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- Task Name: Introduction to JavaScript and its
Core Principles

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Introduction to JavaScript

- JavaScript is a front -end scripting language developed by Netscape.
- JavaScript is a programming language that adds interactivity and custom behaviors to our sites.
- It is a client-side scripting language, which means it runs on the user's machine and not on the server.
- JavaScript can read and write HTML element and modify DOM tree.

Brief History of JavaScript

- Despite its name similar to Java, JavaScript has nothing to do with Java. It was created by Brendan Eich at Netscape in 1995 and originally named “LiveScript.” But Java was all the famous around that time, so for the sake of marketing, “LiveScript” became “JavaScript.”

Why its called dynamic and loosely typed language

- As a dynamic programming language, JavaScript doesn't need to be run through any form of compiler that interprets our human-readable code into something the browser can understand. The browser effectively reads the code.
- JavaScript is also loosely typed. means that we don't necessarily have to tell JavaScript what a variable is. If we're setting a variable to a value of 5, JavaScript automatically recognizes it as integer.

Adding JavaScript to the page

- Embedded Script
 - To embed a script on a page, just add the code as the content of a script element:

```
<script>
```

```
... JavaScript code goes here
```

```
</script>
```

➤ External Scripts

- The other method uses the src attribute to point to a script file (with a .js suffix) by its URL. In this case, the script element has no content:

```
<script src="my_script.js"></script>
```

- The advantage to external scripts is that you can apply the same script to multiple pages. The downside is that each external script requires an additional HTTP request of the server, which slows down performance.

For most scripts, the end of the document, just before the `</body>` tag, is the preferred placement because the browser will be done parsing the document and its DOM structure:

```
<!DOCTYPE html>
<html lang="en">
  <head>
    <meta charset="utf-8">
  </head>
  <body>
    ...contents of page...
    <script src="script.js"></script>
  </body>
</html>
```


Basics of JavaScript

- It is important to know that JavaScript is case-sensitive. A variable named myVariable, a variable named myvariable, and a variable named MYVariable will be treated as three different objects.
- **Statements**
- A script is made up of a series of statements. A statement is a command that tells the browser what to do. Here is a simple statement that makes the browser display an alert with the phrase “Thank you”:
 - `alert("Thank you.");`

○ **Comments**

- JavaScript allows you to leave comments that will be ignored at the time the script is executed.
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- `//` This is a single-line comment.
- `/*` This is a multiline comment.

Anything between these sets of characters will be completely ignored when the script is executed `*/`

○ Variables

- A variable is like an information container. You give it a name and then assign it a value, which can be a number, text string, an element in the DOM, or a function.
- The following declaration creates a variable with the name `num` and assigns it the value 5:
- `var num = 5;`

Data types In JavaScript

- The values we assign to variables fall under a few distinct data types:
 - **Undefined**
 - If we declare a variable by giving it a name but no value, that variable contains a value of undefined.
 - `var num ;`
 - **Integers**
 - You can assign variables numeric values.
 - `var num = 4;`

○ **String**

- It is basically a line of text. Enclosing characters in a set of single or double quotes indicates that it's a string.
 - `var str = "hello";`

○ **Boolean**

- We can also assign a variable a true or false value. This is called a Boolean value.
- Boolean values use the true and false keywords built into JavaScript, so quotation marks are not necessary.

○ Arrays

- An array is a group of multiple values (called members) that can be assigned to a single variable.
- The values in an array are said to be indexed, meaning you can refer to them by number according to the order in which they appear in the list. The first member is given the index number 0, the second is 1, and so on.
- `var country = ["India", "America", "China"];`
- If we want to print the "America" on the console, then we have to type :
- `Console.log(country[1]);`