**Module-4 JavaScript Basic and DOM**

1. **What is JavaScript. How to use it?**

JavaScript is a high-level, interpreted programming language that is primarily used for adding interactivity and dynamic behaviour to web pages. It is commonly executed in web browsers to manipulate the Document Object Model (DOM), handle events, and interact with the user. To use JavaScript, you can include it directly in your HTML file using <script> tags within the <head> or <body> section.

1. **How many type of Variable in JavaScript?**

In JavaScript, there are three types of variables:

* var: It is function-scoped and is hoisted to the top of its function or global context.
* let: It is block-scoped and allows you to declare variables that are limited to the block, statement, or expression on which it is used.
* const: It is also block-scoped but, as the name suggests, the variable declared using const cannot be reassigned after its initial assignment.

1. **Define a Data Types in JS?**

JavaScript has several data types, including:

**Primitive Data Types:**

* String: Represents textual data.
* Number: Represents numeric data.
* Boolean: Represents true or false values.
* Undefined: Represents the absence of a value.
* Null: Represents the intentional absence of any object value.
* Symbol: Introduced in ECMAScript 6 (ES6), represents a unique identifier.

**Object Data Type:**

* Object: Represents a collection of key-value pairs.

1. **Write a mul Function which will Work Properly When invoked With Following Syntax.**

function mul(*x*) {

    return function(*y*) {

        return *x* \* *y*;

    };

  }

const result = mul(2)(3);

console.log(result);

1. **What the deference between undefined and undeclared in JavaScript?**

* **Undefined:** It is a variable that has been declared but not assigned a value. It is a special value that represents the absence of a value or an uninitialized variable.
* **Undeclared:** Refers to a variable that has not been declared using the var, let, or const keywords. Trying to access an undeclared variable will result in a reference error.

1. **Using console.log() print out the following statement: The quote 'There is no exercise better for the heart than reaching down and lifting people up.' by John Holmes teaches us to help one another. Using console.log() print out the following quote by Mother Teresa:**

*//question 6*

console.log("The quote 'There is no exercise better for the heart than reaching down and lifting people up.' by John Holmes teaches us to help one another.");

console.log("Spread love everywhere you go. Let no one ever come to you without leaving happier. - Mother Teresa");

1. **Check if typeof '10' is exactly equal to 10. If not make it exactly equal?**
2. **Write a JavaScript Program to find the area of a triangle?**

*//question 8*

*//area of triangle*

function calculateArea(*base*, *height*){

    return 0.5 \* *base* \* *height*;

}

const triArea = calculateArea(3,5);

console.log("The area of triangle is: " + triArea);

1. **Write a JavaScript program to calculate days left until next Christmas?**

1. **What is Condition Statement?**

A condition statement, also known as a conditional statement or control structure, is a programming construct that allows the execution of different code blocks based on whether a specified condition evaluates to true or false.

* **What is JavaScript?**
  + JavaScript is a high-level, interpreted programming language primarily used for creating interactive web pages and web applications. It enables dynamic and interactive content on websites, such as animations, form validations, and user interface enhancements.
* **What is the use of isNaN function?**
  + The isNaN() function is used to determine whether a value is NaN (Not-a-Number) or not. It returns true if the value is NaN, otherwise false.
* **What is negative Infinity?**
  + Negative Infinity is a special value in JavaScript representing the mathematical concept of negative infinity. It's used to represent a value that is smaller than any other value, including negative numbers.
* **Which company developed JavaScript?**
  + JavaScript was developed by Netscape Communications Corporation, primarily by Brendan Eich, in the mid-1990s.
* **What are undeclared and undefined variables?**
  + Undeclared variables: These are variables that have been used in code without being declared with the var, let, or const keywords. Accessing an undeclared variable will result in a ReferenceError.
  + Undefined variables: These are variables that have been declared but have not been assigned a value. Accessing an undefined variable will return the value undefined.
* **What is the difference between ViewState and SessionState?**
  + ViewState is used to store state information that is related to a specific web page and is maintained across postbacks. SessionState, on the other hand, is used to store state information that is global to the user session and is maintained across multiple requests from the same user.
* **What is === operator?**
  + The === operator is the strict equality operator in JavaScript. It compares two values for equality without performing type conversion. It returns true if both the value and the type of the operands are the same, otherwise false.
* **How to read and write a file using JavaScript?**
  + In a web browser environment, JavaScript doesn't have direct access to the file system for security reasons. However, in server-side JavaScript environments like Node.js, you can use the fs module to read and write files.
* **What are all the looping structures in JavaScript?**
  + JavaScript supports several looping structures:
  + for loop
  + while loop
  + do...while loop
  + for...in loop (used to iterate over object properties)
  + for...of loop (used to iterate over iterable objects like arrays)
* **How can you convert the string of any base to an integer in JavaScript?**
  + You can use the parseInt() function to convert a string representing a number in any base to an integer. For example:

var number = parseInt("1010", 2);

* **What is the function of the delete operator?**
  + The delete operator is used to remove a property from an object. It will return true if the property is successfully deleted, otherwise false.
* **What are all the types of Pop up boxes available in JavaScript?**
  + JavaScript provides three types of popup boxes:
  + alert(): Displays a message box with a specified message and an OK button.
  + confirm(): Displays a dialog box with a specified message and OK and Cancel buttons.
  + prompt(): Displays a dialog box that prompts the user for input.
* **What is the use of Void (0)?**
  + void(0) is used to evaluate an expression without returning any value. It's often used in the href attribute of anchor tags to prevent the browser from navigating to a new page when the link is clicked.
* **How can a page be forced to load another page in JavaScript?**
  + You can use window.location.href to redirect the browser to another page. For example:
  + window.location.href = "https://www.example.com";
* **What are the disadvantages of using innerHTML in JavaScript?**
  + Using innerHTML to manipulate HTML content can be risky because it can overwrite existing content and remove event listeners attached to elements. It's also susceptible to cross-site scripting (XSS) attacks if the content being inserted is not properly sanitized.