Front End Development Module 3 - Day 6
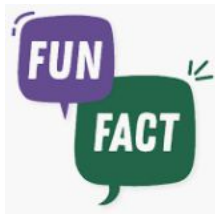
Introduction to JavaScript

Can You?

- Compare and contrast JavaScript Variables with those in Java/C#

- Describe the JavaScript Data Types

- Select and use JavaScript Operators and Arithmetic

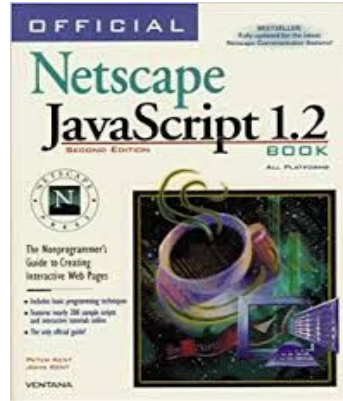- Perform basic Type Conversion tasks

P.S. ... welcome to a dynamically-typed language!

When is an int not an int? When it is reassigned!

FUN FACT

We Know some Java...

The names are almost the same, so the languages are, too, right? 🤔

Netscape created Mocha, later renamed it to LiveScript, and then....
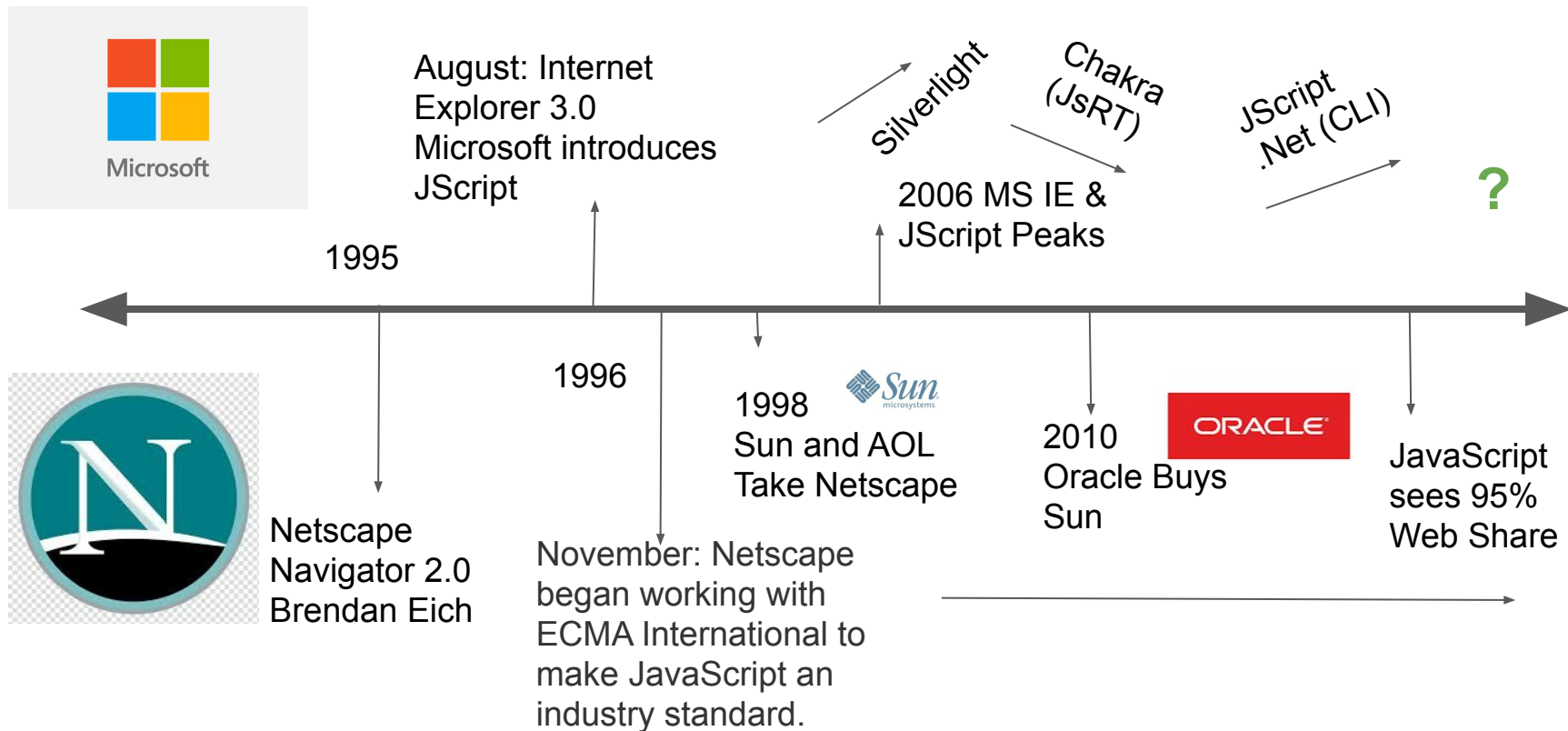
It was renamed to JavaScript when Netscape and Sun hatched a marketing plan, so the Sun Java name was carried forward by JavaScript.

