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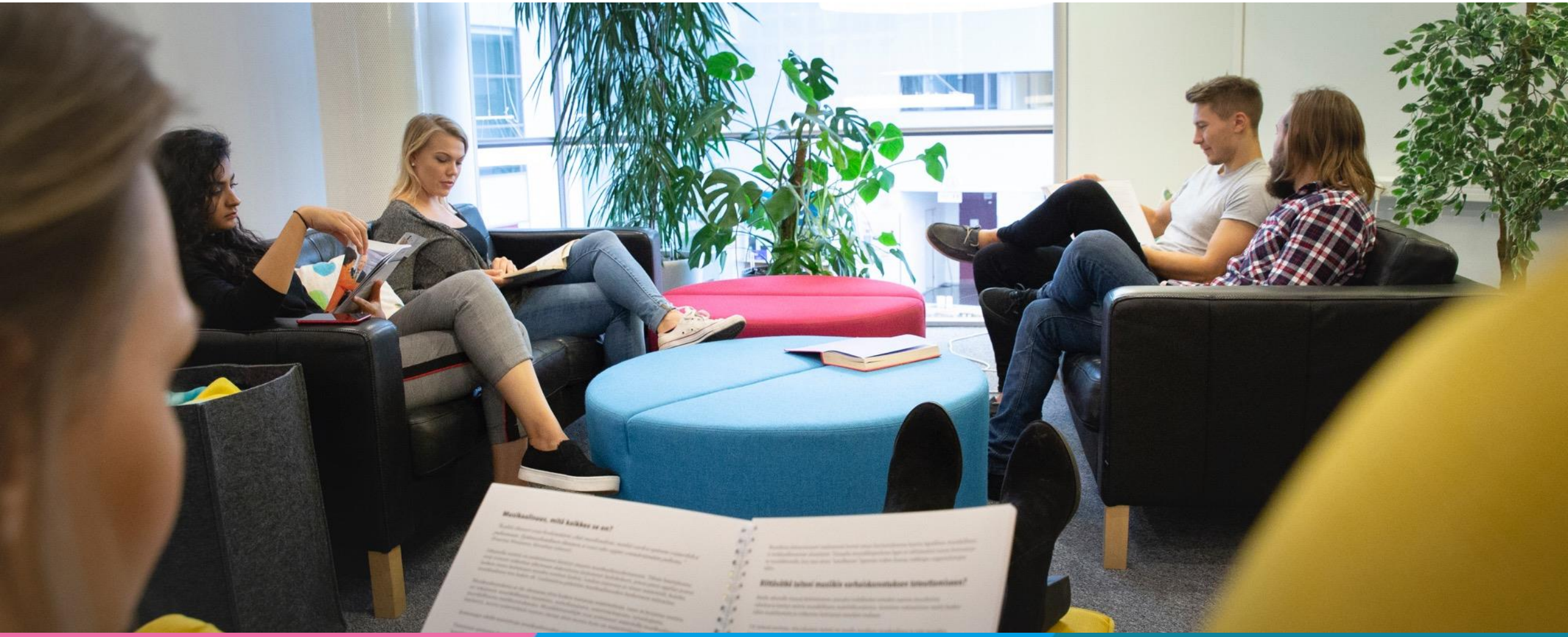


JavaScript syntax Bootcamp

Rentoudu hetki – aloitetaan klo 17.00

Web-sovellusten kehittäminen Javascriptillä
TO00BL10

Jari Kovalainen

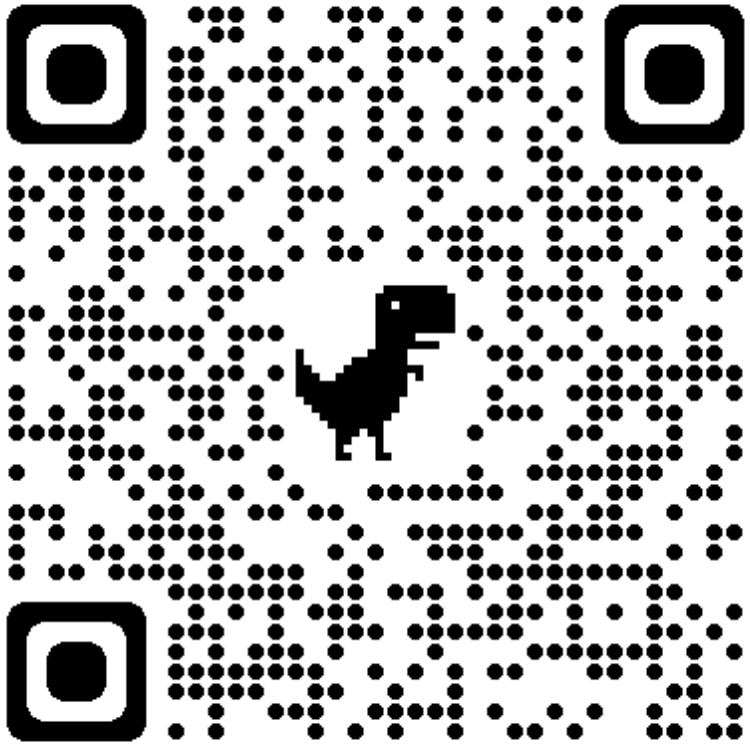
Laurea Tikkurila

Agenda

1. Using JavaScript (JS) in browser console
2. JS Output
3. Variables and datatypes
4. Conditions
5. Loops
6. Functions and anonymous functions
7. Objects
8. Prototypes

