

Fake Stack Overflow

Ashley Wu, Jack Arseneau, Russell Van Duyne

Project Description

Problem Statement & Background:

While Fake Stack Overflow has a strong foundation of usability features, we believe it lacks many features that would make it a more inclusive space for all users. Posts are currently unmonitored and unrestricted, leaving the website open to vulnerabilities such as spam and hate speech. Additionally, Fake Stack Overflow currently lacks many boilerplate accessibility features, potentially alienating individuals who experience disabilities like colorblindness. We also felt that text editing tools within user posts were limited and did not allow users to properly share their ideas in the most streamlined way possible.

Technology Stack and Design Decisions

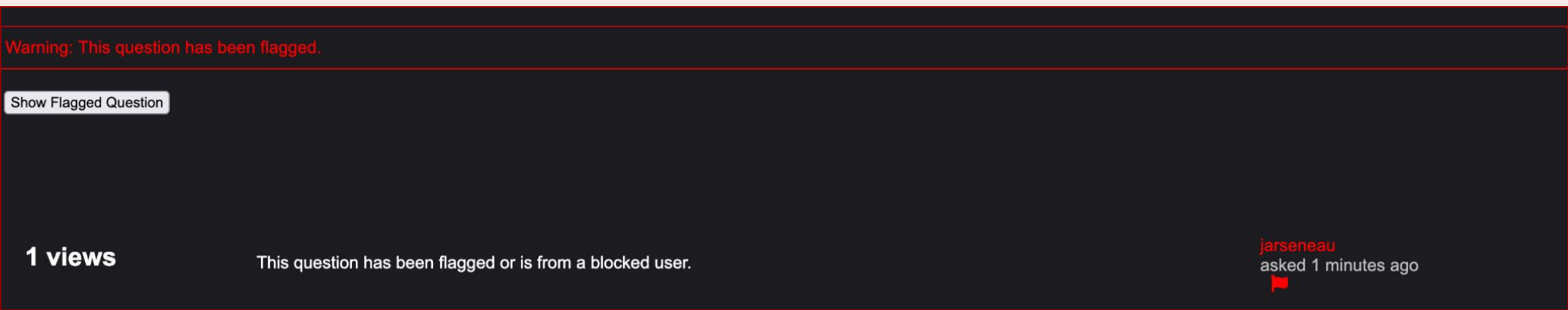
Our technology stack leverages React with TypeScript on the frontend, providing a strongly-typed, component-based architecture that allows scalability & maintainability. The frontend communicates with our backend via RESTful API handlers, specifically PATCH endpoints, to update user schemas for moderation preferences (e.g., blocked users) and content flagging. By assigning a flagged status to posts, comments, and messages at creation, we allowed the frontend to dynamically render warning labels, ensuring users are aware of potentially harmful content without unnecessary backend re-fetching.

We implemented client-side Markdown support using the marked library, paired with DOMPurify for security. This combination allows users to format posts with headings, lists, and code blocks while also sanitizing the output in order to prevent any XSS attacks. We opted for this approach over rich-text editors to keep the bundle sizes small. Accessibility was prioritized through hotkey-toggled themes (handled via keyboard event listeners) and semantic HTML, ensuring compatibility with screen readers.

