ELEC3305 - Something Awesome Proposal

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1 Introduction

I will design a functional GUI-based software program for audio manipulation and editing using Tkinter and Python. I will demonstrate the the skills of **problem solving**, **visual design**, **debugging**, **testing** and **signal analyses**.

Credit Level:

- Functional, compiled software program built in Python and Tkinter
- Able to import and manipulate audio in wave format
- Selectable high-pass, low-pass, bandpass, bandpass combination filters
- Acoustic response simulation (i.e. playing audio in a concert hall, etc.)
- Adjustable equalizer
- Visualizer for audio

Additional Factors:

- Good user interface
- Isolation of specific instruments, vocals
- Ability to import other formats of audio (mp3, flac, etc.)
- Dynamic Equalizer (see below)
- Acoustic response simulation
- Slow down and speed up audio
- Pitch shift up and down audio

Dynamic Equalizer

Firstly I will design a dynamic equalizer that adjusts the equalization of the audio that automatically adjusts to what is playing.

Secondly I will design an equalization system that uses the microphone on the device that is connected to the speakers to dynamically equalize the playing in response to the room's response.