

🔗 ES6 Notes - Part 1: var, let, const + Hoisting + TDZ (Very Simple)

💎 What are var, let, and const?

In JavaScript, hum variables banane ke liye 3 keywords use karte hain:

Keyword	Use For	Can Change Value?	Scope	Re-declare?
var	Old JavaScript variable	✓ Yes	Function Scope	✓ Yes
let	New variable (value can change)	✓ Yes	Block Scope	✗ No
const	Constant variable (fix value)	✗ No	Block Scope	✗ No

💎 Scope kya hota hai?

Function Scope: Variable sirf function ke andar kaam karega.

Block Scope: Variable sirf { } ke andar hi kaam karega (like if, for loop etc.)

✓ Examples:

var Example:
js

```
if (true) {  
  var a = 10;  
}  
console.log(a); // ✓ Output: 10 (function scoped)
```

let Example:

```
js  
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if (true) {  
  let b = 20;  
}  
console.log(b); // ✗ Error (block scoped)
```

const Example:

```
js  
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const pi = 3.14;  
pi = 3.1416; // ✗ Error: const value can't be changed
```

💎 What is Hoisting?

Hoisting ka matlab hota hai: JavaScript sab variables aur functions ko code ke start me le jaata hai before running it.

Lekin sab ka behaviour alag hota hai:

Keyword	Hoisted?	Value before declaration	Error?
var	✓ Yes	undefined	✗ No
let	✓ Yes	✗ Cannot access	✓ Yes
const	✓ Yes	✗ Cannot access	✓ Yes

💎 What is TDZ (Temporal Dead Zone)?

Simple Definition:

Jab variable hoist to ho jata hai, lekin use karne ki koshish karne par error deta hai, use ke pehle – is zone ko TDZ kehte hain.

TDZ ka matlab hai:

Variable declare hone ke baad hi use ho sakta hai.

let aur const dono TDZ me aate hain.

var TDZ me nahi hota.

Example:

js

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```
console.log(x); // ✗ Error: Cannot access 'x' before initialization
```

```
let x = 5;
```

js

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```
console.log(y); // ✓ Output: undefined
```

```
var y = 10;
```

◆ Important Tips:

Use let jab value change karni ho.

Use const jab value fix ho (like arrays, objects, configs).

Avoid using var in modern JavaScript.

Always declare variables before using them.