COMPLETE JAVASCRIPT

14 HOURS

MYNTRA PROJECT

+

CERTIFICATE + NOTES

YouTube Video Link

KG Coding

Some Other One shot Video Links:

- Complete HTML
- Complete CSS
- Complete Git and GitHub
- Complete Java and OOPs
- One shot University Exam Series

KnowledgeGate Website

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KnowledgeGate Android App

KG Coding

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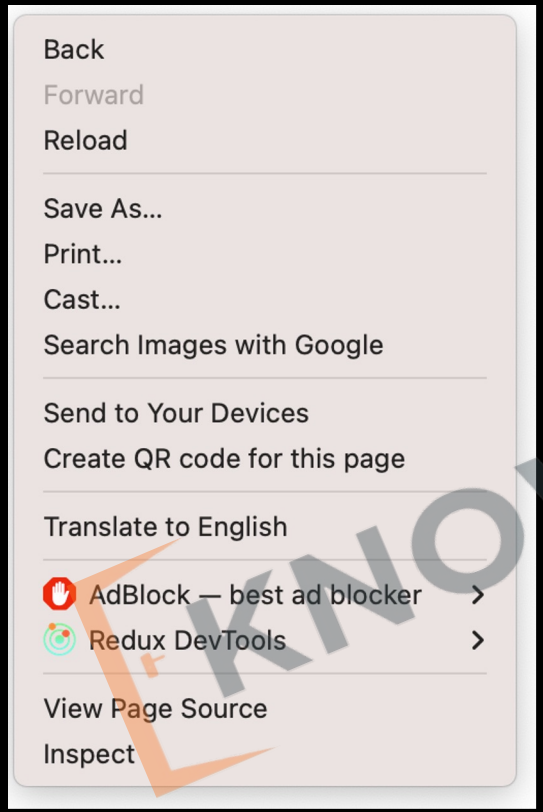
KG Placement Prep

Sanchit Socket

Introduction to JavaScript

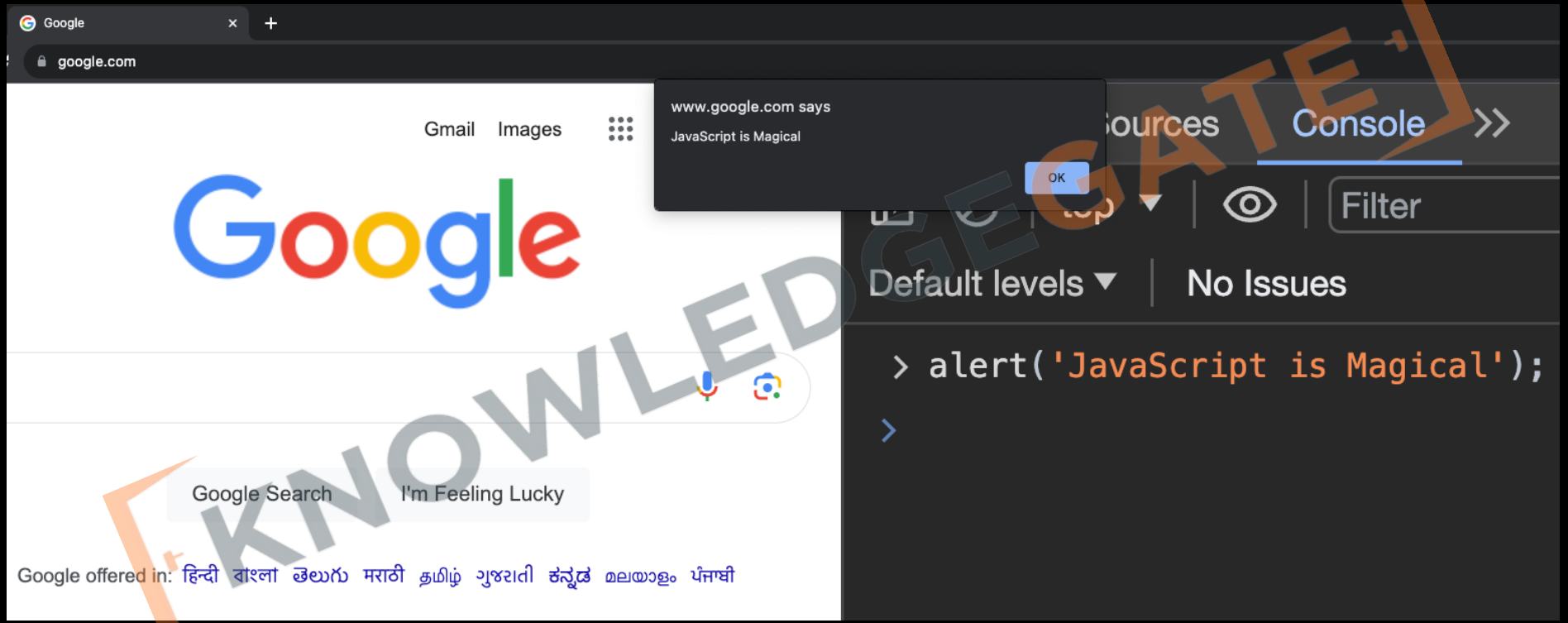
1. JS in Console
2. DOM Manipulation
3. Chrome Extensions
4. What is a Programming Language?
5. What is Syntax?
6. HTML/CSS/JavaScript

1. JS in Console (Inspect)

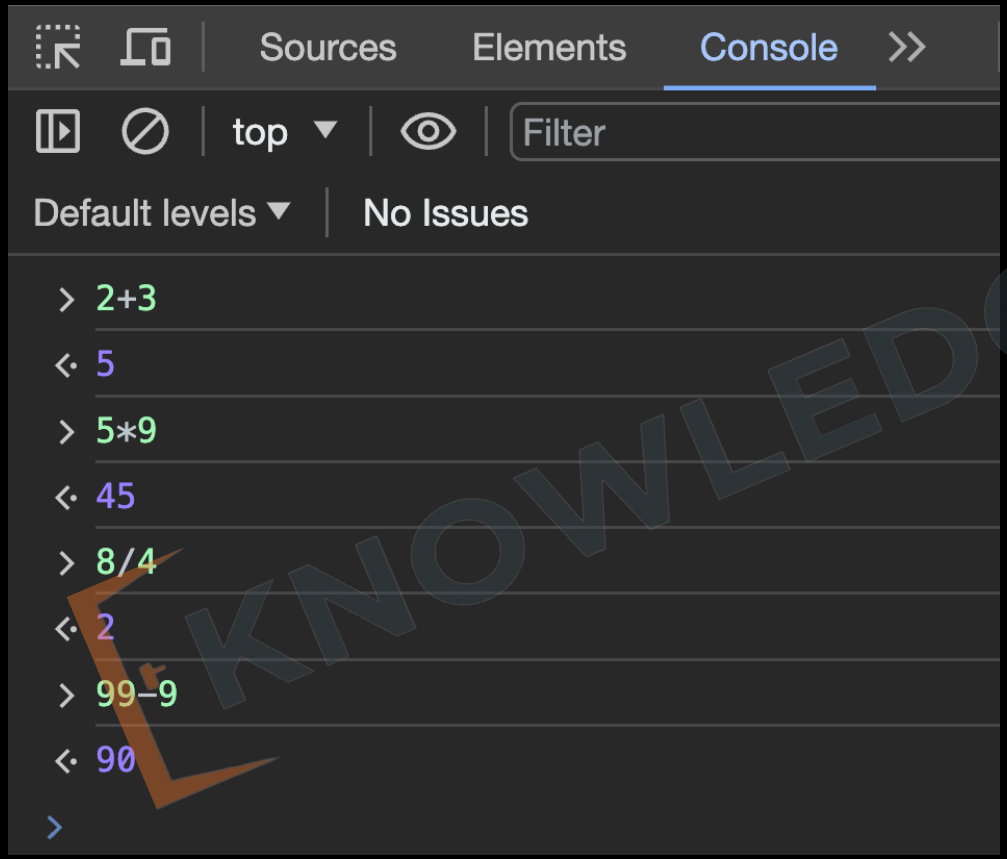


1. Allows real-time editing of HTML/CSS/JS
2. Run Scripts: Test code in console.
3. Debug: Locate and fix errors.
4. Modify DOM: Change webpage elements.
   Errors: View error messages.

1. JS in Console (Alert)



1. JS in Console (Math)

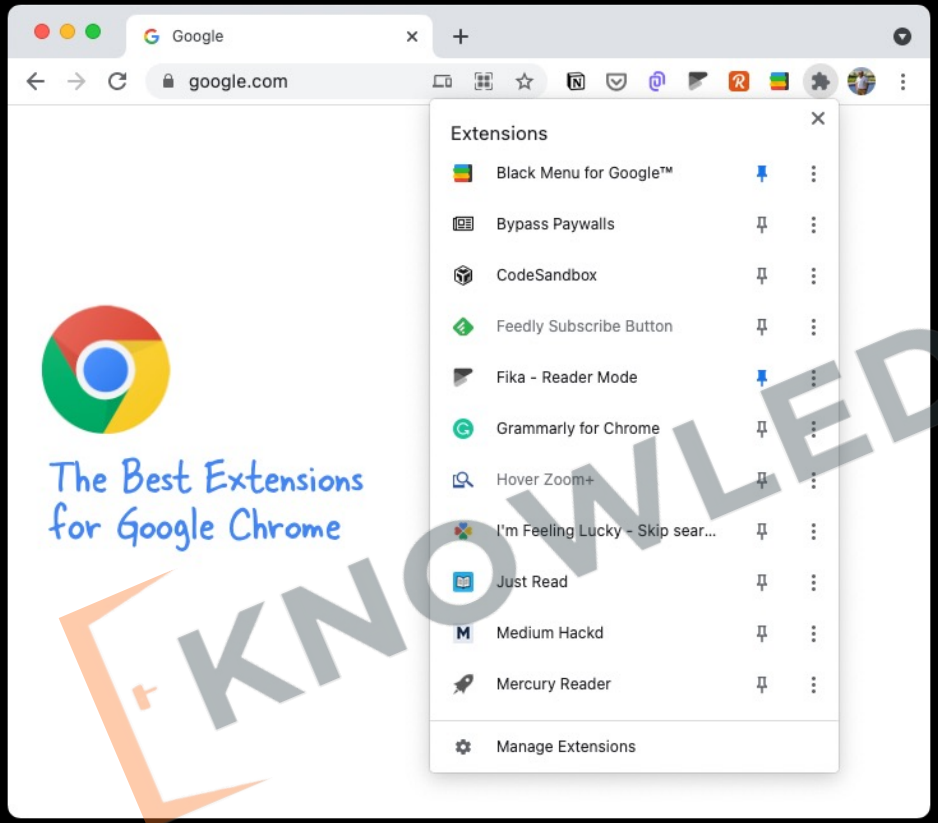


Console can be used as a Calculator

2. DOM Manipulation

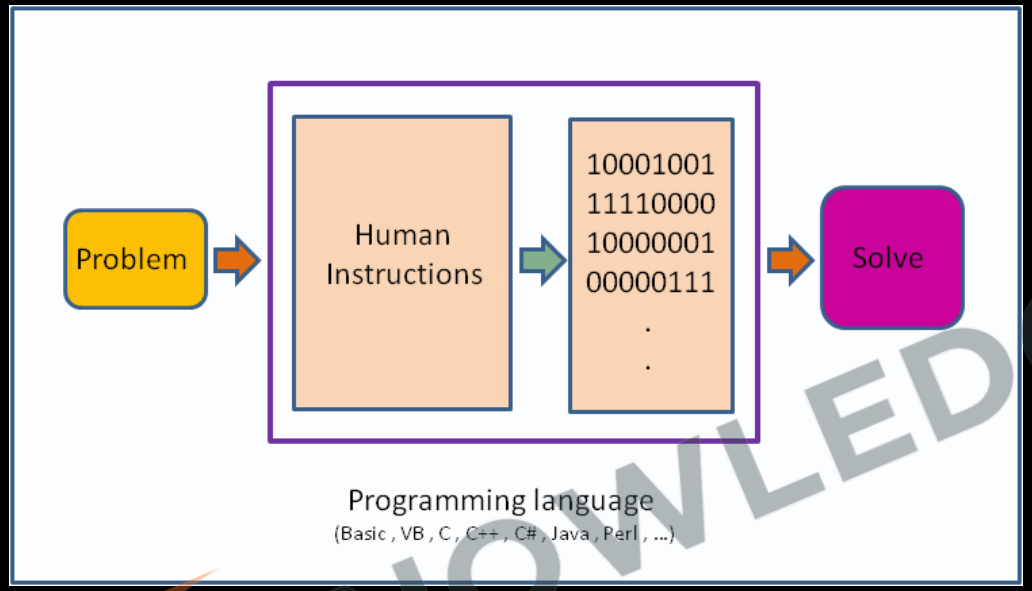
1. Change HTML
2. Change CSS
3. Perform Actions

3. Chrome Extensions



1. Create Features: Add new functionalities to Chrome.
2. Interact with Web: Modify or read webpage content.
3. API Access: Use Chrome's built-in functions.
4. User Experience: Enhance or customize browsing.

4. What is a Programming Language?



- Giving instructions to a computer
- **Instructions**: Tells computer what to do.
- These instructions are called code.

5. What is a Syntax?

- Structure of words in a sentence.
- Rules of the language.
- For programming exact syntax must be followed.

```
> alert 'hello world'
✕ Uncaught SyntaxError: Unexpected string
> |
```

6. FrontEnd / BackEnd / FullStack

Client Side / Front-End
Web Development

Server Side
Back-End

M E R N

Full Stack

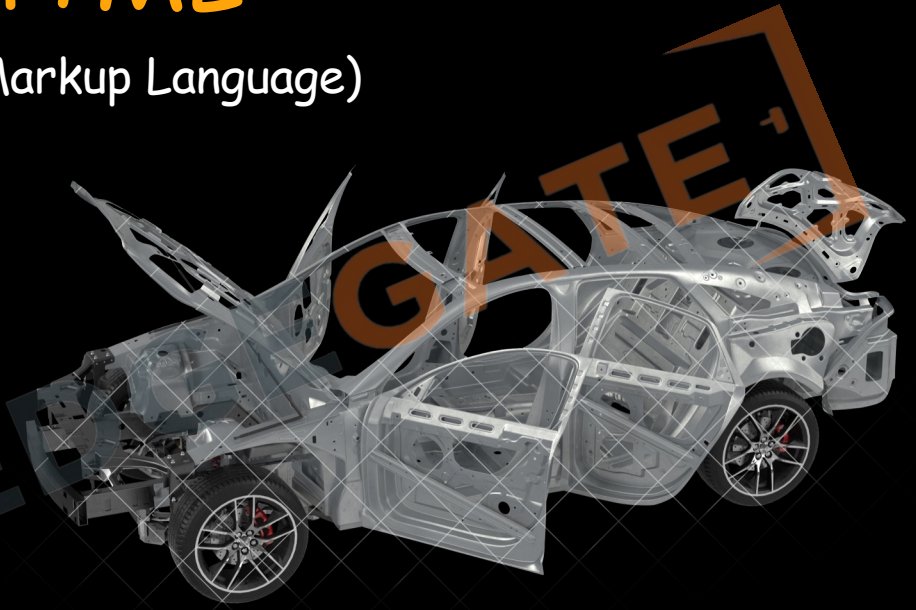
6. Role of Browser

1. Displays Web Page: Turns HTML code into what you see on screen.
2. User Clicks: Helps you interact with the web page.
3. Updates Content: Allows changes to the page using JavaScript.
4. Loads Files: Gets HTML, images, etc., from the server.

