

## Lesson 02 Demo 02

### Working with 2D Arrays

**Objective:** To demonstrate essential methods for working with 2D arrays in JavaScript for effective data organization and manipulation

**Tools required:** Visual Studio Code

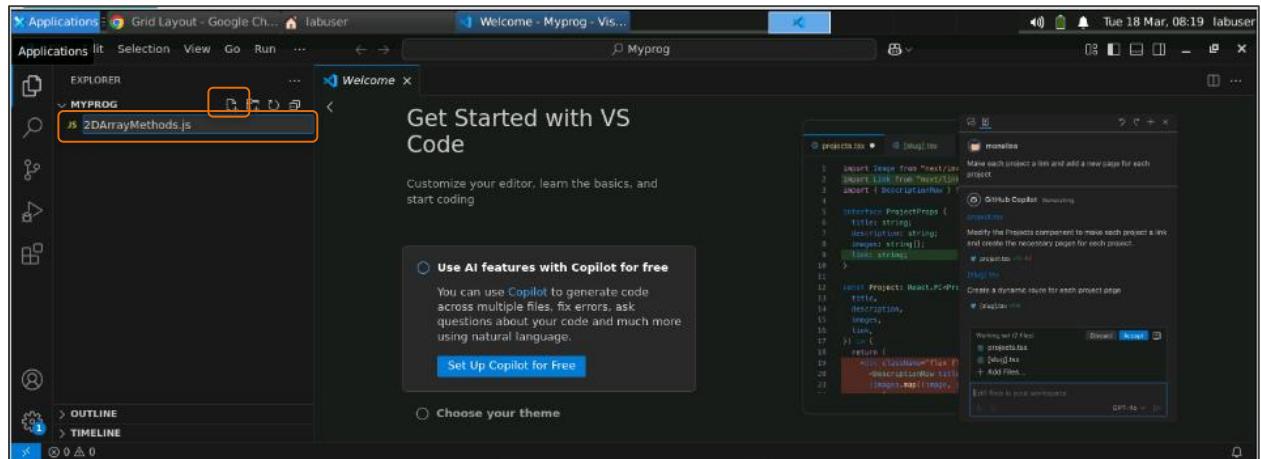
**Prerequisites:** Completion of Lesson 02 Demo 01

Steps to be followed:

1. Create a JavaScript file and execute it

#### Step 1: Create a JavaScript file and execute it

- 1.1 Open Visual Studio Code, click on the **New File...** icon, and create a JavaScript file named **2DArrayMethods.js**



**Note:** You can name the JavaScript file according to your preference.

1.2 Add the following code to the 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);
```

The screenshot shows a Visual Studio Code window with the title bar "● 2DArrayMethods.js - Myprog - Visual Studio Code". The left sidebar has sections for "EXPLORER", "MYPROG" (with "2DArrayMethods.js" listed), "OUTLINE", and "TIMELINE". The main editor area shows the following JavaScript code:

```
// 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
```

At the bottom right, status information includes "Ln 42, Col 1 Spaces: 4 UTF-8 LF {} JavaScript". A yellow box highlights the first three methods (Creating a 2D array, Method 1, and Method 2).

The screenshot shows a Visual Studio Code window with the title bar "● 2DArrayMethods.js - Myprog - Visual Studio Code". The left sidebar has sections for "EXPLORER", "MYPROG" (with "2DArrayMethods.js" listed), "OUTLINE", and "TIMELINE". The main editor area shows the following JavaScript code:

```

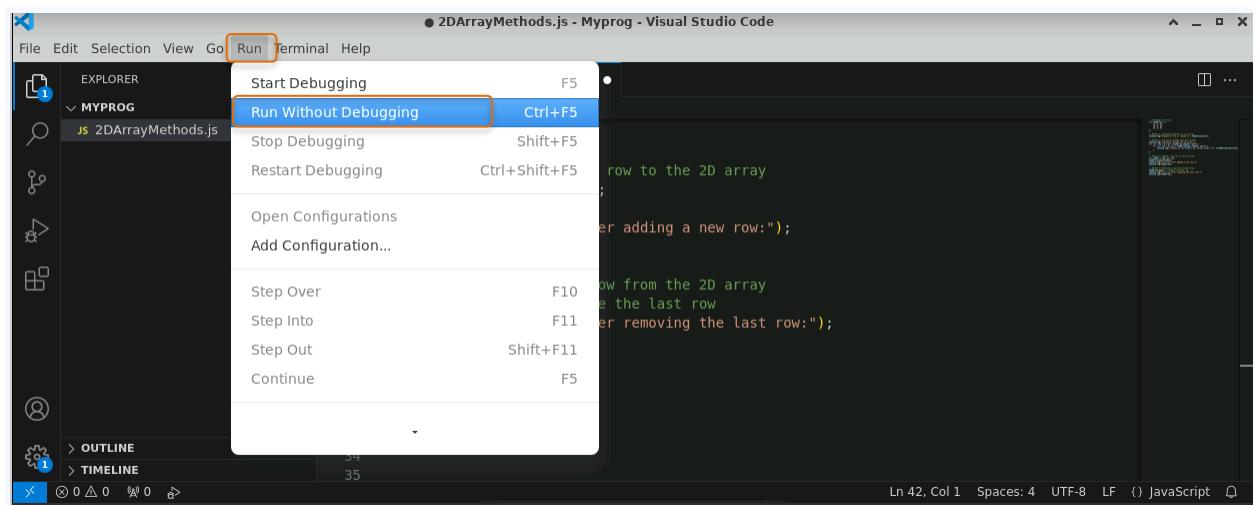
}
;

