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6.111 Final Project Abstract
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Digital Debussy: A Hardware-Based Music Composition Tool

Music composition programs are powerful tools for both beginning musicians and experienced professionals; however, most of these programs are expensive and may cost hundred of dollars. While this may be a worthwhile investment for serious musicians, most amateur musicians do not need the powerful features and tools of professional music composition software. Our goal is to develop a cost-effective, hardware alternative that is simple and easy to use for musicians of all ages and skill levels. This project can be easily expanded to include as many features as we are capable of implementing in the time allotted to complete the project.

The main feature of our project is the music writing and playback system. A user will be input a melody using a graphical representation of sheet music and toolbar to adjust a variety options, such as note duration. Once the user is satisfied, he or she will be able to playback the melody through the labkit speakers. We intend to utilize existing sound files that represent various instruments so the user can customize his or her music further.   Additionally, we will implement a control system for the tempo of the music so a user can speed up or slow down his or her music. Ideally, a user will be able to compose a melody in any key or time signature.

If time allows, we have developed a list of additional features we would like to implement in our system. We would like to create a transposition feature, so that a user can compose a melody in any key signature, but can transpose it up or down to a new key signature to suit his or her desires. We would also like to design a system that automatically harmonizes a given melody based on classical music theory constructs. Finally, we could also find a way to export the piece of music as an image file so a user can print his or her music.

In terms of the actual implementation, we see two divisions. One involves the user interface, which includes how the user will select note duration, type, and other features. The other component involves the sound playback, tempo control, and transposition. One person will take a component for herself, and depending on the progress of the project, each may attempt to achieve more challenging milestones within the project.