JavaScript
Loops

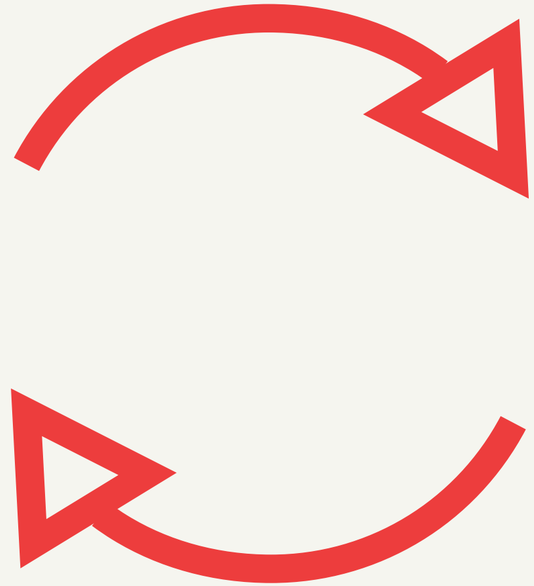
The For Loop

```
for (statement 1; statement 2; statement 3) {
    // code block to be executed
}
```

Statement 1 is executed (one time) before the execution of the code block.

Statement 2 defines the condition for executing the code block.

Statement 3 is executed (every time) after the code block has been executed.



Loops

```
var cars = ["BMW", "Volvo", "Saab", "Ford", "Fiat", "Audi"];
var i;
for (i = 0; i < cars.length; i++) {

  text += cars[i] + "<br>";

}
```

BMW
Volvo
Saab
Ford
Fiat
Audi

Loops

```
var cars = ["BMW", "Volvo", "Saab", "Ford"];
var i = 2;
var len = cars.length;
var text = "";

for (; i < len; i++) {

  text += cars[i] + "<br>";

}
```

Saab
Ford

JavaScript For In

Object

```
for (variable in object) {

  //code

}
```

```
var person = {fname:"John", lname:"Doe", age:25};

var text = "";
var x;
for (x in person) {

  text += person[x];

}
```

John Doe 25

JavaScript For In

Array

```
for (variable in array) {

    //code

}
```

```
var numbers = [45, 4, 9, 16, 25];

var txt = "";
var x;
for (x in numbers) {
  txt += numbers[x] + " ";
}
document.getElementById("demo").innerHTML = txt;
//45 4 9 16 25
```

JavaScript forEach

Array.forEach()

```
var txt = "";
var numbers = [45, 4, 9, 16, 25];
numbers.forEach(myFunction);    //a callback function

function myFunction(value, index, array) {
  txt = txt + value + "<br>";
}
```

45
4
9
16
25

JavaScript For of

Array

```
var cars = ["BMW", "Volvo", "Mini"];
var x;

for (x of cars) {

    document.write(x + "<br >");

}
```

BMW
Volvo
Mini

JavaScript For of

String

```
var txt = "JavaScript";

var x;
for (x of txt) {

  document.write(x + "<br >");

}
```

JavaScript

JavaScript While Loop

```
while (condition) {
    // code block to be executed
}
```

```
while (i < 10) {
    text += "The number is " + i;
    i++;
}
```

```
The number is 0
The number is 1
The number is 2
The number is 3
The number is 4
The number is 5
The number is 6
The number is 7
The number is 8
The number is 9
```

JavaScript Do/While

```
do {
    // code block to be executed
} while (condition);
```

```
do {
    text += "The number is " + i;
    i++;
} while (i < 10);
```

The number is 0
The number is 1
The number is 2
The number is 3
The number is 4
The number is 5
The number is 6
The number is 7
The number is 8
The number is 9

JavaScript For/While

เปรียบเทียบ For & While

```
var cars = ["BMW", "Volvo", "Saab", "Ford"];
```

```
var i = 0;
var text = "";

for (;cars[i];){
    text += cars[i] + "<br>";
    i++;
}
```

```
var i = 0;
var text = "";

while (cars[i]) {
    text += cars[i] + "<br>";
    i++;
}
```