Before we start…try out JS

- **Playing with JavaScript console is the easiest way to start learning JavaScript. It is also used for testing and debugging.**
- **Each browser nowadays has one (press F12)**
- **In console, you can give JS commands and see the browser responding to them**
- **Google Chrome DevTools learning material if you want to read more**
- **After testing a piece of code in console, you need to save the final code in an HTML file or separate JS file (.js extension)**



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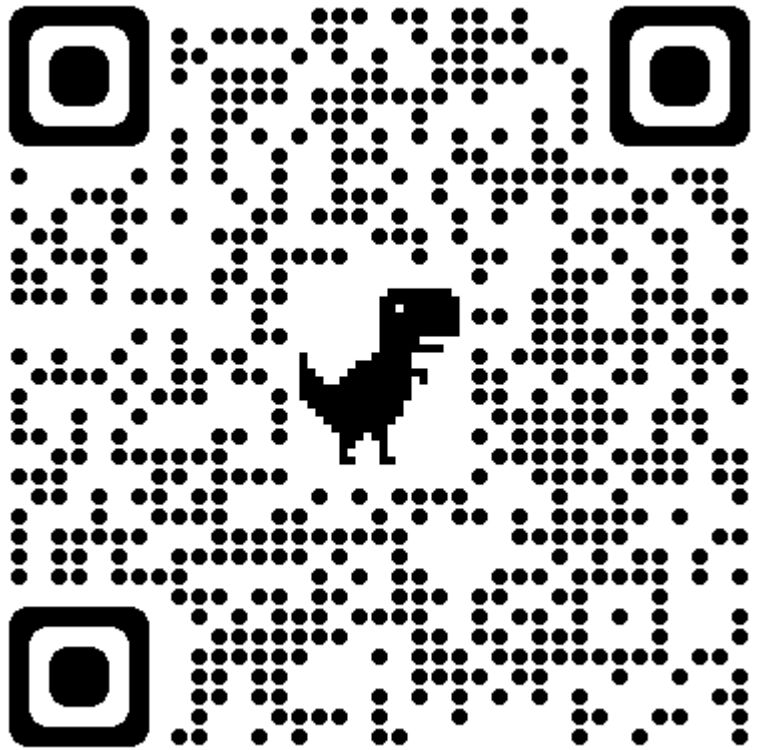
JS Output (1/2)

- **JavaScript can "display" data in different ways:**
  - Writing into an HTML element, using *innerHTML*.
  - Writing into the HTML output using *document.write().*
  - Writing into an alert box, using *window.alert().*
  - Writing into the browser console, using *console.log().*



