

## **TASK – 3 :**

### **JavaScript Intro :**

#### **1. What is JavaScript ?**

It runs directly in the browser and allows you to control elements on a webpage, respond to user actions, and update content without reloading the page.

#### **2. Why JavaScript ?**

- It makes web pages dynamic (not just plain text and images).
- It allows real-time updates (without page reloads).
- It can validate forms before sending data to a server.
- It enables animations, interactive maps, and games.
- It's universally supported by all major browsers.

#### **3. Where We Use JavaScript?**

- In browsers (Frontend): to control user interactions on web pages.
- On servers (Backend): using frameworks like Node.js.
- In mobile apps: using React Native or Ionic.
- In desktop apps: using Electron.js.
- In IoT devices and AI tools (less common but possible).

#### **4. Why we use JavaScript?**

- Enhance user experience (e.g., instant feedback, pop-ups, animations).
- Control HTML and CSS dynamically.
- Communicate with servers using APIs or AJAX.

- Build complete applications (e.g., using Node.js for backend or React for frontend).

## **5. Types of JavaScript :**

### **a) Client-side JavaScript**

Runs inside the browser (used for UI, animations, validation).

### **b) Server-side JavaScript**

Runs on a server using environments like Node.js.

### **c) ES Versions (ECMAScript Versions)**

- ES5 (2009): introduced JSON, strict mode.
- ES6 (2015): added let, const, arrow functions, classes.
- Latest Versions: ES7, ES8, etc., keep improving performance and features.

## **6. What Happens When we use JavaScript in a Webpage?**

- a. HTML is loaded first (page structure).
- b. CSS is applied (page design).
- c. JavaScript is then executed by the browser's JavaScript Engine (like Chrome's *V8 engine*).
- d. It interacts with the DOM (Document Object Model) — meaning it can:
  - I. Change text, images, and styles.
  - II. Respond to events (like clicks or scrolls).
  - III. Send/receive data from a server.
- e. The browser updates the webpage instantly — without reloading.

## 7. Without JavaScript – Other Programming Languages (with examples) :

LANGUAGE	Where it's Used	Purpose / Example
HTML	Frontend	Structure of web pages. <code>&lt;h1&gt;Hello&lt;/h1&gt;</code>
CSS	Frontend	Styling web pages. <code>h1 { color: blue; }</code>
Python	Backend , AI , Data	Used in Django/Flask frameworks. <code>print("Hello, Python!")</code>
PHP	Backend	For dynamic webpages and databases. <code>&lt;?php echo "Hello, PHP!"; ?&gt;</code>
Java	Backend , Android apps	Used for enterprise applications. <code>System.out.println("Hello, Java!");</code>
Ruby	Backend	Used in Ruby on Rails web apps. <code>puts "Hello, Ruby!"</code>