# Lesson 02 Demo 04

# Working with 2D Arrays

**Objective:** To demonstrate the important methods for working with 2D arrays in JavaScript

**Tools required:** Visual Studio Code and Node.js

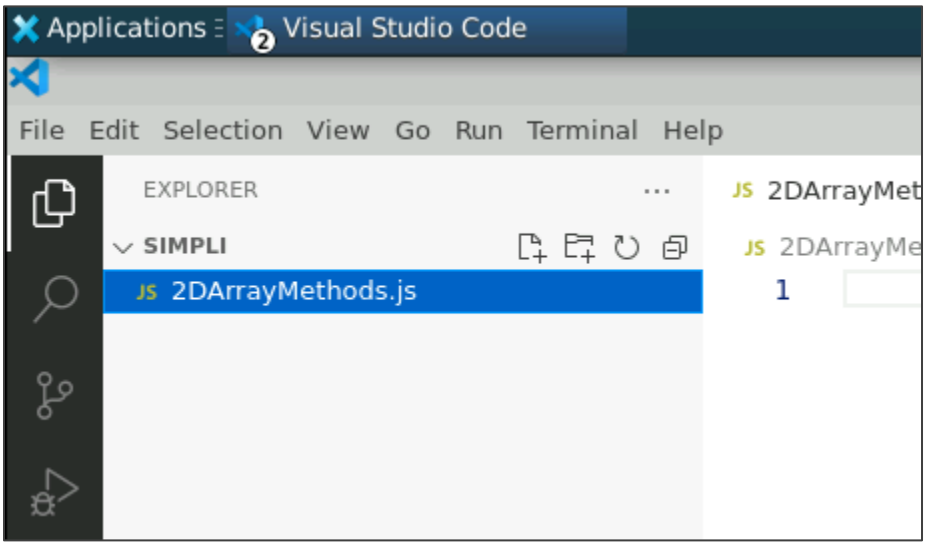
**Prerequisites:** Basic understanding of arrays and multidimensional arrays in JavaScript

Steps to be followed:

1. Create and execute the JS file

## Step 1: Create and execute the JS file

1.1 Open the Visual Studio Code editor and create a JavaScript file named **2DArrayMethods.js**



1.2 Write the code given below in the **2DArrayMethods.js** file:

```
// Creating a 2D array
let twoDArray = [
   [1, 2, 3],
   [4, 5, 6],
   [7, 8, 9]
];

// Method 1: Accessing elements in a 2D array
console.log("Element at row 2, column 3:", twoDArray[1][2]);

// Method 2: Iterating through rows and columns
console.log("Iterating through the 2D array:");
for (let row = 0; row < twoDArray.length; row++) {
   for (let col = 0; col < twoDArray[row].length; col++) {
      console.log(`Element at row ${row + 1}, column ${col + 1}:
${twoDArray[row][col]}`);
   }
}

// Method 3: Adding a new row to the 2D array
let newRow = [10, 11, 12];
twoDArray.push(newRow);
console.log("2D array after adding a new row:");
console.log(twoDArray);

// Method 4: Removing a row from the 2D array
twoDArray.pop(); // Remove the last row
console.log("2D array after removing the last row:");
console.log(twoDArray);
```

```
// Creating a 2D array
let twoDArray = [
    [1, 2, 3],
    [4, 5, 6],
    [7, 8, 9]
];

// Method 1: Accessing elements in a 2D array
console.log("Element at row 2, column 3:", twoDArray[1][2]);

// Method 2: Iterating through rows and columns
console.log("Iterating through the 2D array:");
for (let row = 0; row < twoDArray.length; row++) {
    for (let col = 0; col < twoDArray[row].length; col++) {
        console.log(`Element at row ${row + 1}, column ${col + 1}: ${twoDArray[row][col]}`);
    }
}

// Method 3: Adding a new row to the 2D array
let newRow = [10, 11, 12];
twoDArray.push(newRow);
console.log("2D array after adding a new row:");
console.log(twoDArray);

// Method 4: Removing a row from the 2D array
twoDArray.pop(); // Remove the last row
console.log("2D array after removing the last row:");
console.log(twoDArray);
```

1.3 Save the file and execute it in the terminal using the command given below:
**node 2DArrayMethods.js**

```
    [4, 5, 6],
    [7, 8, 9]

PROBLEMS  OUTPUT  DEBUG CONSOLE  TERMINAL

priyanshurajsim@ip-172-31-29-42:~/Downloads/Simpli$ ls
2DArrayMethods.js
priyanshurajsim@ip-172-31-29-42:~/Downloads/Simpli$ node 2DArrayMethods.js
Element at row 2, column 3: 6
Iterating through the 2D array:
Element at row 1, column 1: 1
Element at row 1, column 2: 2
Element at row 1, column 3: 3
Element at row 2, column 1: 4
Element at row 2, column 2: 5
Element at row 2, column 3: 6
Element at row 3, column 1: 7
Element at row 3, column 2: 8
Element at row 3, column 3: 9
2D array after adding a new row:
[ [ 1, 2, 3 ], [ 4, 5, 6 ], [ 7, 8, 9 ], [ 10, 11, 12 ] ]
2D array after removing the last row:
[ [ 1, 2, 3 ], [ 4, 5, 6 ], [ 7, 8, 9 ] ]
priyanshurajsim@ip-172-31-29-42:~/Downloads/Simpli$
```

This example explores important methods for working with 2D arrays in JavaScript, including accessing elements, iterating through the array, adding a new row, and removing a row.

By following these steps, you have successfully gained hands-on experience with 2D arrays manipulation in JavaScript.