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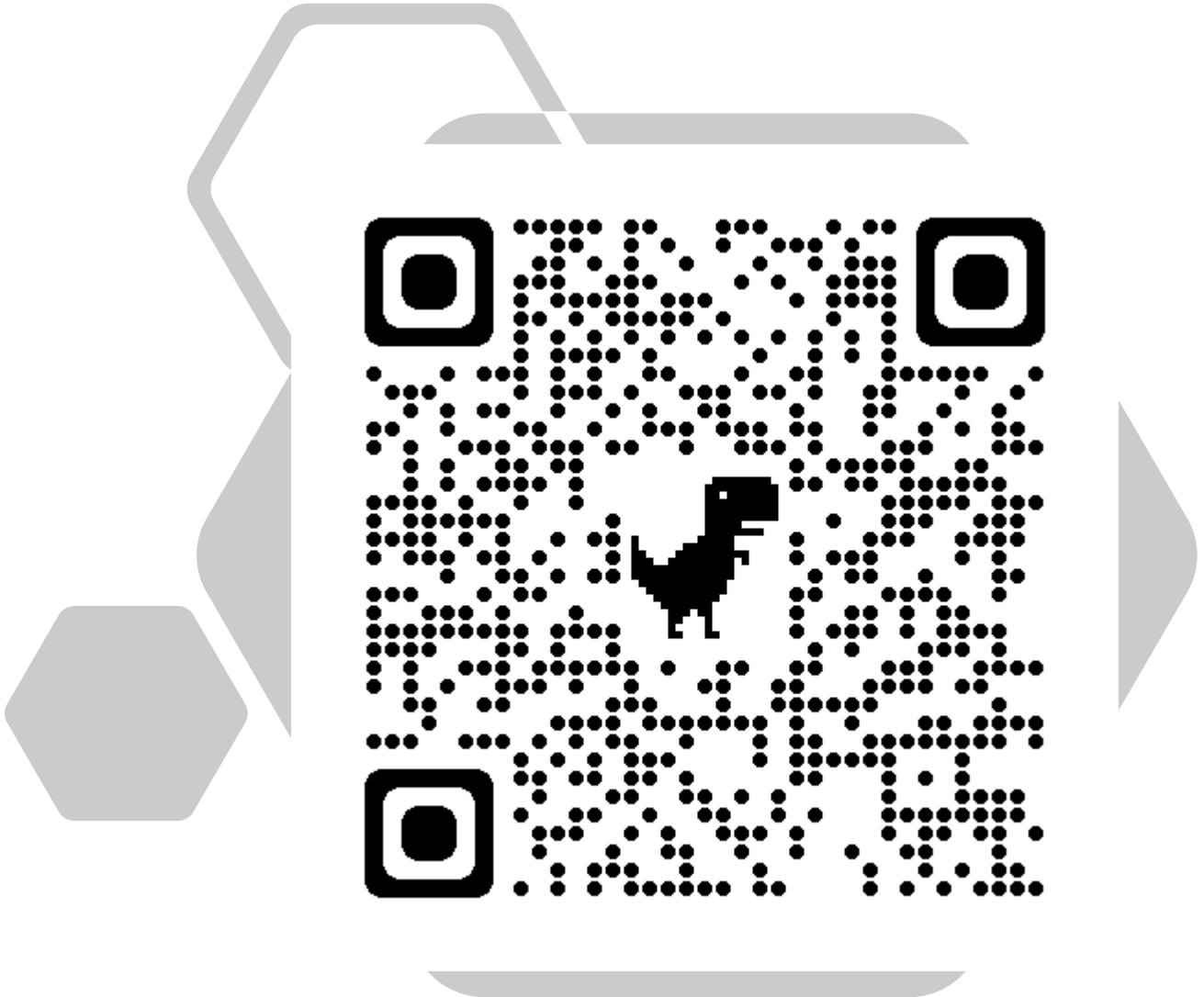
JS Output (2/2)

- **JavaScript does not have any print object or print methods**
  - You cannot access output devices from JavaScript.
  - The only exception is that you can call the *window.print()* method in the browser to print the content of the current window.



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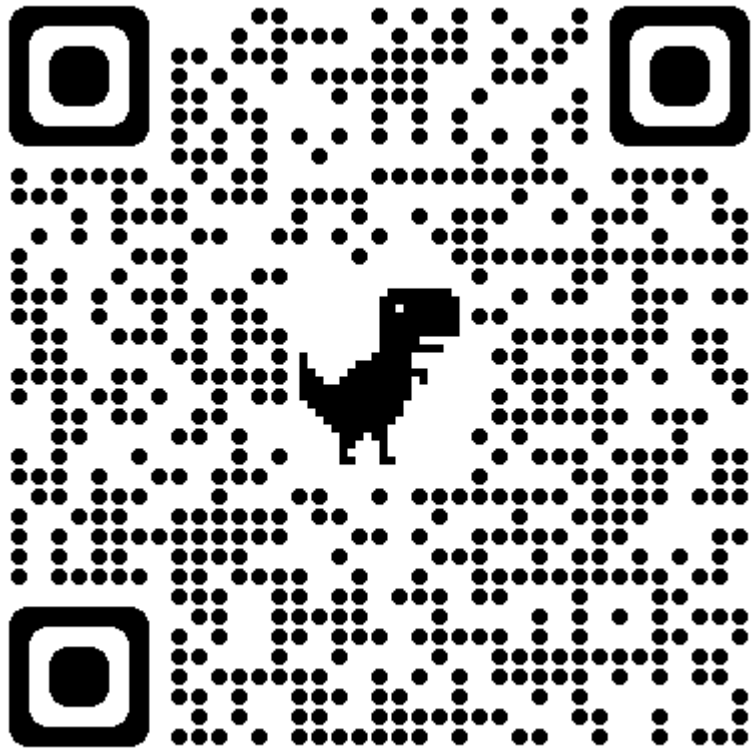
JS Variables and Data types (1/4)

- **There are 3 ways to declare a JavaScript variable:**
  - Using var
  - Using let
  - Using const
- **All JavaScript variables (var) must be identified with unique names.**
  - Names can contain letters, digits, underscores, and dollar signs.
  - Names must begin with a letter or with $ and _
  - Names are case sensitive (y and Y are different variables)
  - Reserved words (like JavaScript keywords) cannot be used as names