6. HTML

(Hypertext Markup Language)

1. Structure: Sets up the layout.
2. Content: Adds text, images, links.
3. Tags: Uses elements like <p>, <a>.
4. Hierarchy: Organizes elements in a tree.



HTML is required for JavaScript

6. CSS

(Cascading Style Sheets)

1. Style: Sets the look and feel.
2. Colors & Fonts: Customizes text and background.
3. Layout: Controls position and size.
4. Selectors: Targets specific HTML elements.

CSS is required for JavaScript

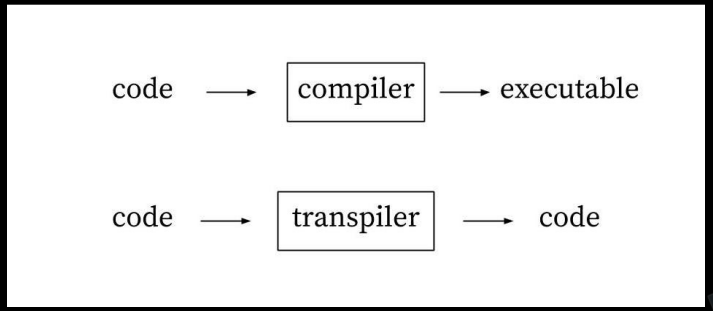
6. JS

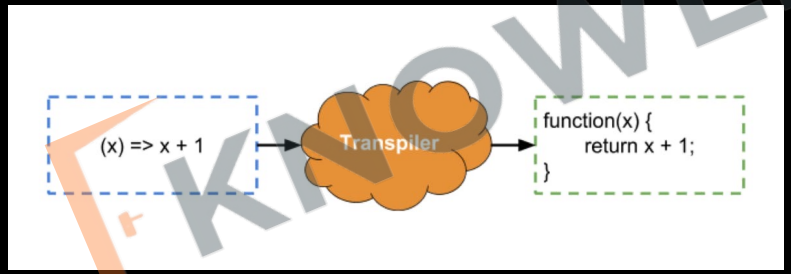
(Java Script)

1. JavaScript has nothing to do with Java
2. Actions: Enables interactivity.
3. Updates: Alters page without reloading.
4. Events: Responds to user actions.
5. Data: Fetches and sends info to server.

6. JS

(Java Script)





1. JavaScript runs at the client side in the browser.
2. Coffee Script / TypeScript are transpiled to JavaScript.

Introduction Revision

1. JS in Console
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Practice Exercise

Introduction

1. Use an alert to display Good Morning.
2. Display your name in a popup.
3. Using Math calculate the following:
   => 75-25
   => 3+3-5
4. Change Facebook page to display “I am Learning JS”

KG Coding

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Numbers & Strings

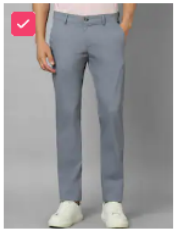
7. Arithmetic Operators
8. Order of Operations
9. Types of Numbers (Integers & Floats)
10. Don't learn syntax.
11. Strings
12. TypeOf Operator

7. Arithmetic Operators

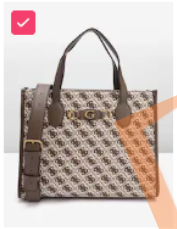
Operators	Meaning	Example	Result
+	Addition	4+2	6
-	Subtraction	4-2	2
*	Multiplication	4*2	8
/	Division	4/2	2
%	Modulus operator to get remainder in integer division	5%2	1

MYNTRA Cart

2/2 ITEMS SELECTED | REMOVE | MOVE TO WISHLIST



Allen Solly
Men Textured Slim Fit Mid-Rise Trousers
Sold by: Westbury Holdings Pvt Ltd_Madura
Size: 32 | Qty: 1
₹ 1,474 ~~₹2,499~~ 41% OFF
Coupon Discount: ₹29
14 days return available
Delivery by **8 Oct 2023**



GUESS
Brand Logo Woven Design Structured Handheld Bag
Sold by: Supercom Net
Size: Onesize | Qty: 1 | 9 left
₹14,039 ~~₹15,599~~ 10% OFF
Coupon Discount: ₹272
7 days return available
Delivery by **3 Oct 2023**

COUPONS
1 Coupon applied
You saved additional ₹301
EDIT

GIFTING & PERSONALISATION
Yay! Gift Wrapping applied
Your order will be gift wrapped with your personalised message
REMOVE | EDIT MESSAGE

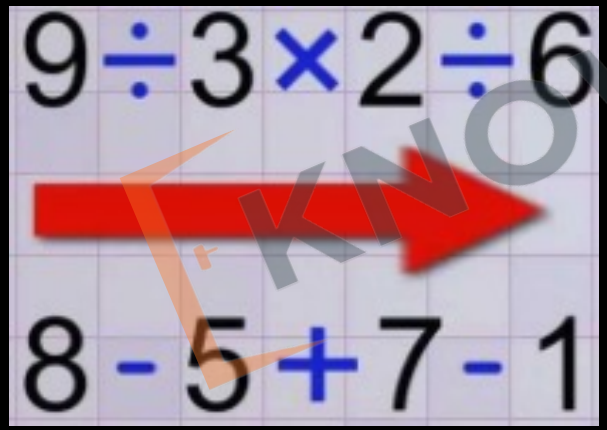
PRICE DETAILS (2 Items)

Total MRP	₹18,098
Discount on MRP	-₹2,585
Coupon Discount	-₹301
Gift Wrap Charges	₹25
Convenience Fee Know More	₹20
Total Amount	**₹15,257**

PLACE ORDER

8. Order of Operations

B	O	D	M	A	S
Bracket	Order	Divide	Multiply	Add	Subtract
( )	$\sqrt{x}$ x^2	÷ or x	+ or -		
Parentheses	Exponents	Multiply	Divide	Add	Subtract
P	E	M	D	A	S



MYNTRA Cart

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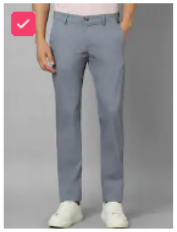

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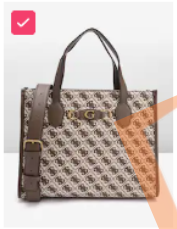

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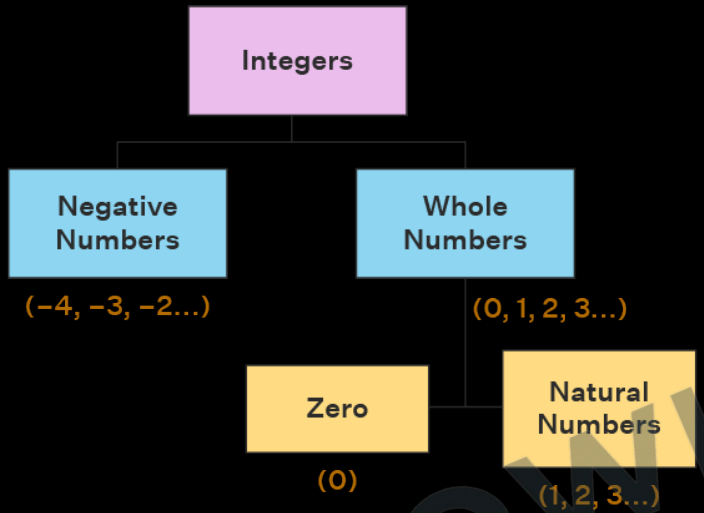
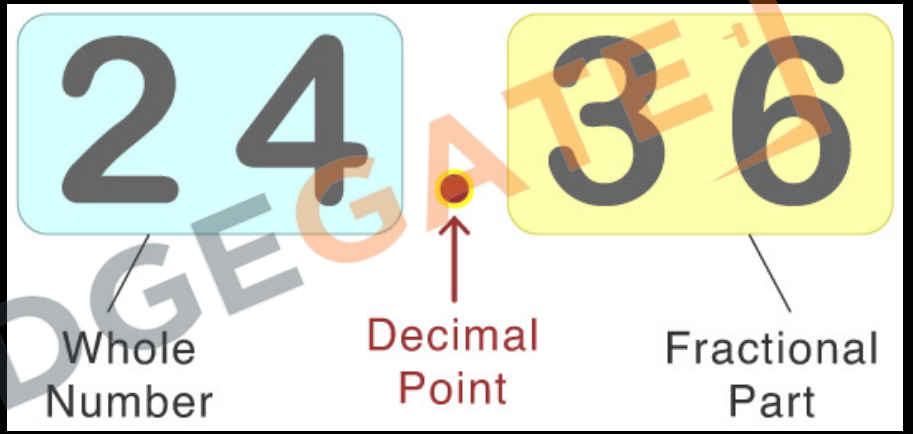
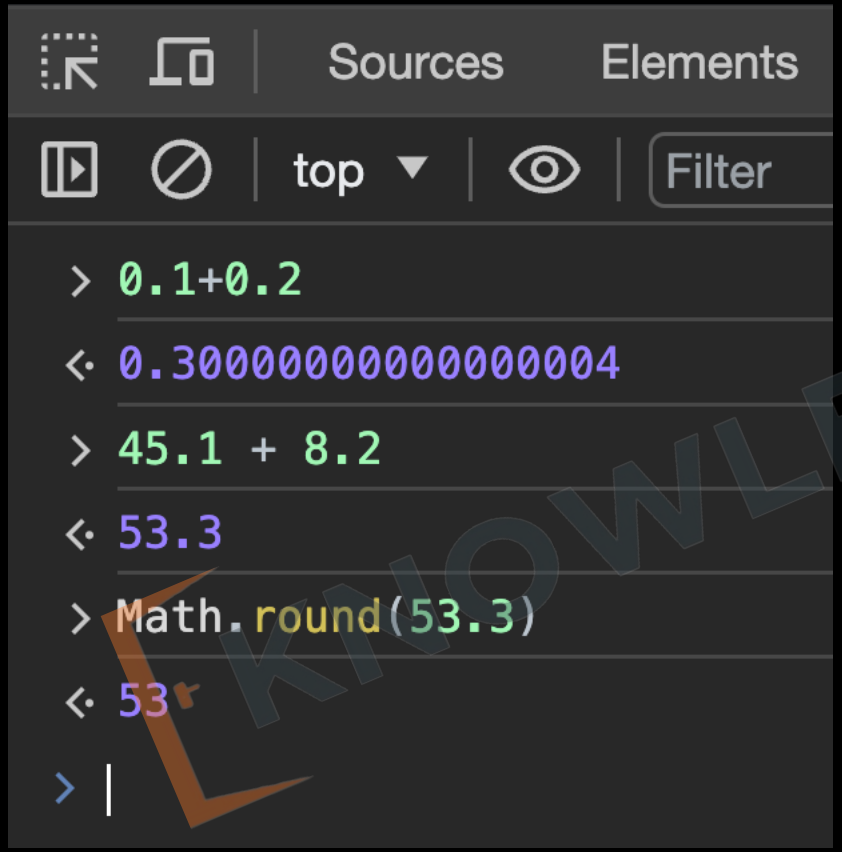
PLACE ORDER

9. Types of Numbers (Integers & Floats)





9. Types of Numbers (Float Problems)

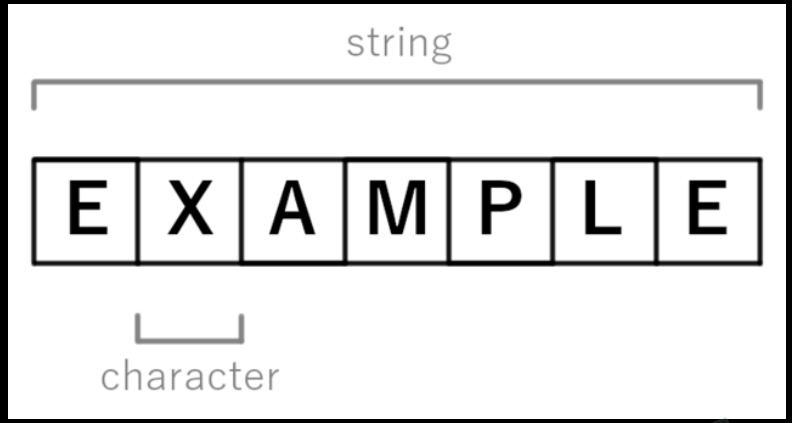


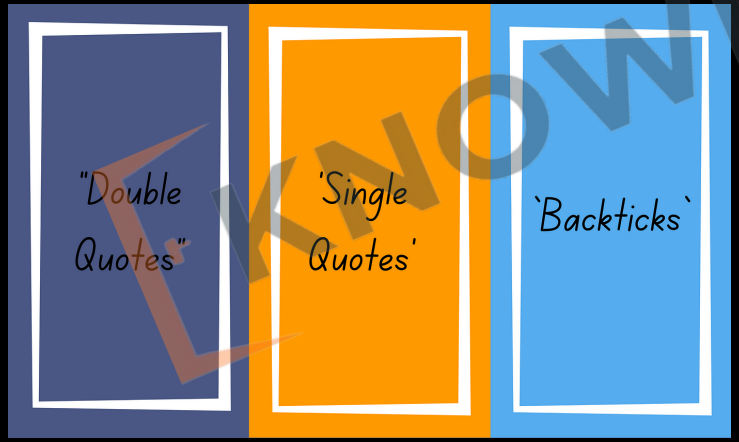
1. JavaScript has many problems with float operations.
2. We can use Math.round() to convert floats to integers.
3. Always do money calculation in Paisa instead of Rupees

10. Don't learn syntax.

1. Google: Quick answers to coding problems.
2. MDN: In-depth guides and documentation. https://developer.mozilla.org/
3. ChatGPT: Real-time assistance for coding queries.
4. Focus: Understand concepts, not just syntax.

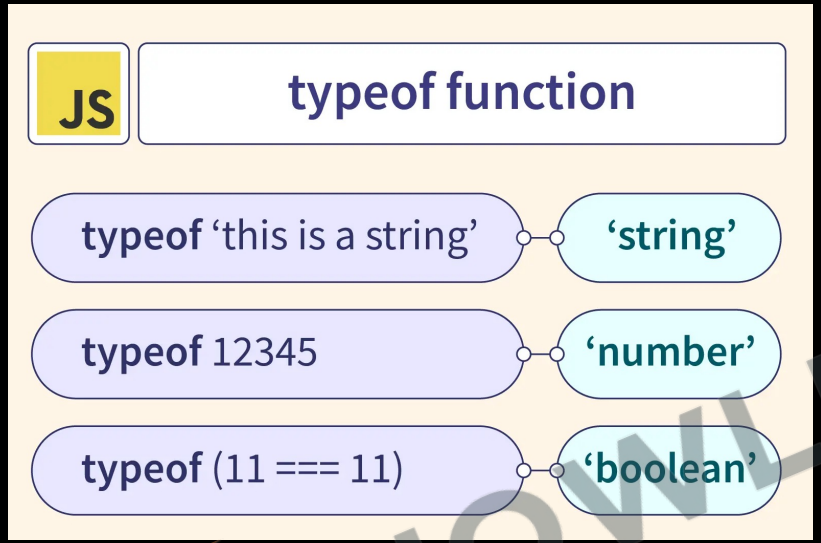
11. Strings





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.