JavaScript Break and Continue

The Break Statement

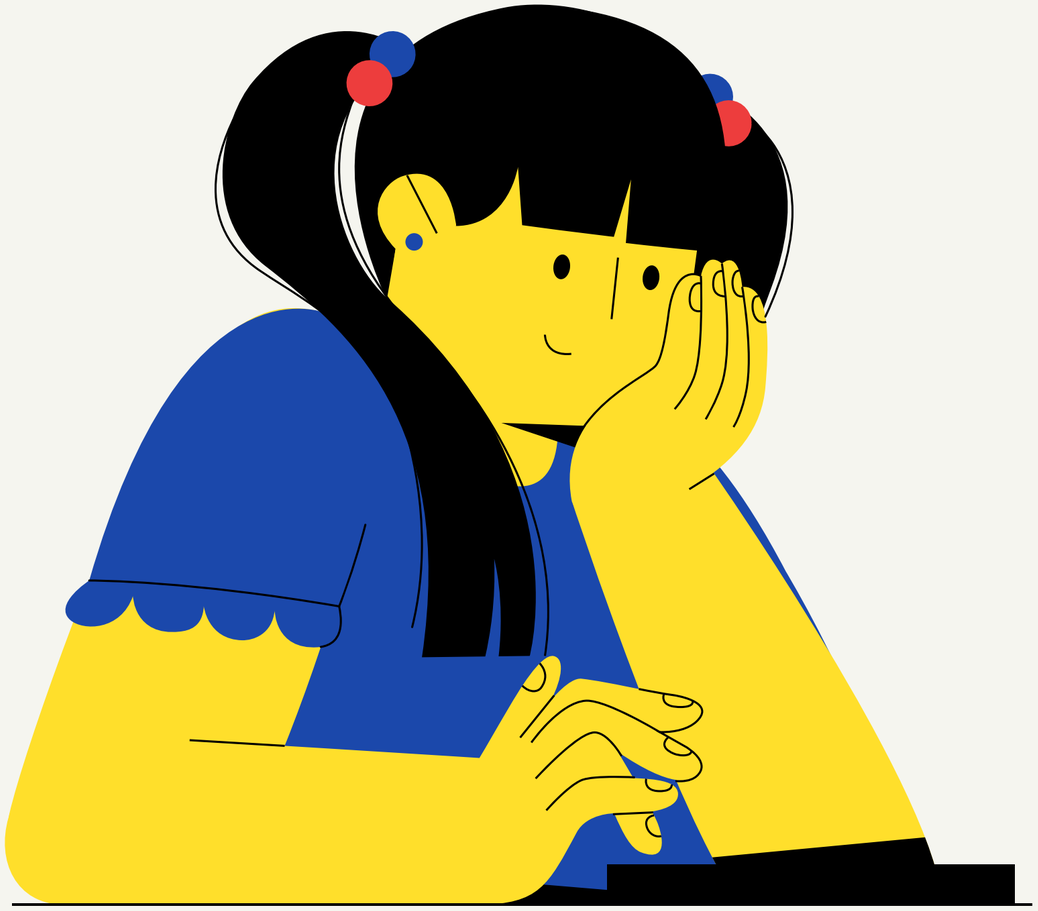
```
for (i = 0; i < 10; i++) {
    if (i === 3) { break; }
    text += "The number is " + i + "<br>";
}
```

The number is 0
The number is 1
The number is 2

The Continue Statement

```
for (i = 0; i < 10; i++) {
 if (i === 3) { continue; }
      text += "The number is " + i + "<br>";
}
```

The number is 0
The number is 1
The number is 2
The number is 4
The number is 5
The number is 6
The number is 7
The number is 8
The number is 9



JavaScript Regular Expressions

JavaScript Regular Expressions

Syntax

/pattern/modifiers;

<u>ตัวอย่าง</u>

var patt = /w3schools/i;

i is a modifier

(modifies the search to be case-insensitive).

