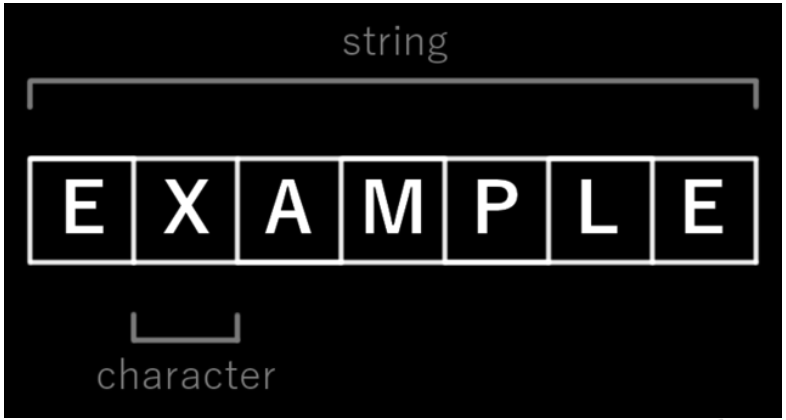
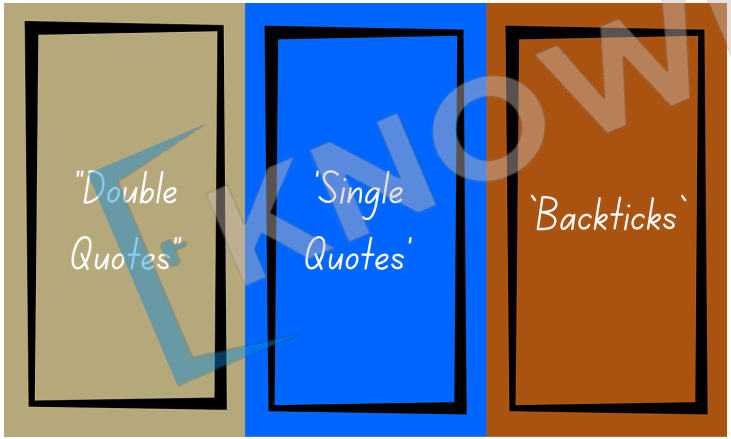
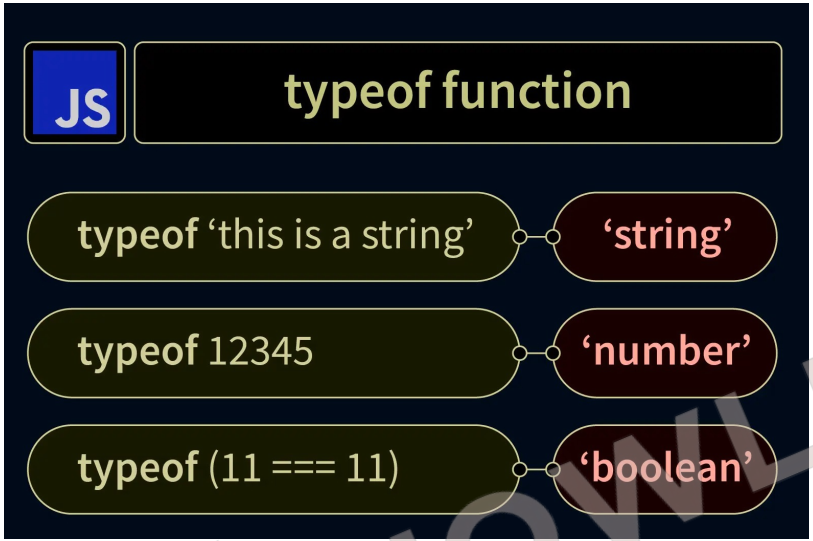
11. Strings





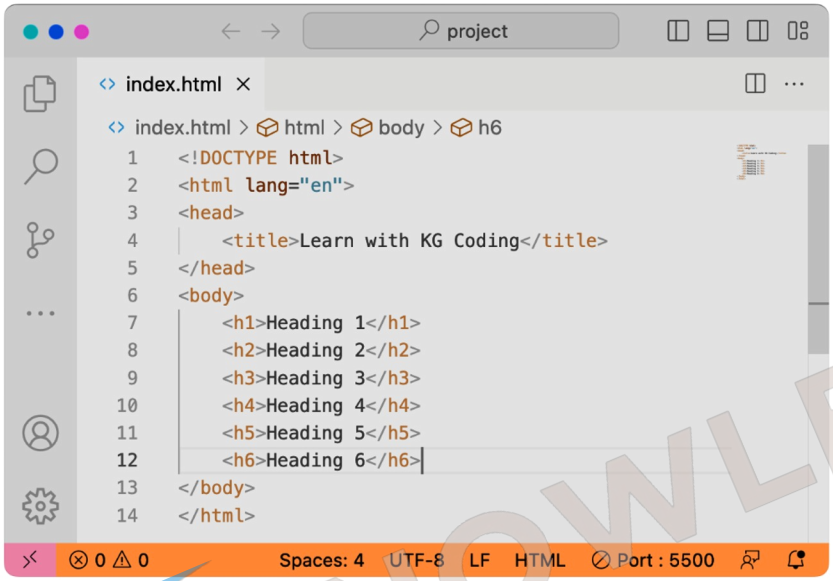
1. Strings hold textual data, anything from a single character to paragraph.
2. Strings can be defined using single quotes ' ', double quotes " ", or backticks ` `. Backticks allow for template literals, which can include variables.
3. You can combine (concatenate) strings using the + operator. For example, "Hello" + " World" will produce "Hello World".

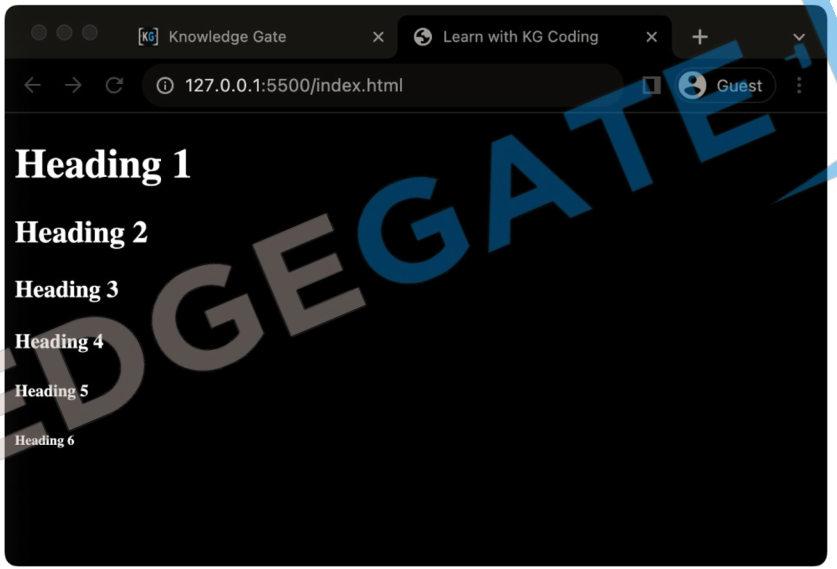
12. Type Of Operator



1. Check Type: Tells you the data type of a variable.
2. Syntax: Use it like typeof variable.
3. Common Types: Returns "number," "string," "boolean," etc.

14 Heading Tag





1. Defines headings in a document
2. Ranges from <h1> to <h6>
3. <h1> is most important, <h6> is least
4. Important for SEO
5. Helps in structuring content

