Difference between JavaScript and React.js

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| Feature | JavaScript | React.js |
| Nature | JavaScript is a programming language. | React.js is a JavaScript library for building UIs. |
| Usage and Purpose | General-purpose, can manipulate DOM, backend (Node.js), etc. | Specializes in building UIs for single-page applications (SPA). |
| Architecture | Direct interaction with the DOM. | Component-based architecture where UI is split into reusable components. |
| DOM Interaction | Operates on the real DOM, directly manipulating it. | Uses a Virtual DOM to optimize updates before applying them to the real DOM. |
| Performance | Manual DOM manipulation can be inefficient. | React’s Virtual DOM improves performance by minimizing DOM changes. |
| Learning Curve | Essential for web development, steep curve based on complexity. | Requires JavaScript knowledge, but also introduces JSX and lifecycle concepts. |
| State Management | State needs to be manually managed across components or areas. | Manages state with useState and hooks, or libraries like Redux. |
| Modularity | Less modular without frameworks or libraries. | Highly modular due to its component-based approach. |
| Development Speed | Verbose when building large applications. | Faster development with reusable components and efficient updates. |
| Ecosystem | Vast ecosystem for front-end, back-end, mobile, etc. | Focused ecosystem aimed at front-end UI development with tools like React Router, Redux. |
| Use Cases | Widely used in any environment (web, mobile, backend). | Primarily used for building complex, interactive UIs for web apps. |
| Libraries/Frameworks | Works with libraries and frameworks like jQuery, Angular, Vue. | Itself a library but works with others (React Router, Redux) for complete solutions. |
| Component-Based Design | Does not inherently support component-based architecture. | React encourages component reusability and modularity. |
| Rendering | Renders entire DOM for each change. | Uses Virtual DOM diffing to render only the updated parts of the UI. |
| Event Handling | Handles events directly using JavaScript event listeners. | React handles events using synthetic events, ensuring consistency across browsers. |