JavaScript For Absolute Beginners

(Daniyal Nagori)

JavaScript

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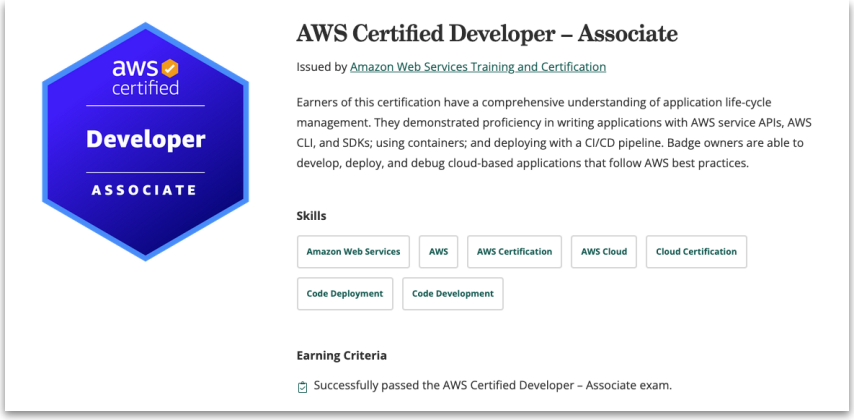
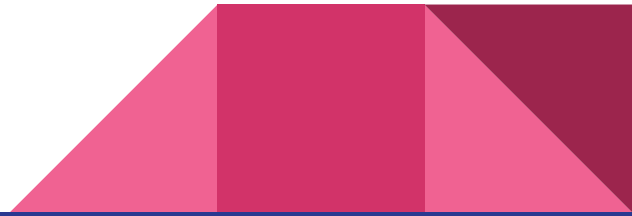
About Instructor



Integrated Development Environment

Setting up your environment

- There are many ways in which you can set up a JavaScript coding environment. Such as:
  - Integrated Development Environment (IDE). Example: VS Code, Sublime Text, Atom, etc.
  - Web browser. Example: Chrome, Firefox, etc.
  - Online editor (optional). Example: StackBlitz, Replit, etc.



Adding Javascript to a Web Page

Adding JavaScript to a web page

- There are two ways to link JavaScript to a web page.
  - The first way is to type the JavaScript directly in the HTML between two <script> tags.

```
<html>
        <script type="text/javascript">
                alert("Hello World!");
        </script>
</html>
```

  - The second way is to create a file with extension of .js and link it to our web page.

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

ALERT

ALERT

- The alert() method displays an alert box with a message and an OK button.
- The alert() method is used when you want information to come through to the user.
- The alert box takes the focus away from the current window, and forces the user to read the message.
- Do not overuse this method. It prevents the user from accessing other parts of the page until the box is closed.

CONSOLE LOG

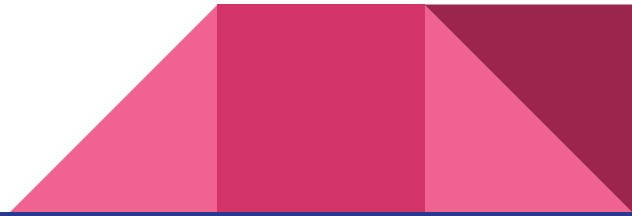
CONSOLE LOG

- The **console.log()** method writes (**logs**) a message to the console.
- The **console.log()** method is useful for testing purposes.

Document Write

Document Write

- The **document.write()** method writes directly to an open (**HTML**) document stream.
- The **document.write()** method deletes all existing HTML when used on a loaded document.



VARIABLES

VARIABLES

- Variable means anything that can vary.
- A JavaScript variable is simply **a name of storage location**.
- A variable must have a unique name.

Variables

- Variables are values in your code that can represent different values each time the code runs.
- The first time you create a variable, you declare it. And you need a special word for that: `let` , `var` , or `const` .
  Example: `let firstname = "Ali";`
- The commonly used naming conventions used for **variables** are camel-case.
  Example: `let firstName = "Ali";`

Variables Scope

- **LOCAL**
  - Variables declared within a JavaScript function, become LOCAL to the function.

- **GLOBAL**
  - A variable declared outside a function, becomes GLOBAL.

