JavaScript

The Most Important Programming Language on Earth

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Just a Start !

Web Applications / Web Sites

Applications (Acrobat, Photoshop, ...)

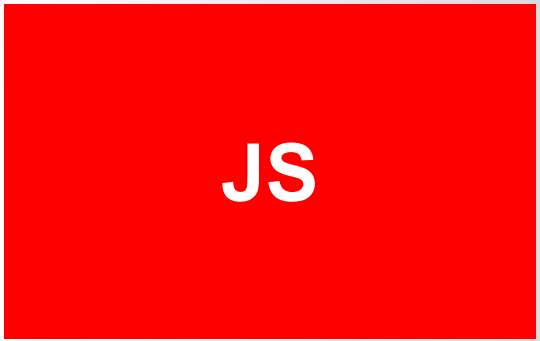
Games

Server-Side (NodeJs, Google Apps Script, …)

JavaScript - Intro

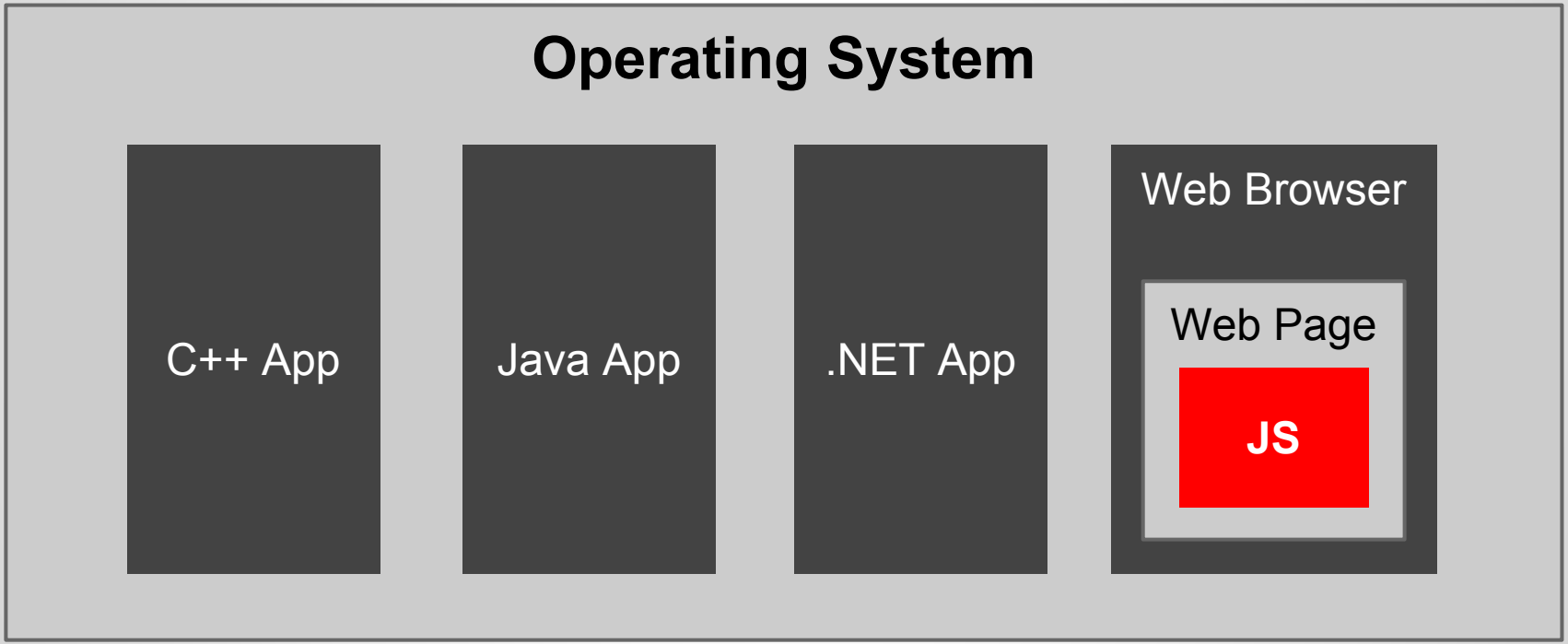
markup lang
content / structure

style sheet lang
presentation



programming lang
behavior / interactivity

JavaScript is limited?



