

Introduction to Programming II

Project Log

Project title:	Music App Visualiser – Circular Wave Pattern with Fireworks
Topic:	Week 14
What progress have you made this topic?	
<p>In the previous phase, I successfully implemented a circular wave pattern consisting of three pulsating rings that synchronised with the music's waveform. To improve this extension, I introduced fireworks beat detection inspired by Week 13's lecture.</p> <p>By using beat detection to create a rhythmic music visualisation, this improvement to the circular wave pattern gave the extension a livelier appearance. I incorporated a dynamic colour scheme to the fireworks using the HSB (Hue, Saturation, Brightness) colour mode, where the colour was determined based on the frame count. This feature adds a vibrant and contrasting aspect to the representation, making the fireworks stand out against the black background. As the fireworks dissipated into the background, they mimicked the mesmerising appearance of real fireworks.</p> <p>Additionally, extending the HSB colour change technique to the circular wave pattern itself further enhanced its visual appeal. This addition contributes to the overall aesthetics of the extension making it more captivating.</p> <p>Overall, these improvements have elevated the circular wave pattern extension by adding dynamic beat-synced fireworks and an enticing colour scheme. These improvements and progress have made this extension more engaging and visually mesmerising for the audience. I am proud to have made these working improvements by implementing ideas covered in the lecture and discussed by my tutor.</p>	
What problems have you faced and were you able to solve them?	
<p>I did not face any problems regarding this extension as I followed the coursera tutorial closely and was able to implement the fireworks beat and HSB dynamic colour scheme without a hassle.</p>	
What are you planning to do over the next few weeks?	
<p>Week 15-16: I am planning on continuing with my schedule but also implement a 3 dimensional effect to the Ridge Plots extension so instead of it being plain 2 dimensional lines, I would like for it to have a sense of depth. I would also be recording my changes on report 2.</p> <p>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.</p> <p>Week 19-20: Improve the GUI to be more user-friendly and visually pleasing. I would also be recording my changes on report 4.</p> <p>Week 21: I plan on debugging my code, checking through the reports and finalising my submission.</p>	

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.

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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?

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Project Log

Project title:	Music App Visualiser – Allow users to change music
Topic:	Week 18
What progress have you made this topic?	
<p>I have made significant changes to the extensions as I have allowed for 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.</p> <p>I refactored controlsAndInput.js, playbackButton.js and sketch.js to support multiple sounds- slow, medium, fast and an additional song. Previously, the extensions only responded to one type of music that was controlled by the pause and play button. To change this, a variety of sounds were introduced and users are allowed to change the music and notice the differences in the visualisations.</p>	
What problems have you faced and were you able to solve them?	
<p>Coding these changes posed as a challenge for me as I had to make many technical changes.</p> <p>Once I had loaded the different types of music, I faced the issue of pausing and playing. When a sound was in the midst of being played, I would try switching the music which overlapped on top of the previous music. This made it sound chaotic and clearly not what I had aimed. Experimenting around with controlsAndInputs.js allowed me to understand all the minuscule details of each function which enabled me to properly address and fix the audio's playback issues.</p>	
What are you planning to do over the next few weeks?	
<p>Week 19-20: Improve the GUI to be more user-friendly and visually pleasing. I would also be recording my changes on report 4.</p> <p>Week 21: I plan on debugging my code, checking through the reports and finalising my submission.</p>	
Are you on target to successfully complete your project? If you aren't on target, how will you address the issue?	
<p>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.</p>	

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Project Log

Project title:	Music App Visualiser – Improve the GUI
Topic:	Week 20
What progress have you made this topic?	
<p>Since this would be the final idea progression, I worked on the GUI of the project- dropdown menu and font.</p> <p>Previously users were not prompted to press the spacebar to reveal the menu. Since users were allowed to change music and interchange between the various extensions, I decided to implement a dropdown menu. Two different dropdown menus were implemented one that prompts users to select the desired visualisation and another for users to select a sound.</p> <p>Additionally, I changed the font of the words to make it look visually appealing and more in theme to sci-fi: music crossover with technology. To do so, I browsed through Google fonts and found the perfect font. It was clear, concise and matched my needs.</p> <p>All these changes have contributed so that users have a pleasant user experience.</p>	
What problems have you faced and were you able to solve them?	
<p>Coding these changes posed as a challenge for me as I was unsure of implementing a dropdown menu that dependently changes the extensions and music.</p> <p>After implementing the dropdown menu, the dropdown menu seemed to work on a surface level. However, it did not change the extension or the audio. I had to link the event change to the dropdown menu and finally solved the issue.</p>	
What are you planning to do over the next few weeks?	
<p>Week 21: I plan on debugging my code, adding comments, checking through the reports and finalising my submission.</p>	
Are you on target to successfully complete your project? If you aren't on target, how will you address the issue?	
<p>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.</p>	