VARIABLE Names Legal & Illegal

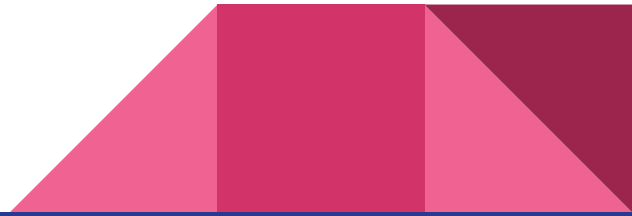
VARIABLE Names

- A variable name can't contain any spaces
- A variable name can contain only letters, numbers, dollar signs, and underscores.
- The first character must be a letter, or an underscore (-), or a dollar sign ($).
- Subsequent characters may be letters, digits, underscores, or dollar signs.
- Numbers are not allowed as the first character of variable.

Comments

Comments

- Single line Javascript comments **start with two forward slashes (//)**.
- All text after the two forward slashes until the end of a line makes up a comment
- Even when there are forward slashes in the commented text.
- Multi-line Comments
- Multi-line comments start with /* and end with */.
- Any text between /* and */ will be ignored by JavaScript.



Statements

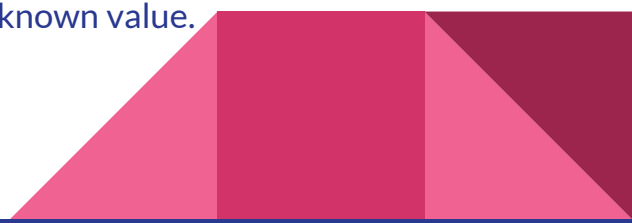
Statements

- A computer program is a list of "instructions" to be "executed" by a computer.
- In a programming language, these programming instructions are called statements.
- A JavaScript program is a list of programming statements.
- JavaScript applications consist of statements with an appropriate syntax. A single statement may span multiple lines. Multiple statements may occur on a single line if each statement is separated by a semicolon.

Data types

Primitive data types

- String
  - A string is used to store a text value.
    Example: `let firstName = "Ali";`
- Number
  - A number is used to store a numeric value.
    Example: `let score = 25;`
- Boolean
  - A boolean is used to store a value that is either `true` or `false`.
    Example: `let isMarried = false;`
- Undefined
  - An undefined type is either when it has not been defined or it has not been assigned a value.
    Example: `let unassigned;`
- Null
  - null is a special value for saying that a variable is empty or has an unknown value.
    Example: `let empty = null;`



Template Literals

Template Literals

A new and fast way to deal with strings is **Template Literals or Template String.**

How we were dealing with strings before ?

```
var myName = "daniyal" ;
var hello = "Hello "+ myName ;
console.log(hello); //Hello daniyal
```

Template Literals

What is Template literals ?

As we mentioned before , it’s a way to deal with strings and specially dynamic strings ; so you don’t need to think more about what’s the next quote to use single or double.

How to use Template literals

It uses a `backticks` to write string within it.

typeof Operator

Analyzing and modifying data types

- You can check the type of a variable by entering **`typeof`**.
  Example:

```
let testVariable = 1;
console.log(typeof testVariable);
```

- The variables in JavaScript can change types. Sometimes JavaScript does this automatically.
  Example:

```
let v1 = 2;
let v2 = "2";
console.log(v1 * v2); // 4 ← Type Number
console.log(v1 + v2); // "22" ← Type String
```

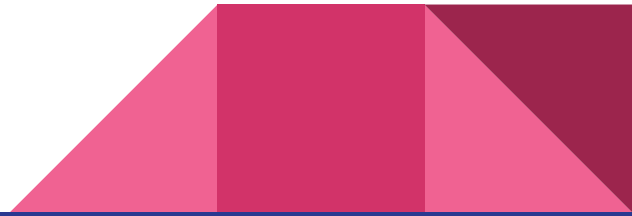
Analyzing and modifying data types

- There are three conversion methods:
  - **`String()` ← converts to string type**
  - **`Number()` ← converts to number type**
  - **`Boolean()` ← converts to boolean type**

