# How React Makes Our App Fast

## 1. Virtual DOM

React creates a lightweight Virtual DOM to avoid costly updates to the real DOM. It updates only the changed parts.

## 2. Efficient Diffing Algorithm

React compares the old and new Virtual DOM trees and applies only the minimal changes needed.

## 3. Component-Based Architecture

React breaks UI into reusable components, and only the ones with changed props/state are re-rendered.

## 4. Asynchronous Rendering (React 18+)

React can pause and prioritize updates using Concurrent Mode, keeping the app responsive.

## 5. Code Splitting & Lazy Loading

React supports lazy loading with React.lazy and dynamic imports, reducing initial load time.

## 6. Memoization

Using React.memo, useMemo, and useCallback prevents unnecessary re-renders and recalculations.

## 7. Developer Ecosystem

React integrates with tools like Vite, Parcel, and Next.js for optimized performance and features.