React

Assignment

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Date: 09.12.23

Assignment

Functions in JavaScript:

Functions in JavaScript allow you to encapsulate a block of code that can be executed whenever it is called. Functions can receive parameters and return values.

Source code:

```
// Function declaration
function greet(name) {
    console.log(`Hello, ${name}!`);
}

// Function call
greet("John");
```

DOM Manipulation: Explanation:

DOM manipulation involves interacting with the HTML document to dynamically update its content or structure. Here, we'll use JavaScript to change the content of an HTML element.

Source code:

```
<!DOCTYPE html>
<html lang="en">
<head>
    <meta charset="UTF-8">
    <meta name="viewport" content="width=device-width, initial-scale=1.0">
    <title>DOM Manipulation</title>
</head>
<body>

    <div id="exampleDiv"></div>

    <script>
        // DOM manipulation
        var divElement = document.getElementById("exampleDiv");
        divElement.innerHTML = "Hello, DOM!";
    </script>

</body></html>
```

Modules in JavaScript:

Modules in JavaScript help organize code by splitting it into separate files. This promotes code reusability and maintainability. In this example, we'll create a simple math module.

Source code:

```
// mathModule.js
export function add(a, b) {
    return a + b;
}

// main.js
import { add } from './mathModule';

console.log(add(3, 7)); // Output: 10
```

The mathModule.js file exports a function add that adds two numbers. In main.js, we import the add function and use it to add 3 and 7, logging the result.

Loops in JavaScript:

The for loop is used for iterating a specific number of times. In this example, we'll use it to calculate powers of 2.

Source code:

```
// For loop using math function
for (let i = 0; i < 5; i++) {
    console.log(Math.pow(2, i)); // Output: 1, 2, 4, 8, 16
}
```

The for loop iterates from i=0 to i<5, and for each iteration, it calculates and logs 2 to the power of i. forEach Loop: Explanation: The forEach loop is used for iterating over elements of an array. Here, we'll use it to calculate square roots.

Source code:

```
// forEach loop using math function
const numbers = [1, 2, 3, 4, 5];

numbers.forEach(function (num) {
   console.log(Math.sqrt(num)); // Output: 1, 1.414, 1.732, 2, 2.236
});
```

The forEach loop iterates over each element in the numbers array and calculates the square root using Math.sqrt, logging the result for each element.