RIP Netscape... I remember you fondly.

Client Side Browser Scripting Timeline

JavaScript: Variable Names

➔ Valid characters:

  ◆ A-Z

  ◆ a-z

  ◆ 0-9

  ◆ underscore _

  ◆ dollar sign $

➔ Must start with a letter, _, or $

➔ Are case-sensitive

➔ May not be a reserved keyword

➔ Camel-case

JavaScript: Declaring Variables

- Keywords: **let, const, var**

- Example: **let firstName = "Jawn";**
                  Const PI = 3.1415926535

- Use **let** when the value needs to be changeable

- Use **const** when the value must not change after it's assigned

- Avoid using **var**

  - It was used a lot in the past

  - It has complicated scope considerations (later)

  - See Hoisting in the Textbook and on MDN
    (https://developer.mozilla.org/en-US/docs/Glossary/Hoisting)

JavaScript: Data Types

- Number

- String

- Boolean

- Symbol

- Object

  - Function

  - Array

  - Date

  - RegEx

- null

- undefined

- NaN

Loosely Typed

- JavaScript is a loosely typed language

- We don't specify a data type when declaring

- The data type is inferred when we assign it

- The data type of a variable can change

  A value's data type also affects the operations that are valid on that value. For example, a value of type number can be multiplied by another number, but not by a string - even if that string contains *only* a number, such as the string "2".

  If you are unsure of the type of a value, you can use the typeof *operator.*

Boolean Logic - Truthy and Falsy

Falsy: a value that is considered false in a Boolean context

- **false** The keyword false

- **0**   The number zero

- **0n**   BigInt value 0

- **"", '', ``**

- **null**

- **Undefined**

- **NaN**   not a number

Truthy: a value that is considered true in a Boolean context

All values are **truthy unless falsy**

```
1   if (true)
2   if ({})
3   if ([])
4   if (42)
5   if ("0")
6   if ("false")
7   if (new Date())
8   if (-42)
```

Boolean Logic - Truthy and Falsy: Null & Undefined

When checking for `null` or `undefined`, beware of the differences between equality (==) and identity (===) operators, as the former performs type-conversion.

(https://developer.mozilla.org/en-US/docs/Web/JavaScript/Reference/Global_Objects/null)

```
1   typeof null          // "object" (not "null" for legacy reasons)
2   typeof undefined     // "undefined"
3   null === undefined   // false
4   null  == undefined   // true
5   null === null        // true
6   null == null         // true
7   !null                // true
8   isNaN(1 + null)      // false
9   isNaN(1 + undefined) // true
```

Lecture Code:
Intro to JavaScript