Numbers & Strings
Revision

7. Arithmetic Operators
8. Order of Operations
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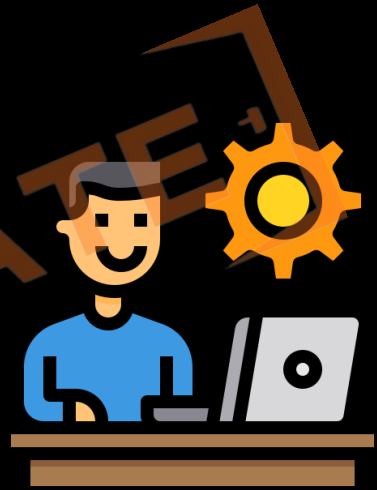
Practice Exercise

Numbers & Strings



1. At a restaurant you ate: 1 Dal ₹ 100, 2 Roti ₹10 each, 1 Ice Cream ₹30, calculate and display the final bill amount.
2. Calculate 18% GST on iPhone15 ₹79,990 and 2 Air pods Pro ₹24990 each.
3. Create strings using all 3 methods.
4. Concatenate String with Strings, and String with numbers.
5. Create Order Summary String for our Myntra Cart.
6. Display order summary in a popup

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JavaScript With HTML & CSS

13. VS Code IDE
14. HTML Tags Introduction
15. CSS Introduction
16. Query Selector
17. Script Tag
18. Comments

13. What is IDE

1. IDE stands for Integrated Development Environment.
2. Software suite that consolidates basic tools required for software development.
3. Central hub for coding, finding problems, and testing.
4. Designed to improve developer efficiency.

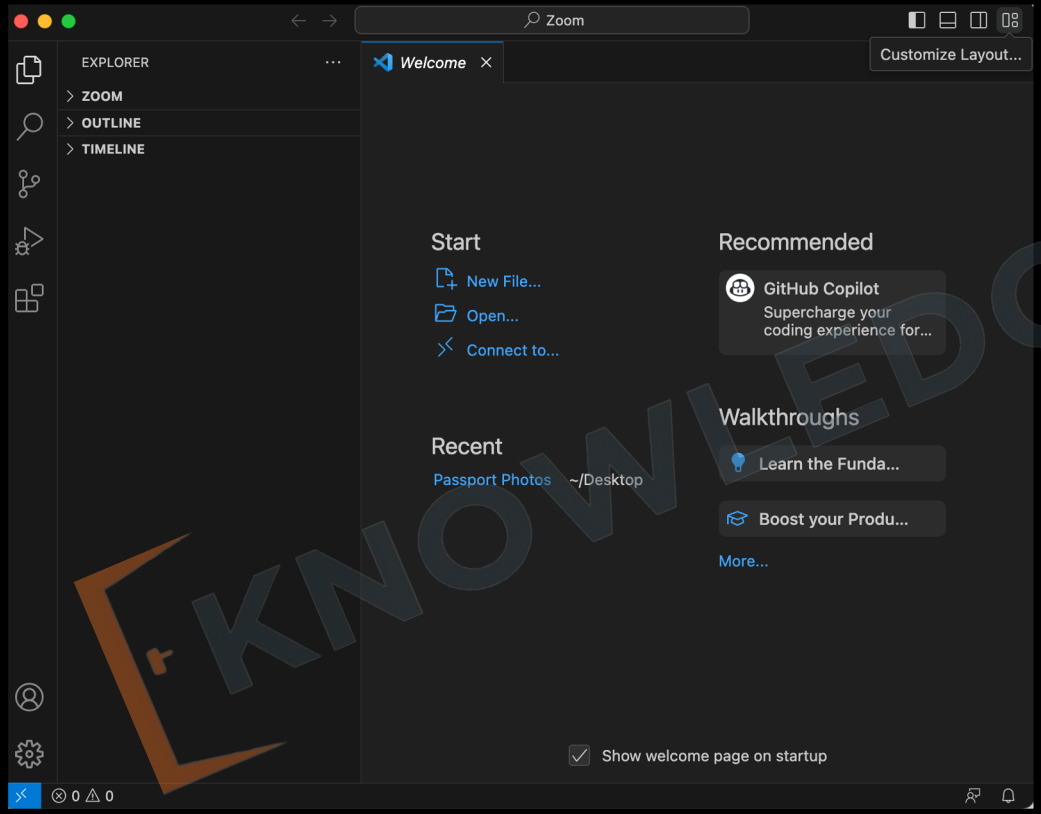
13. Need of IDE

1. Streamlines development.
2. Increases productivity.
3. Simplifies complex tasks.
4. Offers a unified workspace.
5. IDE Features
    1. Code Autocomplete
    2. Syntax Highlighting
    3. Version Control
    4. Error Checking

13. Installation & Setup

1. Search VS Code
2. Keep Your Software up to date

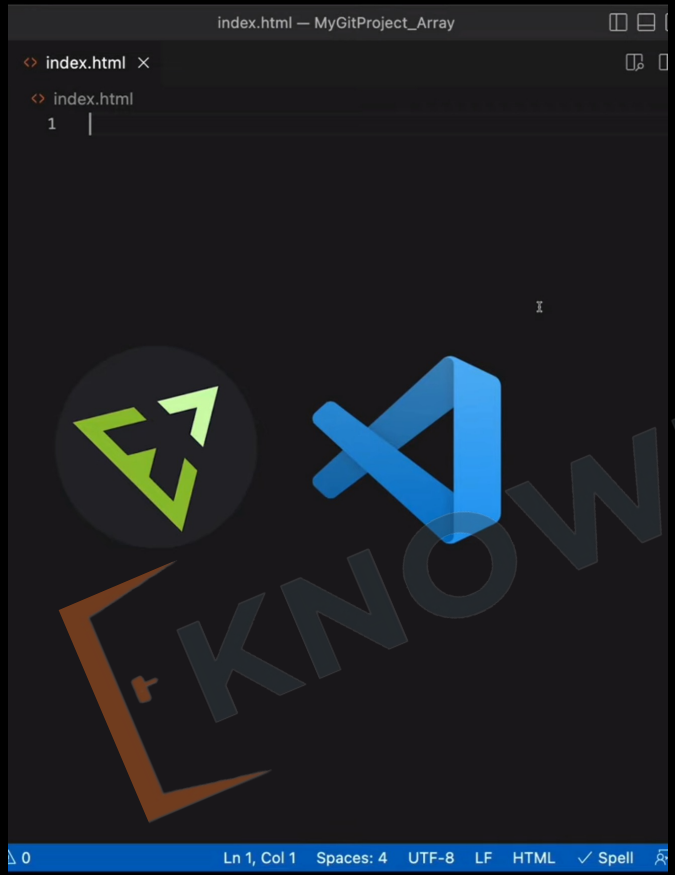
13. Opening project in VsCode



13. VsCode Extensions and Settings

1. Live Server
2. Prettier
3. Line Wrap
4. Tab Size from 4 to 2

13. Using Emmet ! to generate code

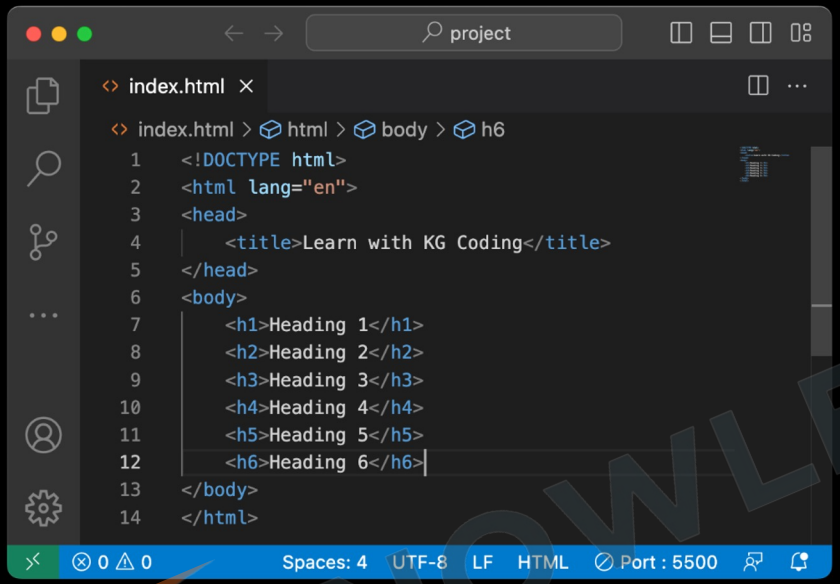


1. Type ! and wait for suggestions.

14 HTML Tags Introduction

1. Elements that are used to create a website are called HTML Tags.
2. Tags can contain content or other HTML tags.
3. Define elements like text, images, links

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

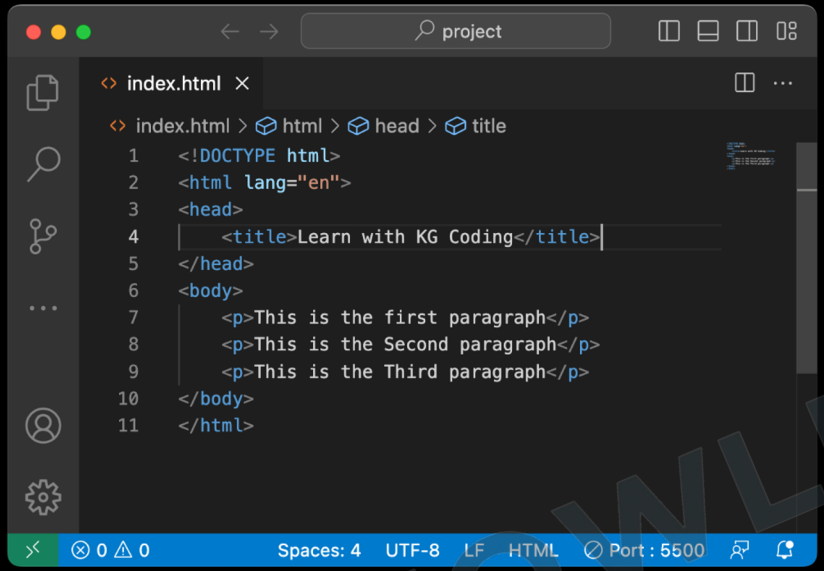
14 Button tag

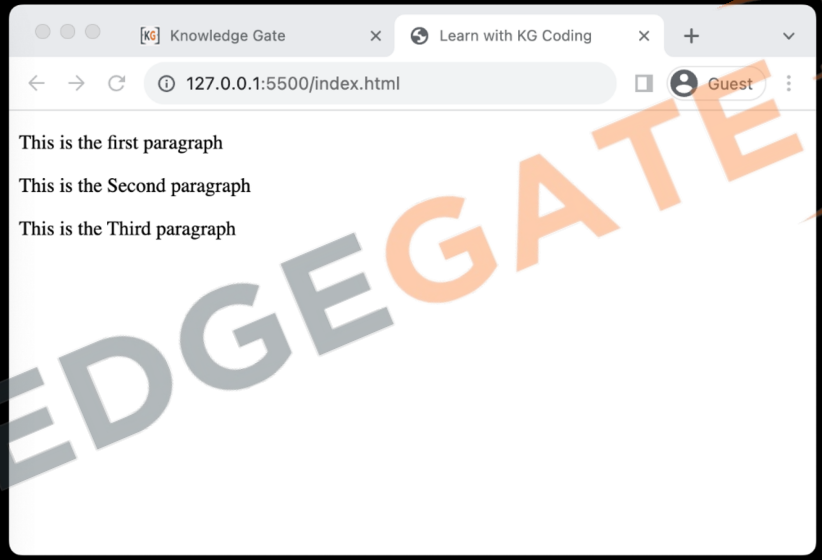
Button.html — testing

Button.html

```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>
```

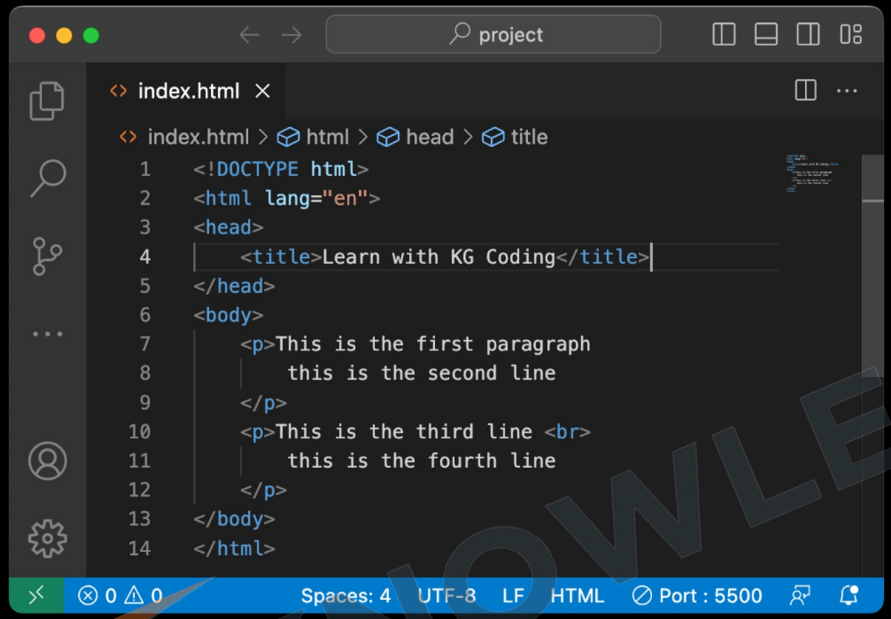
14 Paragraph Tag

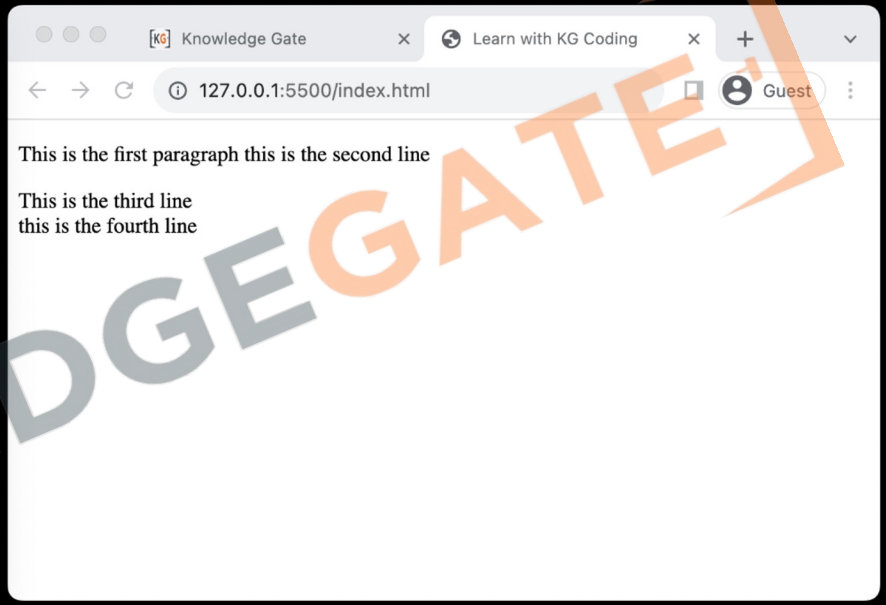




1. Used for defining paragraphs
2. Enclosed within and tags
3. Adds automatic spacing before and after
4. Text wraps to next line inside tag
5. Common in text-heavy content