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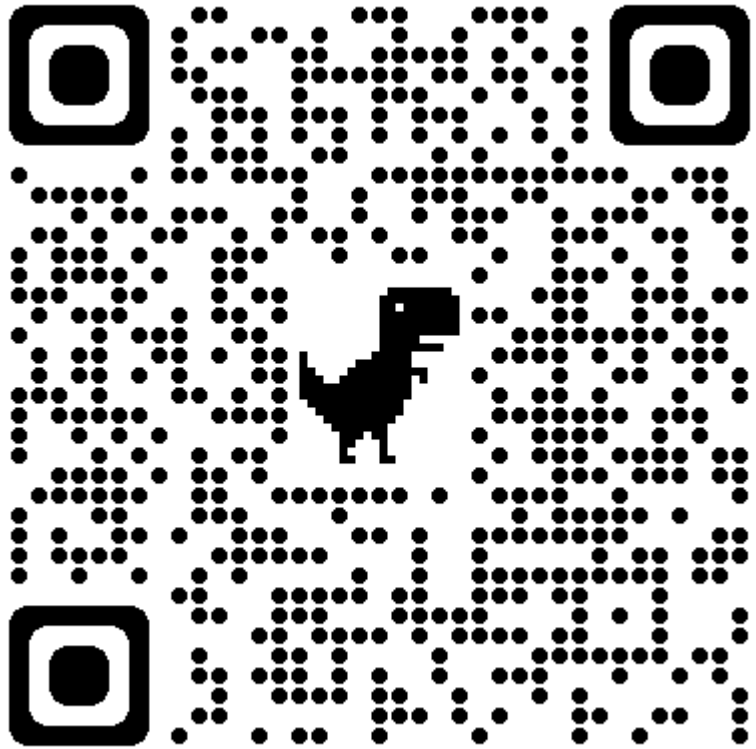
JS Variables and Data types (2/4)

- **JavaScript let**
  - cannot be Redeclared.
  - must be declared before use.
  - have Block Scope =>

    variables declared with let inside a { } block cannot be accessed from outside the block



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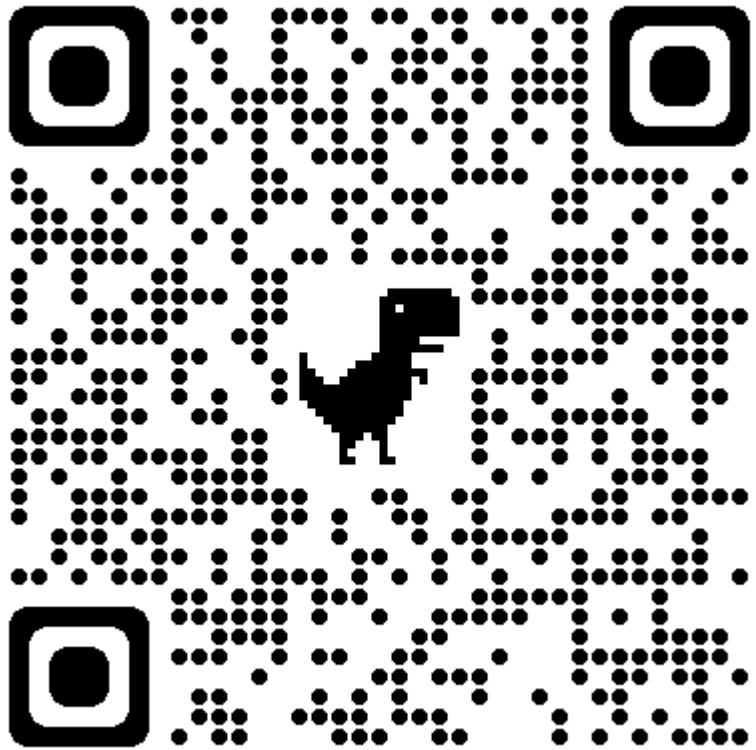
JS Variables and Data types (3/4)

- **JavaScript const**
  - cannot be redeclared.
  - cannot be reassigned.
  - have Block Scope.
- **As a general rule, always declare a variable with const unless you know that the value will change.**
- **Use const when you declare:**
  - A new Array
  - A new Object
  - A new Function
  - A new RegExp
- **You can change the elements of a constant array**