String Methods

search()

```
var str = "Ministry Of Justice";
var n = str.search("Justice");     //n =12
```

search() ıuaɔ Regular Expression

```
var str = "Ministry Of Justice";
var n = str.search(/justice/i);    //n =12
```

```
var str = "Ministry Of Justice";
var n = str.search(/justice/);     //n = -1
```

String Methods

replace()

```
var str = "Justice Fund";
var res = str.replace("Fund", "Care");

//Justice Care
```

replace() แล: Regular Expression

```
var str = "Justice Fund";
var res = str.replace(/fund/i, "Care");

//Justice Care
```

Regular Expression Modifiers

i **insensitive matching**
ค้นหาข้อความที่ตรงกันโดยไม่สนตัวอักษรตัวเล็กหรือใหญ่

g **global match**
ค้นหาข้อความที่ตรงกับหลังจากที่พบตัวอักษรแรก

m **multiline matching**
ค้นหาข้อความถึงแม้จะมีการเว้นบรรทัด

Regular Expression Modifiers

insensitive matching

ค้นหาข้อความที่ตรงกันโดยไม่สนตัวอักษรตัวเล็กหรือใหญ่

```
var str = "Ministry Of Justice";

var patt1 = /justice/i;

var result = str.match(patt1);          //result = Justice
```

Regular Expression Modifiers

global match

ค้นหาข้อความที่ตรงกับหลังจากที่พบตัวอักษรแรก

```
var str = "Is this all there is?";

var patt1 = /is/g;

var result = str.match(patt1);          //result = is,is
```

Regular Expression Modifiers

multiline matching
ค้นหาข้อความถึงแม้จะมีการเว้นบรรทัด

```
var str = "\nls th\nis it?";

var patt1 = /^is/m;

var result = str.match(patt1);                    //result = is
```

Regular Expression Patterns

Brackets

[abc]	ค้นหาตัวอักษรที่ตรงกับตัวอักษรภายใน [ ]
[0-9]	ค้นหาตัวเลขที่อยู่ภายใน [ ]
(x|y)	ค้นหาทุกตัวอักษรที่ตรงกับภายในวงเล็บ ซึ่งแบ่งโดย vertical bar |

Regular Expression Patterns

Brackets

[abc] ค้นหาตัวอักษรภายในวงเล็บ

```
var str = "Is this all there is?";

var patt1 = /[h]/g;

var result = str.match(patt1);     // result = h,h
```

Regular Expression Patterns

Brackets

[0-9] ค้นหาตัวเลขภายในวงเล็บ

```
var str = "123456789";

var patt1 = /[1-4]/g;

var result = str.match(patt1);      //result = 1,2,3,4
```

Regular Expression Patterns

(x|y) ค้นหาทุกคำที่อยู่ภายในวงเล็บซึ่งแบ่งโดย vertical bar |

```
var str = "re, green, red, green, gren, gr, blue, yellow";

var patt1 = /(red|green)/g;

var result = str.match(patt1);      //result = green,red,green
```

Regular Expression Patterns

Metacharacters

\d	ค้นหาตัวเลข
\s	ค้นหาช่องว่าง
\b	ค้นหาตำแหน่งคำที่อยู่ภายในข้อความ ที่ขึ้นต้นด้วย \b**WORD** หรือลงท้ายด้วย **WORD**\b

Regular Expression Patterns

Metacharacters

\d ค้นหาตัวเลข

```
var str = "Give 100%!";

var patt1 = /\d/g;

var result = str.match(patt1);      //result = 1,0,0
var size = result.length;           //size = 3
```

Regular Expression Patterns

Metacharacters

\s ค้นหาช่องว่าง

```
var str = "Is this all there is?";

var patt1 = /\s/g;

var result = str.match(patt1);          //result =  , , ,
var size = result.length;               //size = 4
```

Regular Expression Patterns

Metacharacters

\b ค้นหาช่องว่าง

```
var str = "HELLO,LOOK AT YOU!";

var patt1 = /\bLO/;

var result = str.search(patt1);

//result = 6
```

```
var str = "HELLO,LOOK AT YOU!";

var patt1 = /LO\b/;

var result = str.search(patt1);

//result = 3
```

Regular Expression Patterns

Metacharacters

\b ค้นหาช่องว่าง

```
var str = "HELLO,LOOK AT YOU!";

var patt1 = /\bLO/;

var result = str.search(patt1);

//result = 6
```

```
var str = "HELLO,LOOK AT YOU!";

var patt1 = /LO\b/;

var result = str.search(patt1);

//result = 3
```