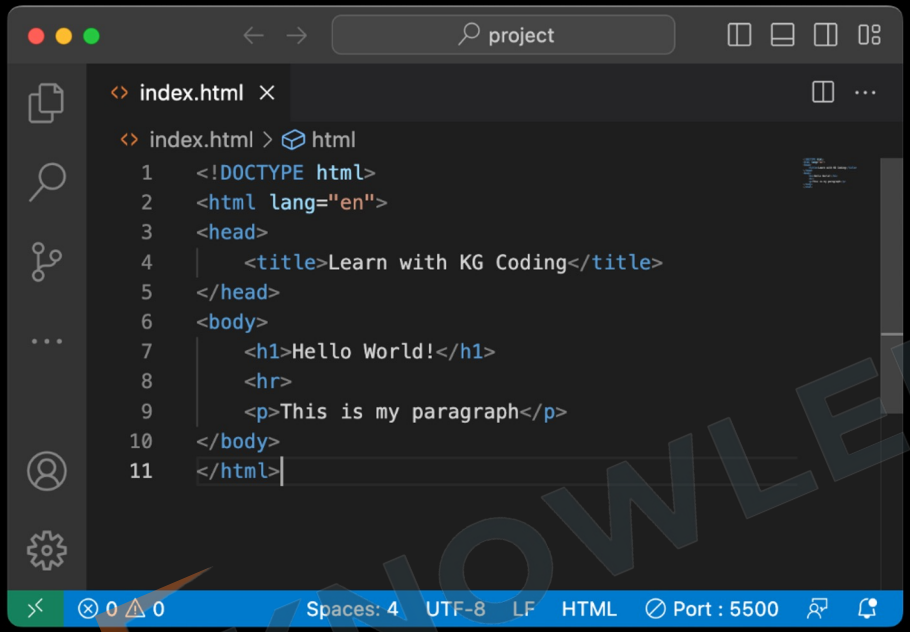
14
 Tag

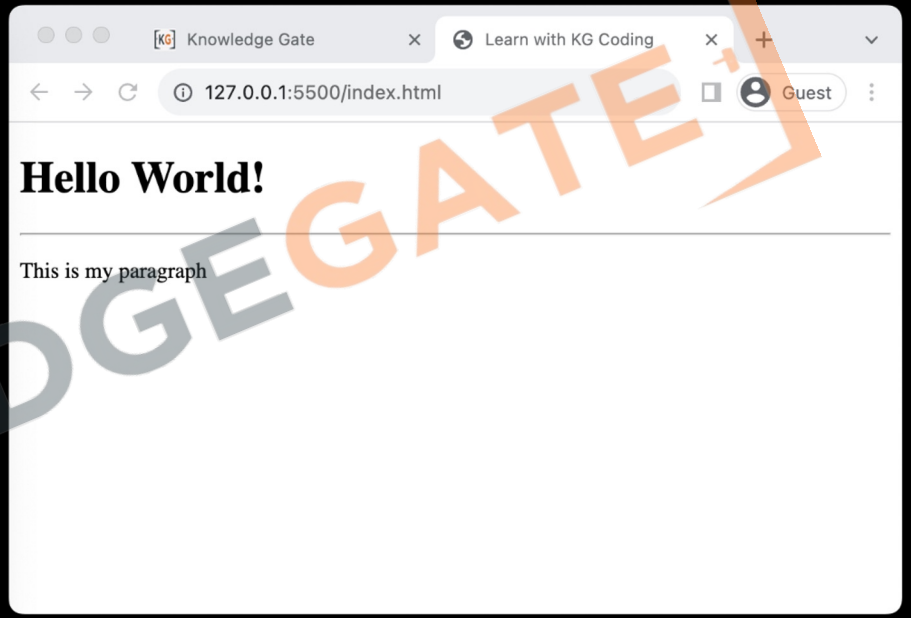




1.
 adds a line break within text
2.
 is empty, no closing tag needed
3.
 and
 are both valid

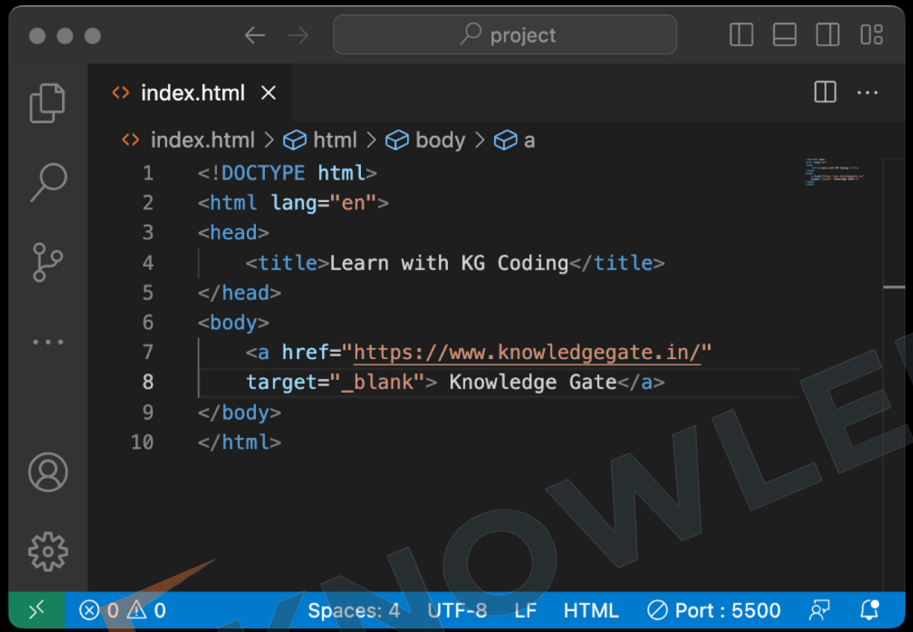
14 <HR> Tag

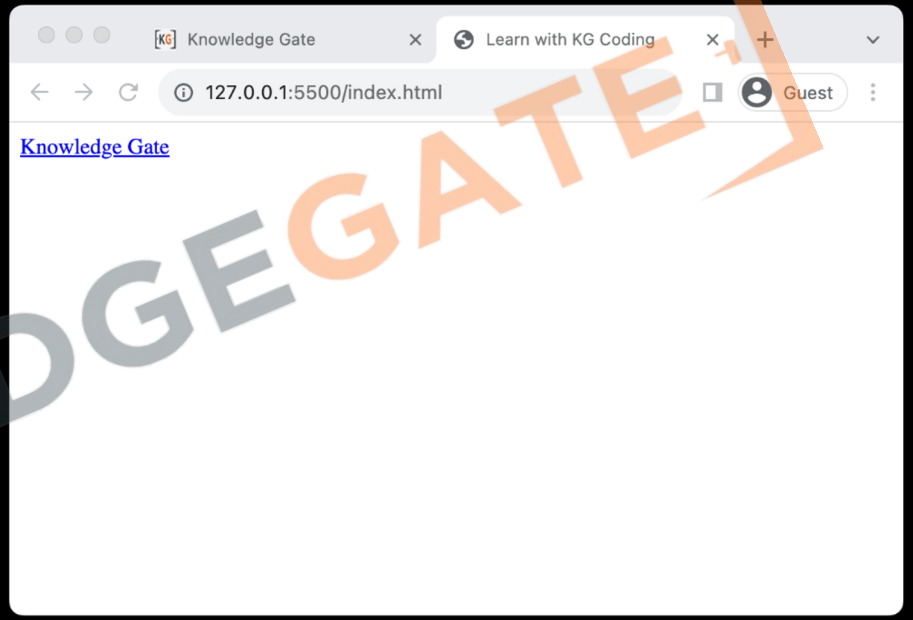




1. <hr> creates a horizontal rule or line
2. <hr> also empty, acts as a divider

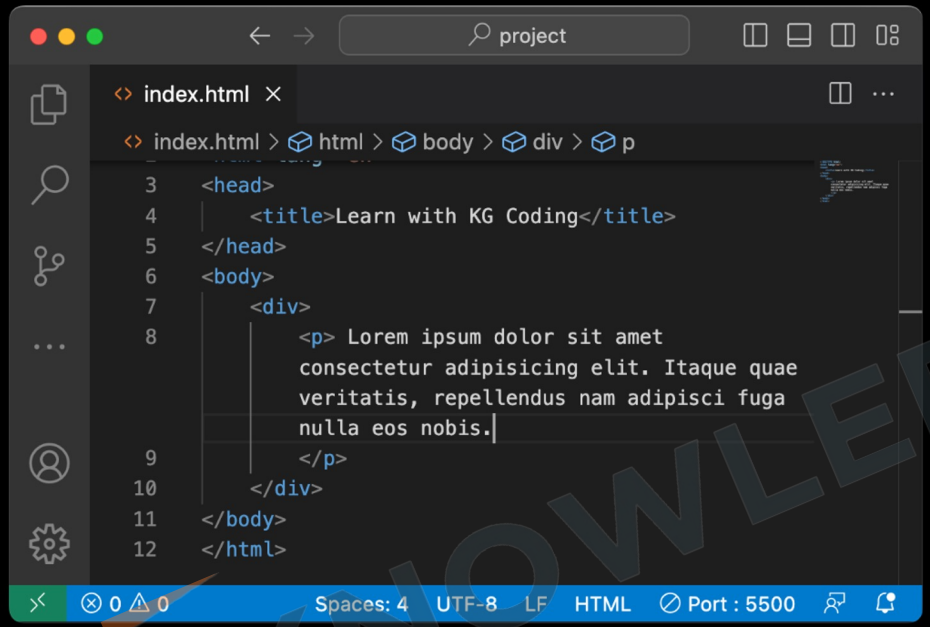
14 Anchor Tag

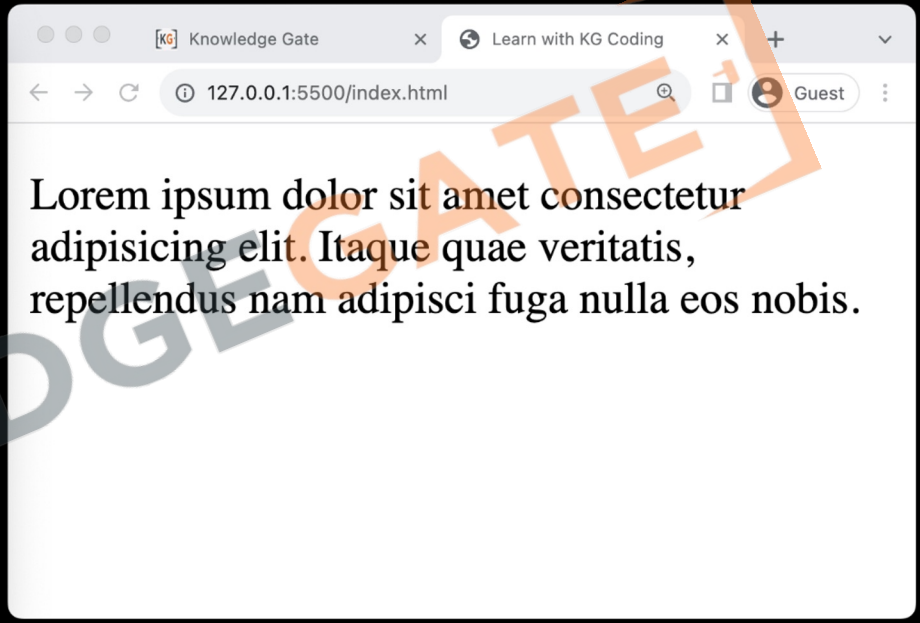




1. Used for creating hyperlinks
2. Requires href attribute for URL
3. Can link to external sites or internal pages
4. Supports target attribute to control link behavior

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

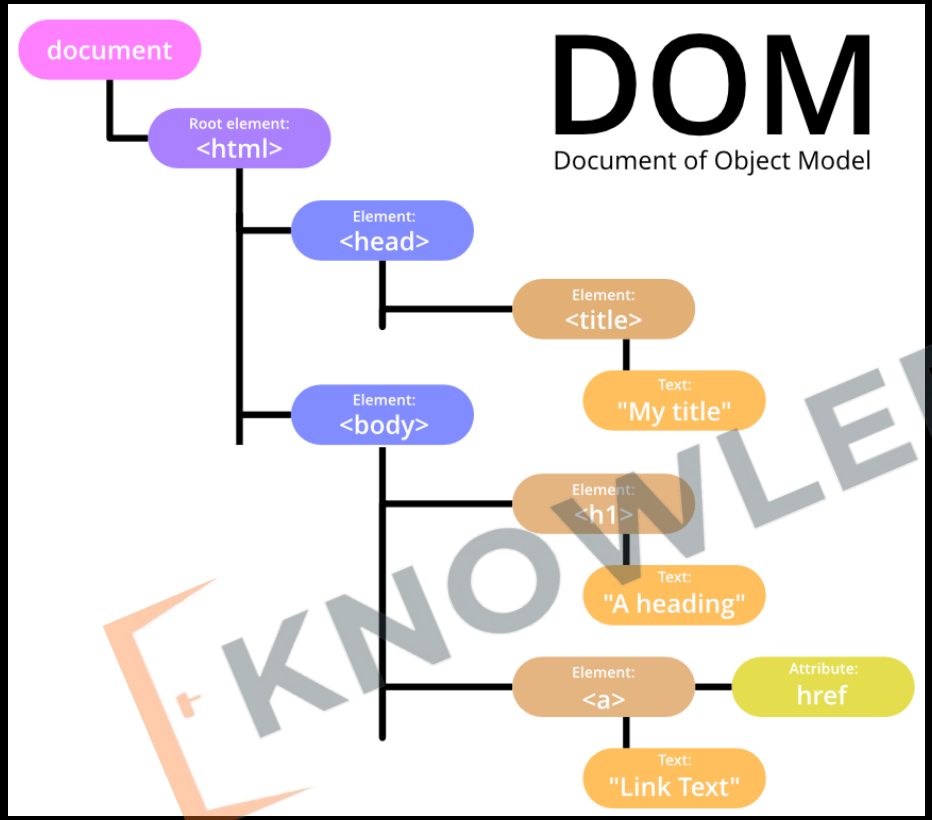
Parent of meta data tags

Title of the web page

Parent of content tags

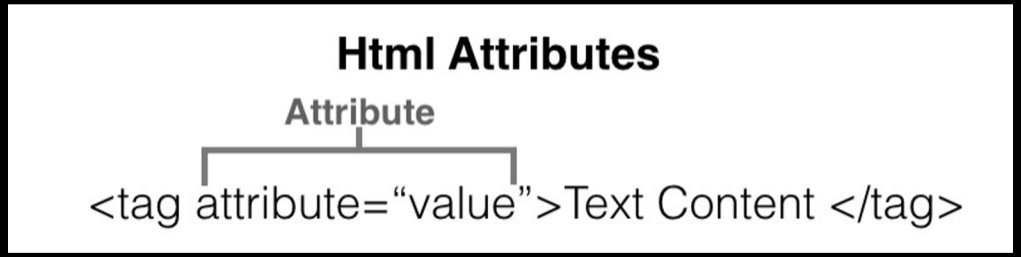
Heading tag

14 HTML DOM



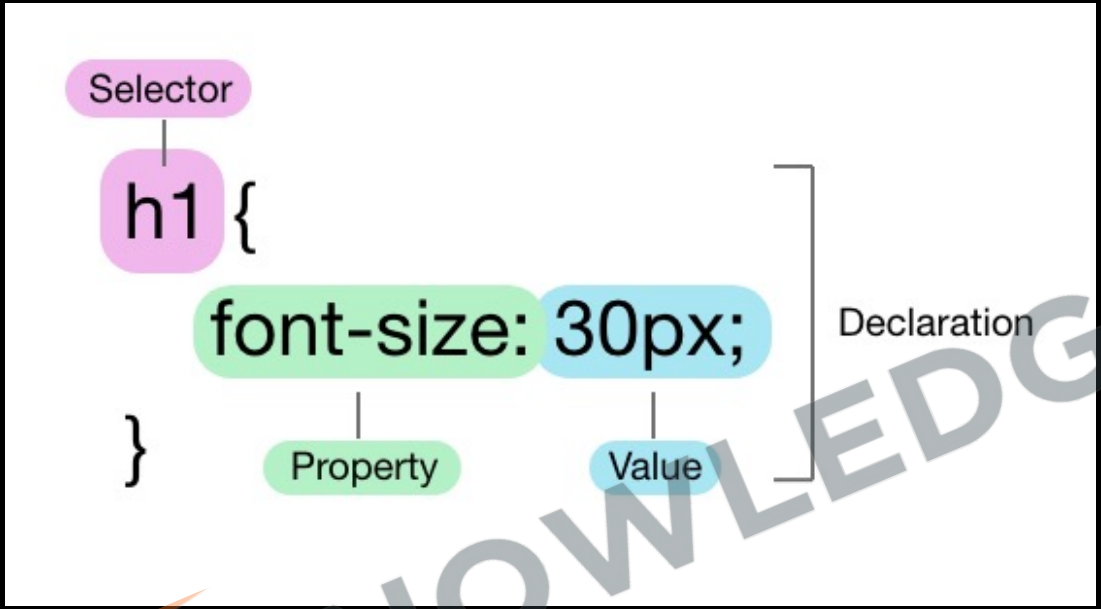
1. **Structure Understanding:** Helps in understanding the **hierarchical structure** of a webpage, crucial for applying targeted CSS styles.
2. **Dynamic Styling:** Enables learning about dynamic styling, allowing for **real-time changes** and interactivity through CSS.

