 "
```



```
let value1=0;
let value2=1;
let numberOfTerms=+prompt("Enter the number of terms that you would like in the Fibonacci Sequence.");
while(numberOfTerms>0)
{
  console.log(value1);
  value1=value1+value2;
  numberOfTerms=numberOfTerms-1;
  if(numberOfTerms>0)
  {
    console.log(value2);
    value2=value1+value2;
    numberOfTerms=numberOfTerms-1;
  }
}
```

```
let num1=0;
let num2=1;
let sum=0;
let temp=0;
let limit=+prompt("How many number of the fibonacci series do you want to show?");
let count=2;
console.log(num1);
console.log(num2);
while(count<limit)
{
    sum=num1+num2;
    console.log(sum);
    num1=num2;
    num2=sum;
    count++;
}
```

Exercise : Modified count by 2

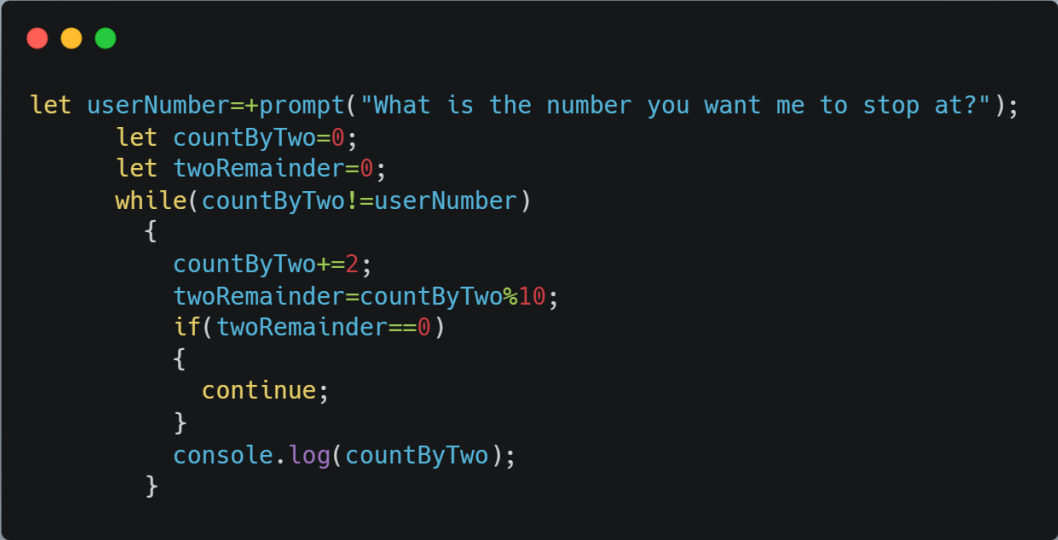
In this exercise, you are going to count by 2s starting at 2 and ending at the provided number. You should skip any number that ends in a 0.

Print the output as a string.

Example:

```
(14) --> "2 4 6 8 12 14 "
```

```
(10) --> "2 4 6 8 "
```



```
let userNumber=+prompt("What is the number you want me to stop at?");
let countByTwo=0;
let twoRemainder=0;
while(countByTwo!=userNumber)
{
    countByTwo+=2;
    twoRemainder=countByTwo%10;
    if(twoRemainder==0)
    {
        continue;
    }
    console.log(countByTwo);
}
```

```
//Almost the same, just looks like the input on the document
```

```
let byTwosInput=+prompt('I need a number');
let addingFactor=0;
let remainder=0;
let byTwosOutput='';

while(addingFactor!=byTwosInput){
  addingFactor+=2;
  remainder=addingFactor%10;

  if(remainder==0){
    continue;
  }
  byTwosOutput=byTwosOutput+ addingFactor + ' ';
}
console.log('" ' + byTwosOutput + '"');
```

Exercise : Is Divisible?

In this exercise, you are given an ending value and a divisor. Return the number of positive integers that are divisible by the divisor up to and including the ending value.

Example:

