6. undefined vs not defined in JS

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❓ Questions and Answers

1. What is `undefined` in JavaScript?

Q: What does `undefined` signify in JavaScript?

A: In JavaScript, `undefined` is a primitive value automatically assigned to variables that have been declared but not initialized. It indicates that a variable exists but hasn't been assigned a value yet.

Example:

```
let x;
console.log(x); // undefined
```

Analogy: Think of `undefined` as a placeholder in a form field that hasn't been filled out yet.

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2. What does `not defined` mean?

Q: What does the term `not defined` mean in JavaScript?

A: `not defined` refers to variables that haven't been declared at all. Attempting to access such variables results in a `ReferenceError`.

Example:

```
console.log(y); // ReferenceError: y is not defined
```

Analogy: It's like trying to call someone on the phone without having their number saved in your contacts.

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3. What are the key differences between `undefined` and `not defined`?

Q: How do `undefined` and `not defined` differ in JavaScript?

A: The main differences are:

- **Declaration:** `undefined` applies to variables that have been declared but not initialized. `not defined` applies to variables that haven't been declared at all.
- **Error Handling:** Accessing an `undefined` variable doesn't throw an error; it simply returns `undefined`. Accessing a `not defined` variable throws a `ReferenceError`.
- **Assignment:** You can assign a value to a variable that is `undefined`. You cannot assign a value to a variable that is `not defined` without declaring it first.

Example:

```
let a;
console.log(a); // undefined
a = 10;
console.log(a); // 10

console.log(b); // ReferenceError: b is not defined
```

Analogy: `undefined` is like an empty box you own, while `not defined` is like trying to use a box that doesn't exist.

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4. What are common pitfalls related to `undefined` and `not defined`?

Q: What are some common mistakes when dealing with `undefined` and `not defined`?

A: Common mistakes include:

- **Accessing undeclared variables:** This leads to a `ReferenceError`.
- **Assigning `undefined` to variables intentionally:** This can cause confusion and bugs in the code.
- **Using `undefined` as a placeholder for uninitialized variables:** It's better to initialize variables properly to avoid unexpected behaviors.

Analogy: It's like misplacing your keys (undeclared variables) and trying to use them to open doors (accessing them in code).

🔑 Summary

- **`undefined`:** A variable has been declared but not initialized.
- **`not defined`:** A variable has not been declared at all.
- **Key Differences:** `undefined` is a valid state for a declared variable, while `not defined` indicates a variable that doesn't exist in the current scope.
- **Best Practices:** Always declare variables before use and initialize them with meaningful values to avoid confusion and errors.