Project 2 proposal - Nolan Barton-Gomez

For my second CART 253 project, I would like to create an audiovisual generative art piece. I have a very deep interest in generative art, particularly audiovisual art. I have experience creating this type of art with TouchDesigner and Python, so I would like to try my hand at it with JavaScript. A close friend of mine from back home is a music producer and did me the favour of giving me a song to use for this project. Since this project includes relationships between audio and visual elements, a clear technical challenge I can foresee is sound manipulation. I know how to play an audio track with JavaScript but I am very unclear on how to program visual properties to change depending on audio frequencies. This will be a big challenge that I will have to overcome in order to complete my project. More specifically, if possible I would like to make some aspects of the project react to high frequencies and other parts react to the bass. I know this seems like a difficult task, but I think if it was possible with Python, it should be possible with JavaScript. So far, I have managed to create simple but dynamic generative art by editing the aquarium project. I created a button to play the song, and another to stop it but I still need to make a button that restarts both the visuals and the audio simultaneously. I created a really interesting trail effect by moving the background function out of the draw function and into setup.. Because everything within “draw” is constantly being erased and recreated, moving the background function out of there creates a movement trail effect by preserving the colours and positions of the circles in previous frames. However, this is not how I want it to be. I want to create a continuously dynamic animation. So, I think I need to create a more sophisticated method to create trails for my particles with an array. By implementing an array, I can store the information about each circle’s previous position and create trails in a much more refined way, without the need to move the background function from draw to setup. This will eliminate the problem I had keeping the whole canvas from turning into one colour. I have also created a button that plays the song. In order to make parameters from the visual aspect(size, colour,

speed of circles) correlate with the audio, I'm going to have to use the web audio API. It is the most efficient and powerful way to create sound visualizers with JavaScript. I have created an analyzer node in order to organize the audio data and change the size of each circle. With the help of the analyzer, I have succeeded in creating a crude audiovisual effect by mapping the data regarding the volume of the song and using this information to control multiple of the parameters for the particles, including size and movement. I used math.random to make the particles vary between shades of blue and red because I thought it would make the animation more aesthetically pleasing. I think my biggest challenge will be using the analyzer node to utilise different frequencies for different object parameters, rather than making the parameters change purely based on the total volume of the music. When I accomplish this, it will make for a much more well synchronized audiovisual experience. In conclusion, my plan is to create an audiovisual piece of generative art, with some properties dependent on the bass of the song, and others dependent on the high frequencies, and a minor element of user interactivity with the position of the mouse.`I will find a way to incorporate separate states, probably in the form of different variations of the piece with different colours, shapes and music.