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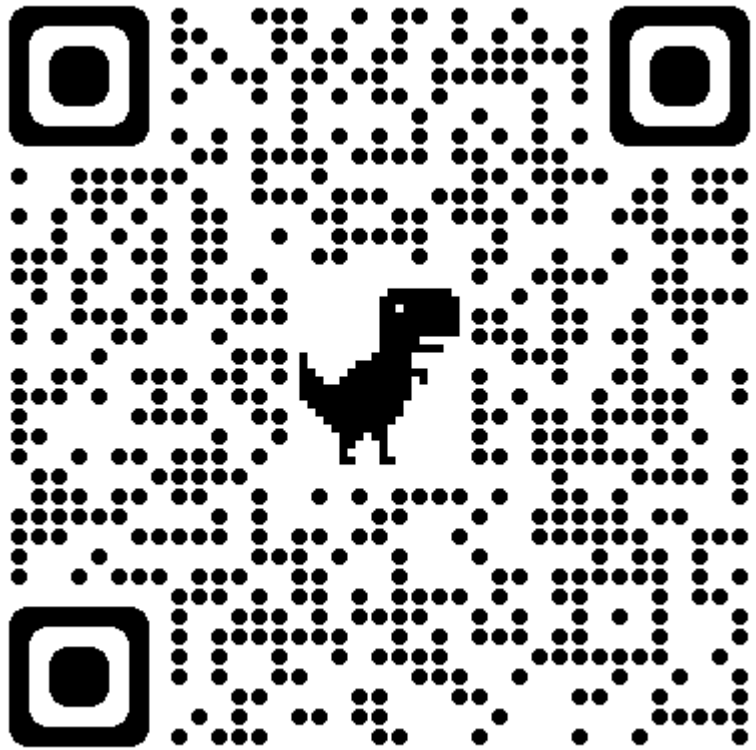
JS Variables and Data types (4/4)

- **In programming, data types is an important concept**
- **JavaScript Types are Dynamic**
- **Strings are written with quotes. You can use single or double quotes**
- **Numbers can be written with, or without decimals**
- **Booleans can only have two values: true or false**
- **JavaScript arrays are written with square brackets and Array items are separated by commas**
- **JavaScript objects are written with curly braces {}**



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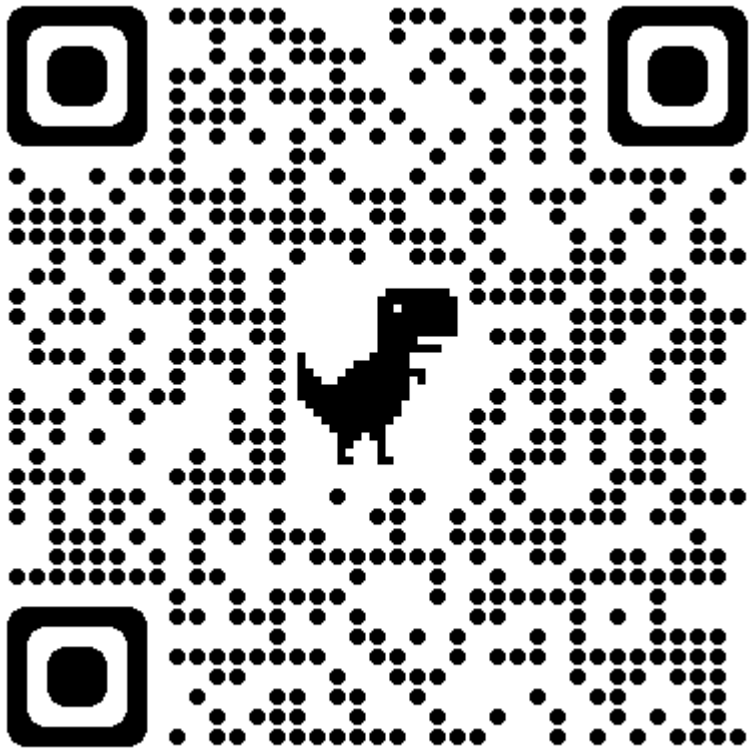
Conditional Statements

- **In JavaScript we have the following conditional statements:**
  - Use *if* to specify a block of code to be executed, if a specified condition is true
  - Use *else* to specify a block of code to be executed, if the same condition is false
  - Use *else if* to specify a new condition to test, if the first condition is false
  - Use *switch* to specify many alternative blocks of code to be executed



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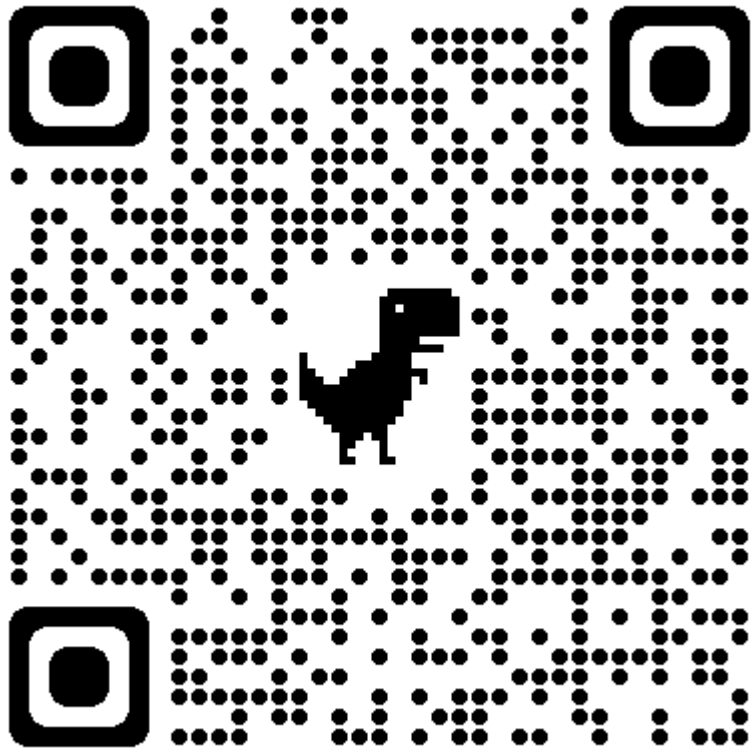
The JavaScript Switch Statement

