Experiment 10

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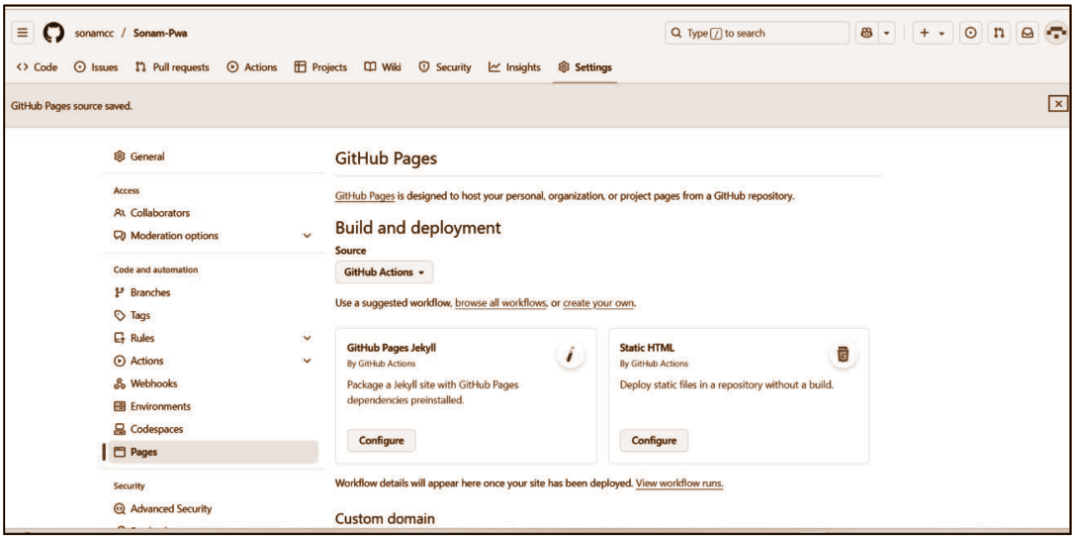
Aim: To study and implement deployment of Ecommerce PWA to GitHub Pages.

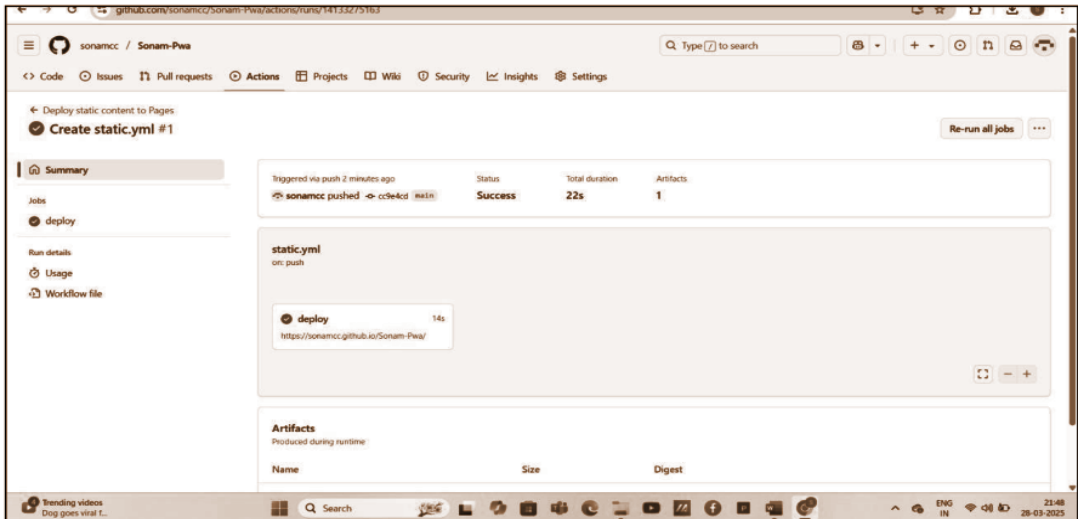
Theory:

1. **GitHub Pages:** GitHub Pages allows developers to freely host and easily publish public web pages directly from their GitHub repositories. It offers seamless deployment—just edit, push your changes, and your website goes live. Some of its key features include blogging support with Jekyll, custom URLs, and an automatic page generator. Compared to Firebase, GitHub Pages is favored for being completely free, easy to set up, and integrated directly with GitHub, making it an excellent choice for developers already using the platform. It is used by well-known companies like Lyft, CircleCI, and HubSpot, and is listed in 775 company tech stacks and 4,401 developer stacks. The platform offers several advantages such as a familiar interface, out-of-the-box Jekyll support, and the ability to use custom domains by adding a CNAME file and updating DNS records. However, it does have some limitations—your site's code will be public unless you use a paid private repository, HTTPS support for custom domains is not yet available, and plugin support in Jekyll can be somewhat limited.

2. **Firebase:** Firebase is a cloud-based platform designed for building real-time, collaborative applications. By adding the Firebase library to your app, you gain access to a shared data structure that automatically syncs changes in real-time between the Firebase cloud and all connected clients. Firebase apps are typically written entirely in client-side code, allowing for automatic updates, easy integration with existing services, and seamless scalability. The platform offers robust data security and supports real-time data synchronization. Data is stored in Firebase as JSON, with each piece of data assigned a unique URL. These URLs can be used within Firebase's client libraries or as REST endpoints, enabling users to access and monitor data updates in real-time directly from their browsers.

Output:





Conclusion:

This project demonstrates the powerful capabilities of Service Workers in enhancing user experience in modern web applications. By implementing `fetch`, `sync`, and `push` events, we successfully added offline support, background data sync, and push notification features to our E-commerce PWA. These features improve reliability, engagement, and responsiveness, making the app more robust and user-friendly, even in poor network conditions.