JAVA SCRIPT ASSIGNMENT

Introduction

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

Answer 1:-

* JavaScript is Scripting Language used to develop web pages.
* It is Client-side or Serverside.
* It is daynamic type language.
* While HTML structures the webpage and CSS styles it, JavaScript brings it to life by allowing users to interact with elements, such as clicking buttons, filling out forms, or displaying animations.

**Role of JavaScript in Web Development:**

1. **Interactivity**:

* Adds features like button clicks, hover effects, and animations.

1. **Dynamic Content**:

* Updates page content without reloading (e.g., live scores).

1. **Form Validation**:

* Ensures valid input before submission.

1. **Web Applications**:

* Builds advanced apps (e.g., Gmail, Google Maps) with frameworks like React or Angular.

1. **Server Communication**:

* Sends/receives data using AJAX or fetch without refreshing the page.

1. **Browser Control**:

* Manages cookies, detects user actions, and stores data locally.

**Why It’s Important:**

JavaScript is essential for responsive, interactive, and modern web experiences.

Question 2: How is JavaScript different from other programming languages like Python or Java?

Answer 2:-

1. **Purpose**:

* **JavaScript**: Web development (front-end & back-end with Node.js).
* **Python**: General-purpose, data science, automation, web, etc.
* **Java**: Enterprise apps, mobile (Android), backend systems.

1. **Typing**:

* **JavaScript**: Dynamically typed, loosely typed.
* **Python**: Dynamically typed, strongly typed.
* **Java**: Statically typed.

1. **Execution**:

* **JavaScript**: Runs in browsers or Node.js.
* **Python**: Runs on its interpreter.
* **Java**: Compiled to JVM bytecode.

1. **Use Cases**:

* **JavaScript**: Interactive websites, web apps.
* **Python**: Data science, automation, scripting.
* **Java**: Large-scale, mobile, backend.

1. **Concurrency**:

* **JavaScript**: Single-threaded with event loop.
* **Python**: Multi-threading/multiprocessing.
* **Java**: Built-in multithreading.

1. **Performance**:

* **JavaScript**: Fast for web-based tasks.
* **Python**: Slower.
* **Java**: Generally faster.

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

### Answer 3:- **Use of <script> tag in HTML:**

The <script> tag in HTML is used to define and include JavaScript code within an HTML document. JavaScript is a programming language used to add interactivity, dynamic behavior, and other client-side functionalities to a webpage. The <script> tag can either contain JavaScript code directly or link to an external JavaScript file.

Attributes of the <script> tag:

1. src: specifies the URL of an external JavaScript file.

2. type: specifies the script type (default is "text/javascript").

3. async: executes script asynchronously.

4. defer: executes script after page parsing.

**How to Link an External JavaScript File to an HTML Document :**

To link an external JavaScript file to an HTML document, the src attribute of the <script> tag is used. Here's the general syntax:

<script src="path/to/your/script.js"></script>

The src attribute points to the location of the external .js file. This can either be a relative path (e.g., "scripts/main.js") or an absolute path (e.g., "https://example.com/js/main.js").

**Example of linking an external JavaScript file:**

<body>

<h1>Welcome to my Webpage</h1>

<!-- Linking to an external JavaScript file -->

<script src="script.js"></script>

</body>