Lesson 04 Demo 02

Demonstrating Operators and Expressions

Objective: To demonstrate practical usage of JavaScript operators and expressions for enhanced understanding and application

Tools required: Visual Studio Code and Node.js

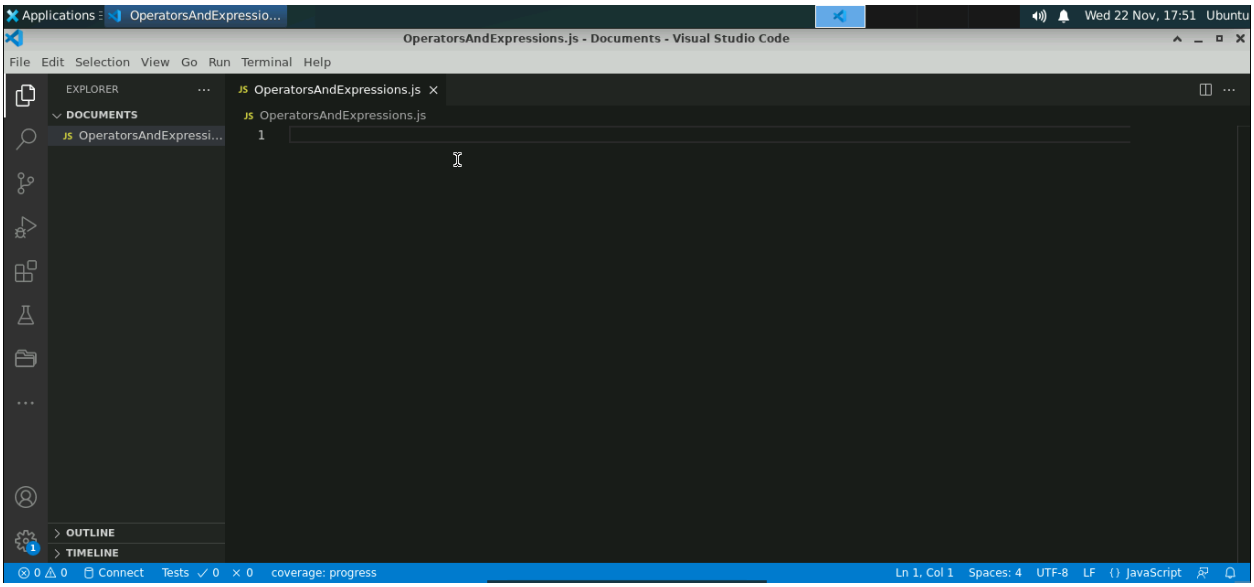
Prerequisites: A basic understanding of operators and expressions in JavaScript

Steps to be followed:

