Virtual DOM

The virtual DOM is a lightweight, **in-memory representation of the real DOM**. It is essentially a JavaScript object that mirrors the structure of the actual DOM but is much faster to manipulate.

!.**Rendering to the Virtual DOM**:

When the state of a **React component changes**, React first **updates the virtual DOM** rather than the real DOM. React elements, which are the building blocks of the virtual DOM, describe what you want to see on the screen.

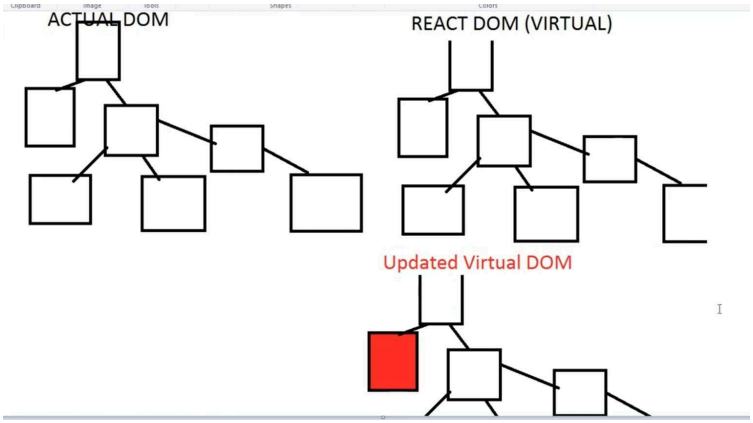
2.**Diffing Algorithm**:

React uses a **diffing algorithm** (also known as the **reconciliation** process) to compare the **previous virtual DOM** with the **current virtual DOM.** This algorithm identifies what has changed by performing a "diff" between the two versions.

3.**Updating the Real DOM**:

After identifying the differences, React **efficiently updates the real DOM**. **Instead** of **re-rendering the entire DOM**, React only makes the necessary changes to reflect the new state. This **minimizes** the number of costly DOM operations.

In React world, the term “virtual DOM” is usually associated with **React elements** since they are the **objects** representing the user interface. React, however, also uses **internal objects** called **“fibers”** to hold additional information about the component tree.



mental rendering of the virtual DOM