Front End Interview Questions (Module - 3)

1. What are meta tags in HTML?

- Meta tags are those tags which go inside the Head tag of the HTML page
- Meta tags are not for the interface they are important for the browser.
- Meta tags are always in name or value pairs
- Meta tags consist of character encoding, title, or even description.

2. What Is an Attribute in HTML?

```
    h1>Hello</h1>
<p>Welcome</p>
<br>
<h2>Click on the button to subscribe</h2>
<button>Subscribe</button>
```

- Attributes are the properties that can be added to an HTML tag that change the way the tag behaves or is displayed.
- It adds attributes right after the name of the HTML tag, inside the brackets.

3. What is Semantic HTML? How does it work?

- Semantic HTML is a type of coding.
- It is the use of HTML markup to emphasize the content's semantics or meaning.
- Consider the following scenario: The <b></b> tag is not used for bold statements in semantic HTML, while the <i></i> element is used for italic.
- Instead, you use the <em></em> and <strong></strong> tags.

4. Differentiate Between Ordered List and Unordered List

- An unordered list uses <ul> </ul> tags and each element of the list is written between <li> </li> tags.
- An ordered list uses <ol> </ol> tags and each element of the list is written between <li> </li> tags.

5. What is the difference between the ‘id’ attribute and the ‘class’ attribute of HTML elements?

Multiple elements in HTML can have the same class value, whereas a value of id attribute of one element cannot be associated with another HTML element.

6. Describe HTML layout structure.

Every web page has different components to display the intended content and a specific UI. But still, there are few things which are templated and are globally accepted way to structure the web page, such as:

- <header> : Stores the starting information about the web page.
- <footer> : Represents the last section of the page.
- <nav> : The navigation menu of the HTML page.
- <article> : It is a set of information.
- <section> : It is used inside the article block to define the basic structure of a page.

- <aside>: Sidebar content of the page

7. What is the difference between <strong>, <b> tags and <em>, <i> tags?

The effect on a normal webpage of the tags <strong>, <b> and <em>, <i> is the same. <b> and <i> tags stands for bold and italic. These two tags only apply font styling and bold tag <b>, just adds more ink to the text, these tags don't say anything about the text.

Whereas, <strong> and <em> tags represent that the span of text is of strong importance or more importance and emphatic stress respectively than the rest of the text. These tags have semantic meaning.

8. What is the significance of <head> and <body> tag in HTML?

<head> tag provides the information about the document. It should always be enclosed in the <html> tag. This tag contains the metadata about the webpage and the tags which are enclosed by head tag like <link>, <meta>, <style>, <script>, etc. are not displayed on the web page. Also, there can be only 1 <head> tag in the entire Html document and will always be before the <body> tag.

<body> tag defines the body of the HTML document. It should always be enclosed in the <html> tag. All the contents which needs to be displayed on the web page like images, text, audio, video, contents, using elements like <p>, <img>, <audio>, <heading>, <video>, <div>, etc. will always be enclosed by the <body> tag. Also, there can be only 1 body element in an HTML document and will always be after the <head> tag

9. Are the HTML tags and elements the same thing?

No. HTML elements are defined by a starting tag, may contain some content and a closing tag.For example, <h1>Heading 1</h1> is a HTML element but just <h1> is a starting tag and </h1> is a closing tag.

10. How is Cell Padding different from Cell Spacing?

Cell Spacing is the space or gap between two consecutive cells. Whereas, Cell Padding is the space or gap between the text/ content of the cell and the edge/ border of the cell. Please refer to the above figure example to find the difference

11. What is the difference between HTML and CSS?

HTML creates a web page's structure and content, while CSS defines its appearance and layout.

12 . What is the difference between HTML and XHTML?

HTML and XHTML are both markup languages used to create web pages. However, XHTML is stricter than HTML and requires developers to write well-formed code that adheres to specific rules and guidelines. XHTML also requires all tags to be closed and all attributes to be quoted.

13. What is the difference between HTML and HTML5?

HTML5 is the latest version of HTML and includes new features and improvements over previous versions. Some key differences between HTML and HTML5 include support for multimedia elements (such as video and audio), improved semantics, and better support for mobile devices.

14. What is the role of the <head> tag in HTML?

The <head> tag defines information about the web page that is not displayed on the page itself, such as its title, keywords, and other metadata. It is located between the <html> and <body> tags and is usually the first element in the document.

15. What is the role of the alt attribute in HTML?

The alt attribute provides alternative text for an image in case the image cannot be displayed. This is important for accessibility, as screen readers can read the alt text to describe the image to visually impaired users.