1. Create and execute the JS file

Step 1: Create and execute the JS file

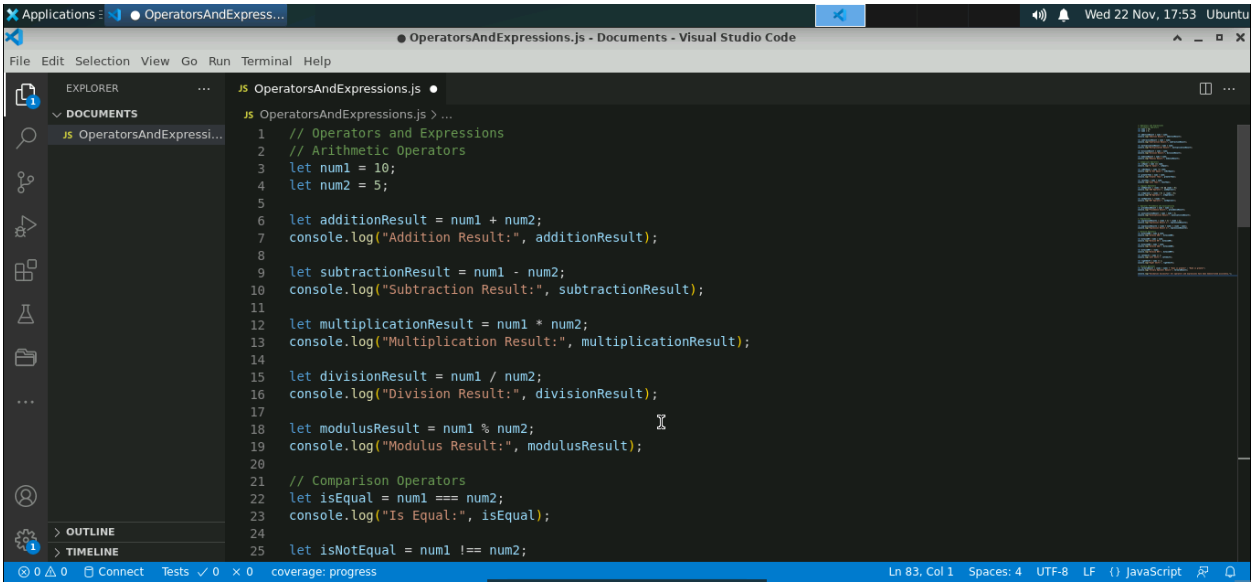
1.1 Open the Visual Studio Code editor and create a JavaScript file named **OperatorsAndExpressions.js**