- **How it works:**
  - The switch expression is evaluated once.
  - The value of the expression is compared with the values of each case.
  - If there is a match, the associated block of code is executed.
  - If there is no match, the default code block is executed.



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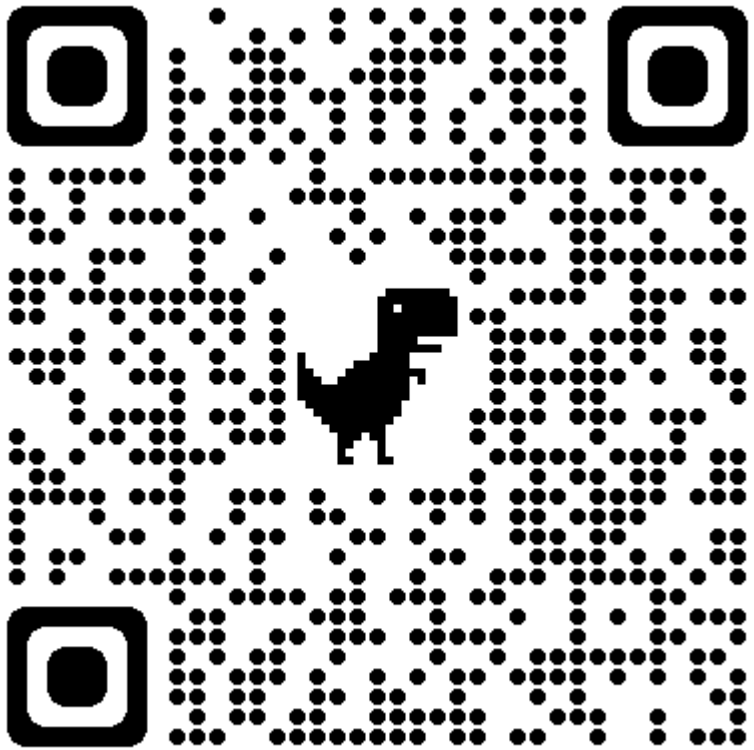
JavaScript Loops

- **Loops are handy, if you want to run the same code over and over again, each time with a different value**
- **JavaScript supports different kinds of loops:**
  - *for* - loops through a block of code a number of times
  - *for/in* - loops through the properties of an object
  - *for/of* - loops through the values of an iterable object
  - *while* - loops through a block of code while a specified condition is true
  - *do/while* - also loops through a block of code while a specified condition is true

The For Loop

- Statement 1 sets a variable before the loop starts (let i = 0).
- Statement 2 defines the condition for the loop to run (i must be less than 5).
- Statement 3 increases a value (i++) each time the code block in the loop has been executed.



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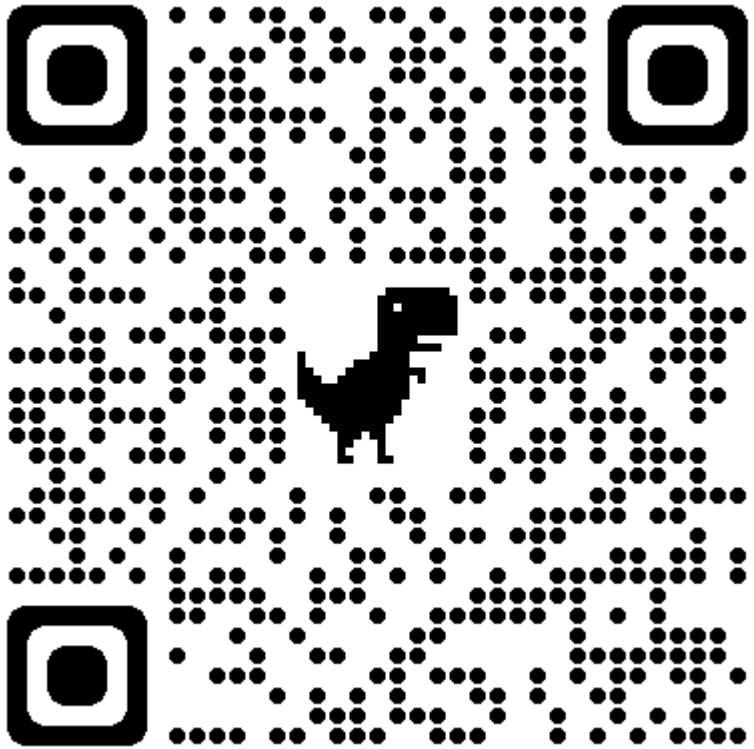
The For In Loop

