**Matthew Fasman Documentation for Web Audio Visualizer**

* Usability and overall UX
  + The main goal for this section here was to make sure the whole app was easy to use, without going too overboard with anything. We tried to pick a color scheme which was pleasing without being too over the top or too boring. We also wanted to make sure the controls stood out. We tried to keep all the visual controls on the left, all of the audio controls on the right, and all of the music play/pause and track select controls in the middle. We also made sure to keep the default selection simple, with the background color of the canvas matching the background color of the page as well as having simple visual effects. We decided to let the user make the crazy combinations.
* Interaction Design
  + We have the three original songs, as well as two more songs that we added. We also decided to add a feature for users to play their own music. You can input the exact file path of an mp3 on your computer to an entry field, as well as give that song a name, and then add it to the list of selectable songs. That song will remain an option until the page is reloaded. We also have a number of options for the user to mess with visually. There are sliders for the color of the background. There are pixel effects for three different tints as well as noise. There are visuals for circles, bars, lines, as well as two different kinds of curves. We also have a full set of sliders for the equalizer we integrated.
* Canvas API
  + We have five different visual effects controlled by audio data in our visualizer
    - Lines
      * We have a line going across the screen being controlled by audio data across the whole spectrum. The color of the line is also being controlled by the audio data, with the red value being manipulated in a gradient pattern. Note: this looks much better with waveform than frequency.
    - Quadratic and Cubic Bezier curves
      * Our quadratic curve moves from the top left of the screen to the bottom right, and our cubic curve moves from the bottom left of the screen to the top right. We calculate the control points of both of these curves by using sound data at fixed points. We also manipulate the colors of these curves using HSL color and manipulating the H value based on the sound data.
    - Circles
      * The circles are the starting element of our visualizer. They remain a fixed radius away from the center, while the radius of the circles themselves changes based on the audio data. The color of the circles is also an inverse of the background color.
    - Rectangles
      * Rectangles will display in lines across the screen when the bars box is checked. These rectangles move based on the audio data, with their color also shifting based on this data.
* Web Audio API
  + Our frequency and waveform data are toggled via radio buttons on the left side of the screen, while our other audio nodes are in the form of an equalizer on the right side with ten different sliders to manipulate the sound data.
* Media and Presentation and CSS/HTML
  + All of our sound clips are mp3’s and are full length songs. We also used two different web fonts, one for headers and another for all the other text on the page. We also attempted to give the page as a whole a cohesive visual design with each element relegated to specific part of the page. This is covered in the Usability and overall UI/UX section.