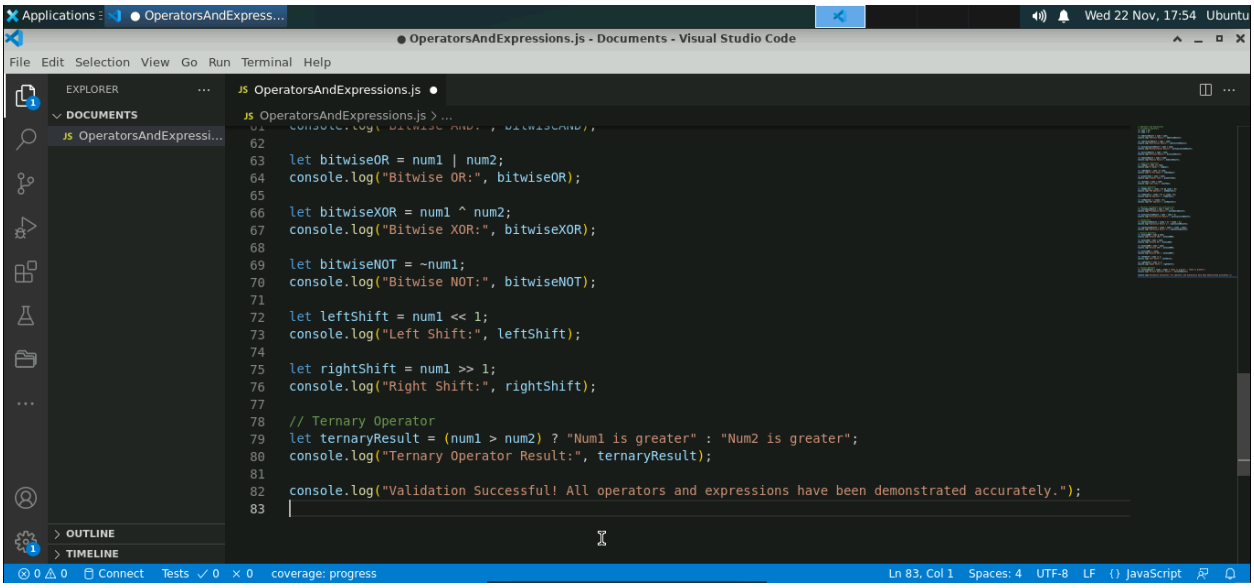


1.2 Add the following code to the **OperatorsAndExpressions.js** file:

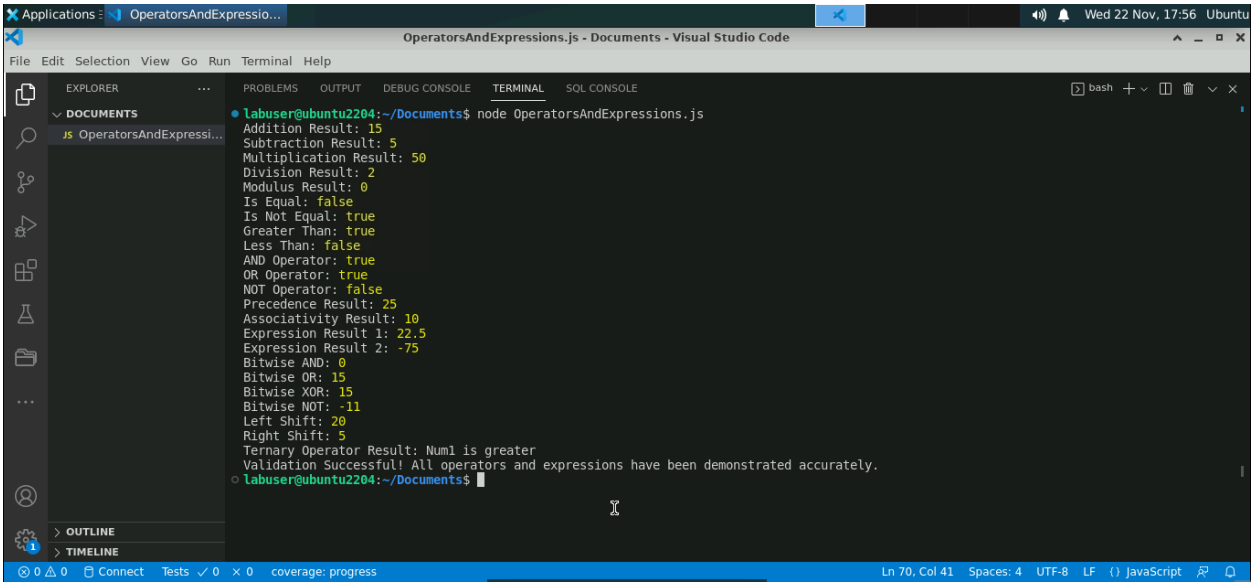
```
// Operators and Expressions
// Arithmetic Operators
let num1 = 10;
let num2 = 5;

let additionResult = num1 + num2;
console.log("Addition Result:", additionResult);

let subtractionResult = num1 - num2;
console.log("Subtraction Result:", subtractionResult);

let multiplicationResult = num1 * num2;
console.log("Multiplication Result:", multiplicationResult);

let divisionResult = num1 / num2;
console.log("Division Result:", divisionResult);

let modulusResult = num1 % num2;
console.log("Modulus Result:", modulusResult);

// Comparison Operators
let isEqual = num1 === num2;
console.log("Is Equal:", isEqual);

let isNotEqual = num1 !== num2;
console.log("Is Not Equal:", isNotEqual);

let greaterThan = num1 > num2;
console.log("Greater Than:", greaterThan);

let lessThan = num1 < num2;
console.log("Less Than:", lessThan);

// Logical Operators
let andOperator = (num1 > 0) && (num2 > 0);
console.log("AND Operator:", andOperator);

let orOperator = (num1 > 0) || (num2 > 0);
console.log("OR Operator:", orOperator);

let notOperator = !(num1 > 0);
```

```
console.log("NOT Operator:", notOperator);

// Operator Precedence and Associativity
let precedenceResult = num1 + num2 * 3;
console.log("Precedence Result:", precedenceResult);

let associativityResult = num1 - num2 + 5;
console.log("Associativity Result:", associativityResult);

// Expressions
let expressionResult1 = (num1 * 2) + (num2 / 2);
console.log("Expression Result 1:", expressionResult1);

let expressionResult2 = (num1 + num2) * (num2 - num1);
console.log("Expression Result 2:", expressionResult2);

// Bitwise Operators
let bitwiseAND = num1 & num2;
console.log("Bitwise AND:", bitwiseAND);

let bitwiseOR = num1 | num2;
console.log("Bitwise OR:", bitwiseOR);

let bitwiseXOR = num1 ^ num2;
console.log("Bitwise XOR:", bitwiseXOR);

let bitwiseNOT = ~num1;
console.log("Bitwise NOT:", bitwiseNOT);

let leftShift = num1 << 1;
console.log("Left Shift:", leftShift);

let rightShift = num1 >> 1;
console.log("Right Shift:", rightShift);

// Ternary Operator
let ternaryResult = (num1 > num2) ? "Num1 is greater" : "Num2 is greater";
console.log("Ternary Operator Result:", ternaryResult);

console.log("Validation Successful! All operators and expressions have been
demonstrated accurately.");
```


