

Q1. What is an array in JavaScript? How do you declare and initialize an array?

Ans: An array in JavaScript is a data structure used to store multiple values in a single variable. These values can be of any data type (numbers, strings, objects, etc.), and each value is stored at a specific index (starting from 0).

There are two common ways to declare an array.

1. Using Square Brackets (Recommended)

```
let fruits = ["Apple", "Banana", "Mango"];
```

2. Using the Array Constructor

```
let numbers = new Array(1, 2, 3, 4);
```

Initializing an Array

Arrays can be initialized at the time of declaration or later.

Initialize at Declaration:

```
let colors = ["Red", "Green", "Blue"];
```

Declare First, Initialize Later:

```
let marks = [];
```

```
marks[0] = 85;
```

```
marks[1] = 90;
```

```
marks[2] = 78;
```

Accessing Array Elements

```
console.log(fruits[0]); // Apple
```

Q2. Explain the methods push(), pop(), shift(), and unshift() used in arrays.

Ans: 1. push()

- Adds one or more elements to the end of an array.
- Returns the new length of the array.

Example: let fruits = ["Apple", "Banana"];

```
fruits.push("Mango");

console.log(fruits);

// ["Apple", "Banana", "Mango"]
```

2. pop()

- Removes the last element from an array.
- Returns the removed element.

Example:

```
let fruits = ["Apple", "Banana", "Mango"];

fruits.pop();

console.log(fruits);

// ["Apple", "Banana"]
```

3. shift()

- Removes the first element from an array.
- Shifts remaining elements to lower indexes.
- Returns the removed element.

Example:

```
let fruits = ["Apple", "Banana", "Mango"];

fruits.shift();

console.log(fruits);

// ["Banana", "Mango"]
```

4. unshift()

- Adds one or more elements to the beginning of an array.
- Returns the new length of the array.

Example:

```
let fruits = ["Banana", "Mango"];

fruits.unshift("Apple");

console.log(fruits);

// ["Apple", "Banana", "Mango"]
```