14 Button tag

Button.html — testing

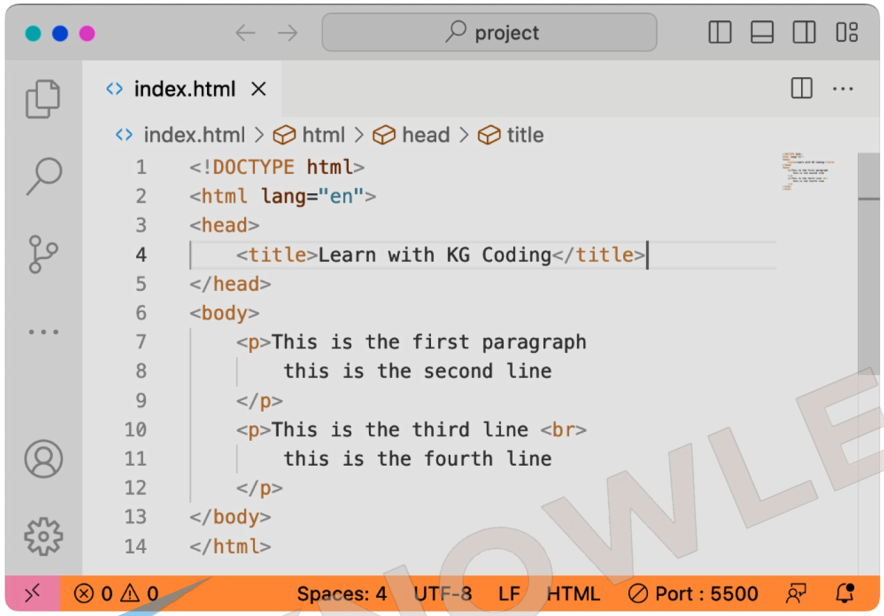
Button.html

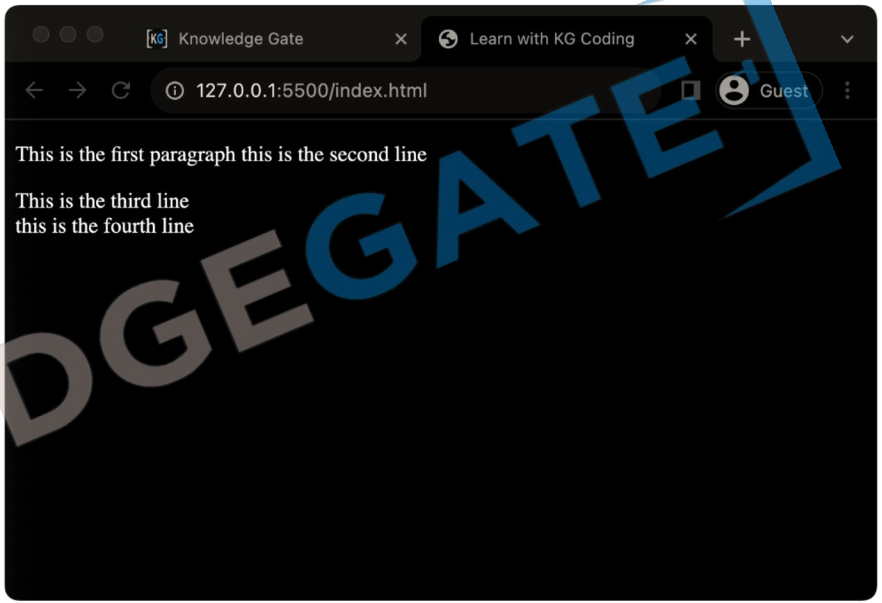
```
<!DOCTYPE html>
<html lang="en">
<head>
    <title>Button</title>
    <style>
        button {
            margin: 10px;
        }
        .blue {
            background-color: blue;
            color: red;
        }
        .wow {
            background-color: #4CAF50;
            border: none;
            border-radius: 10px;
            color: white;
            padding: 8px 10px;
        }
    </style>
</head>
<body>
    <button>Click Me</button> <br>
    <button class="blue">Blue button</button> <br>
    <button class="wow">Sundar button</button>
</body>
</html>
```

14 Paragraph Tag

1. Used for defining paragraphs
2. Enclosed within and tags
3. Adds automatic spacing before and after
4. Text wraps to next line inside tag
5. Common in text-heavy content

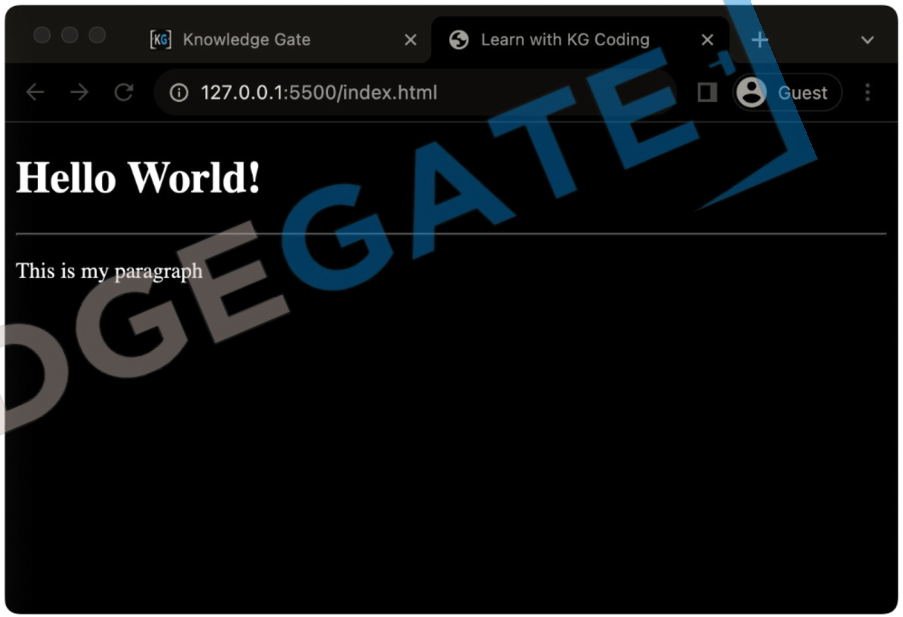
14
 Tag





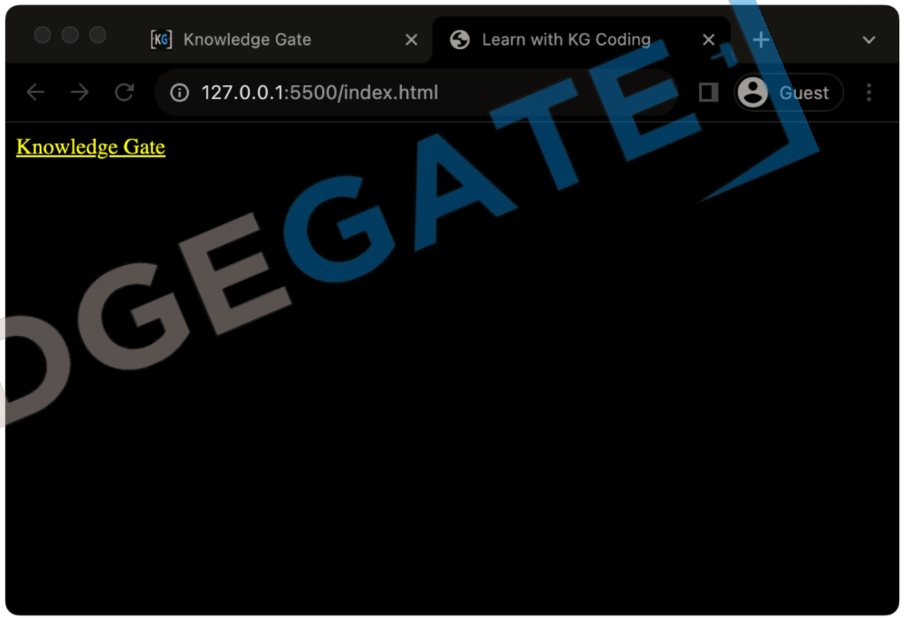
1.
 adds a line break within text
2.
 is empty, no closing tag needed
3.
 and
 are both valid

14 <HR> Tag



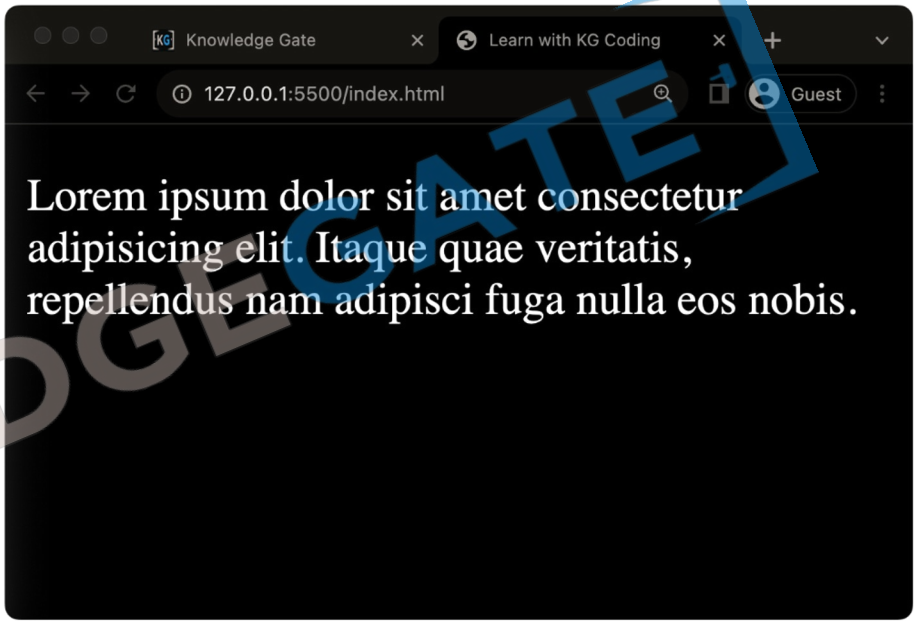
1. <hr> creates a horizontal rule or line
2. <hr> also empty, acts as a divider

14 Anchor Tag



1. Used for creating hyperlinks
2. Requires href attribute for URL
3. Can link to external sites or internal pages
4. Supports target attribute to control link behavior

14 Div Tags



1. Purpose: Acts as a container for other HTML elements.
2. Non-Semantic: Doesn't provide inherent meaning to enclosed content.
3. Styling: Commonly used for layout and styling via CSS.
4. Flexibility: Highly versatile and can be customized using classes or IDs.