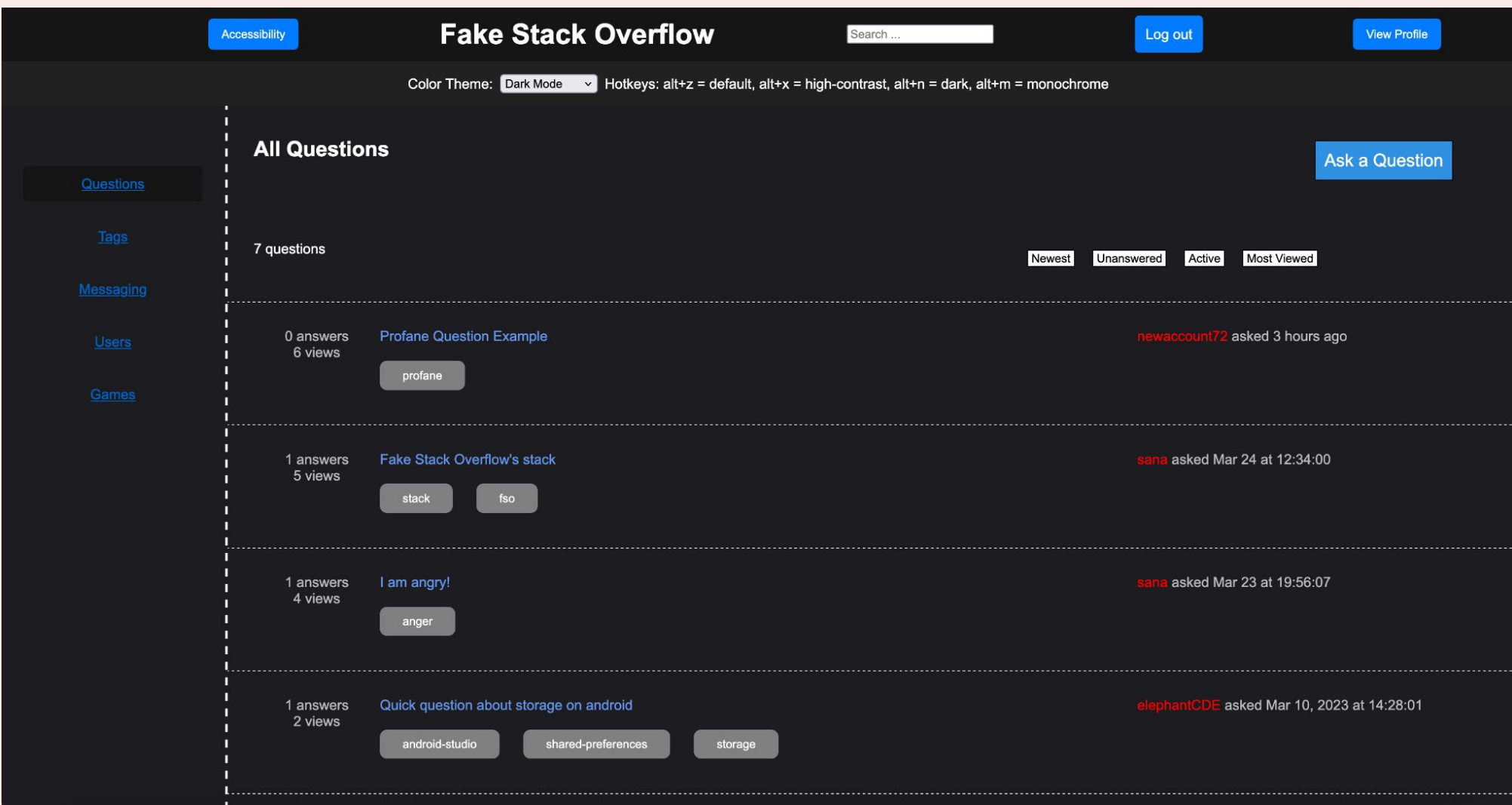
Solutions

Our Solution:

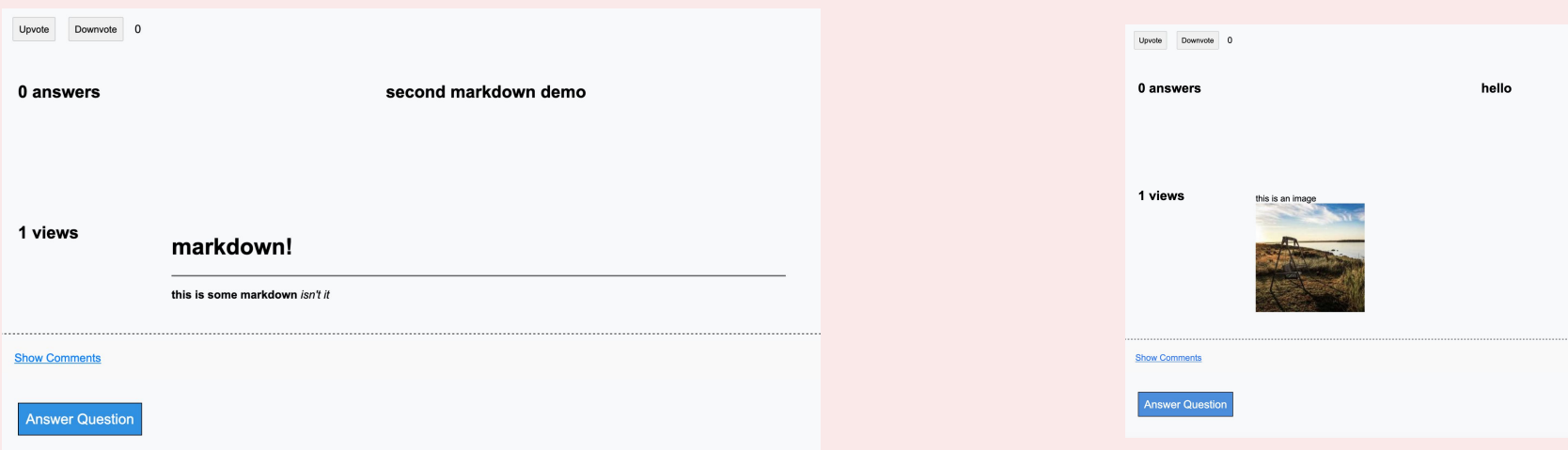
In order to fix these problems, we proposed adding a content moderation system that will allow for users to report posts and flag spam. Additionally, we implemented a hate-speech detection system that will automatically filter posts and replies for potentially harmful content.



We also implemented multiple color themes to make the website more compatible for people with impaired vision. This includes a high contrast, dark mode, and monochrome format for the website. Along with this, we added hotkey toggles to switch between different visual modes.



To solve the limited text editing capabilities of the website, we added Markdown support. This will allow users to properly structure their posts and better communicate problems and ideas that are normally difficult without it.



Future Work

Future Work: Enhanced Moderation & Access Control

To strengthen content moderation, we plan to implement an administrator approval workflow in the frontend, allowing moderators to review and confirm flagged content before deletion. This will involve a dedicated dashboard with audit logs, bulk actions, and role-based access control to ensure only authorized personnel can take deletion measures / visibility.. Additionally, we'll expand the User schema to include tiered user roles (e.g., moderators, super admins) and integrate real-time notifications for high-priority flags.

Future Work: Accessibility-First Markdown Tools

To ensure Markdown remains accessible, we'll introduce structured formatting assists, such as automated alt-text prompts for images and semantic heading validation. A "lint mode" could warn users of unclear syntax (e.g., broken links, ambiguous lists) prior to posting.

Future Work: Accessibility & Inclusive Design

Next-phase accessibility improvements include automated theme detection (e.g., syncing with OS preferences for light/dark mode) and expanded keyboard navigation (e.g., skip-to-content links). For users with cognitive disabilities, we're researching simplified UI modes with reduced visual clutter and optional text-to-speech integration, ensuring the platform remains inclusive as it scales.