Javascript Basics

1. What is JavaScript? Explain the role of JavaScript in web development.

Ans) Lightweight: It doesn't require heavy setup or compilation. Dynamically Typed: Variables don't need to be declared with a specific type. Multi-Paradigm: It supports procedural object-oriented, and functional programming styles. Platform-Independent: It runs in web browsers and on servers via Node.js making it versatile.

JavaScript allows developers to create interactive elements like buttons, forms, dropdowns, and modals that respond to user actions

eg. clicks, mouse movements, keyboard input.

Ex.: Displaying a pop-up when a user clicks a button or validating form inputs in real-time.

1. Dynamic Content Updates JavaScript enables websites to update content dynamically without requiring a full page reload. This is achieved through AJAX (Asynchronous JavaScript and XML) or modern APIs like Fetch.

Ex: Loading new posts on a social media feed as the user scrolls down. 3. Client-Side Rendering JavaScript is used to render content directly in the browser, reducing the load on the server and improving performance. Frameworks like React, Angular, and Vue.js rely on JavaScript to build single-page applications (SPAs) where the entire UI is rendered on the client side.

1. Manipulating the DOM JavaScript interacts with the Document Object Model (DOM), which represents the structure of a web page. It can dynamically add, remove, or modify HTML elements and their styles. Example: Changing the text of a paragraph or hiding/showing a section of the page based on user input.
2. 5. Handling Asynchronous Operations JavaScript supports asynchronous programming through callbacks, Promises, and async/await, allowing

3)Discuss the use of <script> tag in HTML. How can you link an external JavaScript file to an HTML document?

The <script> tag in HTML is used to embed or reference JavaScript code within an HTML document. It allows you to add interactivity, dynamic behavior, and functionality to your web pages. The <script> tag can be used in two ways: Inline JavaScript: Writing JavaScript code directly inside the <script> tag. External JavaScript: Linking an external JavaScript file to the HTML document. 1. Inline JavaScript You can write JavaScript code directly within the <script> tag in your HTML file. This is useful for small scripts or quick prototyping.

4)What is the DOM (Document Object Model) in JavaScript? How does JavaScript interact with the DOM?

Ans)The DOM Document Object Model is a programming interface for web documents. It represents the structure of an HTML or XML document as a tree of objects, where each object corresponds to a part of the document eg. elements, attributes, text.

JavaScript can access elements in the DOM using methods like:

document.getElementById(): Selects an element by its id. document.querySelector(): Selects the first element matching a CSS selector.

document.querySelectorAll(): Selects all elements matching a CSS selector.

document.getElementsByClassName(): Selects elements by their class name. document.getElementsByTagName(): Selects elements by their tag name.