Shallow Copy vs Deep Copy

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Definition

Shallow Copy

Creates a new object, but copies references to nested objects

Deep Copy

Creates a completely independent copy of the original object, including all nested objects

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Nested Objects

Shallow Copy

Still linked to the original (changes affect both)

Deep Copy

Fully independent (changes do not affect the original)

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Memory Usage

Shallow Copy

More memory efficient (shares inner objects)

Deep Copy

Consumes more memory (duplicates everything)

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Speed

Shallow Copy

Faster to create

Deep Copy

Slower to create (because of recursive copying)

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Use Cases

Shallow Copy

When the object is simple or nested data doesn't change

Deep Copy

When you need full independence between original and copied objects

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Common Methods

Shallow Copy

Object.assign(), spread operator ({...obj})

Deep Copy

JSON methods (JSON.parse(JSON.stringify(obj))), custom recursion, structured cloning

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Risks

Shallow Copy

Accidental mutation of original object

Deep Copy

Safe from accidental mutation

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