14 Basic HTML Page

```
<!DOCTYPE html>
<html lang="en">
    <head>
        <title>My First Webpage</title>
    </head>
    <body>
        <h1>Hello World!</h1>
    </body>
</html>
```

Defines the HTML Version

Parent of all HTML tags / Root element

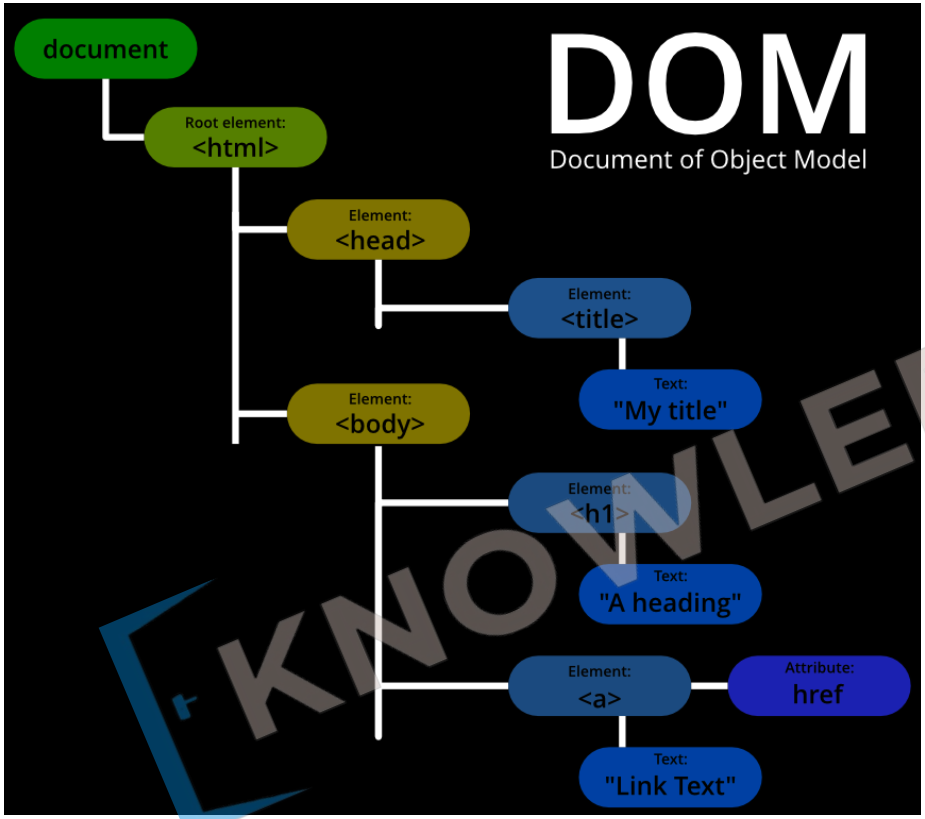
Parent of meta data tags

Title of the web page

Parent of content tags

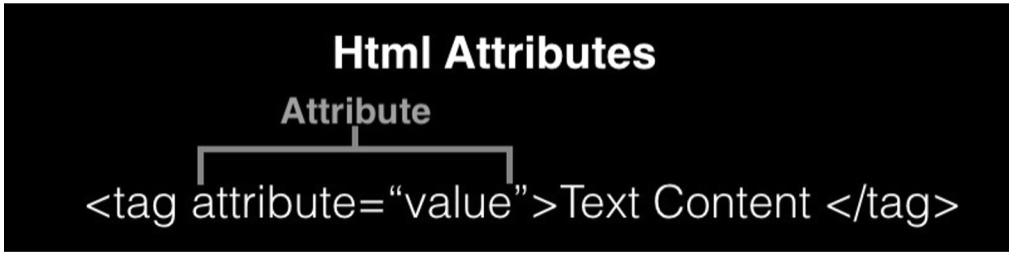
Heading tag

14 HTML DOM



1. **Structure Understanding:** Helps in understanding the hierarchical structure of a webpage, crucial for applying targeted CSS styles.
2. **Dynamic Styling:** Enables learning about dynamic styling, allowing for real-time changes and interactivity through CSS.

14 HTML (Attributes)



1. Provides additional information about elements
2. Placed within opening tags
3. Common examples: href, src, alt
4. Use name=value format
5. Can be single or multiple per element

15 CSS (Basic Syntax)

- **Selector**: The HTML element that you want to style.
- **Property**: The attribute you want to change (like font, color, etc.).
- **Value**: The specific style you want to apply to the property (like red, bold, etc.).

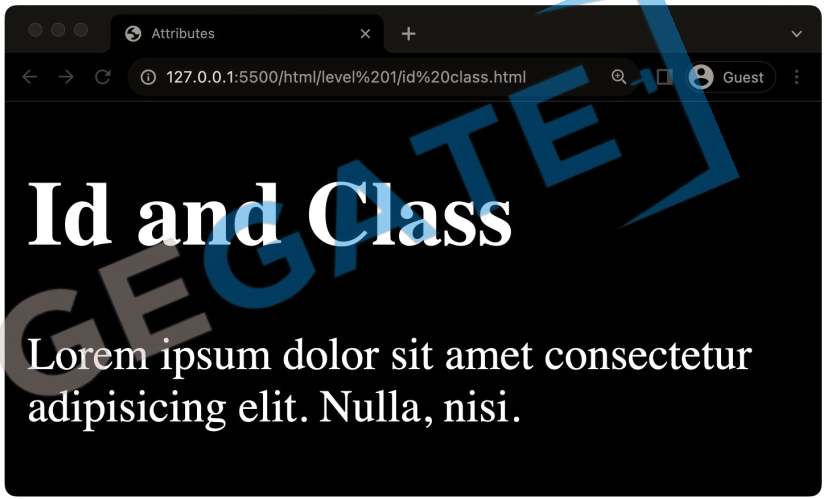
15 CSS (Element selector)

```
3   <head>
4       <title>Element Selector</title>
5       <style>
6           h1 {
7               color: red
8           }
9       </style>
10  </head>
11  <body>
12      <h1>Universal Selector</h1>
13      <p>Lorem ipsum dolor sit amet consectetur
        adipisicing elit. Nulla, nisi.</p>
14  </body>
```

- **Targets Elements**: Selects HTML elements based on their tag name.
- **Syntax**: Simply use the element's name
- **Uniform Styling**: Helps in applying consistent styles to all instances.
- **Ease of Use**: Straightforward and easy to implement for basic styling.

15 CSS (id & class attribute)

```html
<!DOCTYPE html>
<html lang="en">
<head>
    <title>Attributes</title>
</head>
<body>
    <h1 id="top_heading">Id and Class</h1>
    <p class="article">Lorem ipsum dolor sit amet consectetur adipisicing elit. Nulla, nisi.</p>
</body>
</html>
```



- **ID Property**: Assigns a unique identifier to a single HTML element.
- **Class Property**: Allows grouping of multiple HTML elements to style them collectively.
- **Reusable Classes**: Class properties can be reused across different elements for consistent styling.
- **Specificity and Targeting**: Both properties assist in targeting specific elements or groups of elements for precise styling.

15 CSS (Id selector)

```
3   <head>
4       <title>Id selector</title>
5       <style>
6           #first { color: red; }
7           #second { color: green; }
8       </style>
9   </head>
10  <body>
11      <div id="first">First Div</div>
12      <div id="second">Second Div</div>
13  </body>
```

- **Unique Identifier**: Targets a specific element with a unique ID attribute.
- **Syntax**: Uses the hash (#) symbol
- **Single Use**: Each ID should be used once per page for uniqueness.
- **Specific Targeting**: Ideal for styling individual, distinct elements.

