**Documentation**

Our development process for the Audio Visualizer was very productive. We started by working on the JavaScript for the visualizer. We took the template code from the demos in class and used those to help us setup the project. I (Alex) worked on getting the visualizer itself up and running. I implemented the draw functions for drawing the lasers, peace symbols, and lights to the canvas. I also implemented the gif and it’s positioning. Taylor worked on setting up JavaScript for the UI. She connected the buttons and sliders to the code so that it would affect the objects drawn to the canvas. She also setup the CSS framework and the HTML.

After we had finished the project, we made sure we hit all the requirements. We completed the functional requirements by adding the play, pause, volume, and Fullscreen button. We also added the 3 sliders, 3 checkboxes, radio button, and 3 distinct audio tracks. Our UI was designed nicely to go well with the canvas, we did this using the CSS framework, Bootstrap. Our HTML was hand coded and all buttons and controls were labeled nicely so users could understand them easily. We met the Canvas API requirements by including all shapes. The lines were changed by the audio frequency and came out of the disco ball, which was a circle with a gradient. The lasers were triangles and Bezier curves that shot cubic Bezier curves that changed to the audio frequency. We also used a rectangle, not that we really needed to use them in our specific visualizer, but we used one for the top of the disco ball. We met the Web Audio API requirement by giving users the ability to swap between frequency and waveform data with the radio button. Users can also change the brightness, rotation of lasers, and the reverb/delay (another web requirement) with the 3 sliders. We even added checkboxes for invert colors, noise, and sepia to change the looks of the visualizer. Lastly, we met the code and HTML/CSS requirements. We used the CSS framework, validated our CSS and HTML, and added custom web fonts to go with our disco theme. Our code follows standards, has external JavaScript files that are split up with the ES5 Revealing Module Pattern, and is well commented.

There were many areas that we felt were above and beyond. First, we had multiple relationships between our audio data and our canvas objects. The cubic Beziers in our lasers changed their control points based on the sound data, making it look as though they were moving. We added the beat-like peace symbols when the audio plays that shoot out of the speakers. They change size and are scaled based on the audio data. Even our disco lights change position based on the sound data. The second area we went above and beyond was the way we tied an interesting theme to everything we did for the visualizer. Our theme was Disco and our songs, some of our gifs, and our UI/Canvas all followed this theme. This not only made everything more interesting, but took more time to do, which is why I consider it above and beyond. The last thing we did for above and beyond is give the user many ways to interact with the visualizer. Apart from the basic buttons and sliders, we allow the user to turn the lasers on and off and even rotate them as well. We also made the display responsive so the user can see the visualizer on any platform (the gif moves around the dance floor as you resize).

There were many things that went right and wrong, but I’ll start with what went right. Our visualizer itself and the UI turned out very nice. It all tied into the disco theme and gave the user some cool ways to interact. The visualizer itself was a challenge, but after working through it, the product was perfect. However, including gifs and making the website responsive was difficult. Since the gifs were on the webpage themselves, I had to move everything around to get the responsiveness to work correctly, which was a hassle. Beside that, if I could have added anything it would have been to use a sprite sheet to add the gifs to the canvas itself, making my life easier in the long run. Overall, I think both Taylor and I deserve 100s. We tried our best, did what we could in terms of our skills, and made something neat. Our project itself deserves a 100. Not only did we meet requirements, but we went above and beyond to make something unique, while bringing a smile to those who view it. The UI came out great, the visualizer is interactable, and overall the project just looks like it could be in a portfolio.

**References**

**Stage background**: https://png.pngtree.com/thumb\_back/fw800/back\_pic/04/22/78/345832ec923d5a0.jpg

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**Staying alive mp3**: https://playvk.com/en/download/bee+gees/Stayin%27+Alive

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**Disco Font: https://www.1001fonts.com/disco-7-font.html**