Usage of Web Workers in Modern Web Applications

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Submitted By:
Muhammad Abubakar Siddique Farooqi
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Submitted To:
Mr. Atif Hussain

Department of Computer Science
University of Engineering and Technology Lahore Pakistan

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1 WebWorkers and their Importance

Web Workers are a feature in web development that allows the execution of JavaScript code in the background, separate from the main execution thread of a web page. They enable concurrent processing, allowing tasks to run independently without blocking the user interface.

The importance of Web Workers lies in their ability to enhance the performance and responsiveness of web applications. Traditional JavaScript execution is single-threaded, meaning that time-consuming tasks can lead to delays and unresponsiveness in the user interface. By offloading such tasks to Web Workers, developers can achieve parallel execution, improving overall responsiveness.

Web Workers are particularly beneficial for tasks like heavy data processing, complex calculations, image processing, and real-time data fetching. They help prevent the main thread from being overwhelmed by resource-intensive operations, resulting in a smoother user experience.

2 Use Cases of WebWorkers

2.1 Image Processing

Web Workers can be employed to apply image filters and effects in parallel, preventing the UI from freezing during the processing. This is particularly beneficial for applications that involve real-time image editing or manipulation.

2.2 Data Fetching

For applications that require constant data updates from an API, Web Workers can handle the data fetching in the background. This allows the main thread to focus on rendering the UI, leading to a more responsive user interface.

2.3 Heavy Computational Tasks

Applications involving complex numerical simulations or scientific computations can benefit from Web Workers. By offloading these computations to a separate thread, the main thread remains available for user interactions, preventing the application from becoming unresponsive.

2.4 Multithreaded Task Execution

Web Workers enable concurrent execution of multiple tasks simultaneously. This is particularly useful for applications with a multitasking environment, where different background tasks can be performed independently without affecting each other.

3 Github Repository

https://github.com/AbubakarFarooqi/EAD-Assignment-1-Hosted

4 Live Demo

https://abubakarfarooqi.github.io/EAD-Assignment-1-Hosted/