

# Arrays

→ Arrays → An array is a special variable, which can hold more than one value.

" arrays are basically collections of some items, you can write many names of the fruits in a single array":  
['Apple', 'Banana', 'Orange']

- Create an array → There are three ways to create new array
  - first using → Array literal notation
  - second using → Array () constructor
  - finally using → string.prototype.split() to build the array from a string.

(a) Array created using array literal notation.

```
const fruits = ['Apple', 'Banana'];
console.log(fruits.length);
// 2
```

(b) Array created using the array() constructor.

```
const fruits2 = new array('Apple', 'Banana');
console.log(fruits2.length);
// 2
```

(c) Array created using string.prototype.split().

```
const fruits3 = 'Apple, Banana'.split(',');
console.log(fruits3.length);
// 2
```

- Create a string from an array → The join() method to create a string from the fruits array.

```
const fruits = ['Apple', 'Banana'];
const fruitsString = fruits.join(',');
// "Apple, Banana"
```

- Access an array item by its index → to access item in the fruits array by specifying the index number of their position in the array.

```
const fruits = ['Apple', 'Banana'];
// The index of an array's first element is always 0. fruits[0]; // Apple
// The index of an array's second element is always 1. fruits[1]; // Banana
// The index of an array's last element is always one less than the length of the array. fruits[fruits.length - 1]; // Banana
```

```
// Using a index number larger than the array's length returns 'undefined'.
fruits[99]; // undefined
```

- Find the index of an item in an array → uses the indexof() method to find the position (index) of the string "Banana" in the fruits array.

```
const fruits = ['Apple', 'Banana'];
console.log(fruits.indexOf('Banana'));
// 1
```

- Check if an array contains a certain item → Two ways to check if the fruits array contains "Banana" and "Cherry" first method → includes()  
Second method → indexof() method to test for an index value that's not -1.

```
const fruits = ['Apple', 'Banana'];
fruits.includes('Banana'); // true
fruits.includes('Cherry'); // false
```

// If indexof() doesn't return -1, the array contains the give item.

```
fruits.indexof('Banana') != -1; // true
fruits.indexof('Cherry') != -1; // false
```

- Append an item to an array → use the `push()` method to add a new string to the fruits array

```
add
const fruits = ['Apple', 'Banana'];
const newLength = fruits.push('Orange');
console.log(fruits);
// ["Apple", "Banana", "Orange"]
console.log(newLength);
13
```

- Remove the last item from an array → use the `pop()` method to remove the last item from the fruits array.

```
const fruits = ['Apple', 'Banana', 'Orange'];
const removedItem = fruits.pop();
console.log(fruits);
// ["Apple", "Banana"]
console.log(removedItem);
// Orange
```

- Remove multiple items from the end of an array → use the `splice()` method to remove the last 3 items from the fruits array.

const fruits = ['Apple', 'Banana', 'Strawberry', 'Mango', 'Cherry'];

```
const start = -3;
const removedItems = fruits.splice(start);
console.log(fruits);
// ["Apple", "Banana"]
console.log(removedItems);
// ["Strawberry", "Mango", "Cherry"]
```

- Truncate an array down to just its first N items

uses the `splice()` method to truncate the fruits array down to just its first 2 items.

```
const fruits = ['Apple', 'Banana', 'Strawberry', 'Mango', 'Cherry'];
const start = 2;
const removedItems = fruits.splice(start);
console.log(fruits);
// ["Apple", "Banana"]
console.log(removedItems);
// ["Strawberry", "Mango", "Cherry"]
```

- Remove the first item from an array → use the `shift()` method to remove the first item from the fruits array.

```
const fruits = ['Apple', 'Banana'];
const removedItem = fruits.shift();
console.log(fruits);
// ["Banana"]
console.log(removedItem);
// Apple
```

shift() can only be used to remove the first item from an array.