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

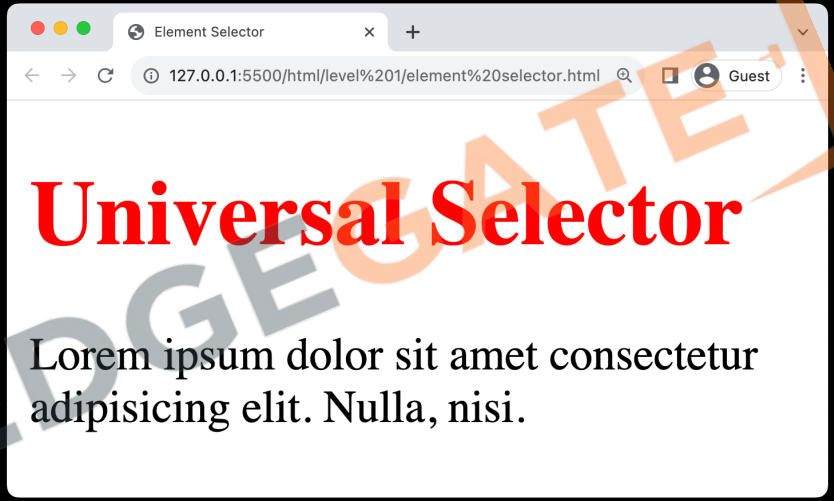
15 CSS (Basic Syntax)



- **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)

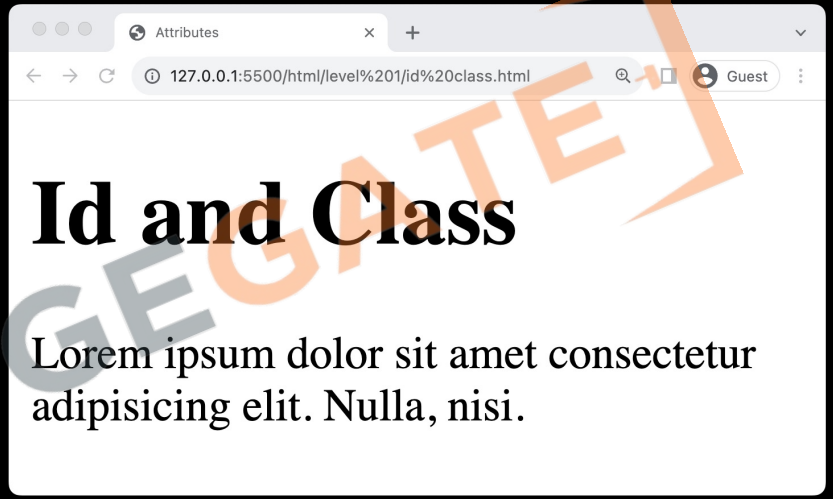
```
3   <head>
4       <title>Element Selector</title>
5       <style>
6           h1 {
7               color: red
8           }
9       </style>
10  </head>
11  <body>
12      <h1>Universal Selector</h1>
13      <p>Lorem ipsum dolor sit amet consectetur
        adipisicing elit. Nulla, nisi.</p>
14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

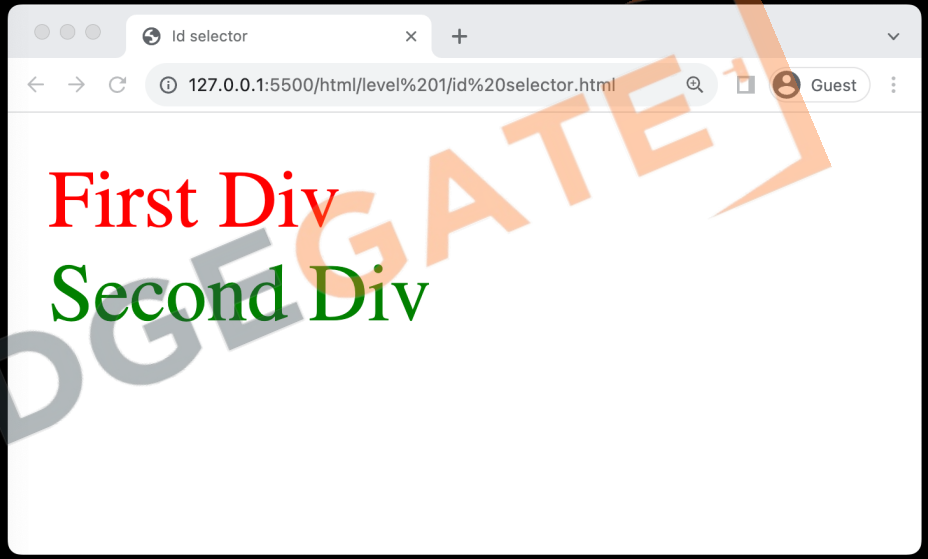
```html
<!DOCTYPE html>
<html lang="en">
<head>
    <title>Attributes</title>
</head>
<body>
    <h1 id="top_heading">Id and Class</h1>
    <p class="article">Lorem ipsum dolor sit amet consectetur adipisicing elit. Nulla, nisi.</p>
</body>
</html>
```



- **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)

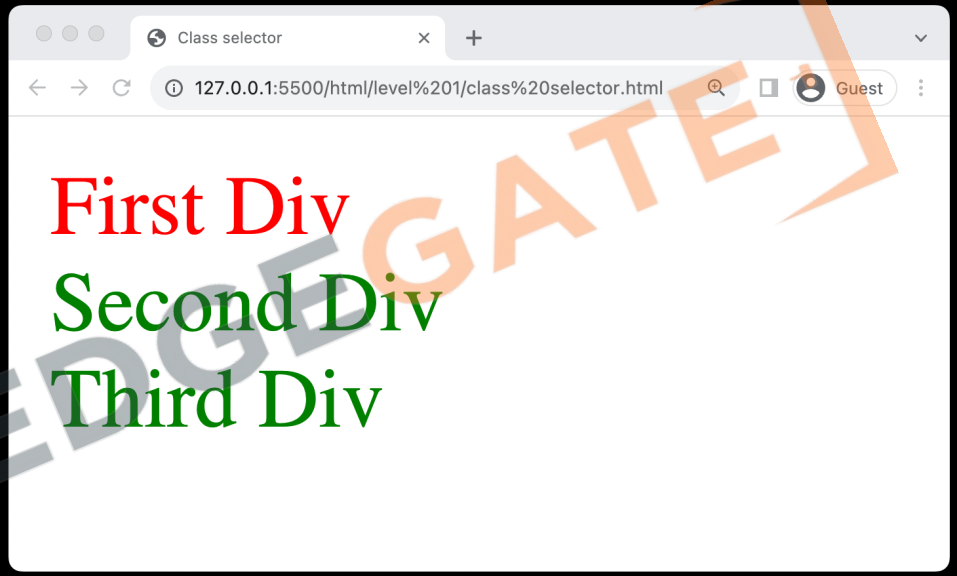
```
3   <head>
4       <title>Id selector</title>
5       <style>
6           #first { color: red; }
7           #second { color: green; }
8       </style>
9   </head>
10  <body>
11      <div id="first">First Div</div>
12      <div id="second">Second Div</div>
13  </body>
```



- **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>
```

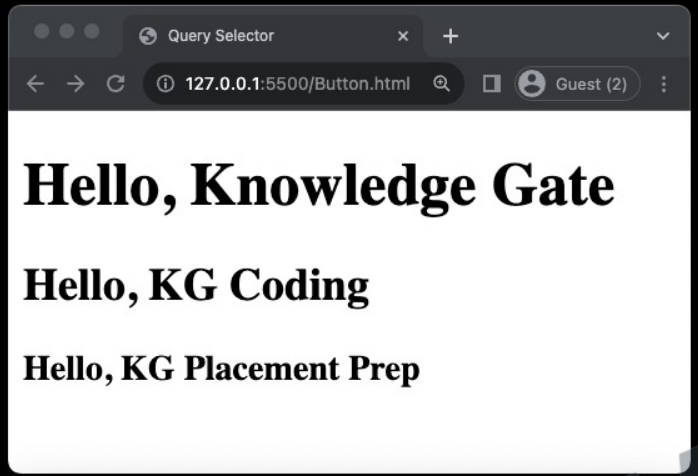


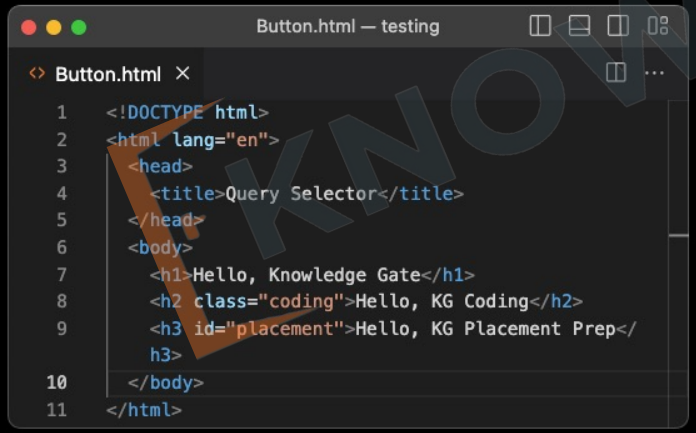
- **Group Styling**: Allows styling of multiple elements grouped under a class.
- **Syntax**: Utilizes the dot (.) symbol.
- **Reusable**: Can be used on multiple elements for consistent styling.
- **Versatility**: Ideal for applying styles to a category of elements.

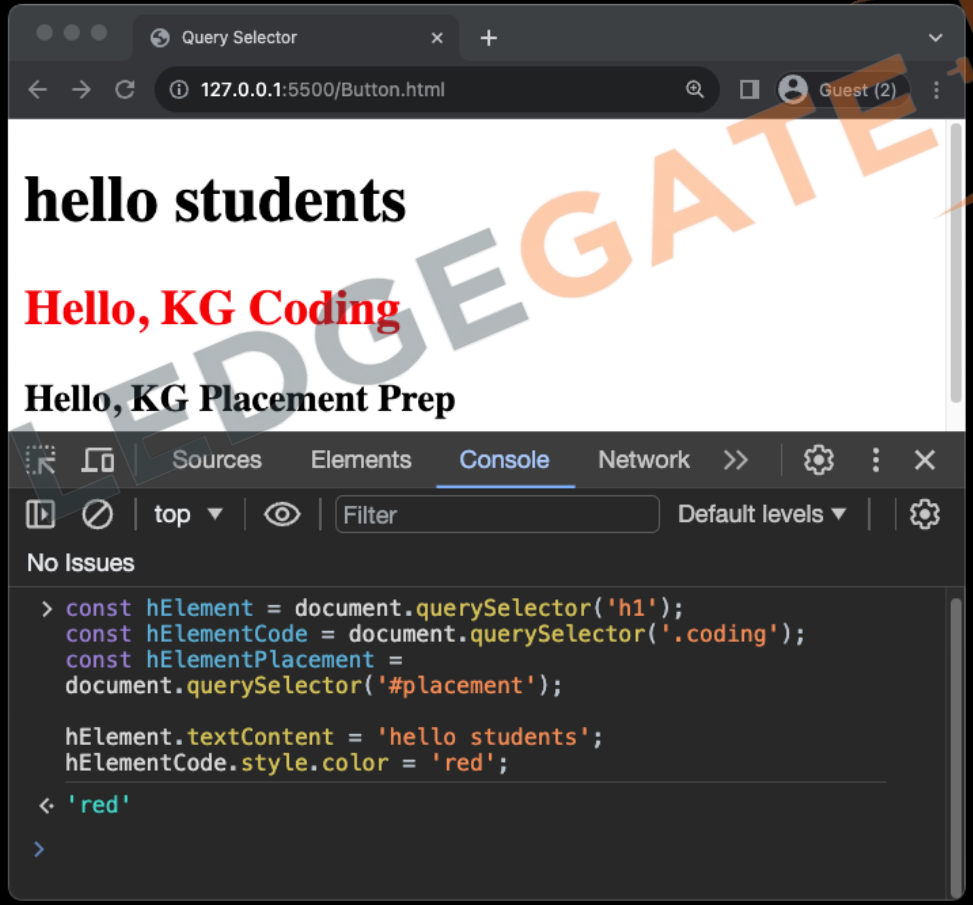
16 Query Selector

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





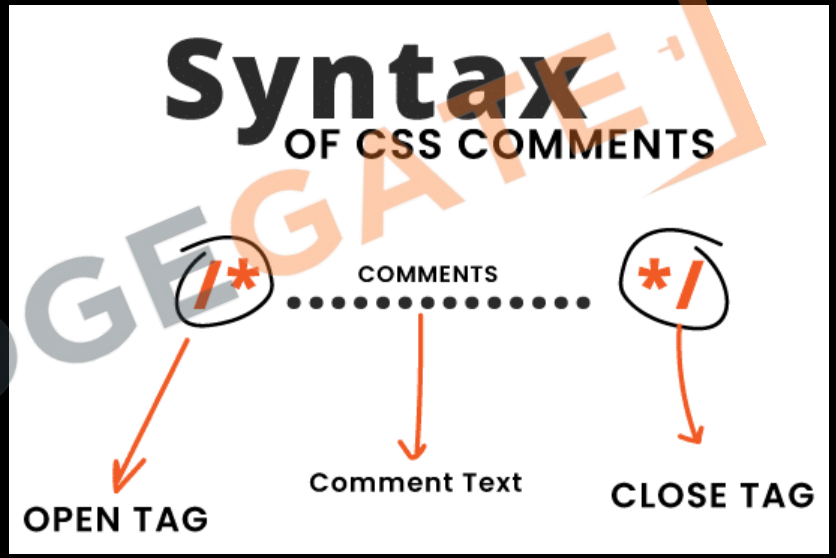


17 Script Tag

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

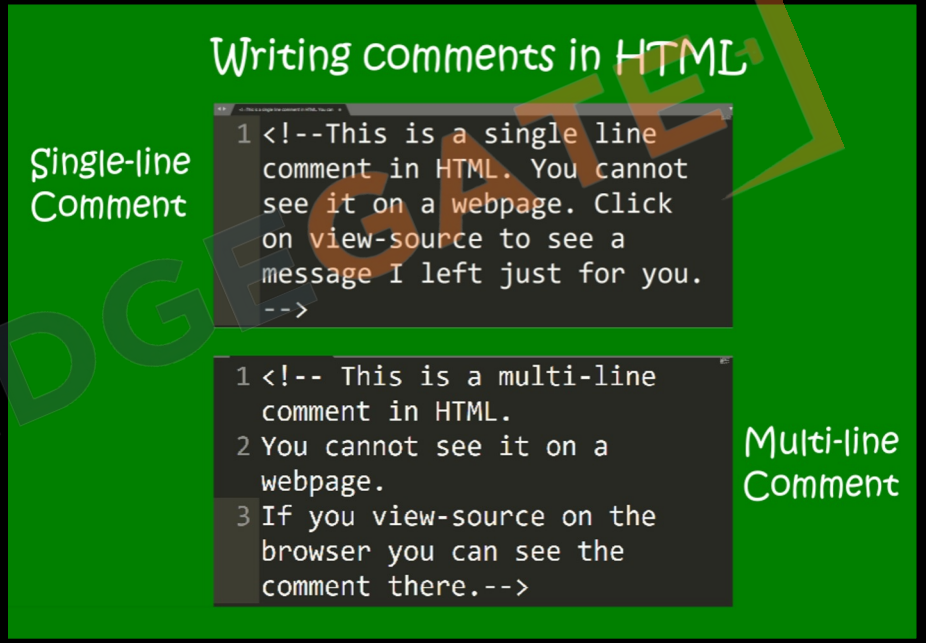
18 JavaScript & CSS Comments

1. Used to add notes in source code in JavaScript or CSS.
2. Not displayed on the web page
3. Syntax: /* comment here */
4. Helpful for code organization
5. Can be multi-line or single-line