Regular Expression Patterns

Quantifiers

n+	ค้นหาตัวอักษรใดๆ อย่างน้อย 1 ตัวขึ้นไป
n*	ค้นหาตัวอักษรใดๆ อย่างน้อย 0 ตัวขึ้นไป
n?	ค้นหาตัวอักษรใดๆ อย่างน้อย 0 หรือ 1 ตัว

JavaScript

Functions

JavaScript Function Syntax

```
function name(parameter1, parameter2, parameter3)
{
    // code to be executed
}
```

Function Invocation

การเรียกใช้

แบบที่ 1

เมื่อเกิดเหตุการณ์ เช่น ผู้ใช้งานคลิกปุ่ม

แบบที่ 2

เมื่อเรียกใช้จากชุดคำสั่ง JavaScript

แบบที่ 3

เรียกใช้แบบอัตโนมัติ

Function Return

การคืนค่า

```
var x = myFunction(4, 3);

function myFunction(a, b)
{
    return a * b;
}
```

ทำไม

ต้องมีฟังก์ชัน

เพื่อการเรียกใช้งานซ้ำหลายๆ ครั้ง

```
function toCelsius(fahrenheit)
{

    return (5/9) * (fahrenheit-32);

}

document.getElementById("demo").innerHTML =
toCelsius(77);
```

นำไปใช้

```
var x = toCelsius(77);var text =
"The temperature is " + x + " Celsius";

var text =
"The temperature is " + toCelsius(77) + "
Celsius";
```

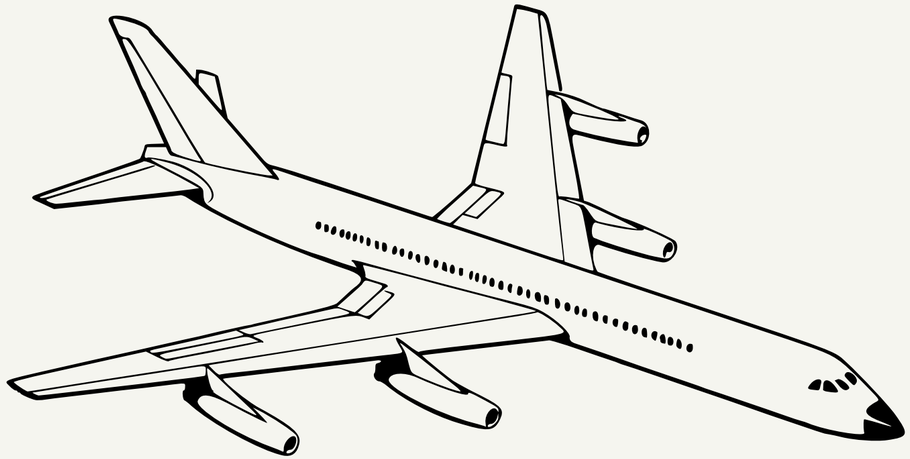
Local Variables

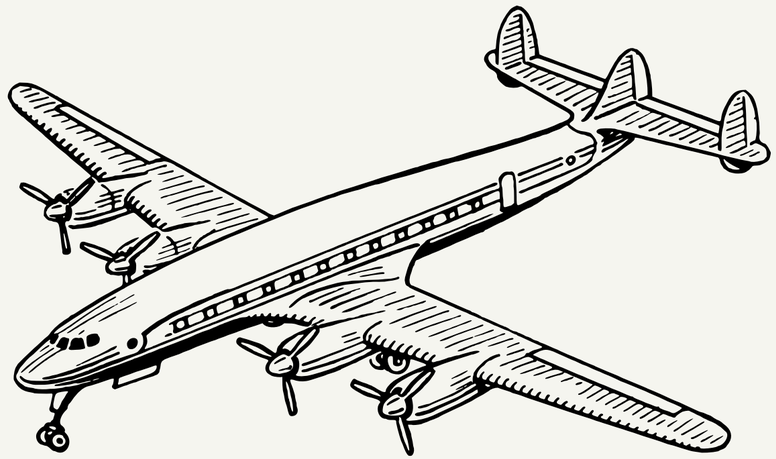
ตัวแปรภายใน

```
function myFunction()
{
    var carName = "Volvo";
}
```

JS Object

airplane.company = boeing
airplane.model = 777
airplane.weight = 134,800 kg
airplane.color = white





airplane.start()
airplane.takeoff()
airplane.landing()
airplane.brake()

