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Blazor WebAssembly and React comparison

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The choice of a frontend framework significantly impacts the performance, maintainability, and scalability of modern web applications. This paper presents a comparative analysis of Blazor and React, two popular frontend frameworks with distinct architectures and approaches to building web interfaces. Blazor, developed by Microsoft, leverages C# and .NET to enable web development using WebAssembly or server-side rendering. React, maintained by Meta, is a widely adopted JavaScript library that utilizes a virtual DOM and component-based architecture.

This study compares the performance of React and Blazor by replicating a set of benchmarks focused on measuring rendering efficiency. The benchmarks analyze three key scenarios: rendering static elements, rendering a large number of child components, and constructing a binary tree component hierarchy. By measuring the time required for each rendering operation, this research provides insights into the performance characteristics of these frameworks, highlighting their strengths and weaknesses in different rendering scenarios.

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