JS- ASSIGNMENT 1

**Ques:1 What are the different data types present in javascript?**

JavaScript supports several data types that can be broadly categorized into two groups:

1. Primitive data types
2. Non-Primitive data types or object data types.

**Primitive Data Types:**

**Number:**

Represents numeric values.

Example: let x = 5;

**String:**

Represents sequences of characters.

Example: let greeting = "Hello";

**Boolean:**

Represents either true or false.

Example: let isTrue = true;

**Undefined:**

Represents the absence of a value or an uninitialized variable.

Example: let x;

**Null:**

Represents the absence of any object value.

Example: let y = null;

**Symbol:**

Introduced in ECMAScript 6 (ES6).

Represents a unique identifier.

Example: let sym = Symbol('description');

**Non- Primitive Data Types:**

**Object:**

Represents a collection of key-value pairs.

Example:

let person = {

name: "John",

age: 30,

isStudent: false

};

**Array:**

Represents an ordered list of values.

Example: let numbers = [1, 2, 3, 4, 5];

**Function:**

Represents a reusable block of code.

Example:

function add(a, b) {

return a + b;

}

**Ques:2 What are the JavaScript Engines?**

JavaScript engines are programs that execute JavaScript code. They are responsible for interpreting and executing JavaScript instructions in web browsers, on servers, or in other environments. Different web browsers and environments have their own JavaScript engines. Here are some of the most well-known JavaScript engines:

**V8 (Used in Chrome and Node.js):**

Developed by Google.

Known for its speed and efficiency.

Used in the Chrome browser and the Node.js runtime.

**SpiderMonkey (Used in Firefox):**

Developed by Mozilla.

One of the first JavaScript engines, originally created for the Firefox browser.

**Chakra (Obsolete, Used in Older Versions of Microsoft Edge):**

Developed by Microsoft.

Used in legacy versions of the Microsoft Edge browser.

**Rhino:**

Developed by the Mozilla Foundation.

Implemented in Java and used for embedding JavaScript in Java applications.

These engines play a crucial role in determining the performance and compatibility of JavaScript code across different platforms. They include various components such as parsers, compilers, optimizers, and garbage collectors to efficiently execute JavaScript code. The competition among browser vendors has led to continuous improvements in the performance of JavaScript engines, resulting in faster execution times for web applications.

**Ques: 3 Explain ECMA in JS.**

ECMA (European Computer Manufacturers Association) is an organization that standardizes scripting languages. In JavaScript, ECMAScript (ES) is the standard specification that defines the scripting language's features and behavior. JavaScript implements ECMAScript standards to ensure consistency across different implementations.

**Ques: 4 Why We use JavaScript?**

JavaScript is a versatile and widely-used programming language that is primarily employed for web development. Here are several reasons why JavaScript is so widely used:

**Client-Side Scripting:**

JavaScript is primarily used for client-side scripting, allowing developers to create dynamic and interactive user interfaces. It runs directly in the user's browser, enabling real-time interaction without the need to reload the entire web page.

**Web Development:**

JavaScript is a fundamental component of web development. It is used to enhance the functionality and interactivity of websites. With JavaScript, developers can manipulate the Document Object Model (DOM) to update content, handle user events, and create dynamic interfaces.

**Cross-Browser Compatibility:**

JavaScript is supported by all major web browsers, including Chrome, Firefox, Safari, Edge, and others. This cross-browser compatibility ensures that JavaScript code can run consistently on different platforms.

**Asynchronous Programming:**

JavaScript supports asynchronous programming, allowing developers to execute code asynchronously without blocking the execution of other tasks. This is crucial for handling events, making network requests, and improving the overall performance of web applications.

**Frameworks and Libraries:**

Numerous frameworks and libraries are built on top of JavaScript, simplifying and speeding up the development process. Examples include React, Angular, and Vue.js for building user interfaces, and Node.js for server-side JavaScript.

**Versatility:**

JavaScript is a versatile language that can be used for both front-end and back-end development. With the advent of technologies like Node.js, JavaScript can be used to build server-side applications, allowing for full-stack development using a single language.

**Interactivity:**

JavaScript enables the creation of highly interactive and responsive user interfaces. It allows developers to validate forms, create animations, implement sliders, and update content dynamically, providing a better user experience.

**Integration with HTML and CSS:**

JavaScript seamlessly integrates with HTML and CSS, the other two core technologies of web development. This trio allows developers to create fully functional and visually appealing websites and web applications.

**Ques: 5 What is JavaScript? And also Explain the history of JavaScript?**

JavaScript is a programming language that adds interactivity, responsiveness, and dynamic features to websites. It's one of the core technologies for building web pages and web applications.

Birth: Developed by Brendan Eich at Netscape in 1995.

- Early Years: Originally named LiveScript, later renamed JavaScript.

- Standardization: ECMAScript was created to standardize JavaScript in 1997.

- Evolution: Continuous updates and enhancements to the language (ES6, ES7, etc.) improving functionalities.

**Ques: 6 What is DOM in js?**

DOM stands for Document Object Model.  DOM is a programming interface for HTML and XML documents.

When the browser tries to render an HTML document, it creates an object based on the HTML document called DOM. Using this DOM, we can manipulate or change various elements inside the HTML document.