Applications
OperatorsAndExpress...
Wed 22 Nov, 17:53 Ubuntu
OperatorsAndExpressions.js - Documents - Visual Studio Code
File Edit Selection View Go Run Terminal Help
EXPLORER
DOCUMENTS
OperatorsAndExpressi...
OperatorsAndExpressions.js
OperatorsAndExpressions.js > ...
1 // Operators and Expressions
2 // Arithmetic Operators
3 let num1 = 10;
4 let num2 = 5;
5
6 let additionResult = num1 + num2;
7 console.log("Addition Result:", additionResult);
8
9 let subtractionResult = num1 - num2;
10 console.log("Subtraction Result:", subtractionResult);
11
12 let multiplicationResult = num1 * num2;
13 console.log("Multiplication Result:", multiplicationResult);
14
15 let divisionResult = num1 / num2;
16 console.log("Division Result:", divisionResult);
17
18 let modulusResult = num1 % num2;
19 console.log("Modulus Result:", modulusResult);
20
21 // Comparison Operators
22 let isEqual = num1 === num2;
23 console.log("Is Equal:", isEqual);
24
25 let isNotEqual = num1 !== num2;
OUTLINE
TIMELINE
0 0 Connect Tests 0 0 coverage: progress
Ln 83, Col 1 Spaces: 4 UTF-8 LF JavaScript


Applications
OperatorsAndExpress...
Wed 22 Nov, 17:54 Ubuntu
OperatorsAndExpressions.js - Documents - Visual Studio Code
File Edit Selection View Go Run Terminal Help
EXPLORER
DOCUMENTS
OperatorsAndExpressi...
OperatorsAndExpressions.js
OperatorsAndExpressions.js > ...
63 let bitwiseOR = num1 | num2;
64 console.log("Bitwise OR:", bitwiseOR);
65
66 let bitwiseXOR = num1 ^ num2;
67 console.log("Bitwise XOR:", bitwiseXOR);
68
69 let bitwiseNOT = ~num1;
70 console.log("Bitwise NOT:", bitwiseNOT);
71
72 let leftShift = num1 << 1;
73 console.log("Left Shift:", leftShift);
74
75 let rightShift = num1 >> 1;
76 console.log("Right Shift:", rightShift);
77
78 // Ternary Operator
79 let ternaryResult = (num1 > num2) ? "Num1 is greater" : "Num2 is greater";
80 console.log("Ternary Operator Result:", ternaryResult);
81
82 console.log("Validation Successful! All operators and expressions have been demonstrated accurately.");
83
OUTLINE
TIMELINE
0 0 Connect Tests 0 0 coverage: progress
Ln 83, Col 1 Spaces: 4 UTF-8 LF JavaScript

1.3 Save the file and run it using Node.js in the terminal:
node OperatorsAndExpressions.js



The provided code demonstrates various operators such as arithmetic, comparison, logical, and bitwise. It also includes operator precedence, associativity, expressions, and the ternary operator in JavaScript.

By following these steps, you have successfully executed and validated the demonstration, ensuring an accurate representation of all operators and expressions.