

Demonstrations and Implementation of JavaScript methods, object methods, and DOM events.

A. JavaScript Methods: unshift(), shift(), and split()

1. **unshift():** The unshift() method adds one or more elements to the beginning of an array and returns the new length of the array.
2. **shift():** The shift() method removes the first element from an array and returns that removed element. This method changes the length of the array.
3. **split():** The split() method splits a string into an array of substrings based on a specified delimiter and returns the new array.

Example using the topic "CFGdegree"

Imagine we have an array representing different streams of a hypothetical "CFGdegree" program.

Implementation

```
// CFGdegree streams array
```

```
let cfgStreams = ['Data Science', 'Software Development', 'Cyber Security'];
```

```
// Example of unshift()
```

```
cfgStreams.unshift('Artificial Intelligence'); // Adds "Artificial Intelligence" at the beginning
```

```
console.log(cfgStreams); // Output: ["Artificial Intelligence", "Data Science", "Software Development", "Cyber Security"]
```

```
// Example of shift()
```

```
let firstStream = cfgStreams.shift(); // Removes the first element ("Artificial Intelligence")

console.log(firstStream); // Output: "Artificial Intelligence"

console.log(cfgStreams); // Output: ["Data Science", "Software Development", "Cyber Security"]

// Example of split()

let degreeDetails = "CFGdegree: Data Science, Software Development, Cyber Security";

let detailsArray = degreeDetails.split(': '); // Splits the string into two parts

console.log(detailsArray); // Output: ["CFGdegree", "Data Science, Software Development, Cyber Security"]
```

A. Object Methods in JavaScript

An object method is a function associated with an object. Methods are defined as properties of an object and can be invoked using the dot notation or bracket notation.

Example using the topic "Programming Languages":

Let's create an object programming Languages with methods to describe some actions related to programming languages.

Implementation

```
// Object for Programming Languages

const programmingLanguages = {

  languages: ['Python', 'JavaScript', 'Java', 'C++', 'Ruby'],

  // Method to add a new language
```

```
addLanguage: function (language) {  
    this.languages.push(language);  
    console.log(`${language} has been added.`);  
},  
  
// Method to remove the last language  
removeLanguage: function () {  
    const removed = this.languages.pop();  
    console.log(`${removed} has been removed.`);  
},  
  
// Method to display all languages  
displayLanguages: function () {  
    console.log('Available Programming Languages: ' + this.languages.join(', '));  
}  
};  
  
// Example usage of object methods  
programmingLanguages.addLanguage('Go'); // Adds 'Go' to the languages array  
programmingLanguages.displayLanguages(); // Displays all languages  
programmingLanguages.removeLanguage(); // Removes the last language ('Go')
```

B. DOM Events

1. onmouseover Event

The onmouseover event occurs when the mouse pointer is moved over an element. It is often used to change the style or content of an element dynamically when hovered over.

Implementation

when the **user hovers** over the text, the color changes to red.

```
<p id="hoverText" onmouseover="this.style.color='red'">Hover over this text to change its color.</p>
```

2. Two Other DOM Events

A. onclick Event

The onclick event occurs when a user clicks on an element, such as a button or a link. It is widely used for triggering JavaScript functions in response to user actions.

When the button is clicked, an alert box with the message "Button clicked!" appears.

Implementation

```
<button onclick="alert('Button clicked!')">Click Me!</button>
```

B. onchange Event

The onchange event occurs when the value of an input field changes and loses focus. It is commonly used in forms to trigger validation or perform actions based on the user input.

When the text input's value is changed and the field loses focus, an alert is displayed.

Implementation

```
<input type="text" id="nameInput" onchange="alert('You changed the input!')" placeholder="Enter your CFG Stream">
```