- Remove multiple items from the beginning of an array → uses the splice() method to remove the first 3 items from the fruits array.

```
const fruits = ['Apple', 'Strawberry', 'Cherry', 'Banana', 'Mango'];
```

```
const start = 0;
const deleteCount = 3;
const removedItems = fruits.splice(start, deleteCount);

console.log(fruits);
// ["Banana", "Mango"]
```

```
console.log(removedItems);
// ["Apple", "Strawberry", "Cherry"]
```

- Add a new first item to an array → uses the unshift() method to add, at index 0, a new item to the fruits array. (making it the new first in the array)

```
const fruits = ['Banana', 'Mango'];
const newLength = fruits.unshift('Strawberry');
console.log(fruits);
// ["Strawberry", "Banana", "Mango"]
console.log(newLength);
// 3
```

- Remove a single item by index → uses the splice() method to remove the string "Banana" from the fruits array - by specifying the index position of "Banana".

```
const fruits = ['Strawberry', 'Banana', 'Mango'];
const start = fruits.indexOf('Banana');
const deleteCount = 1;
const removedItems = fruits.splice(start, deleteCount);
```

```
console.log(fruits);
// ["Strawberry", "Mango"]
console.log(removedItems);
// ["Banana"]
```

- Remove multiple items by index → use the `splice()` method to remove the strings "Banana" and "Strawberry" from the fruits array.
- ```

const fruits = ['Apple', 'Banana', 'Strawberry', 'Mango'];
const start = 1;
const deleteCount = 2;
const removedItems = fruits.splice(start, deleteCount);
console.log(fruits);
// ["Apple", "Mango"]
console.log(removedItems);
// ["Banana", "Strawberry"]

```

- Replace multiple items in an array → use the `splice()` method to replace the last 2 items in the fruits array with new items.

```

const fruits = ['Apple', 'Banana', 'Strawberry'];
const start = -2;
const deleteCount = 2;
const removedItems = fruits.splice(start, deleteCount);
// ["Mango", "Cherry"];
console.log(fruits);
// ["Apple", "Mango", "Cherry"]
console.log(removedItems);
// ["Banana", "Strawberry"]

```

- Iterate over an array → uses a `for...of` loop to iterate over the fruits array, logging each item to the console.

```

const fruits = ['Apple', 'Mango', 'Cherry'];
for (const fruit of fruits) {
  console.log(fruit);
}
// Apple
// Mango
// Cherry

```

- Call a function on each element in an array → uses the `forEach()` method to call a function on each element in the fruits array; the function causes each item to be logged to the console, along with the item's index number.

```

const fruits = ['Apple', 'Mango', 'Cherry'];
fruits.forEach((item, index, array) => {
  console.log(item, index);
});
// Apple 0
// Mango 1
// Cherry 2

```

- Merge multiple arrays together → uses the `Concat()` method to merge the fruits array with a more fruits array, to produce a new combined fruits array.

```
const fruits = ['Apple', 'Banana', 'Strawberry'];
const moreFruits = ['Mango', 'Cherry'];
const combinedFruits = fruits.concat(moreFruits);
console.log(combinedFruits);
// ["Apple", "Banana", "Strawberry", "Mango", "Cherry"]
```

```
// The 'fruits' array remains unchanged.
console.log(fruits);
// ["Apple", "Banana", "Strawberry"]
```

// The 'moreFruits' array also remains unchanged.

```
console.log(moreFruits);
// ["Mango", "Cherry"]
```

- Copy an array → Three ways to create a new array from the existing fruits array: first by using Spread Syntax and using `from()` method, 3rd using the `slice()` method.

```
const fruits = ['Strawberry', 'Mango']
// Create a copy using Spread Syntax.
const fruitsCopy = [...fruits];
// ["Strawberry", "Mango"]

// Create a copy using the from() method.
const fruitsCopy2 = Array.from(fruits);
// ["Strawberry", "Mango"]

// Create a copy using the slice() method.
const fruitsCopy3 = fruits.slice();
// ["Strawberry", "Mango"]
```

## Interview Question Answer :->

Q:1 what is HTML ->

HTML stands for Hyper text markup language. It is a language of world wide web.