15 CSS (Class selector)

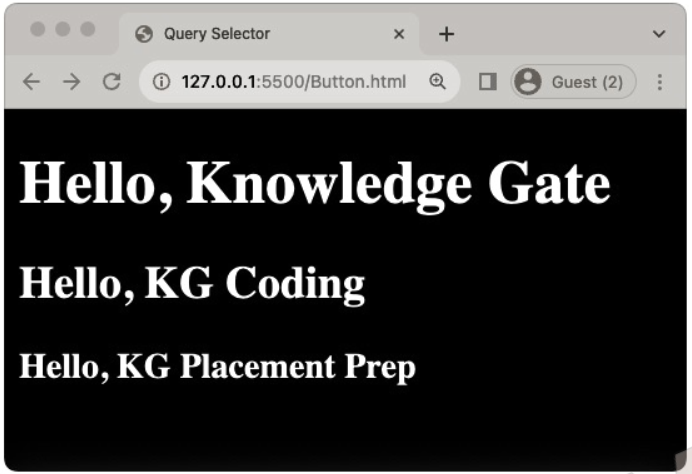
```html
<head>
    <title>Class selector</title>
    <style>
        #first { color: red; }
        .second { color: green; }
    </style>
</head>
<body>
    <div id="first">First Div</div>
    <div class="second">Second Div</div>
    <div class="second">Third Div</div>
</body>
```

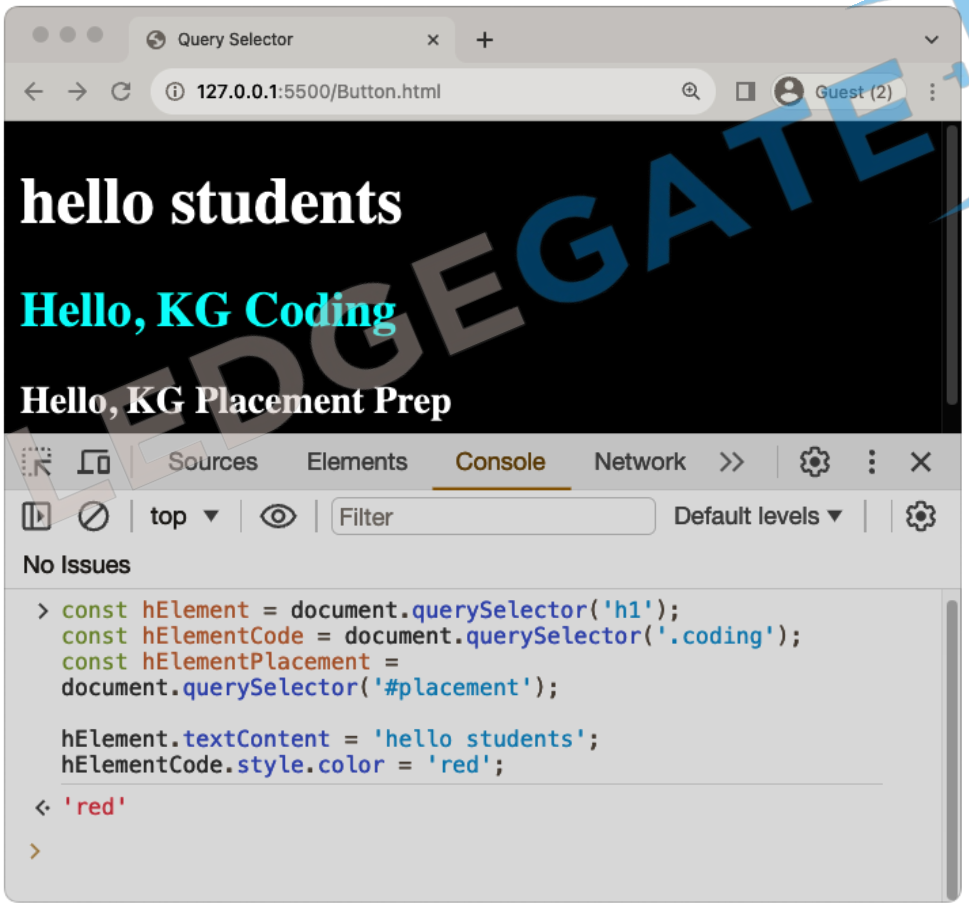
- **Group Styling**: Allows styling of multiple elements grouped under a class.
- **Syntax**: Utilizes the dot (.) symbol.
- **Reusable**: Can be used on multiple elements for consistent styling.
- **Versatility**: Ideal for applying styles to a category of elements.

16 Query Selector

1. **getElementById**: Finds one element by its ID.
2. **getElementsByClassName**: Finds elements by their class, returns a list.
3. **querySelector**: Finds the first element that matches a CSS selector.
4. **Purpose**: To interact with or modify webpage elements.

16 Query Selector





17 Script Tag

1. Embed Code: Incorporates JavaScript into an HTML file, either directly or via external files.
2. Placement: Commonly placed in the <head> or just before the closing </body> tag to control when the script runs.
3. External Files: Use src attribute to link external JavaScript files, like <script src="script.js"></script>.
4. Console Methods: log, warn, error, clear

19. What are Variables?

Variables are like containers used for storing data values.

20. Syntax Rules

```
1    // Defining a number variable
2    let noOfStudents = 5;
3    // Defining a String variable
4    let welcomeMessage = "Hello Beta"
```

1. Can't use keywords or reserved words
2. Can't start with a number
3. No special characters other than $ and _
4. = is for assignment
5. ; means end of instruction

21. Updating Values

```
let noOfStudents = 5;
noOfStudents = noOfStudents + 1;

let money = 1;
money += 5; // money = 6
money -= 2; // money = 4
money *= 3; // money = 12
money /= 4; // money = 3
money++;    // money = 4
```

1. Do not need to use let again.
2. Syntax: variable = variable + 1
3. Assignment Operator is used =
4. Short Hand Assignment Operators:
   +=, -=, *=, /=, ++

23. Naming Conventions

camelCase

- Start with a lowercase letter. Capitalize the first letter of each subsequent word.
- Example: myVariableName

snake_case

- Start with an lowercase letter. Separate words with underscore
- Example: my_variable_name

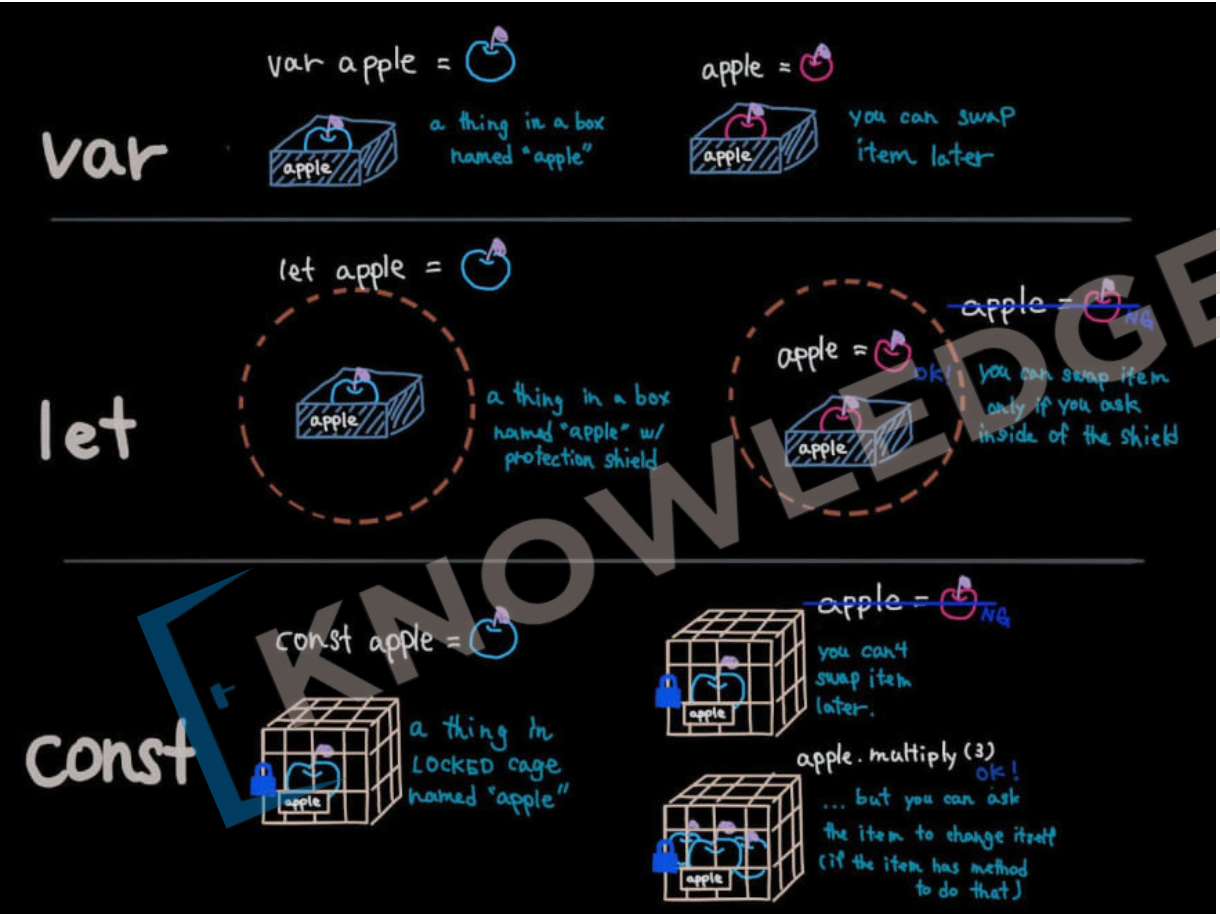
Kebab-case

- All lowercase letters. Separate words with hyphens. Used for HTML and CSS.
- Example: my-variable-name

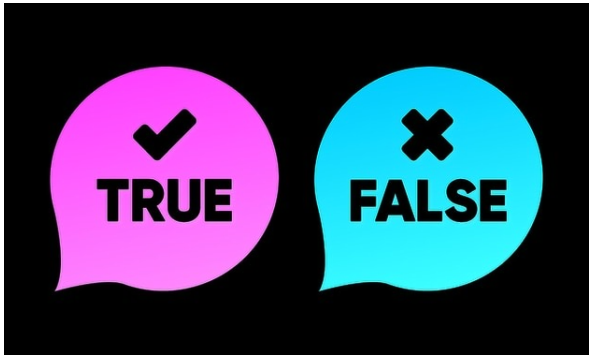
Keep a Good and Short Name

- Choose names that are descriptive but not too long. It should make it easy to understand the variable's purpose.
- Example: age, firstName, isMarried

24. Ways to Create Variables



25. What are Booleans?



1. Data Type: Booleans are a basic data type in JavaScript.
2. Two Values: Can only be true or false.
3. ‘true’ is a String not a Boolean

26. Comparison Operators

<, >, <=, >=, ==, !=

Equality

== Checks value equality.