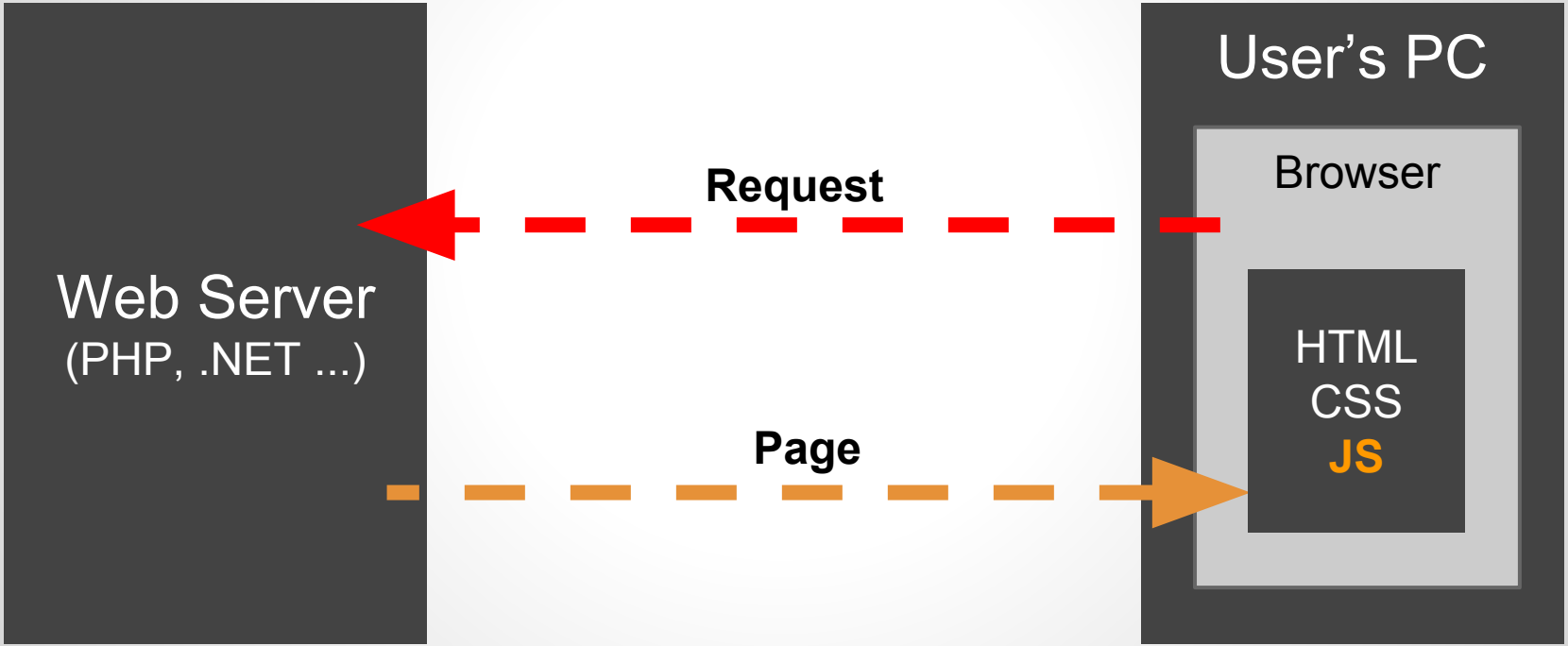
JavaScript is limited?

JavaScript Can't:

- access local files
- directly access databases
- access hardware / io

"**JavaScript** Role is to **MANIPULATE & ENRICH** Web Pages"

JS is a CLIENT-SIDE lang



CLIENT-SIDE challenges

- User might disable JS on browser
- Your goal is to write websites that will work whether or not JS is enabled.
- Browsers used to handle JS differently

JS History

1995 : LiveScript

1996 : Renamed to JavaScript, JScript (IE3)

1997 : ECMAScript

1999 : ECMAScript 3 (full browsers support)

2009 : ECMAScript 5 (b.w. compatibility)

JS is CROSS

- Browsers
- Platforms
- OS
- Back-End
- IDE/Editor

IDE+Browser+Firebug/Dev Tool = You are good to go!

JS Principles

- JS has a C-Like syntax
- JS is an interpreted language
- JS follows execution order
- JS is case

SENSITIVE !

Where to put JS

- Writing JS within HTML is not a good idea
- Write your JS code on an external .js file

index.html

```
<script>
    alert("Hello World !");
</script>
```

index.html

```
<script src="js/script.js"
type="text/javascript">
</script>
```

script.js

```
alert("Hello World !");
```

Where to put JS file include statement ?

