Here’s an \*\*in-depth problem statement\*\* for the JavaScript Basics assignment, styled like a coding challenge from \*\*LeetCode\*\* or \*\*Codecademy\*\*:

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### \*\*Problem: JavaScript Basics - Variables and Arithmetic Operations\*\*

\*\*Problem Statement\*\*:

You are tasked with writing a simple JavaScript program that demonstrates the use of variables and basic arithmetic operations. The goal is to practice variable declaration, assignment, and performing arithmetic calculations while logging the results to the console.

\*\*Requirements\*\*:

1. Create a JavaScript file named `mathOperations.js`.

2. In this file, perform the following operations:

- Declare and initialize two variables, `a` and `b`, with any numeric values of your choice.

- Perform the following arithmetic operations:

- Addition

- Subtraction

- Multiplication

- Division

- Modulus (remainder)

3. Use `console.log()` to display the results of each operation in a clear and descriptive format. For example, the output for addition should look like:

```

The sum of a and b is: <result>

```

\*\*Operations to Implement\*\*:

1. Addition of `a` and `b`

2. Subtraction of `b` from `a`

3. Multiplication of `a` and `b`

4. Division of `a` by `b`

5. Modulus of `a` by `b`

\*\*Example\*\*:

Here’s a sample implementation for your `mathOperations.js` file:

```javascript

// mathOperations.js

// Declare and initialize variables

let a = 10; // Example value

let b = 5; // Example value

// Perform arithmetic operations

let sum = a + b;

let difference = a - b;

let product = a \* b;

let quotient = a / b;

let remainder = a % b;

// Display results using console.log()

console.log("The sum of a and b is: " + sum);

console.log("The difference when b is subtracted from a is: " + difference);

console.log("The product of a and b is: " + product);

console.log("The quotient when a is divided by b is: " + quotient);

console.log("The remainder when a is divided by b is: " + remainder);

```

\*\*Expected Output\*\*:

When you run the `mathOperations.js` file using a JavaScript runtime (like Node.js) or in a browser console, you should see the following output (assuming `a` is 10 and `b` is 5):

```

The sum of a and b is: 15

The difference when b is subtracted from a is: 5

The product of a and b is: 50

The quotient when a is divided by b is: 2

The remainder when a is divided by b is: 0

```

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This problem statement clearly outlines the task and provides requirements and examples, guiding learners through the basics of JavaScript, including variable usage and arithmetic operations.