=== Checks value and type equality.

Inequality

!= Checks value inequality.

!== Checks value and type inequality.

Relational

> Greater than.

< Less than.

>= Greater than or equal to.

<= Less than or equal to.

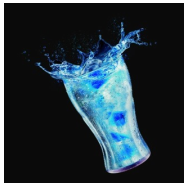
Order of comparison operators is less than arithmetic operators

27. if-else

1. Syntax: Uses if () {} to check a condition.
2. What is if: Executes block if condition is true, skips if false.
3. What is else: Executes a block when the if condition is false.
4. Curly Braces can be omitted for single statements, but not recommended.
5. If-else Ladder: Multiple if and else if blocks; only one executes.
6. Use Variables: Can store conditions in variables for use in if statements.

28. Logical Operators


AND

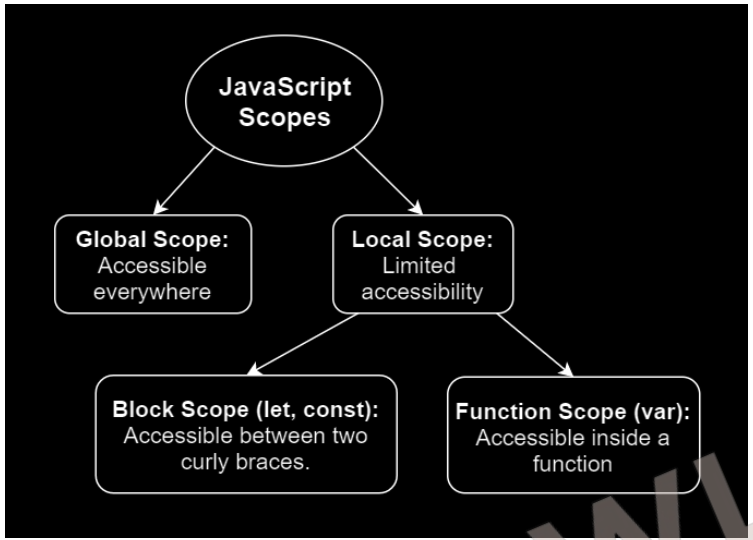



Or

NOT

1. Types: && (AND), || (OR), ! (NOT)
2. AND (&&): All conditions must be true for the result to be true.
3. OR (||): Only one condition must be true for the result to be true.
4. NOT (!): Inverts the Boolean value of a condition.
5. Lower Priority than Math and Comparison operators

29. Scope



1. Any variable created inside {} will remain inside {}
2. Variable can be redefined inside {}
3. Var does not follow scope
4. Global Scope: Accessible everywhere in the code.
5. Block Scope: Limited to a block, mainly with let and const.
6. Declare variables in the narrowest scope possible.

30. Truthy and Falsy Values

1. Falsy Values: 0, null, undefined, false, NaN, "" (empty string)
2. Truthy Values: All values not listed as falsy.
3. Used in conditional statements like if.
4. Non-boolean values are auto-converted in logical operations.
5. Be explicit in comparisons to avoid unexpected behaviour.

31. If alternates

1. Ternary Operator: condition ? trueValue : falseValue

   Quick one-line if-else.

2. Guard Operator: value || defaultValue

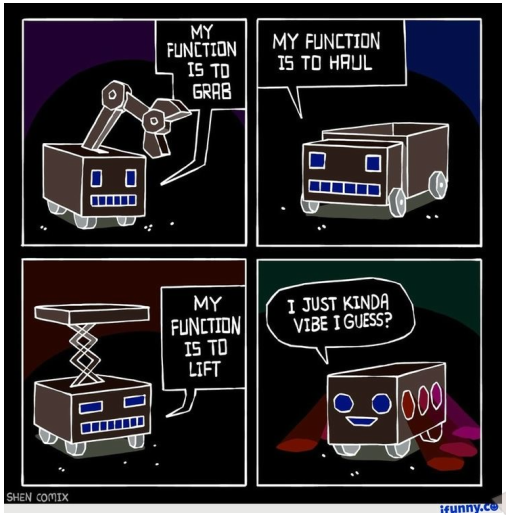
   Use when a fallback value is needed.

3. Default Operator: value ?? fallbackValue

   Use when you want to consider only null and undefined as falsy.

4. Simplifies conditional logic.
5. Use wisely to maintain readability.

32. What are Functions?



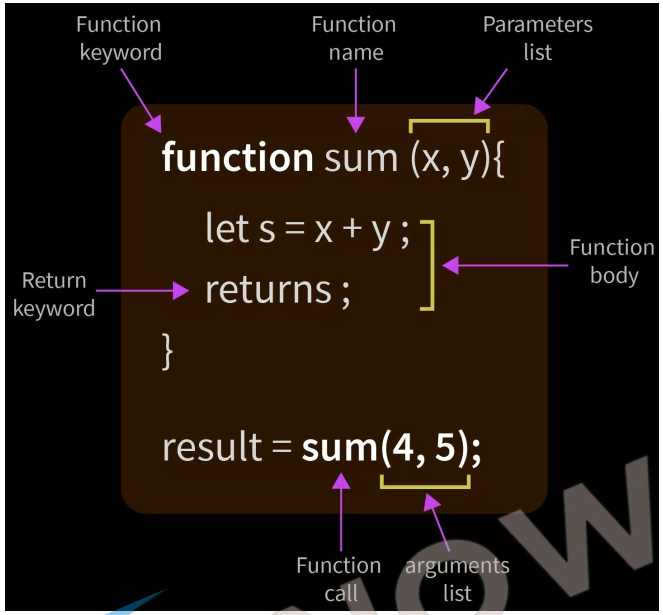

```
function greet(name) {
    // code
}

greet(name);
// code
```

function call

1. Definition: Blocks of reusable code.
2. DRY Principle: "Don't Repeat Yourself" it Encourages code reusability.
3. Usage: Organizes code and performs specific tasks.
4. Naming Rules: Same as variable names: camelCase
5. Example: ”Beta Gas band kar de"

33. Functions Syntax



1. Use function keyword to declare.
2. Follows same rules as variable names.
3. Use () to contain parameters.
4. Invoke by using the function name followed by ().
5. Fundamental for code organization and reusability.

34. Return statement

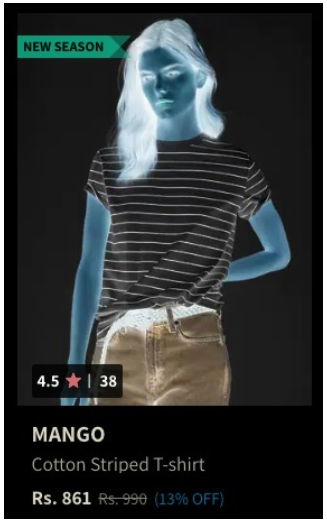
1. Sends a value back from a function.
2. Example: "Ek glass paani laao"
3. What Can Be Returned: Value, variable, calculation, etc.
4. Return ends the function immediately.
5. Function calls make code jump around.
6. Prefer returning values over using global variables.

35. Parameters

Parameter → Function → Return

1. Input values that a function takes.
2. Parameters put value into function, while return gets value out.
3. Example: "Ek packet dahi laao"
4. Naming Convention: Same as variable names.
5. Parameter vs Argument
6. Examples: alert, Math.round, console.log are functions we have already used
7. Multiple Parameters: Functions can take more than one.
8. Default Value: Can set a default value for a parameter.

