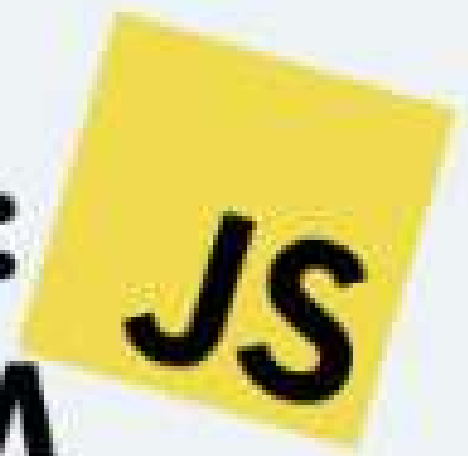


JavaScript : Virtual DOM



VS

Real DOM

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- Real DOM

The Document Object Model (DOM) represents the HTML structure of a webpage.

How it works:

- ✓ The browser parses HTML and creates a DOM tree.
- ✓ JavaScript modifies the DOM when needed.

Problem

Every update **re-renders** the entire page, making it **slow**.



```
document.getElementById("title").textContent = "New Title!";
```

▼ This triggers a full reflow & repaint! 😞



- Virtual DOM

A Virtual DOM (VDOM) is a lightweight copy of the Real DOM that exists in memory.

How it works:

- 1 Changes are first made to the Virtual DOM (not the Real DOM).
- 2 A diffing algorithm detects only the changed elements.
- 3 The Real DOM is updated efficiently with minimal re-renders!

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- Virtual DOM

Example in React

```
function App() {  
  const [count, setCount] = useState(0);  
  
  return (  
    <button onClick={() => setCount(count + 1)}>  
      Clicked {count} times  
    </button>  
  );  
}
```

◆ Only the button updates, instead of reloading the whole page! 🚀

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- Key Differences

Feature	Real DOM	Virtual DOM
Speed	Slow 🐢	Faster ⚡
Updates	Directly modifies the page	Updates in memory first, then applies changes
Performance	Frequent reflows & repaints	Efficient diffing, minimal updates
Use Case	Traditional websites	Modern JS frameworks (React, Vue)

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