It is a standard text formatting language which is used to create and display pages on the web.

With HTML you can create your own website.

Q:2 what are Tags ->

HTML tags are composed of three things :

- (A) An opening tag.
- (B) Content tag.
- (C) Ending tag..

Some tags are unclosed tags.

Q:3 HTML Documents contain two things :

- Content, and
- tags

HTML tags are used to create HTML document and render their properties.

Each html tags have different properties.

Q13 Do all HTML tags have an end tag ->

No,  
There are some HTML tags that  
don't need a closing tag.  
for example ->

<img>  
<br> tag.

Q14 What is formatting in HTML ->

The HTML  
formatting is a process of format  
the text for a better look and  
feel. It uses different tags to make  
text bold, italicized, underlined.

Q15 How many types of heading does an HTML Conta

The HTML contains six types of headings  
which are defined with the <h1> to  
<h6> tags. Each type of heading  
tag displays different text size from  
another. So, <h1> is the largest  
heading tag and <h6> is the  
smallest one.

Q16 How to create a hyperlink in HTML ->

The HTML provides an anchor tag to  
create a hyperlink that links one  
page to another page. These tags can  
appear in any of the following  
ways.

- Unvisited link → It is displayed, underlined and blue.
- Visited link → It is displayed, underlined and purple.
- Active link → It is displayed, underlined and red.

Q17 Which HTML tag is used to display the data in the tabular form →

The HTML table tag is used to display data in tabular form (row \* column). It also manages the layout of the page, e.g. header section, navigation bar, body content, footer section. Here is the list of tags used while displaying the data in the tabular form.

| Tag     | Description                          |
|---------|--------------------------------------|
| <table> | It defines a table.                  |
| <tr>    | It defines a row in a table.         |
| <th>    | It defines a header cell in a table. |

<td>

It defines a cell in a table.

<caption>

It defines the table caption.

<colgroup>

It specifies a group of one or more columns in a table for formatting.

<cols>

It is used with <colgroup> element to specify column properties for each column.

<tbody>

It is used to group the body content in a table.

<thead>

It is used to group the header content in a table.

<tfoot>

It is used to group the footer.

Q.8 what are some common lists that are used when designing a page? →

There are many common lists which are used to design a page. You can choose any or a combination of the following list types.

- Ordered list → The ordered list displays elements in numbered format. It is represented by `<ol>` tag.
- unordered list → The unordered list displays elements in bulleted format. It is represented by `<ul>` tag.
- Definition list → The definition list displays elements in definition form like in dictionary. The `<dl>`, `<dt>` and `<dd>` tags are used to define description list.

Q9 what is the difference between HTML elements & tags →

HTML elements communicate to the browser to render text. When the element are enclosed by brackets `<>`, they form HTML tags. Most of the time, tags come in a pair and surround content.

Q10 what is semantic HTML →

Semantic HTML is a coding style. It is the use of html markup to reinforce the semantic meaning of the content. For example. In semantic HTML `<b></b>` tag is not used for bold statement as well as `<i></i>` tag is used for italic. Instead of these we use `<strong></strong>` and `<em></em>` tag.

Q'11 What is an image map → image map facilitates you to link many different web pages using a single image. It is represented by `cmaps` tag. You can define shapes in images that you want to make part of an image mapping.

Q'12 How to insert a copyright symbol on a browser page →

You can insert a copyright symbol by using `&copy;` or `&#169;` in an HTML file.

Q'13 How to create a nested webpage in HTML →

The HTML `iframe` tag is used to display a nested webpage. In other words, it represents a webpage within a webpage. The HTML `<iframe>` tag defines an inline frame.

```
<!DOCTYPE html>
```

```
<html>
```

```
<body>
```

```
<h2> HTML iframes example </h2>
```

```
<p> Use the height and width attributes to  
specify the size of the iframe </p>
```

```
<iframe src = "https://www.JavaPoint.Com/"  
height = "300" width = "400"></iframe>
```

```
</body>
```

```
</html>
```

Q114 How do you keep list elements straight in an HTML file? → You can keep

the list elements straight by using indents.