Operators

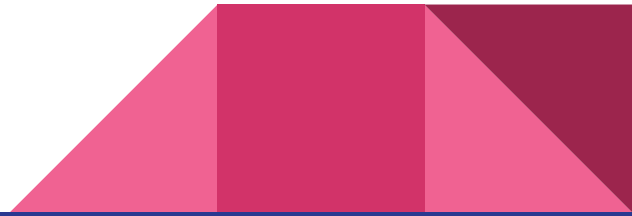
Operators

- Arithmetic operators:
  - Addition
    Example:
    - ```
      let n1 = 1;
      let n2 = 2;
      console.log(n1 + n2); // 3
      ```
    - ```
      let str1 = "1";
      let str2 = "2";
      console.log(str1 + str2); // "12"
      ```



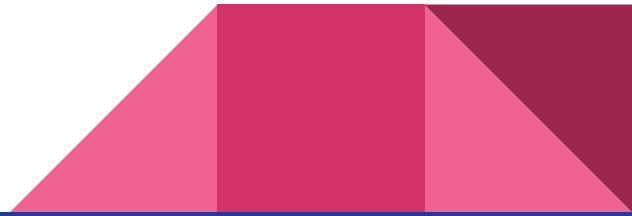
Operators

- Arithmetic operators:
  - Subtraction
    Example:
    - ```
      let n1 = 5;
      let n2 = 2;
      console.log(n1 - n2); // 3
      ```
  - Multiplication
    Example:
    - ```
      let n1 = 5;
      let n2 = 2;
      console.log(n1 * n2); // 10
      ```



Operators

- Arithmetic operators:
  - Division
    Example:
    - ```
      let n1 = 4;
      let n2 = 2;
      console.log(n1 / n2); // 2
      ```
  - Exponentiation
    Example:
    - ```
      let n1 = 2;
      let n2 = 2;
      console.log(n1 ** n2); // 4
      ```



Operators

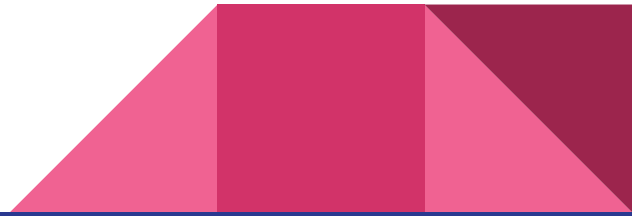
- Arithmetic operators:
  - Modulus

    Example:
    - **let n1 = 10;**
      let n2 = 3;
      console.log(n1 % n2); // 1

Operators

- Assignment operators:
  - Assignment operator are used to assigning values to variables.

    Example:
    - **let n = 5;**
      console.log(n); // 5
      n += 5;
      console.log(n); // 10
      n -= 5;
      console.log(n); // 5



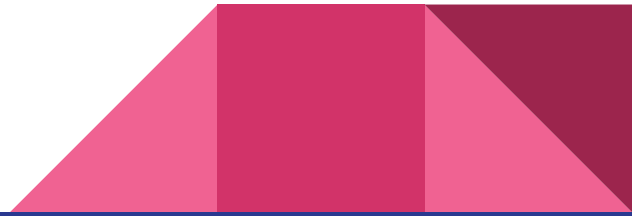
Operators

- Comparison operators:
  - Comparison operator are used to compare values of variables.
    Example:
    - ```
      let n = 5;
      console.log(n == 5); // true
      console.log(n === 5); // true
      console.log(n != 5); // false
      console.log(n > 8); // false
      console.log(n < 8); // true
      console.log(n >= 8); // false
      console.log(n <= 8); // true
      ```
      ```

Math Expressions
Familiar Operators

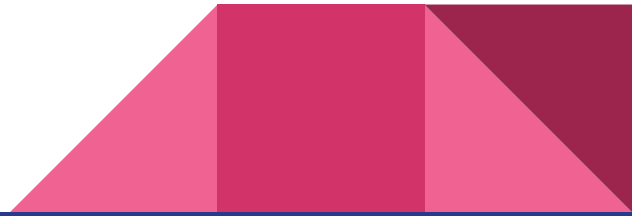
Expressions

- An Expression is a combination of values, variables, function call and operators, which computes to a value.
- The computation is called an evaluation.
- “Daniyal” + “Nagori”



Math Expressions Familiar Operators

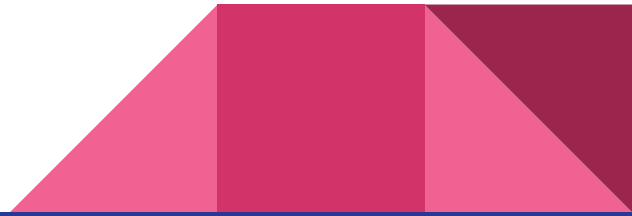
- Wherever you can use a number, you can use a math expression.
- **“+”**, **“-”**, **“*”**, **“/”** and **“%”** are commonly used operators.
- **“%” (Modulus)** operator works similar to **“/”** but instead of the result, It gives you the remainder when the division is executed.



