# Proposal

## What will (likely) be the title of your project?

Python Pedalboard!

## In just a sentence or two, summarize your project. (E.g., "A website that lets you buy and sell stocks.")

A python program that lets you change the sound of your guitar like a pedal would.

## In a paragraph or more, detail your project. What will your software do? What features will it have? How will it be executed?

The python software would be able to read a direct audio input, say that of a guitar, and allow it to be easily modified. The modifications will be presented to the user in the form of boxes with dials (similar to how a pedal looks) with each box having a defined sound (overdrive, delay, etc.) and the dials incrementing from 0-10. The user would be able to activate the pedals in any order they want, and the outputted sound will be modified to fit these changes.

## If planning to combine 1051's final project with another course's final project, with which other course? And which aspect(s) of your proposed project would relate to 1051, and which aspect(s) would relate to the other course?

N/A

## If planning to collaborate with 1 or 2 classmates for the final project, list their names, email addresses, and the names of their assigned TAs below.

N/A

## In the world of software, most everything takes longer to implement than you expect. And so it's not uncommon to accomplish less in a fixed amount of time than you hope.

### In a sentence (or list of features), define a GOOD outcome for your final project. I.e., what WILL you accomplish no matter what?

A good outcome will be a system that can take in an audio input, present the user with prompts to change the audio (both the effect itself and the intensity of it), and output the audio with those changes. Effects should at least be ‘simple’ (duplicating the sound for a delay or chorus effect or simply boosting the high frequencies of the sound for distortion or treble boost) but should do more than just amplification.

### In a sentence (or list of features), define a BETTER outcome for your final project. I.e., what do you THINK you can accomplish before the final project's deadline?

The outcome I am hoping for in this project centers around user interface and ease of use. Once I code in the effects, I want to have them represented by visuals of guitar pedals that have easy-to-use dials and can be reordered with a drag-and-drop instead of having to mess with the order of the code. I hope to have a good range of effects and create a software that someone could realistically gig with and not have a hard time using.

### In a sentence (or list of features), define a BEST outcome for your final project. I.e., what do you HOPE to accomplish before the final project's deadline?

Intensify either the effects, the UI, or both. Once I figure out how to make ‘simple’ effects, I want to go crazy with them and make something you really wouldn’t find in a guitar store. This could be pitch-shifting to correct for note temperament in an inputted key (a natural step up from the octave pedal), something that takes more input than just on-off and dials (think the actual foot pedal required to use a manual wah), or something that completely changes the sound of the guitar and puts it in an entirely different timbre (I really hope I can make one that turns each note into a different piece of a drum kit). On the other side, I also hope to make the UI super classy, with extra features like presets and easy to access sound profiles and amp modelers (basically do what the Fender Tone Master Pro can do without having to pay $1,700 for it). Of course, good quality and easy export to a DAW are a must.

## In a paragraph or more, outline your next steps. What new skills will you need to acquire? What topics will you need to research? If working with one of two classmates, who will do what?

From my research, one good tool for processing digital signals with Python is called Pyo. It seems fairly simple to learn and builds well off of Python, though I’ll make sure to not rely too heavily on it’s built-in effects to maintain the integrity and effort of this project. On that note, I’ll want to research what exactly each guitar pedal does on a technical level and what standardized features one would expect for each one (i.e. not just applying reverb, but also things like high and low pass filters, modifiers for plate and room effects, etc.) Luckily, I do believe I have all the materials I need to record a guitar direct into my laptop.

Here's where you can see more about Pyo: <http://ajaxsoundstudio.com/software/pyo/>

Let me know if you want a particular song covered in the demo, just for fun.