Julian, Aaron, Wings
6.111 Project: JAW Dropping Visual Effects
Checklist

Basic
For the basic, we will each have our own modules running independently.
Julian
- Color change via pulsation of detected edge
- Amplitude Transformation Line Algorithm testing in MatLab
- FFT Energy Bin Calculations

Aaron
- Audio data stored on SD card or sample audio via microphone
- Read audio into BRAM or Fifo
- Apply FFT applied with no post processing
- Audio passed through to PWM output of Nexys4

Wings
- Edge detection code in MATLAB
- Push edges from MATLAB onto Nexys4 through SD card reader
- Separate a pixel-wide edge into equal length bins (indexed 1-7)

Expected
For the expected goal, we are looking to deliver 2 different demonstrations.
1. Amplitude transformation applied to a predefined square.
2. Color contour implementation of varying contours with edge detection through Verilog

Julian
- Amplitude Transformation Line Algorithm on FPGA
- Varying edge length for color change transformation

Aaron
- Audio is passed through selectable filters(low pass, high pass, or bandpass)
- FFT output is processed to find magnitude associated with each frequency bin

Wings
- Edge detection through Verilog
- Erosion of edge to a pixel-wide edge
- Camera input for picture

Stretch
Julian
- Simultaneous Amplitude and Color transformation implemented
- Image negation through amplitude envelope
- Rotation with combination of transformations listed above

Aaron
- Normal vector and line estimation implemented

Wings
- Separation of edges using corner detection
- Edge detection on a live video