16. What is the difference between “display: none” and “visibility: hidden” when used as attributes to the HTML element?

The main difference between “display: none” and “visibility: hidden” is that the former removes the element from the document flow, while the latter simply hides it. Elements with “display: none” are not visible and do not take up any space on the page, while elements with “visibility: hidden” are not visible but still take up space.

17. What is SVG in HTML?

HTML SVG describes vector or raster graphics. SVG images and their behaviors are defined in XML text files.

We primarily use it for vector-type diagrams like pie charts and 2-dimensional graphs in an X-Y coordinate system.

18. How are hyperlinks inserted in the HTML webpage?

You can insert a hyperlink in the HTML webpage by using the following code:

```
<!DOCTYPE html>
<html>
  <body>
    <h2>HTML Hyperlink Example</h2>
    <a href="url">link text</a>
  </body>
</html>
```

19. How do you add JavaScript to an HTML webpage?

JavaScript is used to make HTML web pages more interactive and user-friendly. It is a scripting language that allows you to interact with some aspects of the page based on user input.

As with CSS, there are three significant ways of including JavaScript:

- Inline:

You can add JavaScript to your HTML elements directly whenever a certain event occurs. We can add the JavaScript code using attributes of the HTML tags that support it. Here is an example that shows an alert with a message when the user clicks on it:

```
<button onclick="alert('Click the Button!');">
Click!
</button>
```

- Script block:

You can define a script block anywhere on the HTML code, which will get executed as soon as the browser reaches that part of the document. This is why script blocks are usually added at the bottom of HTML documents.

```
<html>
  <script>
    var x = 1;
    var y = 2;
    var result = x + y;
    alert("X + Y is equal to " + result);
  </script>
</html>
```

- External JavaScript file:

You can also import the JavaScript code from a separate file and keep your HTML code clutter-free. This is especially useful if a large amount of scripting is added to an HTML web-page.

```
<html>
  <script src="my-script.js"></script>
</html>
```

20. What are the different types of form input fields in HTML?

Several form input fields in HTML include text fields, checkboxes, radio buttons, select menus, and text areas. Each input field type is used to collect different types of data from users.

CSS interview questions

1.What is CSS and what is its purpose?

CSS, or Cascading Style Sheets, is a stylesheet language used for describing the look, formatting, and layout of documents written in HTML (Hypertext Markup Language) or XML (Extensible Markup Language). Its primary purpose is to separate the presentation and design of a web page from its content, making it easier to maintain, update and modify the visual appearance of a website.

The main benefits of CSS include:

- Consistency: By using a single CSS file to control the styles for multiple pages, you can create a consistent look and feel across an entire website.
- Efficiency: CSS reduces code duplication and makes it easier to manage and update styles. This leads to faster page-load times and lower bandwidth usage.
- Modularity: With CSS, you can break courses down into modules that can be easily reused, combined, and updated independently of each other.
- Accessibility: CSS helps create accessible web pages by allowing developers to apply specific styles for different types of devices or user preferences.
- Flexibility: CSS offers a wide range of styling properties and techniques that can be used to achieve various effects, catering to diverse design requirements.

2. What are the different ways to include CSS in a web page?

There are three main ways to include CSS in a web page:

- Inline CSS: Adding the style directly to an HTML element using the "style" attribute.
- Internal CSS: Placing the CSS code within the < style > tags in the < head > section of an HTML document.
- External CSS: Linking an external CSS file to the HTML document using the < link > tag in the < head > section.

3. What is the box model in CSS?

The Box Model in CSS refers to the concept that organizes and structures HTML elements on a web page in the form of rectangular boxes. Every element in a page is comprised of a rectangular box, which includes content, padding, border, and margin. These components contribute collectively to the element's dimensions and positioning.

- Content: The actual text or images inside the element.
- Padding: The space between the content and the border, working as a cushion around the content.
- Border: The line enclosing the padding and content, which visually defines the boundaries of the element.
- Margin: The space surrounding the border, which helps to space out elements from each other and other sections of the page.

Together, these elements determine the total dimensions and layout of an HTML element on a web page. The Box Model is crucial for controlling the placement and appearance of content when designing a web page using Cascading Style Sheets (CSS).

4. What is the difference between padding and margin in CSS?

In CSS, padding and margin are properties that control the space around an element, but they serve different purposes:

- Padding: This property defines the space between the content of an element and its border. It is usually used to create extra space around the content inside an element. Padding is included within the background color or background image of the element and holds the border outside the actual content.
- Margin: This property defines the space around the outside of an element, between the element and its surrounding elements. It is used for creating space between elements, and it is transparent. Margin is situated outside the border, so if an element has a background color or image, it won't influence the margin.