Math Expressions UnFamiliar Operators

Math Expressions UnFamiliar Operators

- There are several specialized math expressions such as **“++”, “--” and “**”.**
  - **“++” :** It increments the variable by 1.
  - **“--” :** It decrements the variable by 1.
  - **“**” :** Exponentiation is one of the newer operators in JavaScript, and it allows us to calculate the power of a number by its exponent.



Math Expressions Eliminating Ambiguity

Math Expressions Eliminating Ambiguity

- var totalVal = (5 + 2) * 3 + 6

Concatenating Text String

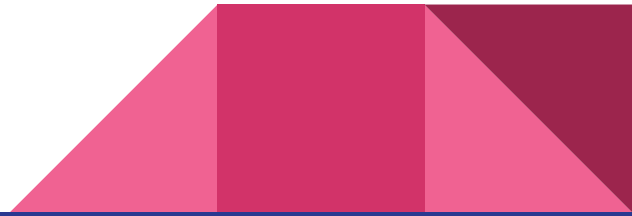
Concatenating Text Strings

- The **concat()** method joins two or more strings.
- The **concat()** method does not change the existing strings.
- The **concat()** method returns a new string.
- You can also use “**+**” operator to concatenate multiple strings.

Prompts

Prompts

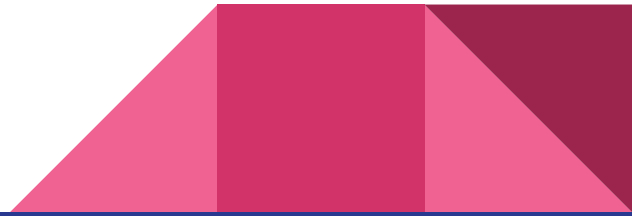
- The **prompt()** method displays a dialog box that prompts the user for input.
- The **prompt()** method returns the input value **(String)** if the user clicks **"OK"**, otherwise it returns **null**.
- When a **prompt box** pops up, the user will have to click either **"OK"** or **"Cancel"** to proceed.
- Do not overuse this method. It prevents the user from accessing other parts of the page until the box is closed.



If, Else, Else If Statements

If, Else and Else If Statements

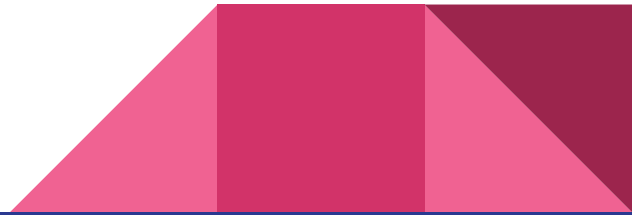
- Use **if** to specify a block of code to be executed, if a specified condition is true.
- Use **else** to specify a block of code to be executed, if the same condition is false.
- Use **else** if to specify a new condition to test, if the first condition is false.



Comparison Operators

Comparison Operators

- Comparison and Logical operators are used to test for **true** or **false**.
- Comparison operators are used in logical statements to determine equality or difference between variables or values.
- **“==”, “===”, “!=”, “!==”, “>”, “<”, “>=”** and **“<=”** are some of the comparison operators.



Testing Sets Of Conditions (Logical Operators)

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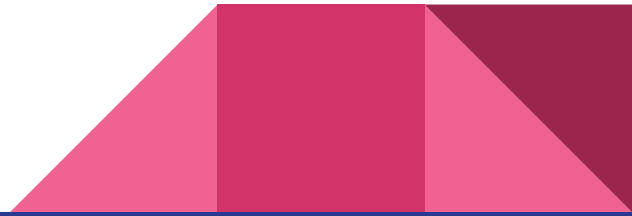

If Statement Nested

Array