**History of JavaScript & Its Evolution**

1. **Birth of JavaScript**
   * In **1995**, **Netscape** wanted a lightweight programming language for web browsers.
   * Netscape’s founder **Marc Andreessen** approached **Brendan Eich**, who created the first version of the language in **just 10 days**.
   * Initially, it was called **Mocha**, later renamed to **LiveScript**, and finally to **JavaScript** (mainly for marketing purposes to ride on Java's popularity at that time).
2. **Microsoft & JScript**
   * Around the same time, **Microsoft** developed **JScript** for its **Internet Explorer** browser.
   * Due to differences between JavaScript (Netscape) and JScript (Microsoft), developers faced compatibility issues.
3. **ECMA Standardization**
   * To solve these problems, **Netscape** submitted JavaScript to **ECMA International** (European Computer Manufacturers Association).
   * In **1997**, ECMA standardized the language and called it **ECMAScript**.
   * **JavaScript** is an **implementation** of **ECMAScript**.

**JavaScript Execution**

1. **JavaScript Engines**
   * Every browser uses a **JavaScript engine** to execute JS code.
   * **Google Chrome** introduced the **V8 engine**, which is known for being **extremely fast**.
   * Other engines include:
     + SpiderMonkey → Firefox
     + JavaScriptCore → Safari
     + Chakra → Older Microsoft Edge
2. **Node.js**
   * **Node.js** uses the **V8 engine** outside of the browser, enabling developers to run JavaScript on servers.

**Interpreted vs Compiled Languages**

1. **Traditional Difference**
   * **Interpreted languages** → Execute **line by line**, making them slower but easier for debugging.
   * **Compiled languages** → Compile the entire code into **machine code** before execution, making them faster.
2. **JIT (Just-In-Time Compilation)**
   * Modern JS engines like **V8** use **JIT compilation**, combining the benefits of **interpreted** and **compiled** approaches:
     + JS code is **parsed and interpreted first** for quick execution.
     + Frequently used parts of the code are **compiled into machine code** at runtime, making JavaScript **much faster**.
3. WorldWideWeb – first browser by Tim berners lee