5. What is the purpose of CSS selectors?

CSS selectors are patterns used to identify and select HTML elements to which specific styles should be applied. The main purpose of CSS selectors is to target elements on a web page based on their attributes, positions, or relationships with other elements so that you can apply styling rules to them.

6. How do you center a div element in CSS?

Answer: One common way to center a div horizontally is by using the following CSS:

```
cssCopy code.div {
  width: 50%;
  margin: 0 auto;
}
```

For both horizontal and vertical centering, Flexbox can be used:

```
cssCopy code.container {
  display: flex;
  justify-content: center;
  align-items: center;
  height: 100vh;
}
```

7. How does Flexbox work in CSS?

Answer: Flexbox is a CSS layout module designed to distribute space along a container’s main axis and align items in a predictable way. It is especially useful for creating responsive layouts. Flexbox properties include:

- display: flex: Sets the container to use Flexbox.
- justify-content: Aligns items horizontally (main axis).
- align-items: Aligns items vertically (cross axis).
- flex-direction: Defines the direction of the main axis (row or column).
- flex-wrap: Controls whether the items should wrap onto multiple lines.

8. What are pseudo-classes and pseudo-elements in CSS?

- Pseudo-Classes: Pseudo-classes are keywords added to selectors that specify a special state of the selected elements. Examples include :hover, :focus, and :nth-child.
- Pseudo-Elements: Pseudo-elements allow you to style specific parts of an element. They are denoted by double colons ::. Examples include ::before, ::after, and ::first-line.

9. What is the difference between relative, absolute, fixed, and sticky positioning in CSS?

- relative: Positions the element relative to its normal position. It does not remove the element from the document flow.
- absolute: Positions the element relative to its nearest positioned ancestor. The element is removed from the document flow.
- fixed: Positions the element relative to the viewport, and it remains fixed in place even when scrolling.
- sticky: A hybrid of relative and fixed. The element toggles between the two based on the user's scroll position.

10. What are the limitations of CSS?

Disadvantages of CSS are given below:

- Browser Compatibility: Some style selectors are supported and some are not. We have to determine which style is supported or not using the @support selector).
- Cross Browser issue: Some selectors behave differently in a different browser).
- There is no parent selector: Currently, Using CSS, you can't select a parent tag.

11.Differentiate between CSS3 and CSS2.

The main difference between CSS3 and CSS2 is that CSS divides different sections into modules and supports many browsers. It also contains new General Sibling Combinators responsible for matching similar elements.

12. What was the purpose of developing CSS?

CSS was developed to define the visual appearances of websites. It allows developers to separate the structure and content of a website that was not possible before.

13. What is the difference between a class and an ID?

Ans. Class is a way of using HTML elements for styling. They are not unique and have multiple elements. Whereas ID is unique and it can be assigned to a single element.

14. What are the different types of Selectors in CSS?

Universal Selector, Element type Selector, ID selector, Class selector, Descendant combinatory, Child Combinator, General Sibling Combinator, Adjacent sibling combinator, and Attribute selector.

15. What is the difference between inline, inline-block, and block?

1. Block Elements are <div> and <p>. They usually start on a new line and can take space for an entire row or width.
2. Inline elements are <a>, <span>, <strong>, and <img> tags. They don't start on a new line. However, they appear on the same line as the content and tags beside them.
3. Inline block elements have padding and margins and set height and width values. Though, they are similar to inline elements.

JavaScript Interview Questions & Answers

1. What is JavaScript and how is it used in web development?

Answer: JavaScript is a high-level, interpreted programming language that enables interactive web pages. It is used to manipulate the DOM (Document Object Model), handle events, perform asynchronous operations, and create dynamic content. JavaScript runs on the client side (in the browser) but can also be used server-side with environments like Node.js

2. What are JavaScript data types?

JavaScript data types include:

- Primitive Types: string, number, Boolean, null, undefined, symbol, and bigint.
- Object Types: Objects, arrays, and functions are considered complex data types in JavaScript.

3. Explain the difference between == and ===.

- == (Loose Equality): Compares two values for equality after performing type conversion if necessary. For example, 5 == '5' returns true.
- === (Strict Equality): Compares two values for equality without type conversion. Both value and type must be the same. For example, 5 === '5' returns false.

4. What is a closure in JavaScript?

Answer: A closure is a function that retains access to its lexical scope even when the function is executed outside of that scope. Closures are commonly used to create private variables or functions within a function.