- **The JavaScript for in statement loops through the properties of an Object**
  - The for in loop iterates over a person object
  - Each iteration returns a key (x)
  - The key is used to access the value of the key
  - The value of the key is person[x]



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The For Of Loop

- **Loops through the values of an iterable object.**
- **Loop over iterable data structures such as Arrays, Strings, Maps, NodeLists, and more**

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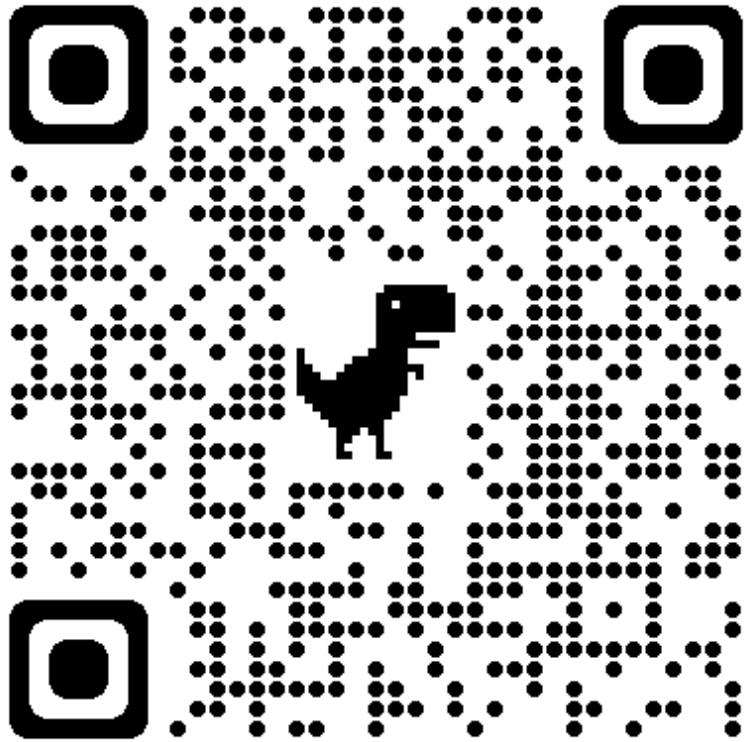
The While Loop

- **The *while* loop loops through a block of code as long as a specified condition is true**
- **The *do while* loop is a variant of the while loop. This loop will execute the code block once, before checking if the condition is true, then it will repeat the loop as long as the condition is true.**



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JavaScript Function

- **JavaScript functions are defined with the function keyword**
- **A JavaScript function can also be defined using an expression which can be stored in a variable**

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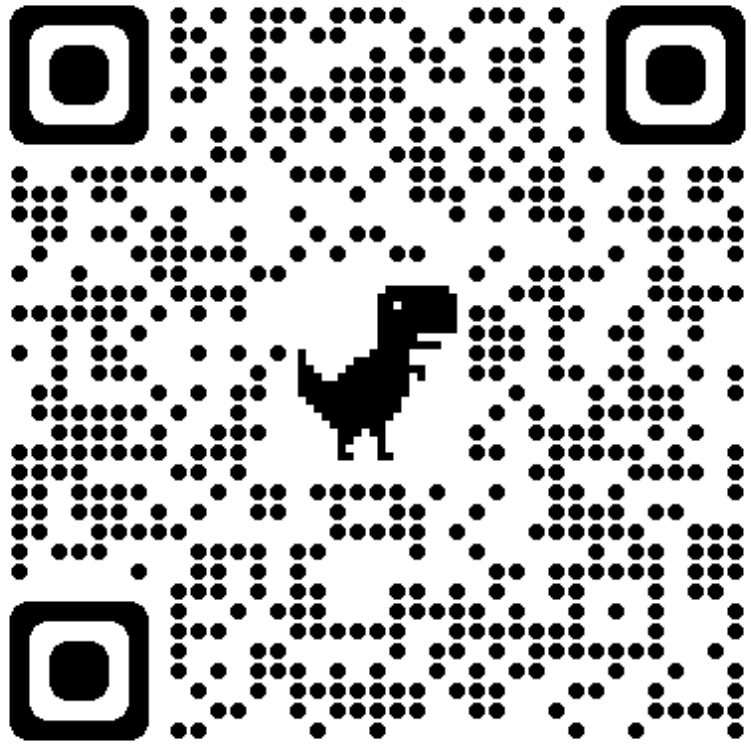
JavaScript Objects

- **Objects are variables**
  - variables can contain single values or many values
  - A JavaScript object is a collection of named values
  - Object methods are actions that can be performed on objects
  - An object method is an object property containing a function definition



