

Samuel Baldwin

Rah Hite

Griffin Miller

Giles Thomas

## **Introduction / Background / Motivation:**

The core concept of our project is a lightweight, easy-to-use tool for music creation. Three of our team members are deeply interested in music, with two of them majoring in composition. We wanted to link our interest in music to our shared interest in coding, and create a virtual synthesizer that could be played completely on the keyboard/computer screen. Virtual instruments like ours are becoming increasingly prominent in the music industry, so this project will increase our understanding of the tools behind both of our studies.

Our goal is to use a 12 key keyboard to robustly simulate the playing of an actual keyboard, as well as offering the opportunity to play numerous different instruments in the same fashion.

We additionally had the goal of allowing a user to have full control of all aspects of the music creation process, such as the length of the note and the octave that note is played in.

Additionally, to further support the music creation process, we have the ability to record what a user is playing, and effectively create a score that can be used for the future. The program was designed to be used by both inexperienced musicians, as well as those well versed in the subject, and therefore offers introductory information like the notes on keys, but also allows the complexity of a project to scale with the user's expertise.

## **Instructions**

### Keys:

Pressing one of the 12 keys at the bottom of the window will cause the system to play a note corresponding to the key pressed. There will be visual feedback to indicate that the note is being pressed in the form of a dropshadow.

### Record Button:

After pressing the record button, pressing keys will cause the music staff on screen to populate with notes corresponding to the notes played. While recording, the button's label will read "Recording..." Pressing the button again will reset the staff and stop the recording.

### Reset Button:

The reset button will reset the recording that is currently being made.

### Note Length Slider:

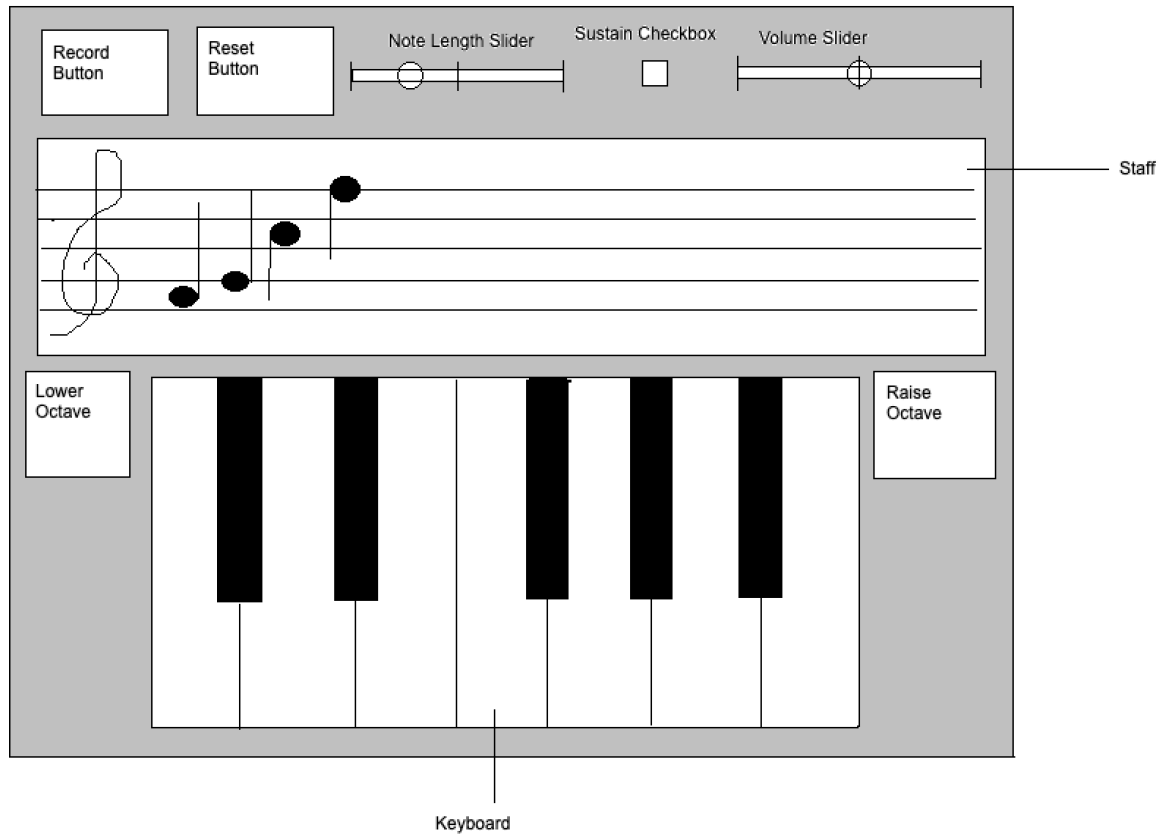
The note length slider will adjust the length of the notes produced by the keyboard. The slider's default value is an eighth note, and can be adjusted between 1/16th note and a whole note.