18 HTML Comments

1. Used to add notes in HTML code
2. Not displayed on the web page
3. Syntax: <!-- Comment here -->
4. Helpful for code organization
5. Can be multi-line or single-line



JavaScript With HTML & CSS Revision

13. VS Code IDE
14. HTML Tags Introduction
15. CSS Introduction
16. Query Selector
17. Script Tag
18. Comments

Practice Exercise

JavaScript With HTML & CSS

1. Create a button with text click
2. Create 2 buttons with class and id
3. Create a paragraph
4. Add colors to two buttons
5. Add proper html structure
6. Change page title
7. Try to copy the given design on the bottom

8. Add script element to page to show welcome alert
9. Add onclick alert on Add to Bag and ❤️ Wishlist buttons

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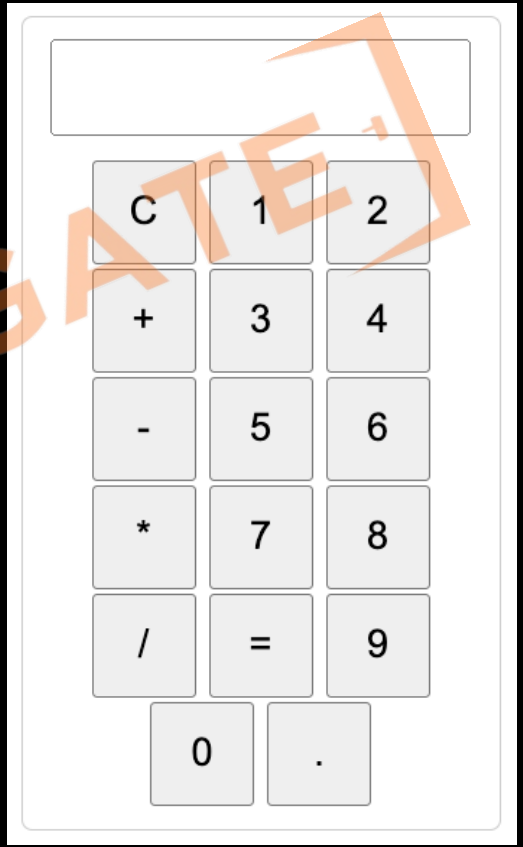
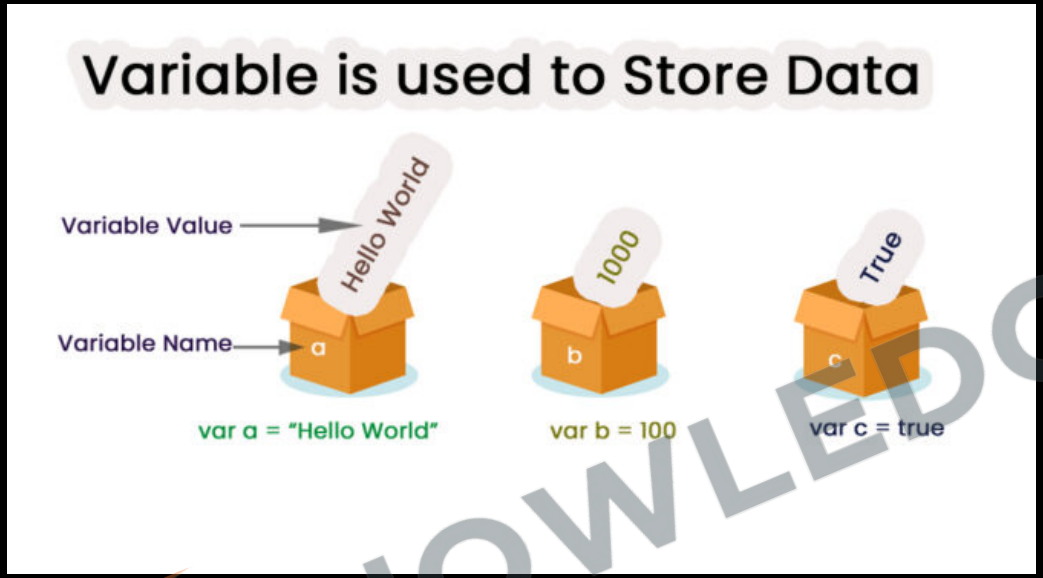
Variables

19. What are Variables
20. Syntax Rules
21. Updating Values
22. Myntra Bag Exercise
23. Naming Conventions
24. Ways to create Variables



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

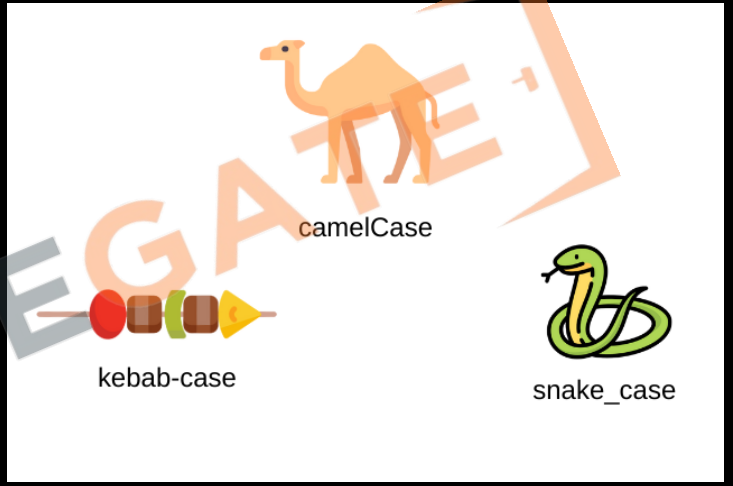
```
let noOfStudents = 5;
noOfStudents = noOfStudents + 1;

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:
   +=, -=, *=, /=, ++

22. Myntra Bag Exercise

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

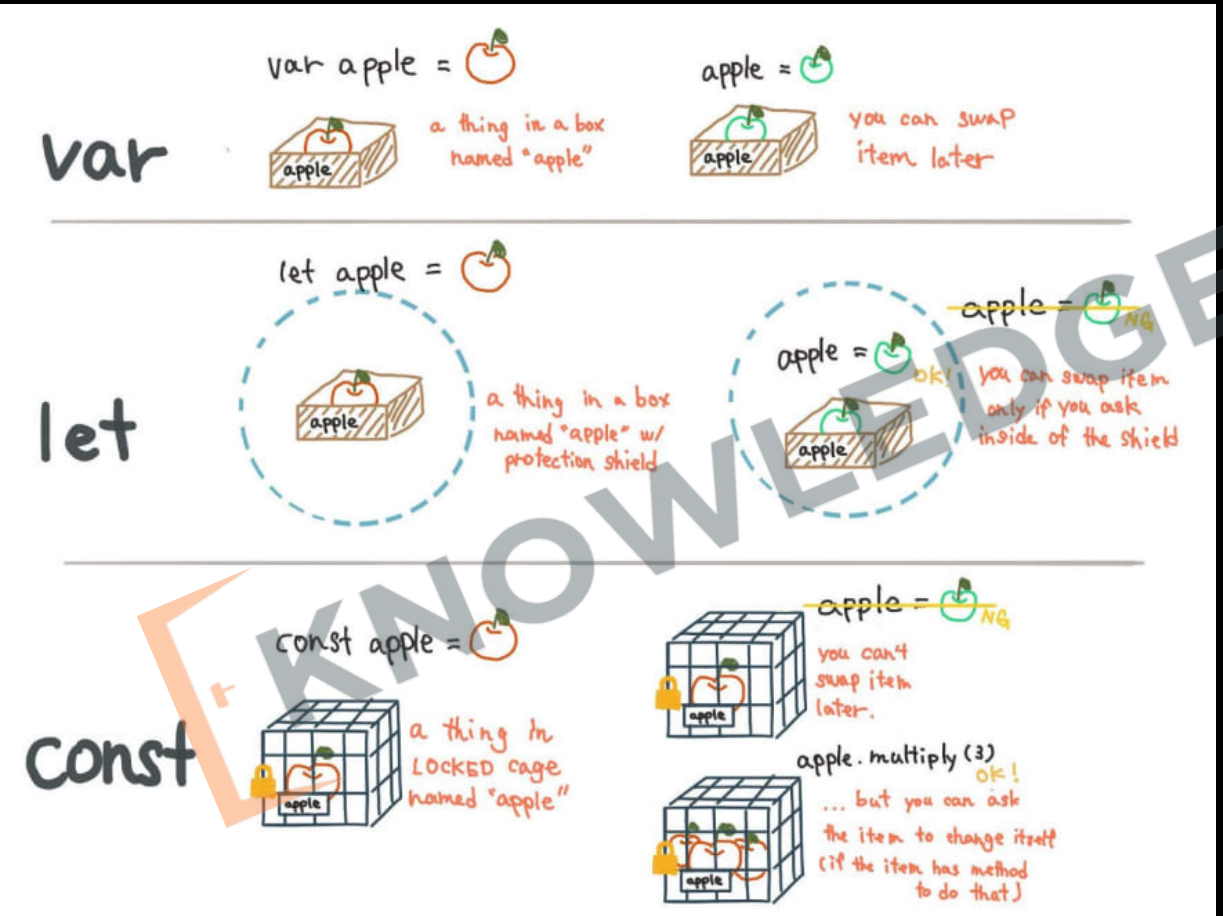
Kebab-case

- 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



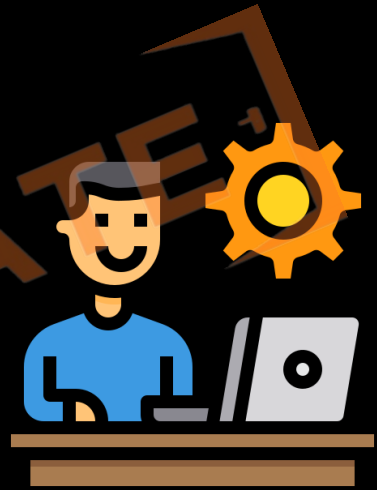
Variables Revision

19. What are Variables
20. Syntax Rules
21. Updating Values
22. Myntra Bag Exercise
23. Naming Conventions
24. Ways to create Variables

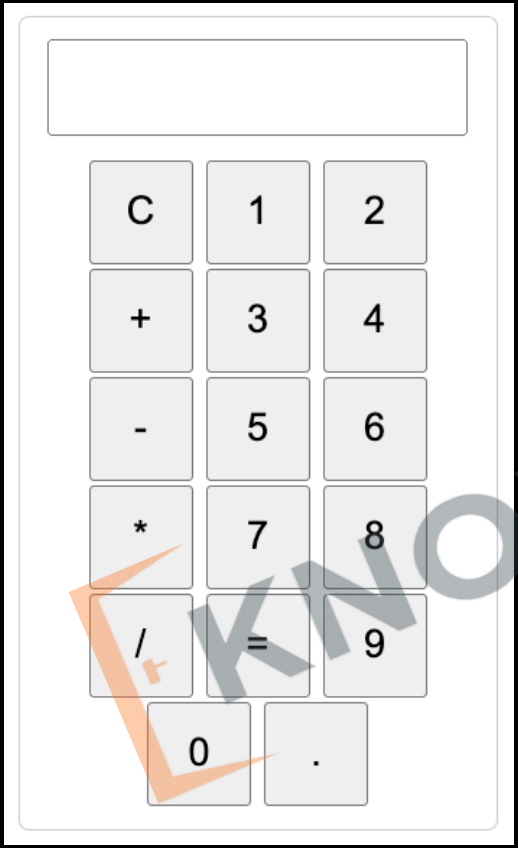
Practice Exercise

Variables

1. Save your name in a variable inside script tag
2. Display name from the variable on the page
3. Calculate the cost of Myntra Bag and keep it in a variable
4. Show it to console
5. Keep GST percentage as constant
6. Use eval method from math to convert string calculation into result



Project One: Calculator



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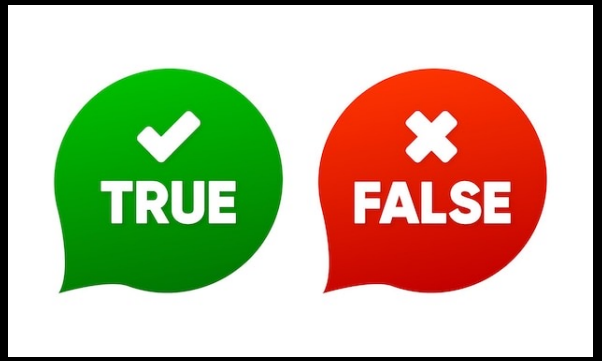
if-else & Boolean

25. What are Booleans
26. Comparison Operators
27. if-else
28. Logical Operator
29. Scope
30. Truthy and Falsy Values
31. If alternates

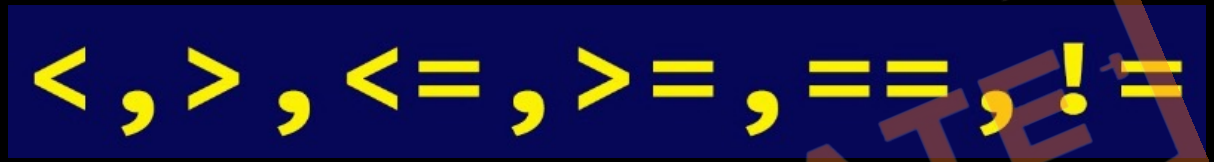
Create    Project

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.

Project Cricket Game

Defeats

Defeats

Defeats

Bat Ball Stump Game

Bat Ball Stump

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

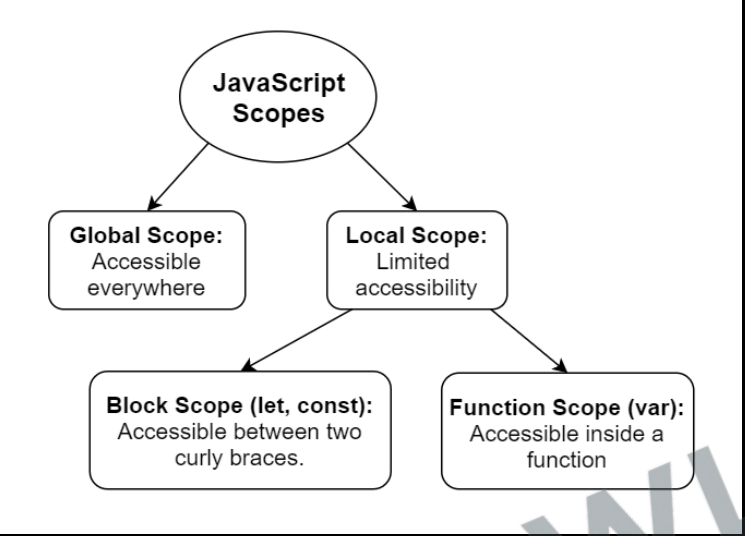
Project Cricket Game

Defeats

Defeats

Defeats

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.

Project Cricket Game

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Defeats

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.

if-else & Boolean

Revision

25. What are Booleans
26. Comparison Operators
27. if-else
28. Logical Operator
29. Scope
30. Truthy and Falsy Values
31. If alternates

Practice Exercise

if-else & Boolean

1. Give discount based on age, gender for metro ticket
   - Females get 50% off
   - Kids under 5 years of age are free
   - Kids up to 8 years have half ticket
   - People Over 65 years of age only pay 30% of the ticket
   - In case of multiple discounts max discount will apply.

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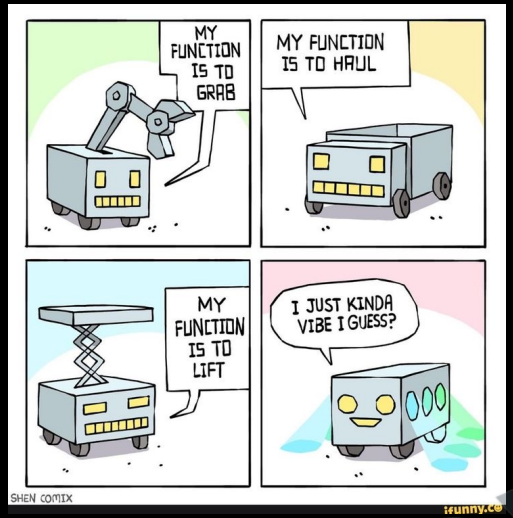
Functions

32. What are Functions
33. Function Syntax
34. Return statement
35. Function Parameters

Improve    Project

32. What are Functions?



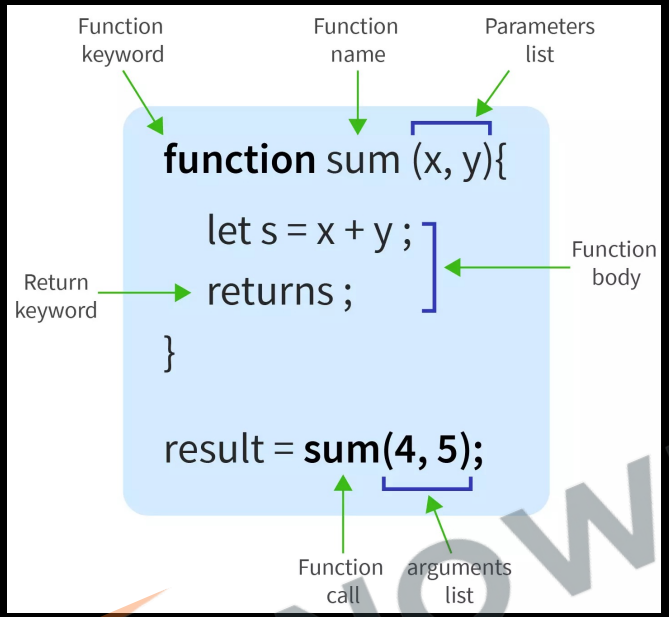

