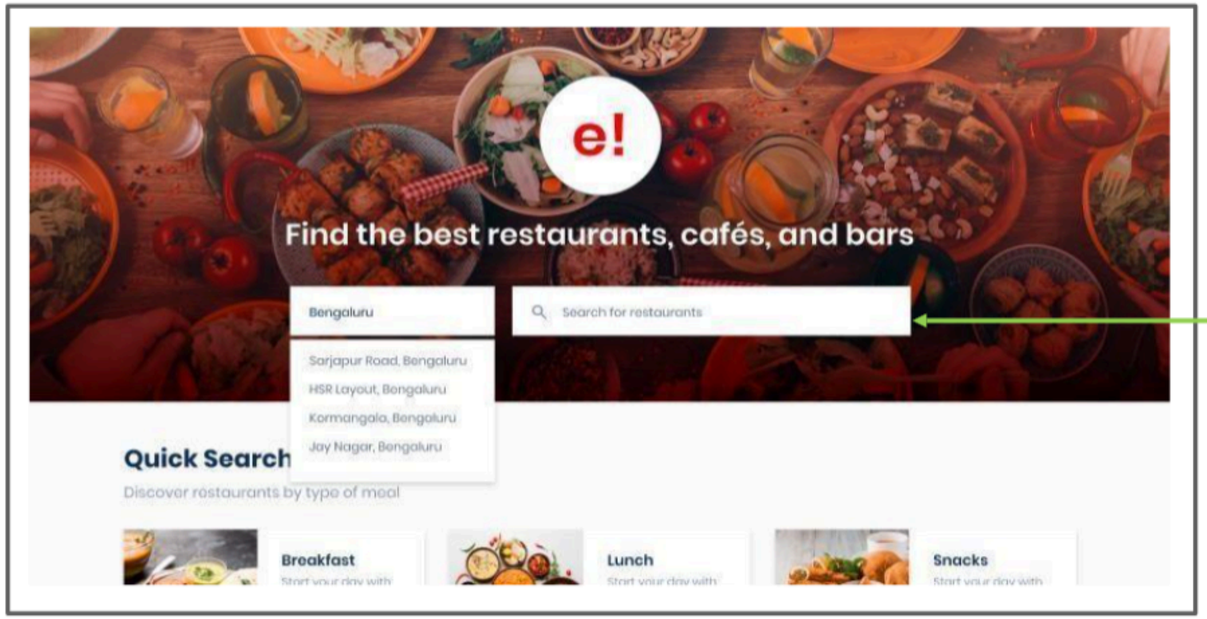
Life without JavaScript

- Until now, you have made a static webpage with only HTML elements. The images, dropdowns, and buttons are unresponsive, and no action is performed on clicking or hovering over the different elements.



There is no response on clicking this element

Life without JavaScript (contd.)

What are the drawbacks/ restrictions of the webpage created till now?

- It is a static unresponsive HTML with images, text, buttons, and other UI features.
- There is no use of such web pages from the perspective of a business or the customers.

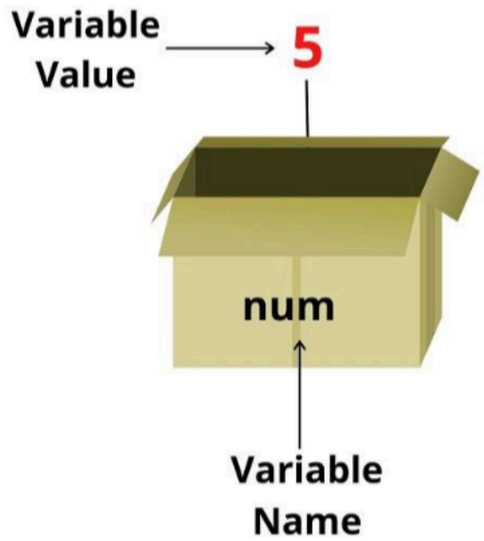
This is where JavaScript comes into the picture. It provides the following advantages:

- It is very fast because any code can run immediately instead of having to contact the server.
- It allows you to create highly responsive interfaces to improve the user experience.
- JavaScript has no compilation step. An interpreter in the browser reads and executes the JavaScript code line by line.
- It provides dynamic functionality, allowing updates on the page without waiting for the server to respond and load a new page.

Variables

A variable is a name given to a memory location that acts as a container for storing data temporarily. They are reserved memory locations to store values.

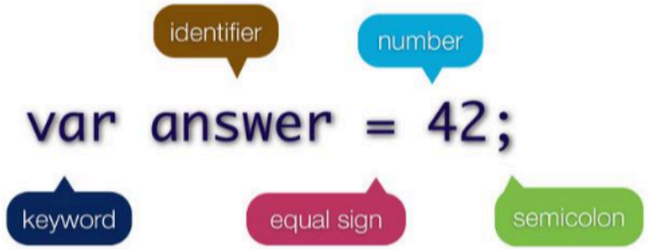
```
var num = 5;
```



Explanation of variable in pictorial format

Variables (contd.)

- In JavaScript, each variable must be uniquely identified by its name, known as an **Identifier**.
- When declaring a variable in JavaScript, certain fundamental rules apply:
  - They are case-sensitive.
  - A variable name must start with either a letter, an underscore ("_"), or the "**$**" character.
  - The name can include letters, digits, underscores, or the "**$**" symbol.
  - It's important to avoid using reserved keywords of JavaScript as variable names.



Variables (contd.)

- JavaScript is a language with dynamic typing, meaning the types of variables are determined during execution.
- Hence, there's no requirement to specify the variable type beforehand.
- Variables in JavaScript can be declared using one of three methods:
  - Using the **`var`** keyword in JavaScript
  - Using the **`let`** keyword in JavaScript
  - Using the **`const`** keyword in JavaScript

```
var greet= "Hello Learner"        // Declaration using var
let _variable = "Welcome"                 // Declaration using let
const $msg = “to Edureka"       // Declaration using const
```

Variables (contd.)

Using var Keyword

- **var** is the oldest keyword used for variable declarations in JavaScript.
- It has function scope when declared within a function and global scope when declared outside a function.
- Variables declared with **var** are also hoisted, meaning their declaration is moved to the top of their scope.

Example:

```
function exampleFunction() {
    if (true) {
        var x = 5; // Function scope
    }
    console.log(x); // Outputs 5,
because 'x' is accessible within the
entire function
}
exampleFunction();
console.log(x); // Error, 'x' is not
defined outside the function
```

Variables (contd.)

Using let Keyword

- Introduced in **ES6 (ECMAScript 2015)**, **`let`** allows you to declare variables with block scope, which is limited to the block, statement, or expression where it's used.

- Unlike **`var`**, **`let`** does not hoist the variable.

Example:

```
function exampleFunction() {
    if (true) {
        let y = 10; // Block scope
        console.log(y); // Outputs 10
    }
    console.log(y); // Error, 'y' is not
accessible outside the block
}
exampleFunction();
```

Variables (contd.)

Using const Keyword

- Also introduced in ES6, **`const`** is used to declare constants.
- A constant in JavaScript means that the variable's identifier cannot be reassigned.
- **`const`** has block scope like **`let`**.

Example:

```
const z = 15;
console.log(z); // Outputs 15
z = 20; // Error, cannot reassign a constant
```