ENSF-381: Full Stack Web Development Laboratory
Lab04

GitHub Link:

https://github.com/AXP4/381_lab03_repo.git

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Exercise 1 (Source Code):

```html
<!DOCTYPE html>
<html lang="en">
<head>
    <meta charset="UTF-8">
    <meta name="viewport" content="width=device-width, initial-scale=1.0">
    <title>Lab3 -- Exercise 1</title>
</head>
<body>
    <h1>JavaScript Lab Exercise 1</h1>
    <script>

        var myVar = "var";
        let myLet = "let";
        const myConst = "const";

        console.log(myVar);
        console.log(myLet);
        console.log(myConst);

        myLet = "let1";
        console.log(myLet); // works

        try {
            myConst = "trying to change const";
        } catch (error) {
            console.log("Error: cannot reassign const");
```

```javascript
        }

        let string1 = "Hello, World!"
        let string2 = "JavaScript is fun!"
        let len = string1.length;

        console.log(len);
        console.log(string1);
        console.log(string2);

        let stringConc = string1 + " " + string2;
        console.log(stringConc);

        let string3 = string2.replace("fun", "awesome");
        console.log(string3);

        let name = "Alice"
        let age = 25

        let templateLiteral = `My name is ${name} and I am ${age} years
old`;
        console.log(templateLiteral);

        const students = ["Alice", "Tom", "Charlie"];
        const ages = [19, 20, 21];

        for (let i = 0; i < students.length; i++) {
        let studentInfo = `My name is ${students[i]} and I am ${ages[i]}
years old`;
        console.log(studentInfo);
        }

        let currentDate = new Date();
        console.log(currentDate.toLocaleDateString("en-CA"));
        console.log(currentDate.toLocaleDateString("en-US"));

        console.log(currentDate.getFullYear());
        console.log(currentDate.getMonth() + 1);
        console.log(currentDate.toLocaleDateString("en-CA", { weekday:
"long" }));
```

```javascript
        let month = currentDate.getMonth() + 1;
        let season;
        if (month === 11 || month === 0 || month === 1) {
            season = "Winter";
        } else if (month >= 2 && month <= 4) {
            season = "Spring";
        } else if (month >= 5 && month <= 7) {
            season = "Summer";
        } else {
            season = "Fall";
        }
        console.log("Current Season:", season);

    </script>
</body>
</html>
```

Exercise 2 (Source Code):

```html
<!DOCTYPE html>
<html lang="en">
<head>
 <meta charset="UTF-8">
 <meta name="viewport" content="width=device-width, initial-scale=1.0">
 <title>Lab3 -- Exercise 2</title>
</head>
<body>
 <h1>JavaScript Lab Exercise 2</h1>
 <script>

    /*
    function add(a, b) {
        return a + b;
    }

    function subtract(a, b) {
        return a - b;
    }
    */
```

```javascript
/*
function add(a, b = 5) {
    return a + b;
}

function subtract(a, b = 5) {
    return a - b;
}
*/

const add = (a, b = 5) => a + b;
const subtract = (a, b = 5) => a - b;
const multiply = (a, b = 5) => a * b;
const divide = (a, b = 5) => {
    if (b === 0) {
        console.error("Error: Can't divide by zero.");
        return NaN;
    }
    return a / b;
};

console.log(add(5, 3));
console.log(subtract(5, 3));
console.log(add(5));
console.log(subtract(5));
console.log(multiply(5, 3));
console.log(divide(10, 5));
console.log(divide(5, 0)); // will give error

function calculator(num1, num2, operation) {
    if (operation === "add") {
        return add(num1, num2);
    } else if (operation === "subtract") {
        return subtract(num1, num2);
    } else if (operation === "multiply") {
        return multiply(num1, num2);
    } else if (operation === "divide") {
        return divide(num1, num2);
    } else {
```

```
            console.error("Error: Invalid operation.");
            return null;
        }
    }

    console.log(calculator(10, 5, "add"));
    console.log(calculator(10, 5, "divide"));


 </script>
</body>
</html>
```

Exercise 3 (Source Code):

.html
```
<!DOCTYPE html>
<html lang="en">
<head>
 <meta charset="UTF-8">
 <meta name="viewport" content="width=device-width, initial-scale=1.0">
 <title>Lab3 -- Exercise 3</title>
</head>
<body>
 <h1>JavaScript Lab Exercise 3</h1>
 <script src="./exercise3.js" defer>
 // Write your JavaScript code here
 </script>
</body>
</html>
```

.js
```
const classRoster = ["Alice", "Tom", "Charlie", "Diana", "Evan"];

console.log(classRoster.toString());
console.log(classRoster);

classRoster.push("Fiona", "Nancy");
const removedStudent = classRoster.shift();

console.log(removedStudent);
```

```javascript
console.log(classRoster.length);

const classInfo = {
  className: "ENSF381: Full-Stack Web Development",
  instructor: "Dr. Smith",
  students: classRoster,
  details: {
    semester: "Winter",
    year: 2025
  }
};

classInfo.schedule = ["Monday", "Wednesday", "Friday"];
classInfo.instructor = 'Dr.Abdellatif';

console.log(classInfo.className);
console.log(classInfo.instructor);
console.log(classInfo.students);
console.log(classInfo.details.semester);
console.log(classInfo)

const { className, students } = classInfo;
console.log(className);
console.log(students);

const { details: { semester, year } } = classInfo;
console.log(semester);
console.log(year);

const [student1, student2, ...remainingStudents] = classRoster;
console.log(student1);
console.log(student2);
console.log(remainingStudents);
```