```
function greet(name) {
    // code
}

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.

Project Cricket Game

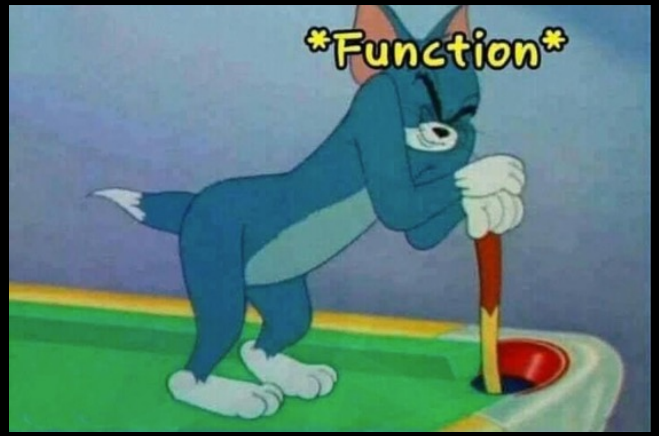
Defeats

Defeats

Defeats

Create Method for Random Number & Computer Choice

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.

Project Cricket Game

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Defeats

Defeats

User return instead of Global Variable

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.

Project Cricket Game

Defeats

Defeats

Defeats

Create method for comparing user choice & Showing Result alert

Functions

Revision

32. What are Functions
33. Function Syntax
34. Return statement
35. Function Parameters

Practice Exercise

Functions

1. Create a method to check if a number is odd or even.
2. Create a method to return larger of the two numbers.
3. Create Method to convert Celsius to Fahrenheit
   F = (9/5) * C + 32

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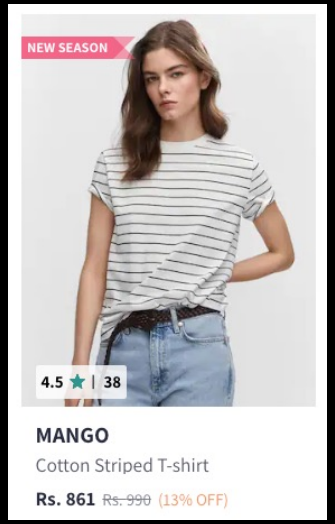
Objects

36. What is an Object
37. Objects Syntax
38. Accessing Objects
39. Inside Objects
40. Autoboxing
41. Object References
42. Object Shortcuts

Maintain score of    Project

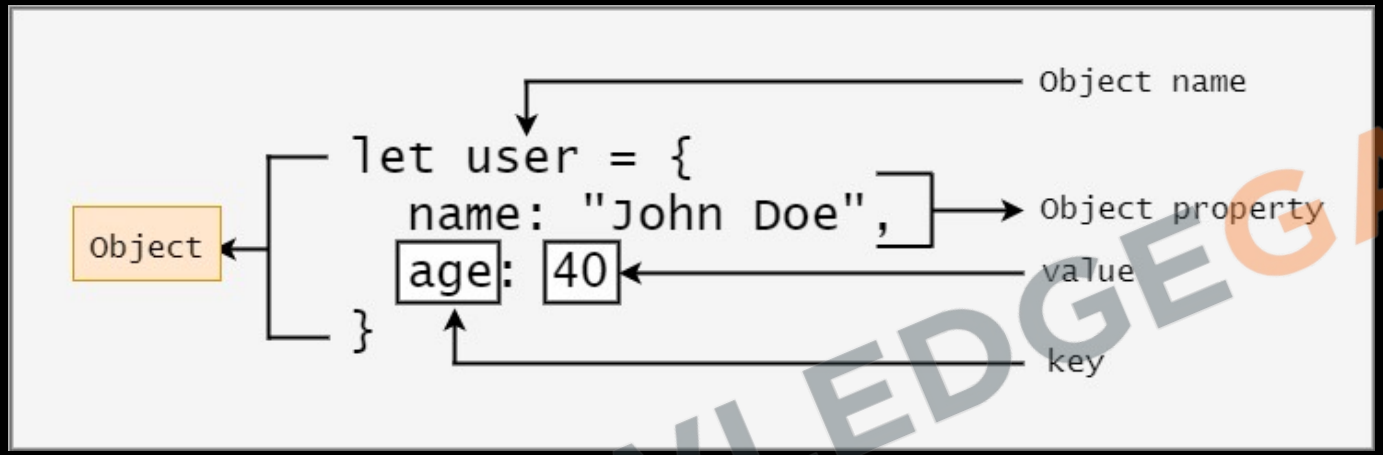
36. What is an Object?




```
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

Project Cricket Game

Defeats

Create object for maintaining Score

Defeats

Defeats

39. Inside Object

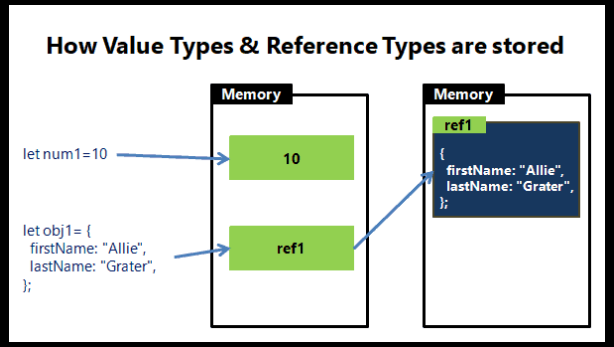
```
let product = {
  company: 'Mango',
  itemName: 'Cotton striped t-shirt',
  price: 861,
  rating: {
    stars: 4.5,
    noOfReviews: 87
  },
  displayPrice: function() {
    return `$${this.price.toFixed(2)}`;
  }
};
```

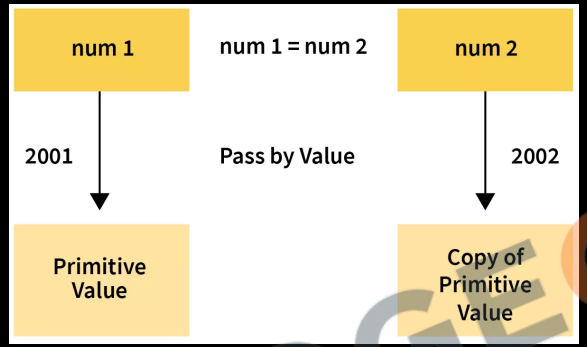
1. Objects can contain Primitives like numbers and strings.
2. Objects can contain other objects and are called Nested Objects.
3. Functions can be object properties.
4. Functions inside an object are called methods.
5. Null Value: Intentionally leaving a property empty.

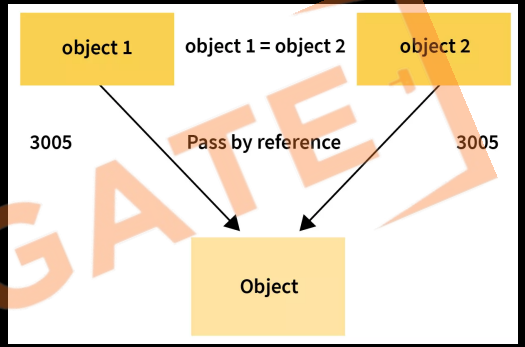
40. Autoboxing

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.

Project Cricket Game

Defeats

Defeats

Defeats

Move method for showing result into score Object.

Objects
Revision

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Practice Exercise

Objects

1. Create object to represent a product from Myntra
2. Create an Object with two references and log changes to one object by changing the other one.
3. Use bracket notation to display delivery-time.
4. Given an object {message: 'good job', status: 'complete'}, use de-structuring to create two variables message and status.
5. Add function isIdenticalProduct to compare two product objects.

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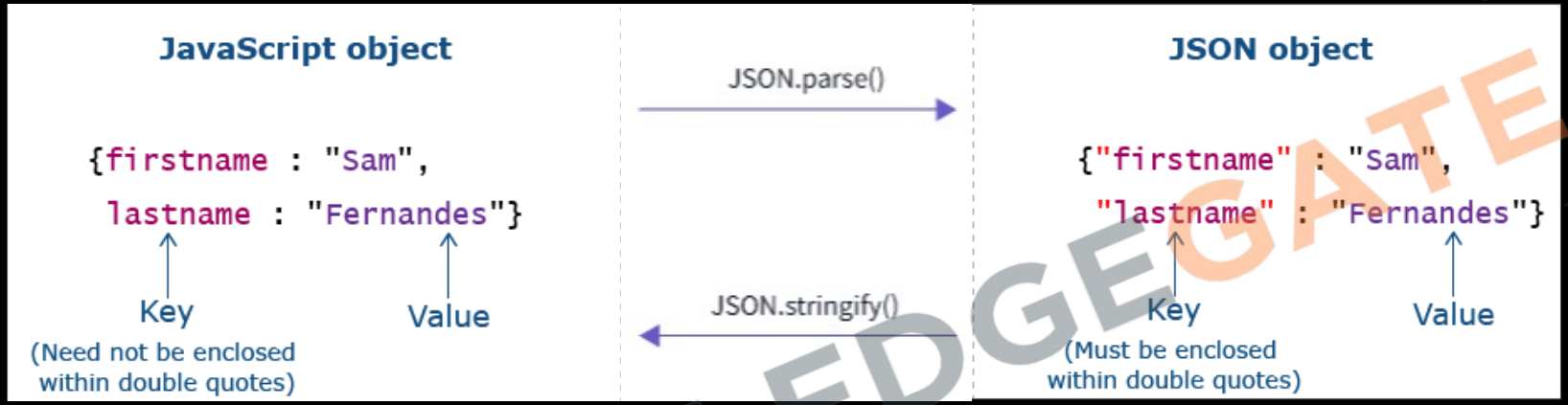
JSON, Local Storage, Date & DOM

43. What is JSON?
44. Local Storage
45. Date
46. DOM Properties & Methods

Finish  Project

43. What is JSON?

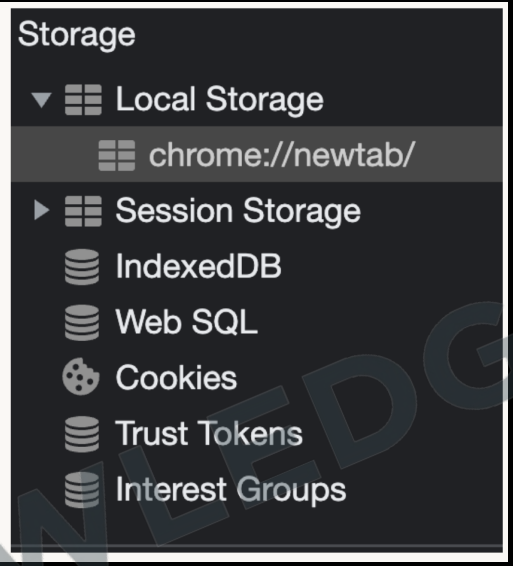


1. JavaScript Object Notation: Not the same as JS object, but similar.
2. Common in network calls and data storage.
3. JSON.stringify() and JSON.parse()
4. Strings are easy to transport over network.
5. JSON requires double quotes. Escaped as \".
6. JSON is data format, JS object is a data structure.

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.

Project Cricket Game

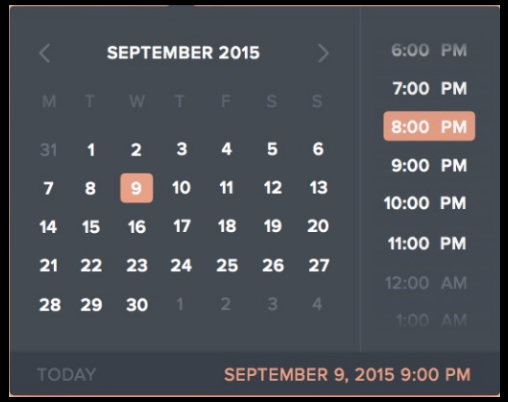
Defeats

Defeats

Defeats

1. Score will survive browser refresh.
2. Add Reset Button To clear or reset stored data.

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()

Project Cricket Game

Defeats

Defeats

Defeats

1. Show moves in the page instead of the alert
2. Show result in the page instead of the alert

Project Cricket Game

Defeats

Defeats

Defeats

1. **Replace the Bat-Ball-Stump Buttons with Images**

JSON, Local Storage, Date & DOM

Revision

43. What is JSON?
44. Local Storage
45. Date
46. DOM Properties & Methods

Practice Exercise

JSON ,Local Storage, Date & DOM

1. Display good morning, afternoon and night based on current hour.
2. Add the name to the output too.
3. Create a Button which shows the number how many times it has been pressed.
   - Also, it has different colors for when it has been pressed odd or even times.
   - The click count should also survive browser refresh.

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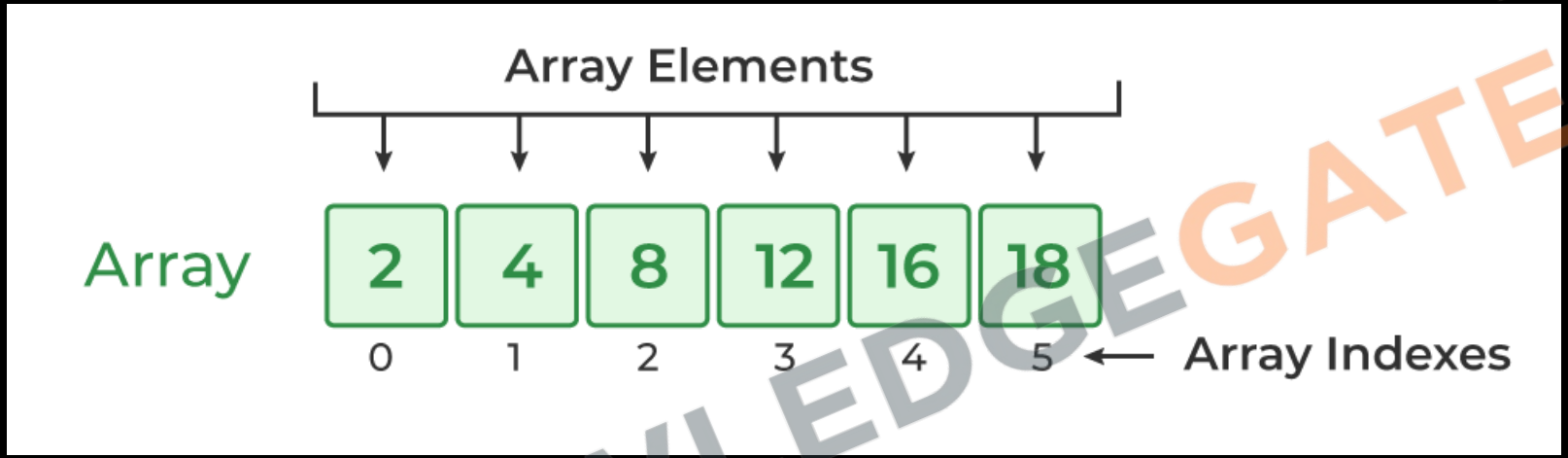
Arrays & Loops

47. What is an Array?
48. Array Syntax & Values
49. Array Properties & Methods
50. What is a Loop?
51. While Loop
52. Do While Loop
53. For Loop
54. Accumulator Pattern
55. Break & Continue

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.

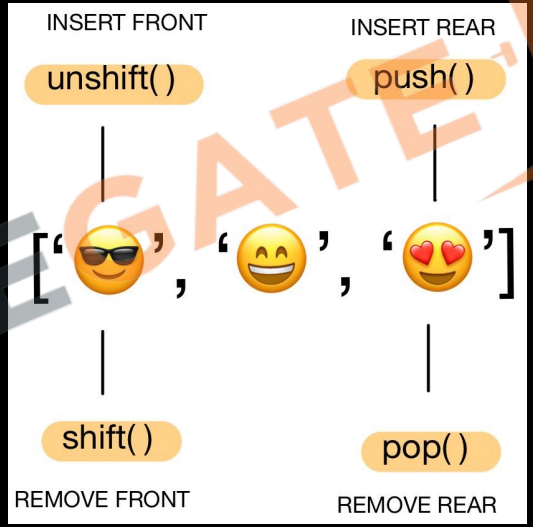
48. Array Syntax & Values

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

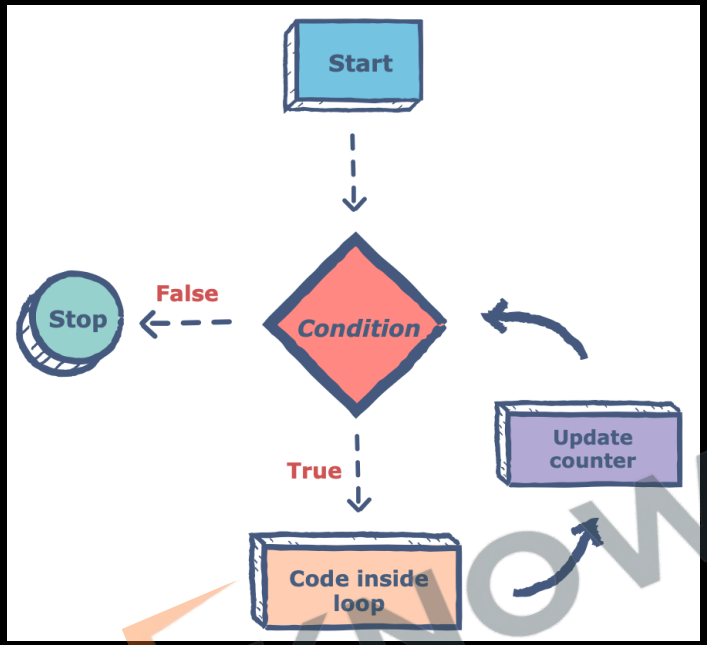
1. Use [] to create a new array, [] brackets enclose list of values
2. Arrays can be saved to a variable.
3. Accessing Values: Use [] with index.
4. Syntax Rules:
   - Brackets start and end the array.
   - Values separated by commas.
   - Can span multiple lines.
5. Arrays can hold any value, including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

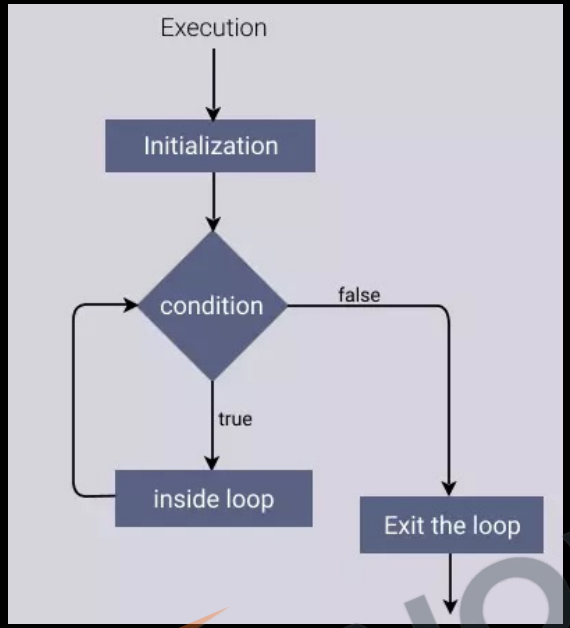


50. What is a Loop?



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.

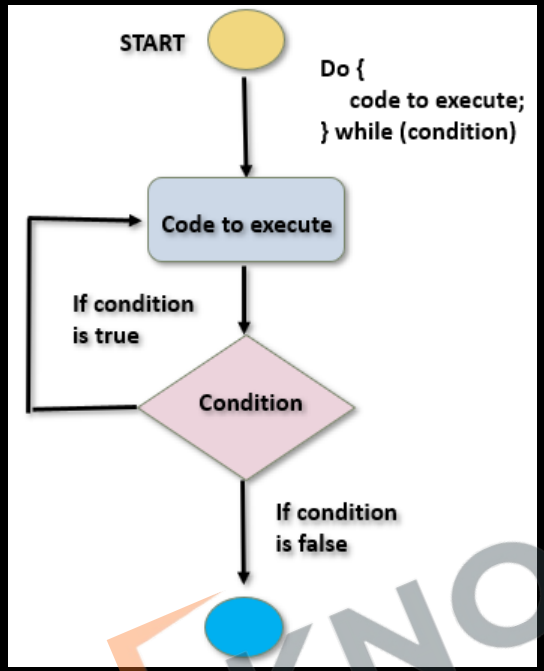
51. While Loop




