Improved Project Documentation [324814698 - 212972087]

File and Website Security Scanner Chrome Extension

Overview

This Google Chrome extension enhances security by proactively scanning downloaded files and visited websites for potential threats. It leverages the **VirusTotal** and **MetaDefender** APIs to detect malicious content and provides real-time feedback to users through notifications.

Features

- **File Scanning:**
    - Calculates the SHA-256 hash of downloaded files.
    - Queries VirusTotal and MetaDefender for existing scan results.
    - If a match is found, the user is notified immediately.
    - If no match is found, the file is uploaded to the APIs for scanning.
    - Provides notifications for safe, dangerous, or failed scans.
- **Website Scanning:**
    - Checks the base URL of visited websites against VirusTotal.
    - Informs the user of unsafe websites with a warning notification.
    - Indicates unknown websites for user caution.

Key Components

- **Background Script:** Handles the core functionality, including file and website scanning.
- **Popup Interface:** Displays scan results and provides a user-friendly experience.
- **Notifications:** Alerts users to safe, dangerous, or unknown files and websites.

APIs Used

- **VirusTotal:** Used for file and URL scanning.
- **MetaDefender:** Used for file scanning.

Workflow

- **File Scanning:** Downloads a file, calculates its hash, queries APIs, and notifies the user based on results.
- **Website Scanning:** Checks the base URL of a visited website, queries VirusTotal, and notifies the user if the site is unsafe.

Technical Details

- **JavaScript:** Implements the core logic for scanning, checking URLs, and handling API responses.
- **CSS & HTML:** Styles and structures the popup interface.
- **APIs:** Interact with VirusTotal and MetaDefender using `fetch` requests.
- **Notifications:** Uses Chrome's `notifications.create()` method to inform users.