Q115 Does a hyperlink only apply to text? →

No you can use hyperlinks on text and images both. The html anchor tag defines a hyperlink that links one page to another page. The "href" attribute is the most important attribute of the html anchor tag.

<a href = "...."> Link Text </a>

Q116 what is a style sheet? →

A style sheet is used to build a consistent, transportable, and well-designed style template. You can add these templates on several different web pages. It describes the look and formatting of a document written in markup language.

Q117 Can you create a multi-colored text on a web page? →

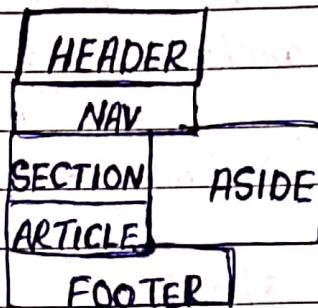
Yes, To create a multi-colored text on a web page you can use `font color = "color"></font>` for the specific texts you want the color.

Q18 Is it possible to change the color of bullet ->

The color of the bullet is always the color of the first text of the list. So, if you want to change the color of the bullet, you must change the color of the text.

Q19 Explain the layout of HTML -> HTML layout

Specifies a way in which the web page is arranged.



Every website has a specific layout to display content in a specific manner.

Following are different HTML elements which are used to define the different parts of a webpage.

- <header>: It is used to define a header for a document or a section.
- <nav>: It is used to define a container for navigation links.

- **<section>**: It is used to define a section in a document.
  - **<article>**: It is used to define an independent, self-contained article.
  - **<aside>**: It is used to define content aside from the content.
  - **<footer>**: It is used to define a footer for a document or a section.
- Q120. what is a marquee? →
- marquee is used to put the scrolling text on a web page. it scrolls the image or text up, down, left or right automatically you should put the text which you want to scroll within the <marquee> </marquee> tag.

# CSS

Q:1 what is CSS -> ~~What is CSS~~ <sup>in short</sup>

CSS stands for cascading style sheet. It is a popular styling language which is used with HTML to design websites. It can also be used with any XML documents including plain XML, SVG, and XUL.

Q:2 what is the origin of CSS -> ~~What is the origin of CSS~~

SGML (Standard Generalized Markup language) is the origin of CSS. It is a language that defines markup languages.

Q:3 what are the different variations of CSS ->

following are the different variations of CSS.

- CSS1
- CSS2
- CSS2.1
- CSS3
- CSS4

Q:4 How Can you integrate CSS on a web page ->

There are three methods to integrate CSS on web pages.

1. Inline method -> It is used to insert style sheets in HTML document.
2. Embedded / Internal method -> It is used to add a unique style to a single document.
3. linked / Imported / External method -> It is used when you want to make changes on multiple pages.

(Q) 5. What are the advantages of CSS ->

- Bandwidth
- Site-wide Consistency
- Page reformatting
- Accessibility
- Content separated from Presentation

(Q) 6. What are the limitations of CSS ->

- Ascending by selectors is not possible
- Limitations of vertical control
- No expressions
- No column declaration
- Pseudo-class not controlled by dynamic behaviors
- Rules, styles, targeting specific text not possible

Q17 what are the CSS frameworks → ~~HTML, CSS, JS~~  
CSS framework  
are the preplanned libraries which make  
it easy and more standard compliant web page  
styling. The frequently used CSS frameworks are -

- Bootstrapping
  - foundations
  - semantics
  - Gumbo
  - Volkit

Q18 why background and color are the separate properties if they should always be set together --> *difficulty*

- It enhances the legibility of style sheets. The background property is a complex property in CSS, and if it is combined with color, the complexity will further increase.
  - Color is an inherited property while the background is not. So this can make confusion further.

Q19 what is Embedded style sheet

An Embedded style sheet is a css style specification method used with HTML. You can embed the entire stylesheet in an HTML document by using the style element.