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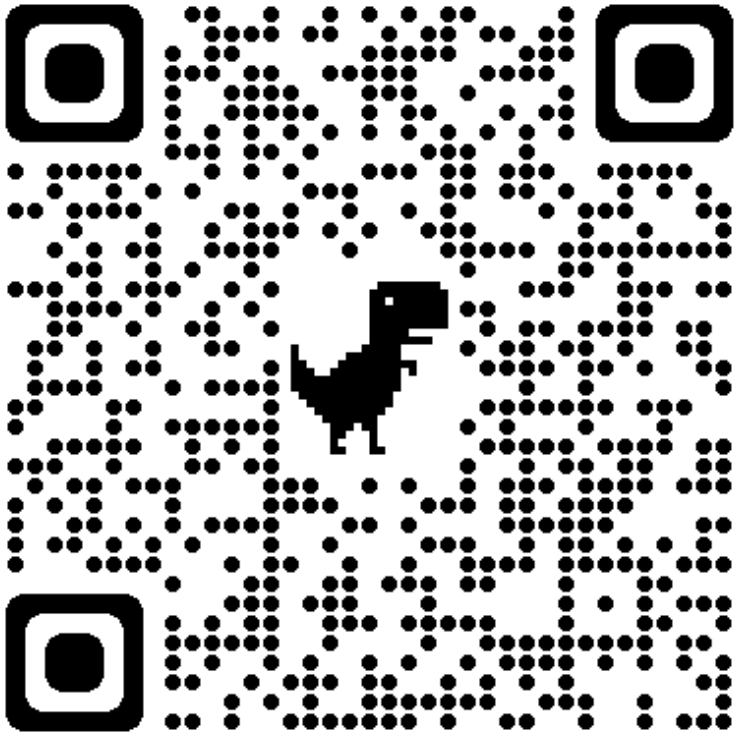
JavaScript Object Prototypes

- **All JavaScript objects inherit properties and methods from a prototype**
  - To add a new property to a constructor, you must add it to the constructor function
  - All JavaScript objects inherit properties and methods from a prototype



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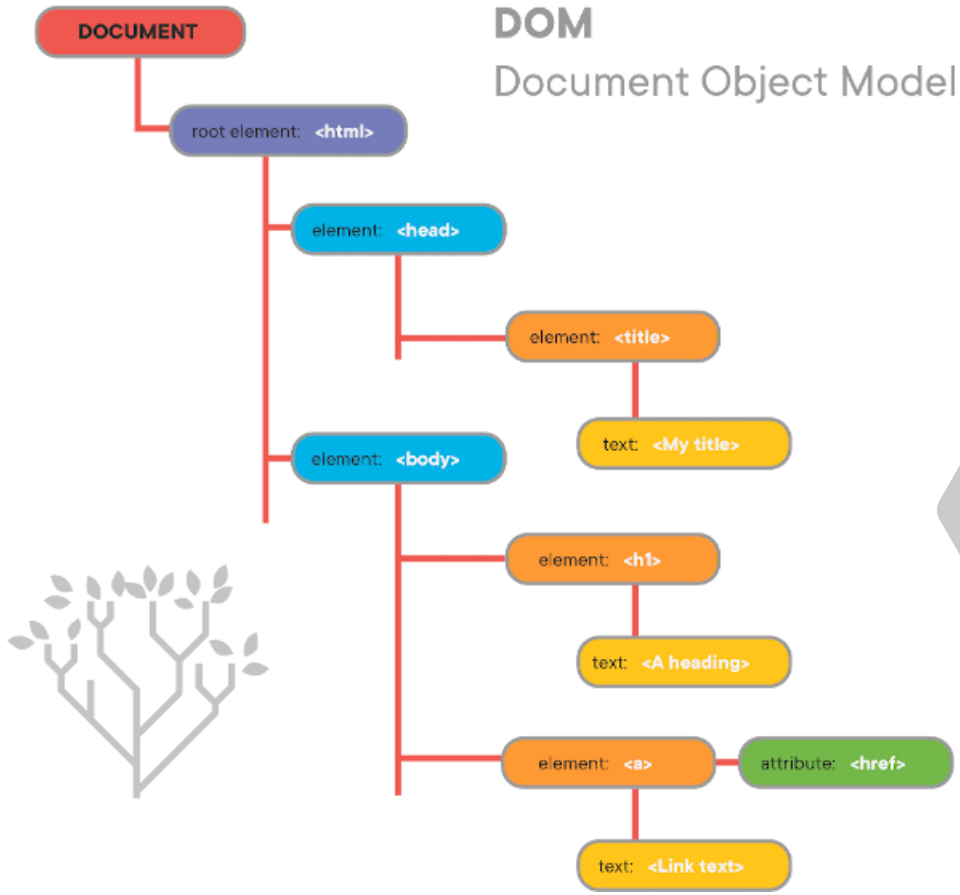
JavaScript HTML DOM



Browser object model (BOM)