CS 30700
Team 10: Project Charter
Project Title: Rhythm

Team Members: Indhu Meena Ramanathan, Richard Hansen, Steven Dellamore, Columbus Holt

Problem Statement:

Converting handwritten music sheets into a digital format that can be easily tested, customized, and shared with others is not an easily completable task. In order to facilitate this tedious task that may takes hours to complete, in comes Rhythm, Rhythm allows any music writer, new or seasoned, to be able to take a picture of music sheet, which will be automatically loaded and parsed into a digital music sheet. These sheets will open for easy customization, including changing and adding notes, in addition to previewing the music by playing the selected sheet with a selected instrument. While there are applications such as PlayScore that allow users to take an image of their scores and play the music, those applications do not allow users to convert handwritten music to a digital version nor do they allow users to edit the notes after upload.

Project Objectives:

1. Create an easy and intuitive approach to convert written sheet music into virtual sheet music via images taken from the phone camera
2. Provide an interface to modify virtual sheet music with the use of the user's handheld device, by moving, adding, or removing notes, and and allowing the user to change the instrument that the sheet should be played with
3. Play the music on the virtual sheets using different instruments live from the user's device
4. Allow users to create libraries of compositions, which are composed of multiple virtual music sheets

Stakeholders:

- **Project Owners:** Steven Dellamore, Richard Hansen, Indhu Meena Ramanathan, and Columbus Holt
- **Software Developers:** Steven Dellamore, Richard Hansen, Indhu Meena Ramanathan, and Columbus Holt
- **Users:** Aspiring and professional music writers alike will use our product to create, modify, and perfect their own music and songs.
- **Project Coordinator (Manager):** Nanxin Jin

Deliverables:

- React Native frontend mobile application that allows users to take and upload images of their handwritten music, modify and play virtual sheet music, and organize compositions
- Interface for editing compositions by moving, adding or removing notes on the virtual sheets
- Flask backend framework that will serve network requests and manage user data about their virtual music sheets and compositions as it will allow us to integrate the front-end and database
- MySQL database that manages user compositions and libraries
- Machine learning based image classification system for converting handwritten sheet music to digital sheet music using Python and machine learning frameworks and libraries, including Keras and Tensorflow
- Use of libraries and modules such as React-Native-Sound to generate the sounds of any instrument for the music on the virtual sheets
- Hosted on AWS, as it is an elegant and user-friendly hosting service

With our product, we will have a user-friendly UI design that would allow users to easily convert handwritten music to a digital version, edit their notes after upload, and play and test their creations. In order to ensure that we have a secure system, we will be using Hypertext Transfer Protocol Secure.