Q10 What are the advantages of embedded style sheets →

- You can create classes for use on multiple tag types in the document.
- You can use selector and grouping methods to apply styles in complex situations.
- No extra download is required to import the information.

Q11 What is a CSS selector → It is a string that identifies the elements to which a particular declaration apply. It is also referred as a link between the HTML document and the style sheet - It is equivalent of HTML elements. There are several different types of selector in CSS :-

- CSS Element Selector
- CSS Id Selector
- CSS Class Selector
- CSS Universal Selector
- CSS Group Selector

Q12 Name some CSS style components →

- Selector
- Property
- Value

Q.13 what is the use of css opacity ->

The CSS opacity property is used to specify the transparency of an element. In simple word, you can say that it specifies the clarity of the image. In technical terms, opacity is defined as the degree to which light is allowed to travel through an object.

Q.14 Explain universal selector ->

The universal selector matches the name of any of the element type instead of selecting elements of a specific type.

Q.15 which command is used for the selection of all the elements of a paragraph ->

The P[lang] Command is used for selecting all the elements of a paragraph.

Q.16 Name the property used to specify the background color of an element ->

The background-color Property is used to specify the background color of the element.

Q:17 Name the property for controlling the image repetition of the back-ground →

→ The background-repeat property repeats the background image horizontally and vertically. Some images are repeated only horizontally or vertically.

Q:18 Name the property for controlling the image position in the background →

The background-position property is used to define the initial position of the background image. By default, the background image is placed on the top-left of the webpage.

You can set the following positions :-

1. center
2. top
3. bottom
4. left
5. right

Q:19 Name the property for controlling the image scroll in the background →

→ The background-attachment property is used to specify if the background image is fixed or scroll with the rest of the page in the browser window.

# Ajax

What is Ajax :-

Ajax is a new technique for creating better, faster, and more interactive web applications with the help of XML, HTML, CSS, and JS.

Rich Internet Application Technology :-

Ajax is the most viable rich internet application technology so far.

It is getting tremendous industry momentum and several tool kit and frameworks are emerging. But at the same time, Ajax has browser incompatibility and it is supported by JS, which is hard to maintain and debug.

Technologies ->

Ajax cannot work independently. It is used in combination with other technologies to create interactive webpages.

Java Script

- loosely typed scripting language.
- javascript function is called when an event occurs in a page.
- Glue for the whole Ajax operation.

- API for accessing and manipulating structured documents.
- Represents the structure of XML and HTML documents.

CSS

- Allows for a clear separation of the presentation style from the content and may be changed programmatically by JavaScript.

XMLHttpRequest

- JavaScript object that performs asynchronous interaction with the server.

Examples → here is a list of some famous web applications that make use of Ajax.

Google Maps →

A user can drag an entire map by using the mouse, rather than clicking on a button

- <https://maps.google.com/>

Gmail → Gmail is a webmail built on the idea that emails can be more intuitive, efficient and useful.

- <https://gmail.com/>

Yahoo Maps (new) → Now it's even easier and more fun to get where you're going!

- <https://maps.yahoo.com/>

\* Browser Support → All the available browser cannot support Ajax. Here is a list of major browsers that support AJAX.

- Mozilla Firefox
- Netscape version 7.1
- Apple Safari
- Opera 7.6

\* Security →

Ajax Security: Server Side

- Ajax-based web applications use the same server-side security schemes as regular web applications.

JQuery

→ JQuery is a fast and concise JavaScript library created by John Resig in 2006. JQuery simplifies HTML

document traversing, event handling, animating, and Ajax interactions for rapid web development.

### Imp features ->

1. DOM manipulation -> The Jquery made it easy to select DOM elements, negotiate them and modifying their content by using cross-browser open source selector engine called sizzle.
2. Event handling -> The Jquery offers an elegant way to capture a wide variety of events.

## Java Script

### \* what is Javascript - - >

Java-Script is a text-based programming language used both on the client-side and server-side. that allows you to make web pages interactive. where HTML & CSS are languages that give structure and style to web pages, Java script gives web pages interactive elements that engage a user.