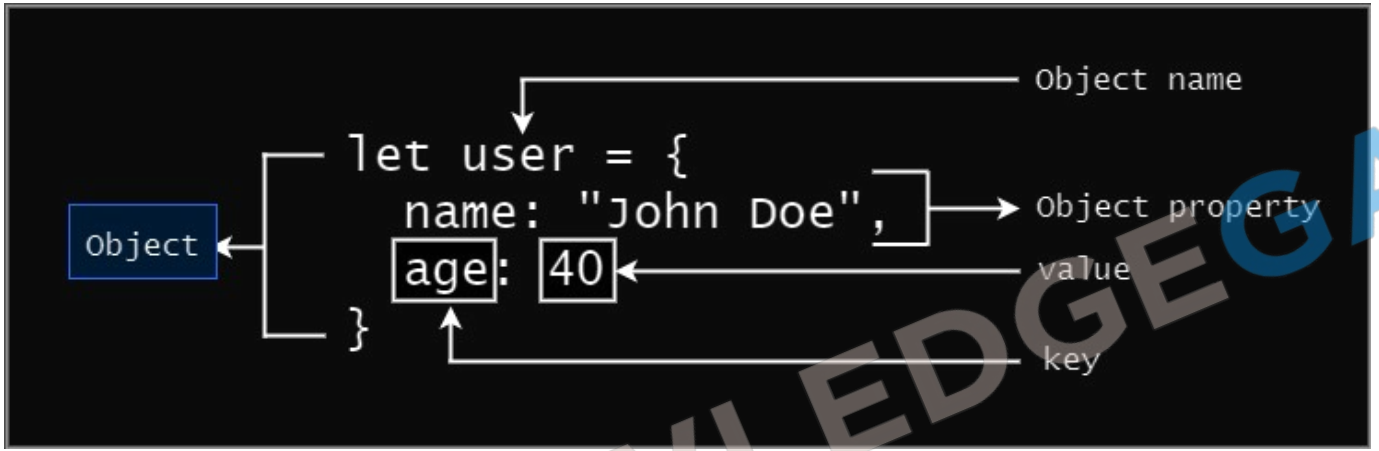
36. What is an Object?




```
let product = {
  company: 'Mango',
  item_name: 'Cotton striped t-shirt',
  price: 861
};
```


1. Groups multiple values together in key-value pairs.
2. How to Define: Use {} to enclose properties.
3. Example: product {name, price}
4. Dot Notation: Use . operator to access values.
5. Key Benefit: Organizes related data under a single name.

37. Object Syntax?



1. Basic Structure: Uses {} to enclose data.
2. Rules: Property and value separated by a colon(:)
3. Comma: Separates different property-value pairs.
4. Example: { name: "Laptop", price: 1000 }

38. Accessing Objects

1. Dot Notation: Access properties using . Operator like product.price
2. Bracket Notation: Useful for properties with special characters product[”nick-name"]. Variables can be used to access properties
3. typeof returns object.
4. Values can be added or removed to an object
5. Delete Values using delete

39. Inside Object

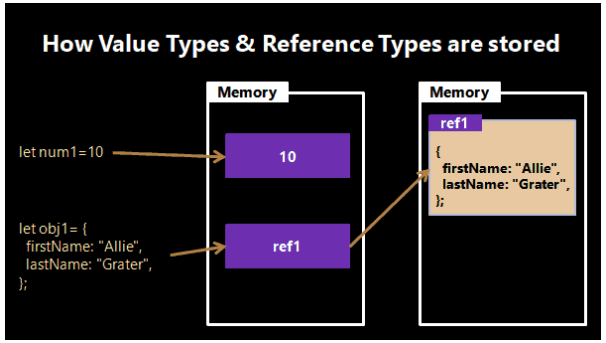
```
let product = {
  company: 'Mango',
  itemName: 'Cotton striped t-shirt',
  price: 861,
  rating: {
    stars: 4.5,
    noOfReviews: 87
  },
  displayPrice: function() {
    return `$${this.price.toFixed(2)}`;
  }
};
```

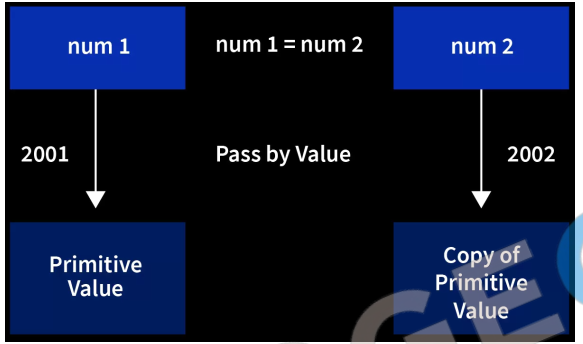
1. Objects can contain Primitives like numbers and strings.
2. Objects can contain other objects and are called Nested Objects.
3. Functions can be object properties.
4. Functions inside an object are called methods.
5. Null Value: Intentionally leaving a property empty.

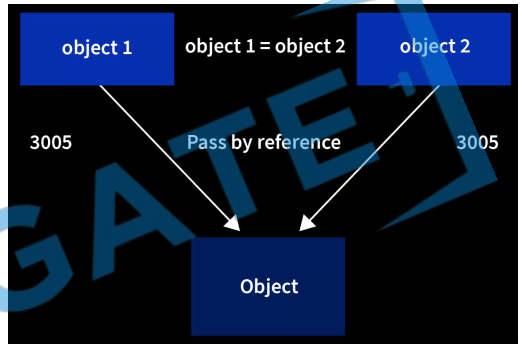
40. Autoboxing

1. Automatic conversion of primitives to objects.
2. Allows properties and methods to be used on primitives.
3. Example: Strings have properties and methods like length, toUpperCase, etc.

41. Object References







1. Objects work based on references, not actual data.
2. Copying an object copies the reference, not the actual object.
3. When comparing with ==, you're comparing references, not content.
4. Changes to one reference affects all copies.

42. Object Shortcuts

```
let product = {
  company: 'Mango',
  itemName: 'Cotton striped t-shirt',
  price: 861
};
// Destructuring
let company = product.company
// is same as
let { company } = product;
```

```
// Property shorthand
let price = 861;
let product = {
  company: 'Mango',
  itemName: 'Cotton striped t-shirt',
  price: price
};
// is same as
let product1 = {
  company: 'Mango',
  itemName: 'Cotton striped t-shirt',
  price
};
```

```
// Method shorthand
let product = {
  company: 'Mango',
  itemName: 'Cotton striped t-shirt',
  displayPrice: function() {
    return `$${this.price.toFixed(2)}`;
  }
};
// is same as
let product1 = {
  company: 'Mango',
  itemName: 'Cotton striped t-shirt',
  displayPrice() {
    return `$${this.price.toFixed(2)}`;
  }
};
```

1. De-structuring: Extract properties from objects easily.
2. We can extract more than one property at once.
3. Shorthand Property: {message: message} simplifies to just message.
4. Shorthand Method: Define methods directly inside the object without the function keyword.

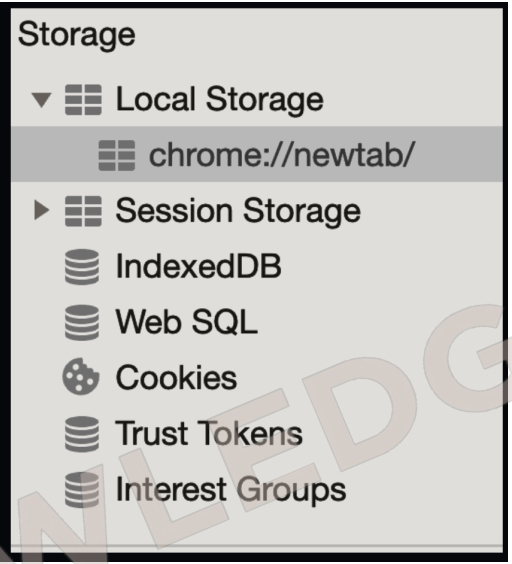
43. What is JSON?

1. JavaScript Object Notation: Not the same as JS object, but similar.
2. Common in network calls and data storage.
3. JSON.stringify() and JSON.parse()
4. Strings are easy to transport over network.
5. JSON requires double quotes. Escaped as \".
6. JSON is data format, JS object is a data structure.

44. Local Storage

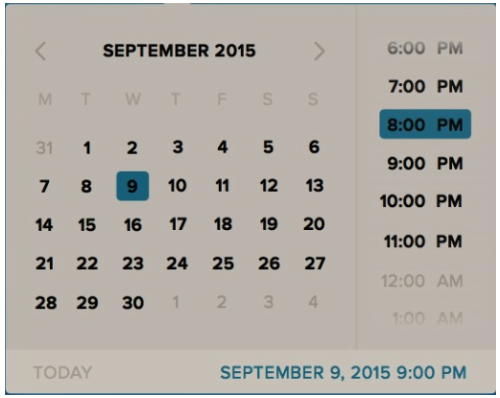
```
// store an object in Local Storage
localStorage.setItem(
      "user",
      JSON.stringify({
            name: "Gopi Gorantala"
            age: 32
      });
);

// retrieve an object in Local Storage
const user = JSON.parse(
     localStorage.getItem("user")
);
```



1. Persistent data storage in the browser.
2. setItem: Stores data as key-value pairs.
3. Only strings can be stored.
4. getItem: Retrieves data based on key.
5. Other Methods: localStorage.clear(), removeItem().
6. Do not store sensitive information. Viewable in storage console.

