Project Specification - AudioVisualizer

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Implementations specifics
Our idea for a project is creating a music/audio visualizer. We are going to be using the loudness and frequency to procedurally generate graphics and project them to the screen. We might have some kind of interaction where you can move around or something like that if the time allows.
We were thinking maybe making it behave like a tunnel and have the user travel along it with fancy graphics, but are also considering other views.
We are going to be writing this project in Unity since it will make it easy to implement the audio part. We will have to override or create the default graphic implementation in unity.

We are aiming for grade A.

References:
- This following tutorial series:
  https://www.youtube.com/watch?v=QJCipD3YEE8

Some background to the area/problem:
- Fast fourier transforms to get the frequencies of the music for our visualization.

Potential risks/challenges :
- Making the visualization properly represent the sounds from the music
- Working with procedural generation for the visualization
- Fast fourier transform

Idea for perceptual study:
We would ideally have a user study where people get to rate how well they think the visualization the program creates represents the music. We could try a few different genres and songs and have the user rate each visualization individually on a scale from 1-5 or something like that.

Project sketch/ WIP screenshot :
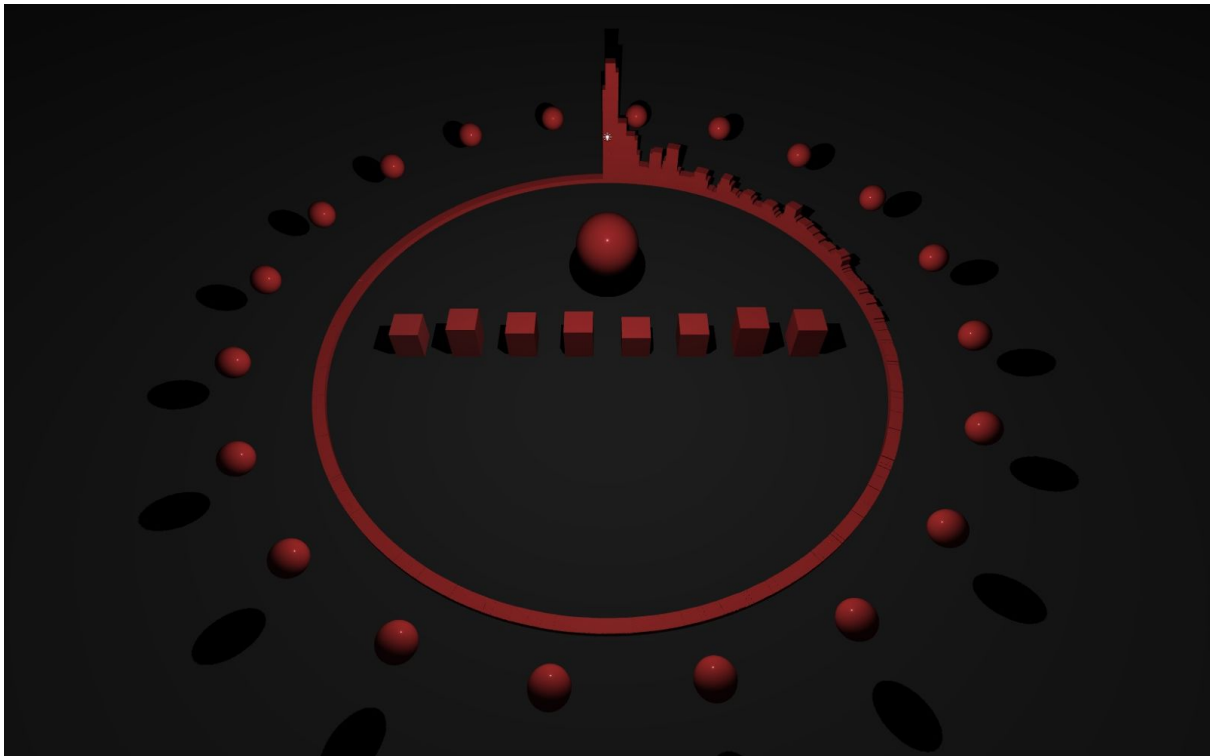
The picture is of our WIP project. It current changes the size and length of objects using the frequencies from the music. We would like to change this visualization to a tunnel/terrain that would be procedurally generated by using the frequencies in the music.

Blog link:
https://jabroniboys.tumblr.com/