Coding Challenges - Day 5

Challenges 1

Variable Declaration Practice

Declare the following variables using the most appropriate keyword (`let` or `const`) and assign them values:

- Your first name (should not change)
- Your current age (might change next year)
- An array of your favorite hobbies (can add/remove hobbies)
- A constant representing the speed of light (meters/second)
- A boolean indicating if you are currently learning JavaScript

Primitive vs. Object Assignment

Predict the output of the following code and explain your reasoning.

```
let num1 = 5;
let num2 = num1;
num2 = 10;
console.log(num1); // What will this be?

const objA = { value: 50 };
const objB = objA;
objB.value = 100;
console.log(objA.value); // What will this be?

const arr1 = [1, 2, 3];
const arr2 = arr1;
```

```
arr2.push(4);
console.log(arr1); // What will this be?
```

Challenges 2

Calculate BMI

- Write JavaScript code to calculate the Body Mass Index (BMI) using the formula: `BMI = weight (kg) / (height (m) * height (m))`.
- Declare variables for `weightInKg` and `heightInMeters`, perform the calculation, and print the result.

Conditional Message

- Use the ternary operator to assign a `message` string.
- If a `temperature` variable is greater than 25, the message should be "It's hot!", otherwise "It's cool.". Print the message.

Operation Precedence Puzzle

Predict the output of the following expressions without running them, then verify with code.

```
10 + 5 * 2
(10 + 5) * 2
10 / 2 + 3
10 / (2 + 3)
5 > 3 && 10 < 15
true || false && false
```

Challenges 3

User Input Calculation

Imagine you get two numbers from user input (which are always strings). Write code to:

- Concatenate them as strings.
- Add them as numbers.

Boolean Conversion Exercise

For each of the following values, determine if it is truthy or falsy and explain why:

- `"0"`
- `"false"`
- `[]`
- `{}`
- `0`
- `NaN`
- `1`
