

## ✅ Task 1: Variables and Data Types

### 🎯 Goals:

- Understand var, let, and const
- Know JavaScript data types
- Learn how JavaScript treats dynamic typing and type coercion

### 📘 Concepts to Learn:

#### 1. Declaring Variables

Keyword	Scope	Reassign able	Hoisted	Notes
var	Function	✅ Yes	✅ Yes	Legacy, avoid using
let	Block	✅ Yes	❌ No	Preferred for mutable variables
const	Block	❌ No	❌ No	Must be initialized

#### 2. Data Types

- **Primitive Types:** String, Number, Boolean, undefined, null, Symbol, BigInt
- **Non-Primitive (Reference) Types:** Object, Array, Function

#### 3. Type Coercion & Comparison

- == performs type coercion  
1 == '1' → true
- === is strict equality  
1 === '1' → false

### 🧪 Practice Exercises

Write these in a .js file or browser console:

```
// 1. Declare and reassign variables using var, let, const
```

```
let name = "Ali";
```

```
name = "Ahmed";
```

```
const age = 25;
```

```
// age = 30; // ❌ should give error
```

```
var city = "Riyadh";
```

```
city = "Jeddah";
```

```
// 2. Check data types
```

```
console.log(typeof name); // "string"
```

```
console.log(typeof age); // "number"
```

```
console.log(typeof true); // "boolean"
```

```
console.log(typeof undefined); // "undefined"
```

```
console.log(typeof null); // "object" (quirk in JS)
```

```
// 3. Type coercion
```

```
console.log("5" + 3); // "53"
```

```
console.log("5" - 2); // 3
```

```
console.log("5" * "2"); // 10
```

```
console.log("5" * "two"); // NaN
```

```
// 4. Comparisons
```

```
console.log(5 == "5"); // true
```

```
console.log(5 === "5"); // false
```

---

✅ **Your Assignment:**

**1. Try all the above code**

**2. Answer these reflection questions:**

- What happens if you try to reassign a const?
- What is the difference between undefined and null?
- Why is typeof null equal to "object"?

**3. Mini Challenge:**

```
// Write a function that accepts a name and age,  
// and returns a message like "Ali is 25 years old"  
function describePerson(name, age) {  
  // your code here  
}
```