45. Date



1. new Date() Creates a new Date object with the current date and time.
2. Key Methods:
   - getTime(): Milliseconds since Epoch.
   - getFullYear(): 4-digit year
   - getDay(): Day of the week
   - getMinutes(): Current minute
   - getHours(): Current hour.
3. Crucial for timestamps, scheduling, etc.

46. DOM Properties & Methods

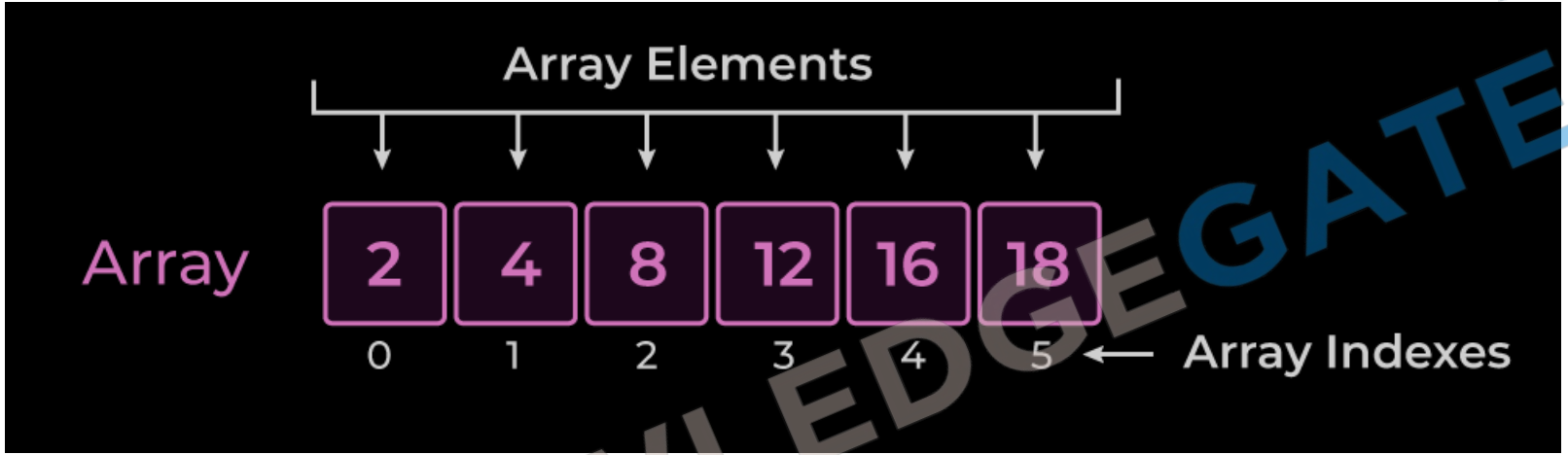
DOM and Element Properties

1. location
2. title
3. href
4. domain
5. innerHTML
6. innerText
7. classList

DOM and Element Methods

1. getElementById()
2. querySelector()
3. classList: add(), remove()
4. createElement()
5. appendChild()
6. removeChild()
7. replaceChild()

47. What is an Array?



1. An Array is just a list of values.
2. Index: Starts with 0.
3. Arrays are used for storing multiple values in a single variable.

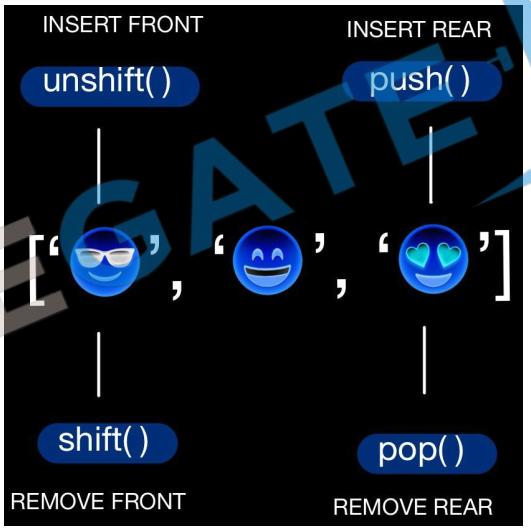
48. Array Syntax & Values

```
let myArray = [1, 'KG Coding', null, true,
  {likes: '1 Million'}];
```

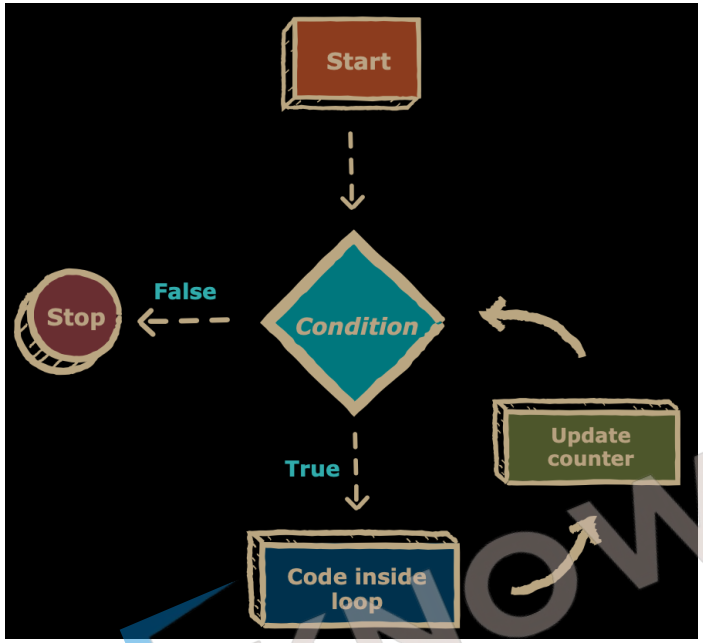
1. Use [] to create a new array, [] brackets enclose list of values
2. Arrays can be saved to a variable.
3. Accessing Values: Use [] with index.
4. Syntax Rules:
   - Brackets start and end the array.
   - Values separated by commas.
   - Can span multiple lines.
5. Arrays can hold any value, including arrays.
6. typeof operator on Array Returns Object.

49. Array Properties & Methods

1. Array.isArray() checks if a variable is an array.
2. Length property holds the size of the array.
3. Common Methods:
   - push/pop: Add or remove to end.
   - shift/unshift: Add or remove from front.
   - splice: Add or remove elements.
   - toString: Convert to string.
   - sort: Sort elements.
   - valueOf: Get array itself.
4. Arrays also use reference like objects.
5. De-structuring also works for Arrays.

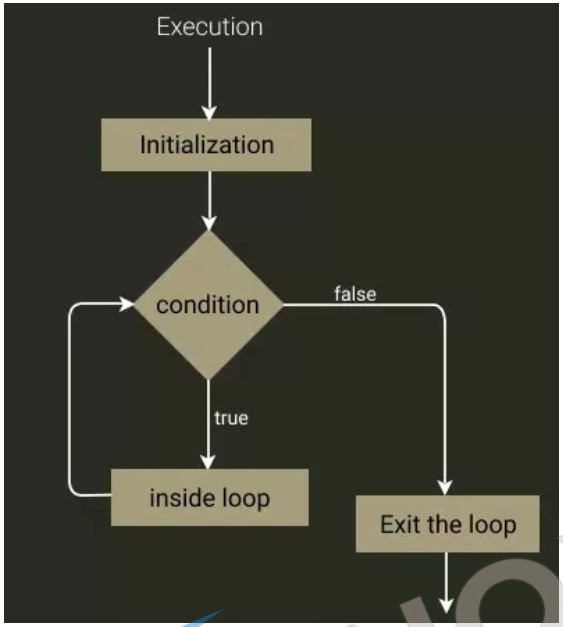


50. What is a Loop?



1. Code that runs multiple times based on a condition.
2. Loops also alter the flow of execution, similar to functions.
   - Functions: Reusable blocks of code.
   - Loops: Repeated execution of code.
3. Loops automate repetitive tasks.
4. Types of Loops: for, while, do-while.
5. Iterations: Number of times the loop runs.

