

# Introduction to Programming II

## Project Log Week 14

|  |   |
|--|---|
| <b>Project title:</b>  | Music Visualizer                              |
| <b>Topic:</b>  | Understanding how to draw 3d objects in p5js. |
| <b>What progress have you made on this topic?</b>  |   |
| <p>I've found that there is an optional argument to pass when creating a canvas that produces a 3d space instead of a 2d one. "WEBGL" in createCanvas function.</p>  |   |
| <b>What problems have you faced and were you able to solve them?</b>   |   |
| <p>At first I tried to learn how to plot 3d objects on a 2d plane using math. I quickly found out that this was not as easy as I first thought. I was struggling to get a basic rotating cube at first and eventually gave up.</p> |   |
| <b>What are you planning to do over the next few weeks?</b>  |   |
| <p>I plan to make some sort of 3d object that can move to the music.</p>   |   |
| <b>Are you on target to successfully complete your project? If you aren't on target, how will you address the issue?</b>   |   |
| <p>Yes I am. I'm moving closer to my goal slowly.</p>  |   |

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## Project Log Week 15

|   |                           |
|---|---------------------------|
| <b>Project title:</b>   | Music Visualizer          |
| <b>Topic:</b>   | Drawing a sphere in p5js. |
| <b>What progress have you made on this topic?</b>   |                           |
| <p>There was already a built-in function to make a sphere in p5js but it wasn't the kind of sphere I wanted to use. I eventually looked at some videos online about spheres and how to get certain points on a sphere.</p>  |                           |
| <b>What problems have you faced and were you able to solve them?</b>  |                           |
| <p>I thought I would be able to use the built-in function to make my music visualizer but it wasn't that good. It didn't look nice and it just wasn't what I wanted. I spent a lot of time studying math behind the spheres to see how I could implement it into my code.</p> |                           |
| <b>What are you planning to do over the next few weeks?</b>   |                           |
| <p>I plan to use the sphere I have made and make it "dance" to the music.</p>   |                           |
| <b>Are you on target to successfully complete your project? If you aren't on target, how will you address the issue?</b>  |                           |
| <p>Yes. Slowly but surely.</p>  |                           |

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## Project Log Week 16

|  |                           |
|--|---------------------------|
| <b>Project title:</b>  | Music Visualizer          |
| <b>Topic:</b>  | Making the sphere “dance” |
| <b>What progress have you made on this topic?</b>  |                           |
| It took me a while but I finally got a working way to make the sphere “dance.” I just had to create an offset from the musics amplitude and frequencies divided by some value and multiply that by my sphere coordinates giving the illusion of a “dance.” |                           |
| <b>What problems have you faced and were you able to solve them?</b>   |                           |
| It took me a while to understand how to offset the vertices of the sphere to make it look correct and good.  |                           |
| <b>What are you planning to do over the next few weeks?</b>  |                           |
| Add some customization to the sphere. Right now it is just some circles that make a sphere.  |                           |
| <b>Are you on target to successfully complete your project? If you aren't on target, how will you address the issue?</b>   |                           |
| Yes. I've got the foundation and now I can add more to it.   |                           |

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## Project Log Week 17

|   |                      |
|---|----------------------|
| <b>Project title:</b>   | Music Visualizer     |
| <b>Topic:</b>   | WEBGL Project Errors |
| <b>What progress have you made on this topic?</b>   |                      |
| When changing the canvas type to “WEBGL” I ran into many problems.  |                      |
| <b>What problems have you faced and were you able to solve them?</b>  |                      |
| Text doesn't work in webgl. Turns out I needed to find the updated ps.DOM.js file because the provided one was outdated. After updating the DOM file, I ran into more errors as rendering 2d in a 3d space is not nice. I had to add canvases using the createGraphics function and had to change the template a bit to get it to work in a WEBGL canvas. |                      |
| <b>What are you planning to do over the next few weeks?</b>   |                      |
| Add customization to the sphere.  |                      |
| <b>Are you on target to successfully complete your project? If you aren't on target, how will you address the issue?</b>  |                      |
| Yes, but I'm a little behind now.   |                      |