JavaScript

Event

JavaScript Events

<element event='some JavaScript'>

<element event="some JavaScript">

JavaScript Events

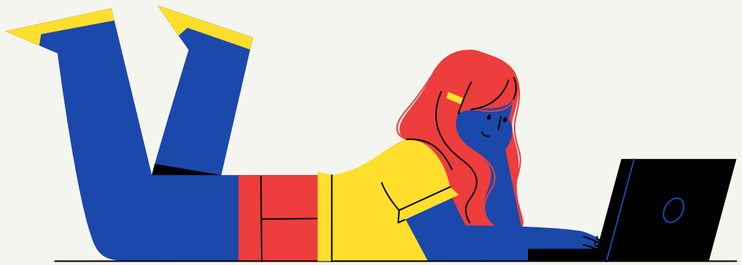
```
<button
onclick="document.getElementById('demo').innerHTML = Date()">
    The time is?
</button>

<button onclick="this.innerHTML = Date()">
    The time is?
</button>

<button onclick="displayDate()">
    The time is?
</button>
```

JavaScript Events

```
<button
onclick="document.getElementById('demo').innerHTML = Date()">
    The time is?
</button>

<button onclick="this.innerHTML = Date()">
    The time is?
</button>

<button onclick="displayDate()">
    The time is?
</button>
```

HTML Events

onchange	An HTML element has been changed
onclick	The user clicks an HTML element
onmouseover	The user moves the mouse over an HTML element



HTML Events

onmouseout	An HTML element has been changed
onkeydown	The user clicks an HTML element
onload	The user moves the mouse over an HTML element

Math Object

```
Math.PI;              // returns 3.141592653589793

Math.round(4.7);    // returns 5
Math.round(4.4);    // returns 4

Math.pow(8, 2);      // returns 64

Math.sqrt(64);      // returns 8

Math.abs(-4.7);     // returns 4.7
Math.ceil(4.4);     // returns 5
Math.floor(4.7);    // returns 4
```

Math Object

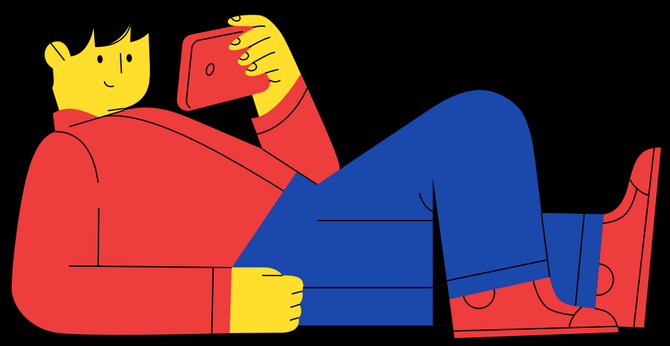
```
Math.min(0, 150, 30, 20, -8, -200);  // returns -200

Math.max(0, 150, 30, 20, -8, -200);  // returns 150



Math.random();     // returns a random number

Math.floor(Math.random() * 10);     // returns a random integer from 0 to 9

Math.floor(Math.random() * 11);     // returns a random integer from 0 to 10Try it
```

JavaScript

Conditional

The if else Statement

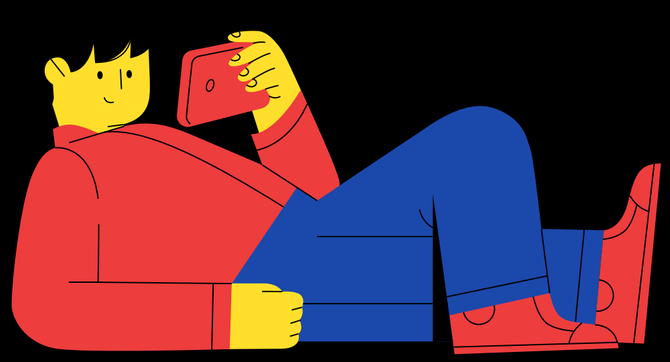
```
if (condition) {
      //  block of code to be executed if the
          condition is true
} else {
      //  block of code to be executed if the
           condition is false
}
```



```
if (hour < 18) {
     greeting = "Good day";
}
else {
     greeting = "Good evening";
}
```