Before Body Closing

In Head

Variables

JS Variables

- Declaring variables :

```
var x;

var a, b;
```

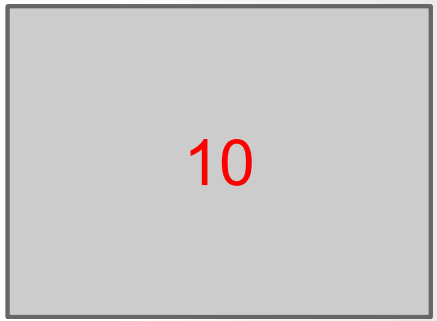
- variable name can be letters, numbers, _, $
- you can’t start name with a numbers
  - var 1student; ✖
  - var student1; ✔

JS Variables

```
var x;
```

```
var x=10;
```

```
x=10
```



JS Variables

```
var x = 10;
var y = 0.34;
var a = true;
var z = 'Heidar';
z = 10;
```

JS is a WEAKLY-TYPED language !

Numbers

Numbers

```
var x = 1;
x = 0.6;
x = 100;
var y = "20";
var x = Number(y);
```

NaN

```
var x = Number("10");      //10
var y = Number("Ali");     //NaN
var z = 10

if(isNaN(z)) {
    //code to execute if z is not a number
}
```

Math Object

```
var x = 1.14;
var y = Math.round(x);
var y = Math.ceil(x);
var y = Math.floor(x);
var x=1, y=2, z=3;
y = Math.max(x, y, z);
y = Math.min(x, y, z);
```

```
y = Math.PI;
y = Math.random();
y = Math.sqrt(x);
y = Math.log(x);


y = x.toPrecision(n)
```

Concatenation

Concatenation

```
var x = 5;
var y = 10;
x + y
//15
```

```
var x = “5”;
var y = “10”;
x + y
//”510”
```

```
var x = “5”;
var y = “10”;
x * y
//NaN
```

Strings

Strings - Definition

```
var name = 'Muhamed';
var name = "Muhamed";
var name = "Muhamed's";
var name = 'Muhamed \"Ali\'s\"';
```

Strings - Functions

```
var name = 'Muhamed';
name.length;
name.toUpperCase();
name.split("delimiter");
name.indexOf("am");
name.slice(start,end);
```

Dates

Dates - Definition

```
//get today's date
var today = new Date( );
//year, month, day
var year2000 = new Date(200,3,22);
//year, month, day, hour, minute, second
var year2000 = new Date(2000,4,15,0,0,0);
```

Dates - Functions

```
var today = new Date( );
today.getMonth( );      //returns 0-11
today.getFullYear( );   //returns YYYY
today.getDate( );       //returns 1-31
today.getDay( );        //return 0-6 (0 > Sunday)
today.getHours( );      //returns 0-23
today.getTime( );       //timestamp
today.set*****();       //set values of date
```

Dates - Comparison

```
var firstDate = new Date(2014, 3, 3);
var secondDate = new Date(2014, 3, 3);
firstDate == secondDate      //false
firstDate.getTime() == secondDate.getTime()
```

Conditional Statements

Conditional Statements

```
if ( >, <, >=, <=, ==, !=, ===, !==, &&, || ) {
    //code goes here
} else {
    //different code
}
```

Operators

Operators

arithmetic operators (follows operator precedence):

+, -, *, / modulus : %

assignment operators:

=, +=, -=, *=, /=

increment / decrement (prefix / postfix):

x++, x--, ++x, --x

ternary operator:

condition ? true : false

Arrays

Arrays - Definition

```
var myArr = [ ];
var myArr = [1, 'Ali'];
var myAtt = new Array();
var myAtt = new Array(10);
myArr[0] = 1;
myArr[1] = 'Ali';
```

Arrays - Functions

```
var myArr = [1, 'Ali'];
myArr.length;
myArr.reverse( );
myArr.join( delimiter );
myArr.sort( );
```

Loops

Loops

- for (setup ; condition ; increment) {}
- while (condition) {

  }
- do {

  } while (condition);
- break;
- continue;

Functions

Functions

declaration:

```
function functionName ( parameters ) {
    //code here, might return a value
}
```

calling:

```
functionName( );
```

Functions

- parameters must be passed in order
- JS ignores extra parameters
- missing parameters will be passed “undefined”
- functions has local variable scope
- global variables must be defined outside the function

JS Built-in Popups

JS Built-in Popups

- alert
- confirm
- prompt

Thanks