Example:

```
javascriptCopy codefunction outerFunction() {
  let count = 0;
  return function innerFunction() {
    count++;
    return count;
  }
}

const increment = outerFunction();
console.log(increment()); // Output: 1
console.log(increment()); // Output: 2
```

5. What is the this keyword in JavaScript?

Answer: The this keyword in JavaScript refers to the object that is currently executing the code. The value of this depends on the context in which it is used:

- Global Context: In the global scope, this refers to the global object (e.g., window in browsers).
- Function Context: In a function, this refers to the object that called the function. In strict mode, this is undefined in a standalone function.
- Object Context: In an object method, this refers to the object itself.

- Constructor Function Context: In a constructor function, this refers to the newly created object.

7. Explain the difference between var, let, and const.

- var: var is function-scoped and can be redeclared. It is hoisted to the top of its scope but may lead to unexpected behavior due to its global scope or function scope.
- let: let is block-scoped and cannot be redeclared within the same scope. It is also hoisted but not initialized until execution.
- const: const is also block-scoped and is used to declare constants. Variables declared with const cannot be reassigned. However, if the constant is an object or array, its properties or elements can still be modified.

8. What is the DOM and how does JavaScript interact with it?

Answer: The DOM (Document Object Model) is a programming interface for HTML and XML documents. It represents the structure of a document as a tree of nodes, where each node corresponds to an element, attribute, or piece of text. JavaScript can manipulate the DOM to dynamically update content, style, and structure of a webpage by adding, removing, or modifying nodes.

Example:

```
javascriptCopy codedocument.getElementById("myElement").textContent = "New Text";
document.querySelector(".myClass").style.color = "blue";
```

9.What is the event loop in JavaScript?

Answer: The event loop is a mechanism in JavaScript that allows the language to handle asynchronous operations. The event loop continuously checks the call stack and the task queue. If the call stack is empty, the event loop pushes the first task in the queue to the stack, allowing it to execute.

This process enables JavaScript to perform non-blocking operations, such as handling I/O, timers, and promises.

10. What are the ways of adding JavaScript code in an HTML file?

There are primarily two ways of embedding JavaScript code:

- We can write JavaScript code within the script tag in the same HTML file; this is suitable when we need just a few lines of scripting within a web page.
- We can import a JavaScript source file into an HTML document; this adds all scripting capabilities to a web page without cluttering the code.

11. What are the arrow functions in JavaScript?

Arrow functions are a short and concise way of writing functions in JavaScript. The general syntax of an arrow function is as below:

```
const helloWorld = () => {
  console.log("hello world!");
};
```

12. What are the different ways an HTML element can be accessed in a JavaScript code?

Here are the ways an HTML element can be accessed in a JavaScript code:

- getElementByClass('classname'): Gets all the HTML elements that have the specified classname.
- getElementById('idname'): Gets an HTML element by its ID name.
- getElementbyTagName('tagname'): Gets all the HTML elements that have the specified tagname.
- querySelector(): Takes CSS style selector and returns the first selected HTML element.

13. What are some of the JavaScript frameworks and their uses?

JavaScript has a collection of many frameworks that aim towards fulfilling the different aspects of the web application development process. Some of the prominent frameworks are:

- React - Frontend development of a web application
- Angular - Frontend development of a web application
- Node - Backend or server-side development of a web application

14. What is the difference between Undefined and Undeclared in JavaScript ?

Undefined	Undeclared
Undefined means a variable has been declared but a value has not yet been assigned to that variable.	Variables that are not declared or that do not exist in a program or application.

15. What are the benefits of JavaScript over other web-based technologies?

These are the benefits of JavaScript:

Interactive Enhancement

JavaScript interacts with static web pages and makes them respond to users' inputs.

Quick Feedback

There is no reason for a page on the internet to load again when using JavaScript. For example, form input validation.

Rich User Interface

JavaScript assists in making the user interface of web-based applications look and feel better.

Frameworks

JavaScript has vast libraries and frameworks that can be widely used to develop games and web-based applications.

16. When should generators be used in ES6?

Generators in ES6 can be used in two main scenarios:

When one wants to move out of a function, one can do so using generators, and the outer code determines when to move back into the function.

With the help of generators, one can control an asynchronous call outside the code. Most importantly, though, the next value can come in only when needed; all values do not need to come back at once

17. Why are promises used in JavaScript?

Promises help in managing asynchronous operations, such as server requests in JavaScript. Earlier, callbacks were used for the same purpose. However, callbacks have limited functionality and, thus, can make the code unmanageable. There are four states of the promise object:

Pending: This is the first state of the promise and shows that the promise has been neither fulfilled nor rejected.