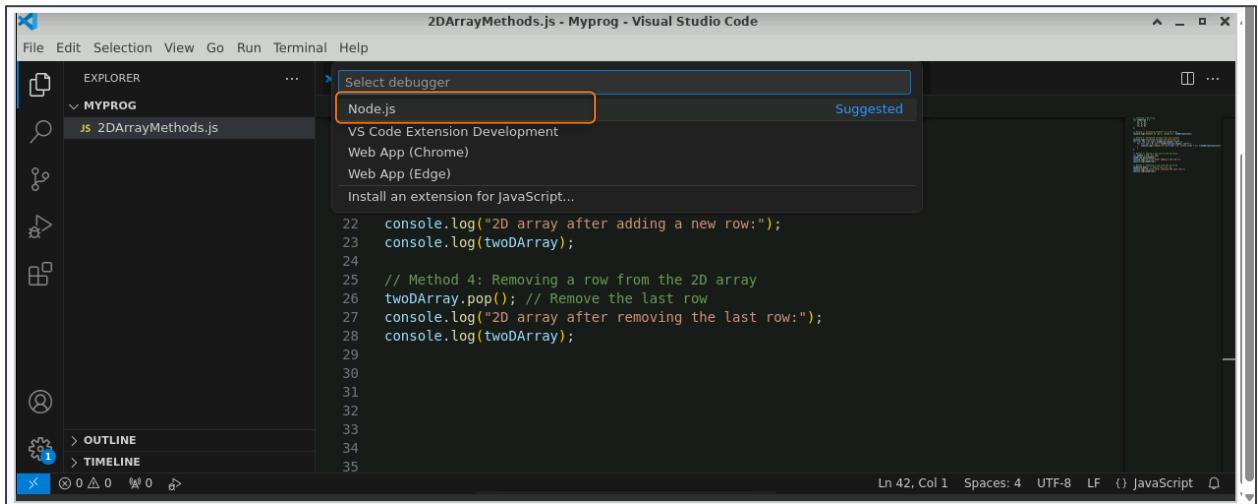
// Method 3: Adding a new row to the 2D array
let newRow = [10, 11, 12];
twoDArray.push(newRow);
console.log("2D array after adding a new row:");
console.log(twoDArray);

// 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);
```

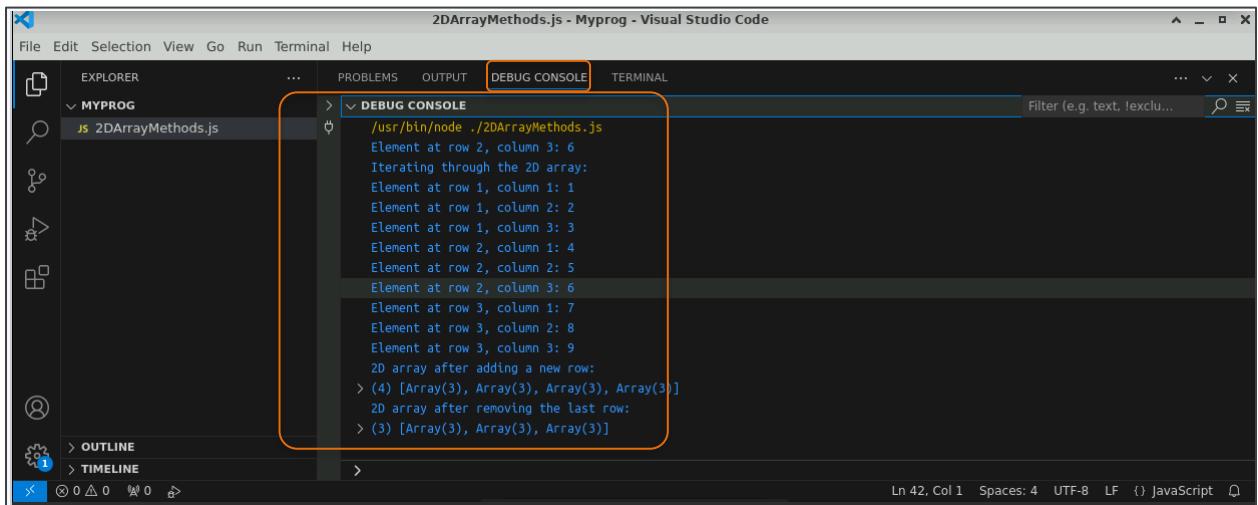
At the bottom right, status information includes "Ln 42, Col 1 Spaces: 4 UTF-8 LF {} JavaScript". A yellow box highlights the last two methods (Method 3 and Method 4).

1.3 Click Run and then Run Without Debugging. Select Node.js to check the output in the DEBUG CONSOLE.





#### 1.4 View the output in the **DEBUG CONSOLE** as shown below:



**Note:** 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 working with 2D array manipulation in JavaScript, which is essential for effective data organization and manipulation.