**What is Java?**

Java is a high-level, object-oriented programming language used to create applications that can run on many types of computers and devices. Originally developed by Sun Microsystems (now owned by Oracle), Java is especially popular for large systems, Android apps, and server-side applications.

*Key features of Java:*

* **Platform Independence**: Java programs are compiled into bytecode, which can run on any platform with a Java Virtual Machine (JVM).
* **Object-Oriented**: It follows the principles of object-oriented programming (OOP), which makes it modular, scalable, and easier to maintain.
* **Robust and Secure**: Java has built-in security features, memory management, and exception handling, making it reliable for enterprise applications.

**2. What is the difference between const and let?**

In JavaScript, const and let are both ways to declare variables, but they behave slightly differently.

* **const (constant)**:
  + Declares a variable that cannot be reassigned once it's defined.
  + You must initialize a const variable when you declare it (e.g., const x = 5;).
  + Commonly used for values that should not change, like configuration values or fixed data.
* **let**:
  + Declares a variable that **can** be reassigned later.
  + It’s block-scoped, which means it only exists within the {} where it’s defined.
  + let is commonly used for variables that may change over time, like counters in loops.

Example:

javascript

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const name = "Alice"; // This cannot be reassigned

let age = 25; // This can be reassigned later

age = 26; // Now age is 26

**3. Define the string data type.**

A **string** is a data type used to represent text. Strings can contain letters, numbers, symbols, and spaces. In JavaScript, strings are surrounded by quotes (single ', double ", or backticks `).

Example:

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let greeting = "Hello, world!";

**4. Which should you use to wrap strings: single quotes ', double quotes ", or backticks `?**

You can use any of the three:

* **Single (') and Double Quotes (")**: Both are used for basic strings and work interchangeably.
* **Backticks (`)**: Used for **template literals**.

Best Practice:

* Choose single or double quotes based on consistency, project standards, or personal preference.
* Use **backticks** when you need to include variables or expressions directly within the string.

**5. What is a template literal and why is it used to build strings?**

A **template literal** is a way to create strings using backticks (`) rather than single or double quotes. Template literals allow embedding variables and expressions directly in the string using **${}** syntax.

*Example of a Template Literal:*

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let name = "Alice";

let greeting = `Hello, ${name}!`; // Outputs: Hello, Alice!

**Benefits of Template Literals**:

* Easier to build strings that include variables or expressions.
* Can span multiple lines without special characters.

**6. What are code comments and how are they written in JavaScript?**

**Comments** are notes in code that are ignored by the JavaScript engine. They're helpful for explaining what code does or leaving reminders.

There are two types of comments in JavaScript:

* **Single-line comments**: Start with //

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// This is a single-line comment

* **Multi-line comments**: Enclosed between /\* and \*/

javascript

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/\*

This is a multi-line comment

It spans multiple lines

\*/

Comments make code more understandable, especially when sharing or revisiting it later!