Fulfilled: This state represents the completion of the asynchronous operation. In other words, the promise has been fulfilled.

Rejected: This state represents the failure of the asynchronous operation due to some reason. In other words, the promise has been rejected.

Settled: This is the last state of the promise, showing that the promise has been either fulfilled or rejected.

A promise constructor uses a callback with two parameters - resolve and reject - to create a promise. The resolve function is called when the asynchronous operation has succeeded. The reject function is called when the asynchronous operation has failed.

18. Is JavaScript a dynamically typed or statically typed language?

JavaScript is a dynamically typed language.

19. Describe Arrow functions.

The ES6 Javascript version introduced Arrow functions. With the Arrow functions, we can declare functions using new and shorter syntax. These functions can only be used as function expressions. The declaration of these functions is done without using the function keyword. Moreover, if there is a single returning expression, then even the return keyword is not needed. Additionally, wherever the code occurs in a single line only, we can omit the curly {} braces. If there is only one argument in a function, then we can omit even the () parenthesis.

20. Which company developed JavaScript?

The language was developed by Brenden Eich in 1995 when he was working as an employee of netscape. He is also the founder of Mozilla foundation.

21. What are classes in Javascript?

Classes in Javascript are templates for building objects. Classes bind the data with code so that the data works as per the code. They were introduced in the ES6 version of Javascript and while they were created on prototypes, they also have syntax and semantics that are not common with ES5. Classes can be seen as special functions. There are two components of class syntax: class expressions and class declarations.

Class expressions are one of the ways to define classes. They may or may not have names. If a class expression has a name, it is held locally in the class body but can be accessed through the name property. Before using class expressions, one must declare them.

Another way to define classes is class declaration. For declaring a class, the class keyword must be followed by the class name.

One class may use the properties of methods of another class by using the extend keyword. Classes in Javascript must follow the strict mode. If the strict mode is not followed, errors will appear.

22. How can you create objects in JavaScript?

Because JavaScript is fundamentally an object-oriented scripting language, it encourages and supports using objects when developing web-based applications.

23. What is object destructuring?

Object destructuring is a JavaScript feature to extract object properties and bind these properties to variables. It can be used to extract several properties in a single statement and can reach properties from nested objects. When no property exists, object destructuring can set default values.

24. Which is faster, JavaScript or ASP script?

JavaScript is faster than ASP script, as it is a lightweight language that is designed to run quickly in the browser. However, ASP script can perform more complex tasks that JavaScript cannot, so it can be faster in certain situations.

25. What are the rules for naming a variable in JavaScript?

The following are the conventions for naming variables in JavaScript:

- Variable names should not be identical to the reserved keywords. For example, var, let, const, etc.
- Variable names can't start with a numeric value. They should only begin with the letter or underscore character.
- Variable names have a case-sensitive nature.

26. How to debug JavaScript code?

Modern web browsers, such as Chrome, Firefox, etc., include a built-in debugger that can be opened anytime by pressing the appropriate key, typically the key F12.

27. What is Negative Infinity?

The negative infinity is a constant value that represents the lowest available value. This means that no number is less than this value. Negative Infinity is calculated by dividing a negative number by zero.

28. What are the undeclared and undefined variables in JavaScript?

Undeclared variables are variables that do not exist in the program and therefore are not declared. If a program attempts to determine the values of an undefined variable, it will fail because of a runtime error.

Undefined variables refer to ones declared by the program but not given a value. If the program attempts to find the values of an undefined variable the variable is returned with an undefined value.

29. What is NULL in JavaScript?

The NULL value signifies no value or no object. It is also known as an empty value or empty object.

30. What is the "this" keyword in JavaScript?

"this" refers to an object running the current line of code. It is a reference to the object which executes the current function. If the function that is being referenced is a regular one, "this" references the global object. If the function is a method of the object, "this" refers to the object itself.

JavaScript – Practical Questions

1. Write a JavaScript program to display the current day and time in the following format.

Today is: Tuesday.
Current time is : 10 PM : 30 : 38

2. Write a JavaScript program to calculate multiplication and division of two numbers (input from the user).

3. Write a JavaScript program to find the area of a triangle where three sides are 5, 6, 7.

4. Mouse Hover Event
Write a function that changes the background color of a div when the mouse hovers over it and resets the color when the mouse leaves.

5. Create a Basic Image Slider
Build a simple image carousel where users can click next/previous buttons to navigate through a series of images.