

Introduction to Programming II

Project Log

Project title:	Music App Visualiser – 2D Ridge Plots to 3D Ridge Plots
Topic:	Week 16
What progress have you made this topic?	
<p>I have made several improvements to the Ridge Plots extension in terms of aesthetics as well as performance. The speed and perspective of the wave animation has been changed with a vanishing point and a frame counter was implemented. The wave lines were changed to points with additional shading and scaling.</p> <ol style="list-style-type: none">1. speed and perspective with vanishing point: Increasing the speed of the wave animation from 0.7 to 1.5 made it more dynamic and responsive to the input music. Introducing a vanishing point changes the perspective of the wave as it creates an illusion of depth. It considers the z-coordinate of each individual point. This vanishing point is dynamically centred on the canvas.2. frame counter: To control the frequency of the new waves added onto screen, a frame counter was implemented. This counter adds a new wave every 10 frames. This change enhances and synchronises the waves to the music looking visually appealing. I got this idea from the Star Wars title crawl.3. lines were changed to points: Initially, I drew lines between the wave points and the ridge plots were reflected on these lines. I modified these lines to points to draw points instead of lines as each point represented a pixel in the visualisation creating a mesmerising effect.4. shading and scaling: To produce a pronounced visual effect, the points were shaded based on their respective z-coordinates, this changes the brightness of each point making it look 3-dimensional. The scaling was also changed accordingly enhancing the extension. Waves were also removed when the first wave reaches the boundary of endY ensuring a clean transition for the visualisation.	
What problems have you faced and were you able to solve them?	
<p>I faced a number of problems regarding this extension with regards to: perspective, and accumulation of waves on screen.</p> <p>With the inspiration from the Star Wars title crawl, I wanted to change the perspective of the lines to add a sense of depth using the z-coordinate. However, implementing this was tougher than I had anticipated. To conquer this, I read up more about the z-coordinates from the p5js reference and how to use the appropriate variables. By introducing the vanishing point, I realised that to give the extension a 3 dimensional effect, shading of the points also plays a key role. Applying all these coding techniques allowed for the ridge plots to look appealing. The waves also accumulated making the screen look cluttered and messy. To manage this issue, the extension removes old sets of plots beyond a certain position.</p> <p>This extension took me much more effort but was all the more fruitful as I learnt techniques outside of what was taught in the videos.</p>	

What are you planning to do over the next few weeks?

Week 17-18: I would like to allow users to change the music (slow/medium/fast). The pace and type of music greatly impacts behaviours of the extensions. This would enable them to observe the changes reflected on the extensions. I would also be recording my changes on report 3.

Week 19-20: Improve the GUI to be more user-friendly and visually pleasing. I would also be recording my changes on report 4.

Week 21: I plan on debugging my code, checking through the reports and finalising my submission.

Are you on target to successfully complete your project? If you aren't on target, how will you address the issue?

Yes, I am on target to successfully complete my project and would like to challenge myself to research more on what I can implement into the project outside of the videos covered on coursera.