### Volume Slider:

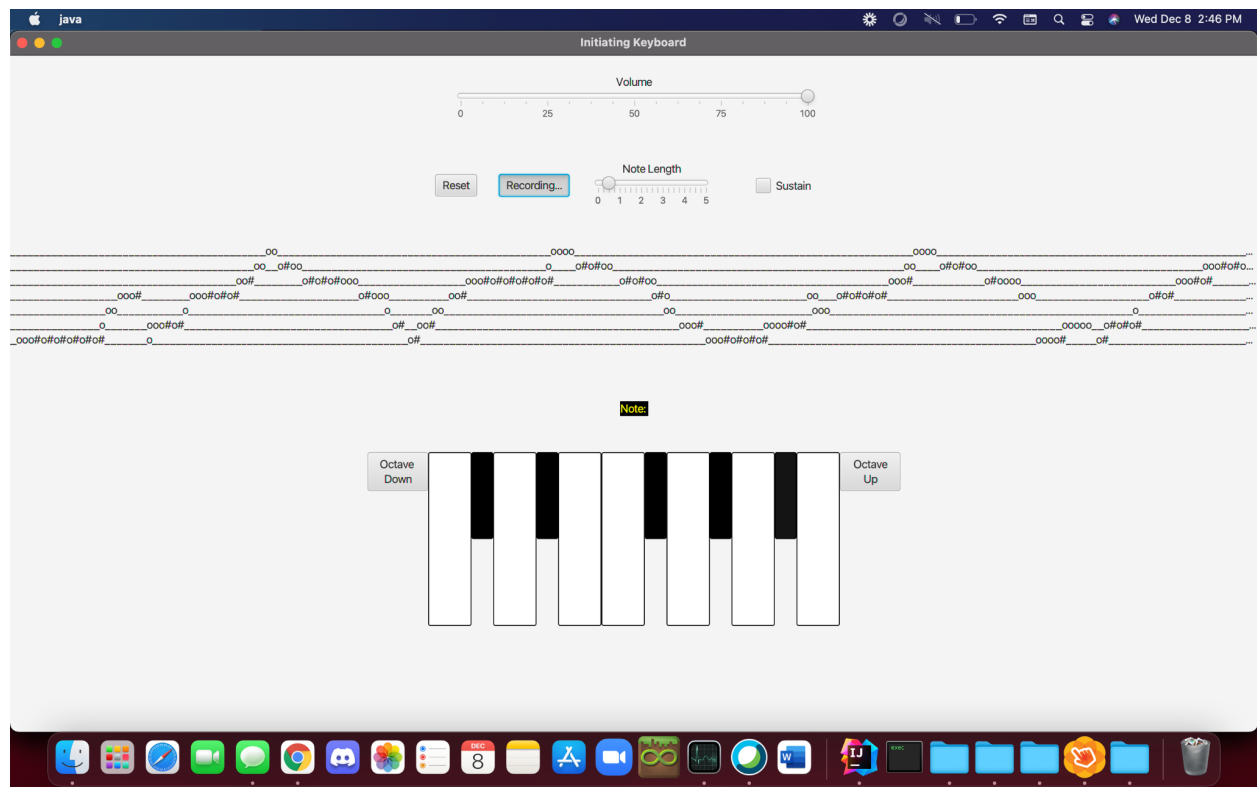
The volume slider will allow the user to adjust the volume of the notes produced by our virtual instrument. It can be adjusted from 0% (silence) to 100% (full volume). The slider's default setting is 50%.

### Sustain Checkbox:

When the checkbox is pressed, notes are played indefinitely while a key is held down. The checkbox is not pressed by default.



Proposed UI Design



Actual UI Design