```
(10, 2) --> 5
```


```
(10, 3) --> 3
```

```
let endVal=+prompt('Give an ending Value');
let divFactor=+prompt('Give me a number to divide by!');
let valDivided=0;
let x=0;
let iterations=0;
let integer=0;

while(iterations<endVal){

    valDivided=endVal-x;
    //ex. User inputs (10, 2). valDivided=10-0; It starts off at 0 so that the end value is
    also accounted for. Next iteration it will be 10-1=9.
    valDivided=valDivided/divFactor;
    //valDivided=10/2 which equals 5
    if(Number.isInteger(valDivided)){
        //condition uses Number.isInteger function to determine if its an integer. In our
        case it would process this: Number.isInteger(5) == true
        integer++;
        //So we can keep track off how many integers there are
    }

    x++;
    //add one to x each time so that we can divide all numbers between endVal provided (10 in
    our case) and 0 (zero is not included)
    iterations++;
    //will stop once the amount it has iterated equals the endVal because we only want to
    check for numbers equal to or less than our end value.
}
console.log(integer);
```



```
let number=+prompt("Enter the end number");
let divisor=+prompt("Enter the divisor");
let numberOfDivisibles=0;
let remainder=0;
while(number>=1)
{
    remainder=number%divisor;
    if(remainder==0)
    {
        numberOfDivisibles++;
    }
    number--;
}
console.log(numberOfDivisibles)
```

Exercise : Average Grade

In this exercise, you will ask for a list of numeric grades. You should print the average value of these.

Example:

```
(70, 80, 90) --> 80
```

```
(90, 93, 98, 92) --> 93.25
```



```
let marks=0;
let average=0;
let count=0;
let sumOfMarks=0;

while(marks != -1)
{
    marks+=prompt("Enter your grade, enter -1 to stop")
    if(marks!=-1)
    {
        count++;
        sumOfMarks=sumOfMarks+masks;
    }
}

average=sumOfMarks/count;

console.log(average)
```

Exercise : How Many Even?

In this exercise, you ask for a list of numbers. Print the count of even numbers in the list.

Example:

(2, 3, 4, 5) --> 2

```
let getNumber="";
let evenRemainder=0;
let evenCount=0;
while(getNumber!=-1)
{
  getNumber=prompt("Please enter a number. Enter a -1 when you are finished. Positive numbers only!");
  if(getNumber==0)
  {
    continue;
  }
  evenRemainder=getNumber%2;
  if(evenRemainder==0)
  {
    evenCount++;
  }
  if(getNumber==-1)
  {
    evenCount=evenCount;
  }
}
console.log(evenCount);
```

(0, 6, 9, 11) --> 1

Exercise : Stars

In this exercise, you should print a string that can create a star triangle, given a specified number of rows (**Hint**: you'll need nested loops):

Example:

(3) -->

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

```
let rowsInput=+prompt('How many rows of stars do you want?');
let star='';
let rows=0;

while(rows<rowsInput){

    let numOfStars=0;

    while(numOfStars<=rows){
        //We want to add a new star each time we create a new row.
        star+='*';
        numOfStars++;
    }
    star+= "\n";
    rows++;
    //creates new row after each new iteration until rows that user inputted is satisfied
}
console.log(star);
```

Hint: To add a line break into your output string, add a “\n” into the string

Exercise : Dice combinations

In this exercise, you are given a number between 2 and 12. You should return the number of possible two dice combinations that can roll that combo. For example, if given 4, you would return 3 since you could roll a 1 and 3, 2 and 2, or 3 and 1.

Example:

(4) --> 3

(7) --> 6



```
let die1=1;
let die2=1;
let total=prompt("What's the total for the dice?")
let sum=0;
let count=0;
while(die1<=6)
{
    while(die2<=6)
    {
        sum=die1+die2;
        if(sum==total)
        {
            count++;
        }
        die2++;
    }
    die2=1;
    die1++;
}
console.log(count);
```