```
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

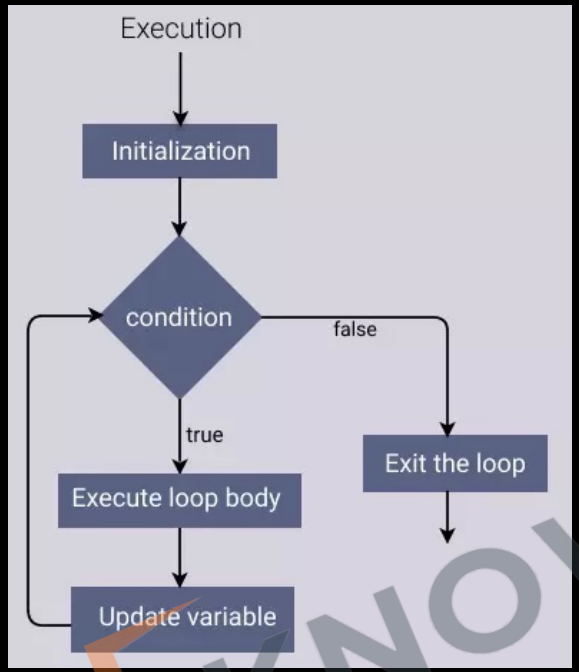



```do {
  // Body of the loop
}
while (condition);```



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



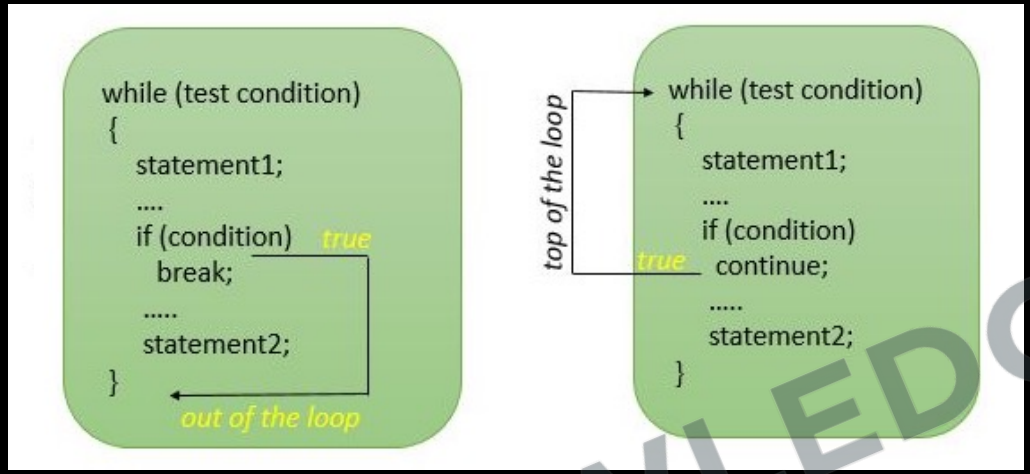

```
for (initialisation; condition; update) {
  // Body of the loop
}
```


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

Arrays & Loops

Revision

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Practice Exercise

Arrays & Loops

1. Create an array of numbers [5,6]. Add 4 at the beginning and 7 at the end of the array.
2. Create a method to return an element at a particular position in the array.
3. Create an array copy using slice method.
4. Create a while loop that exits after counting 5 prime numbers.
5. Modify the above loop to finish using break.
6. Create a for loop that prints number 1 to 10 in reverse order.
7. Using continue only print positive numbers from the given array [1,-6,5,7,-98]
8. Using accumulator pattern concatenate all the strings in the given array [‘KG’, ‘Coding’, ‘Javascript’, ‘Course’, ‘is’, ‘Best’]

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Advance Functions

56. Anonymous Functions As Values
57. Arrow functions
58. setTimeout & setInterval
59. Event Listener
60. For Each Loop
61. Array methods

56. Anonymous Functions As Values

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

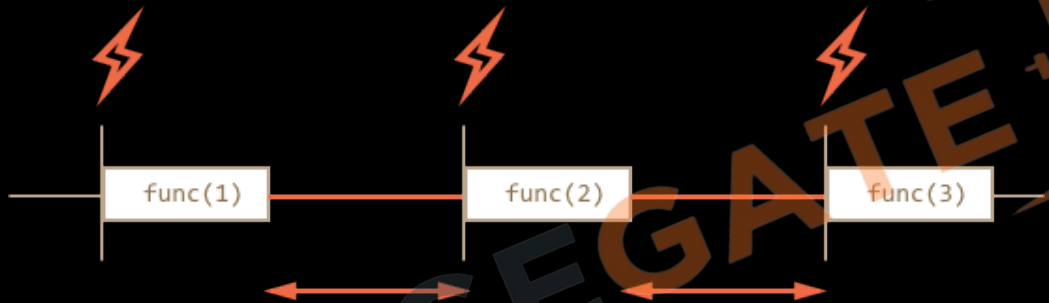

1. Functions in JavaScript are first-class citizens; they can be assigned to variables.
2. Functions defined without a name, often assigned to a variable.
3. Anonymous functions can be properties in objects
4. Can be passed as arguments to other functions.
5. Invoked using () after the function name 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);

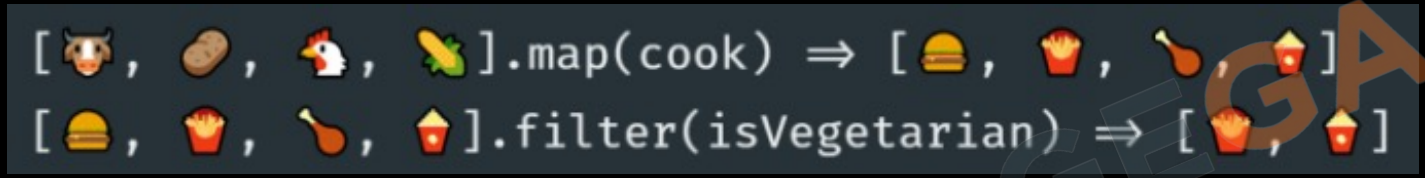
60. For Each Loop

```
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.

Advance Functions

Revision

56. Anonymous Functions As Values
57. Arrow functions
58. setTimeout & setInterval
59. Event Listener
60. For Each Loop
61. Array methods

Practice Exercise

Advance Functions

1. Create a variable multiply and assign a function to this variable that multiplies two numbers. Call this method from the variable.
2. Create a function runTwice that takes a function as a parameter and then runs that method twice.
3. Create a button which should grow double in size on clicking after 2 seconds.
4. In the above exercise add the behavior using an event listener instead of onclick.
5. Create a function that sums an array of numbers. Do this using a for-each loop.
6. Create a function that takes an array of numbers and return their squares using map function.

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