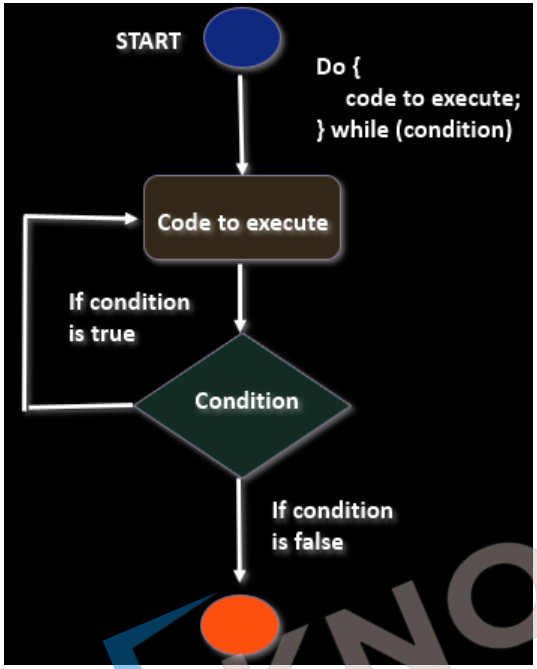
51. While Loop




```
while (condition) {
  // Body of the loop
}
```


1. Iterations: Number of times the loop runs.
2. Used for non-standard conditions.
3. Repeating a block of code while a condition is true.
4. Remember: Always include an update to avoid infinite loops.

52.Do While Loop

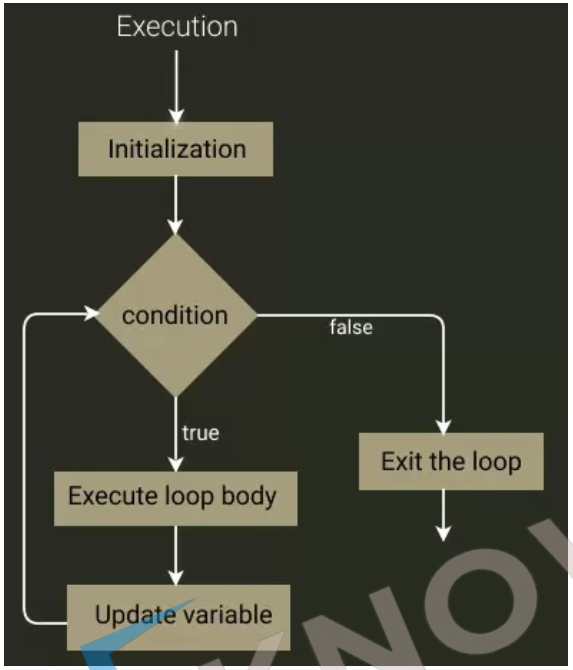



```do {
  // Body of the loop
}
while (condition);```



1. Executes block first, then checks condition.
2. Guaranteed to run at least one iteration.
3. Unlike while, first iteration is unconditional.
4. Don't forget to update condition to avoid infinite loops.
```

53.For Loop



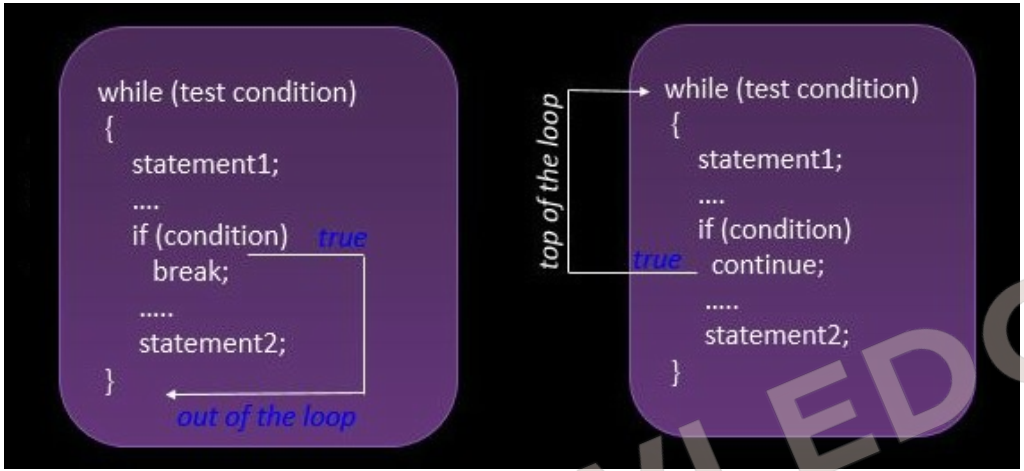

```
for (initialisation; condition; update) {
  // Body of the loop
}
```


1. Standard loop for running code multiple times.
2. Generally preferred for counting iterations.

54.Accumulator Pattern

1. A pattern to accumulate values through looping.
2. Common Scenarios:
   - Sum all the numbers in an array.
   - Create a modified copy of an array.

55.Break & Continue



1. Break lets you stop a loop early, or break out of a loop
2. Continue is used to skip one iteration or the current iteration
3. In while loop remember to do the increment manually before using continue

56. Anonymous Functions As Values

```
let sum = function(num1, num2) {
  return num1 + num2;
}
```

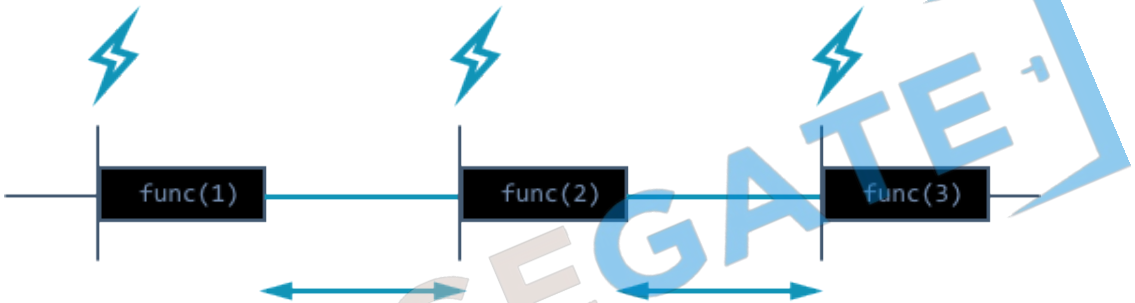

1. Functions in JavaScript are first-class citizens; they can be assigned to variables.
2. Functions defined without a name, often assigned to a variable.
3. Anonymous functions can be properties in objects
4. Can be passed as arguments to other functions.
5. Invoked using () after the function name or variable.
6. console.log(myFunction); and typeof myFunction will both indicate it's a function.

57. Arrow Functions

```
let sum = function(num1, num2) {
  return num1 + num2;
}
let Sum1 = (num1, num2) => {
  return num1 + num2;
}
let Sum2 = (num1, num2) => num1 + num2;
let square = num => num * num;
```

1. A concise way to write anonymous functions.
2. For Single Argument: Round brackets optional.
3. For Single Line: Curly brackets and return optional.
4. Often used when passing functions as arguments.

58. setTimeout & setInterval



1. Functions for executing code asynchronously after a delay.
2. setTimeout runs once; setInterval runs repeatedly
3. setTimeout:
   - Syntax: setTimeout(function, time)
   - Cancel: clearTimeout(timerID)
4. setInterval:
   - Syntax: setInterval(function, time)
   - Cancel: clearInterval(intervalID)

59. Event Listener

```
const button = document.querySelector(".btn")

button.addEventListener("click", event => {
  console.log("Hello!");
})
```

1. What Is an Event: Occurrences like clicks, mouse movement, keyboard input (e.g., birthday, functions).
2. Using querySelector to attach listeners.
3. Multiple Listeners: You can add more than one.
4. removeEventListener('event', functionVariable);

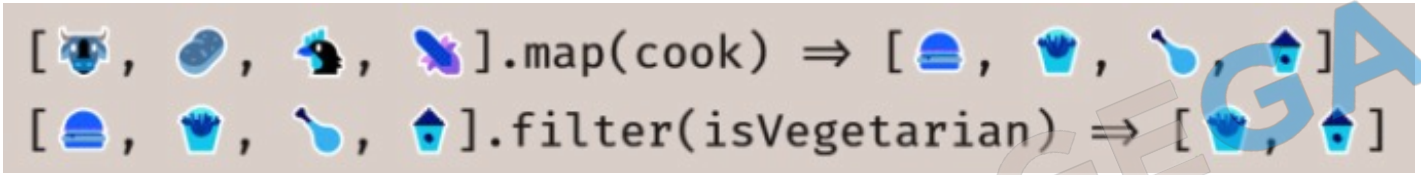
60. For Each Loop

```
let foods = ['bread', 'rice', 'meat', 'pizza'];

foods.forEach(function(food) {
    console.log(food);
})
```


1. A method for array iteration, often preferred for readability.
2. Parameters: One for item, optional second for index.
3. Using return is similar to continue in traditional loops.
4. Not straightforward to break out of a forEach loop.
5. When you need to perform an action on each array element and don't need to break early.

61. Array Methods



1. Filter Method:
   - Syntax: array.filter((value, index) => return true/false)
   - Use: Filters elements based on condition.
2. Map Method:
   - Syntax: array.map((value) => return newValue)
   - Use: Transforms each element.