The else if Statement

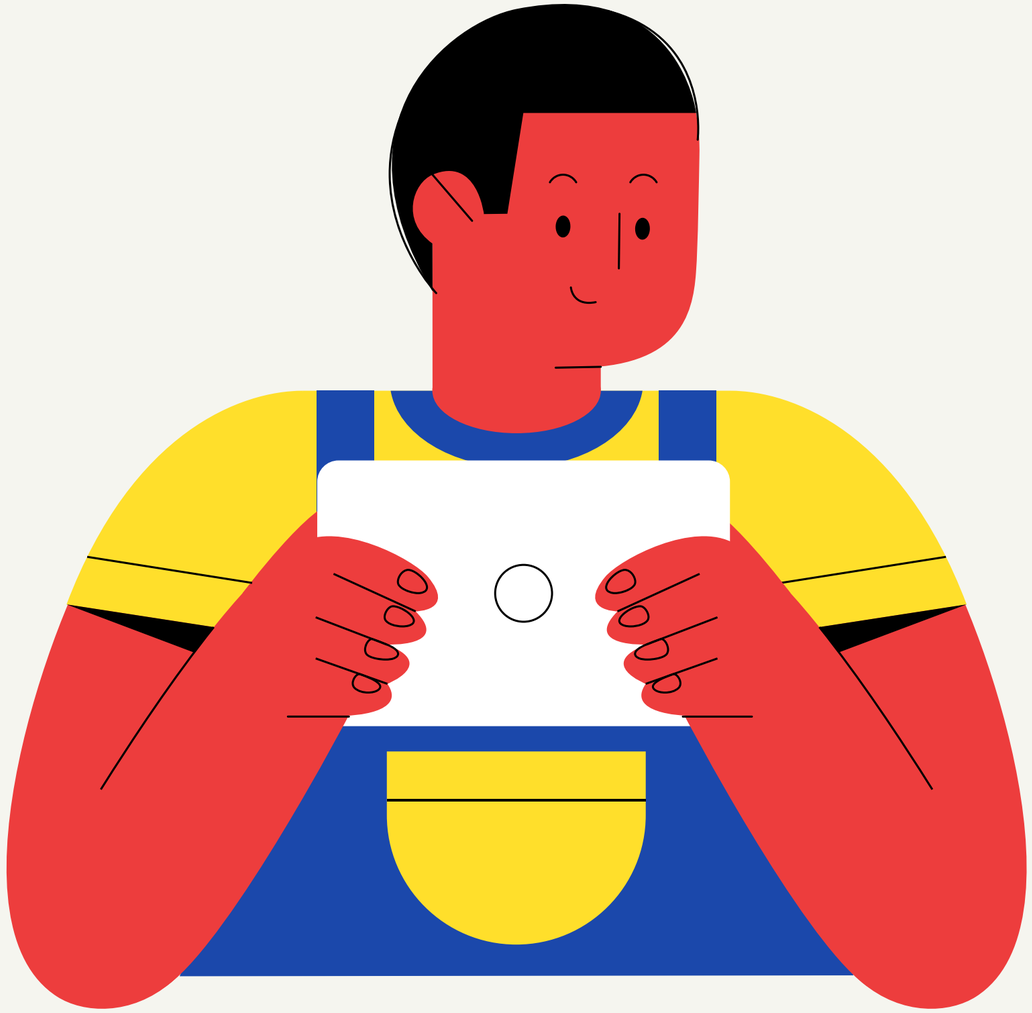
```
if (con1) {
    //  execute if con1 is true
} else if (con2) {
    //  execute if con2 is true , con1 is false
} else {
    //  execute if con1 and con2 is false
}
```



```
if (time < 10) {
    greeting = "Good morning";
} else if (time < 20) {
    greeting = "Good day";
} else {
    greeting = "Good evening";
}
```

JavaScript

Switch



JavaScript Switch Statement

Syntax

```
switch(expression){
    case x:    // code block
        break;
    case y:    // code block
        break;
    default:    // code block
}
```

JavaScript Switch Statement

```
switch (new Date().getDay()) {
    case 1:
        day = "Monday";
        break;
    case 3:
        day = "Wednesday";
        break;
    case 5:
        day = "Friday";
        break;
    default:
        day = "Holiday";
}
```

Thank you