Weeb Applications

# Final Report – CSE 134B

Michael Zhou, Nikhilesh Sankaranarayanan, Ting Gu

### **Notes:** Please test in Incognito Mode in Chrome. The reason for this is so that the Service Worker’s cache gets cleaned with each load and properly simulates a “first time visit”. Otherwise, keep clearing the cache.

Current features:

* 3 different themes and layouts
  + Light, Dark, Pink
* Compact and Regular View
* 2 whole soundboards to choose from
* Compatible with multiple screen resolutions and mobile view

Problems encountered:

* Getting started with Service Workers and lack of extensive examples.
* Having to deploy each time to test changes to service worker.
* Finishing up the manifest.json as we didn’t understand its use initially.

(Problems not encountered):

* Refactoring: Besides removing global variables and changing variable names, the code was quite polished to begin with.
* Styling: All CSS & resizing was already meticulously designed
* Functionality: Javascript was completely done, only had to be updated with service worker functionality.

Performance results:

* Good performance was achieved as a result of:
  + Media files on Firebase storage for quicker access
  + Minimal CSS file instead of using Bootstrap
  + Clean Javascript code with few DOM manipulations.
* Network speeds are fast as we used moderate image sizes and small audio files.
* Compact mode does not load images and is faster

Lessons Learnt:

* While its important to know vanilla Javascript, JQuery is a lot more powerful and easy to use and made our lives a LOT easier.
* Git is a life saver.
* Service Workers are very powerful and allow you to do some cool stuff.

Application:

* We are proud of what we have accomplished as a team on this app.
* It looks polished and shippable, especially ‘Light’ Theme.

Takeaways:

* There are a LOT of things that you can do wrong / sub-optimally.
* It’s a constant, conscious effort to adhere to best practices in web dev.

# **Lighthouse PWA Analysis:**

Please see the screenshot attached in the e-mail.

Passing Audits: 11/11

1. **Registers a service worker**: Installs a service worker that caches just enough files for the offline HTML page to work.
2. **Responds with 200 when offline**: When the navigator detects that it is online, the Service Worker intercepts that response and serves an offline.html page with an OK 200 instead.
3. **Contains some content when JS is unavailable**: Offline works without JavaScript.
4. **Uses HTTPS**: Firebase apps use HTTPS by default.
5. **Redirects HTTP traffic to HTTPS**: We don’t use any HTTP pages to begin with.
6. **Page loads fast on 3G**: All media files and CSS/JS files are very small. Caching also helps load pages faster on subsequent visits.
7. **User can be prompted to install the app**: }
8. **Address bar matches brand colors**: } manifest.json configured for these cases.
9. **Configured for a custom splash screen**: This was satisfied with the manifest file for the sake of PWA testing – the app uses a custom CSS splash screen which looks way cooler.
10. **Content is correctly sized for the viewport**: Media queries and careful testing at different screen sizes was carried out.
11. **Has a meta viewport tag**: Width is set to device min width, initial scale: 1.0.

Manual Checks:

1. **Site works cross-browser**: The site works on most popular browsers; however, it is designed for Chrome. Splash screen animations will work perfectly on Chrome.
2. **Page transitions smooth**: Transitions are smooth and clean. Especially the splash screen. The way we achieved this was to remove the vertical scroll bar as that causes the page to shift left a little every time it loads.
3. **Each page has a URL**: Yes. All pages, including offline page, have a unique URL.