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## Project Log Week 18

|   |                        |
|---|------------------------|
| <b>Project title:</b>   | Music Visualizer       |
| <b>Topic:</b>   | Customizing the sphere |
| <b>What progress have you made on this topic?</b>   |                        |
| I added sliders and text for the rotation of the sphere. As well as a slider for the amplitude divisor.   |                        |
| <b>What problems have you faced and were you able to solve them?</b>  |                        |
| WEBGL is not my friend. I had a lot of problems when implementing the rotation sliders as they would rotate the text with the sphere in 3d space. It took me a while to find a work around. |                        |
| <b>What are you planning to do over the next few weeks?</b>   |                        |
| Add a volume slider.  |                        |
| <b>Are you on target to successfully complete your project? If you aren't on target, how will you address the issue?</b>  |                        |
| Yes. Back on track.   |                        |

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## Project Log Week 19

|   |                                   |
|---|-----------------------------------|
| <b>Project title:</b>   | Music Visualizer                  |
| <b>Topic:</b>   | Volume Slider and Different Music |
| <b>What progress have you made on this topic?</b>   |                                   |
| <p>I've made a volume slider as some of the music I chose was very loud. I added a screen to choose the music file you want to play first.</p>  |                                   |
| <b>What problems have you faced and were you able to solve them?</b>  |                                   |
| <p>Was having problems using the createFileInput and using it to select music. I wasn't sure how to load the file that was returned. After that was the volume slider. Because I was using a WebGL canvas it took me forever to have the Text and Slider for the Volume to be overlaid over everything.</p> |                                   |
| <b>What are you planning to do over the next few weeks?</b>   |                                   |
| <p>Add Microphone, fix scaling issues, and add new spheres.</p>   |                                   |
| <b>Are you on target to successfully complete your project? If you aren't on target, how will you address the issue?</b>  |                                   |
| <p>Yes. Almost done.</p>  |                                   |

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## Project Log Week 20

|   |                                 |
|---|---------------------------------|
| <b>Project title:</b>   | Music Visualizer                |
| <b>Topic:</b>   | Microphone, Errors, and Spheres |
| <b>What progress have you made on this topic?</b>   |                                 |
| <p>I added a way to use your microphone as an input to the sound. I fixed some errors on the other visualizers that caused it to look weird. I also added some cool looking spheres to my visualization. The spheres were almost the same as the original but I changed their functions a little bit to give some cool looks. I also added a selector to choose the type sphere you want.</p>   |                                 |
| <b>What problems have you faced and were you able to solve them?</b>  |                                 |
| <p>The microphone was by far the most annoying. I first had to learn how to get microphone inputs. After that I had to somehow connect the input to the sound. And after that I added a button to switch between the 2(Music and Microphone), and was having many issues. Sometimes when the music wasn't played first the microphone would not work. There was a visual error happening on the "needles" visualization that caused it to stretch. The stretch was because of the view angle of the camera in 3d space while viewing a 2d canvas. The canvas was scaling with the resolution of the screen while the perspective of the camera was moving closer to the Origin (0,0,0). This was fixed by scaling the canvas by the ratio of the previous screen size by the new one. This work around works but causes the render to look stretched a bit. The only fix would be to not have a WebGL canvas.</p> |                                 |
| <b>What are you planning to do over the next few weeks?</b>   |                                 |
| <p>Adding some more customization.</p>  |                                 |
| <b>Are you on target to successfully complete your project? If you aren't on target, how will you address the issue?</b>  |                                 |
| <p>Yes. Almost done.</p>  |                                 |

# Introduction to Programming II

## Project Log Week 21

|  |                    |
|--|--------------------|
| <b>Project title:</b>  | Music Visualizer   |
| <b>Topic:</b>  | More Customization |
| <b>What progress have you made on this topic?</b>  |                    |
| I added buttons for auto rotation, auto zooming, and rainbow colors.   |                    |
| <b>What problems have you faced and were you able to solve them?</b>   |                    |
| Colors were the worst. For some reason the colorMode was defaulting to the HSB mode. I couldn't figure out why but it wouldn't go away no matter what. Found a way to use hue instead of RGB to have a rainbow effect and it fixed it. Rotation and zooming were a lot simpler but had to figure out how to "move" the camera towards the sphere. I ended up just scaling the sphere using the "scale" function. |                    |
| <b>What are you planning to do over the next few weeks?</b>  |                    |
| Submit the project   |                    |
| <b>Are you on target to successfully complete your project? If you aren't on target, how will you address the issue?</b>   |                    |
| Yes. I'm done.   |                    |