



# Music Genre Identifier App

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# Abstract

With an increase in the quantity of music via platforms like Spotify, Apple Music, and Pandora, grouping together different types of music in order to better handle data is a task that has become increasingly daunting. Whether it's database management, searching for a song, or even just storing a song, being able to classify music into different genres can help ease the process of working with such large amounts of data. This inspired us to create a better user experience for both clientele and developers.

Fortunately, we have material from a previous group project to build off of. We intend to use it as both a resource and to further extend what has been accomplished. One of the key features we would like to implement is the ability for a user to record a song through their phone, which can then be classified based on their genre.



# Overview

## Model

There are two separate models we are taking into consideration for implementation. The first is the original CNN model. If we choose to maintain the CNN model, we would focus on improving accuracy. The second option is to start from scratch using a KNN model. Both make use of the mfcc of a wav audio in order to determine the genre of music. We may use Recorder.js for this purpose.

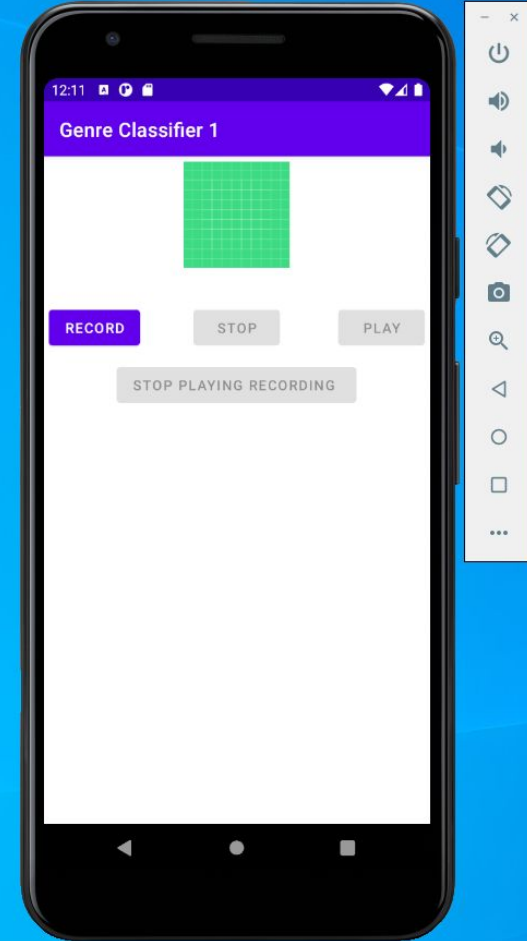
## Android Studio

A user interface will be created to visually present how the program will work. We will use Android Studio to develop the app. Audio recordings will be submitted through the app. The backend, which contains the KNN model, will then guess what genre it is and inform the user.

# Overview

Outline of Music Genre Guesser Mobile App (prototype image on right side)

1. Start from scratch
2. Same dataset (GTZAN)
3. KNN /CNN model(s)
4. Google Cloud
5. Android app
6. Recorded audio





# Workflow

- Model will be created using python on Google Colab
    - Google Colab - [https://colab.research.google.com/drive/1LW1Vb\\_vstwLrkj3ViH4LRvofyT9NvtdU?usp=sharing](https://colab.research.google.com/drive/1LW1Vb_vstwLrkj3ViH4LRvofyT9NvtdU?usp=sharing)
  - The generated model will be hosted in Google Cloud ML Engine
  - Audio preprocessing will be deployed as a Google Cloud Function.
  - Android app will record the audio and then call the Cloud function and the Cloud ML Engine
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- Android Studio - Everyone will use
  - Version Control - Github - <https://github.com/anniecliu/Music-Genre-Project>
  - Discord - Thursdays 12PM weekly meetings



# Roles

Daniel - KNN/CNN model(s)

Jerin - Android App backend, Google Cloud

Madeline - Android App frontend

Annie - Android App frontend, conversion of input into .wav file



# Milestones

We meet every Thursday, within the duration of this project.

10/21/20 - Submit Proposal Slides

10/22/20 - Progress meeting on Discord. Sharing updates:

- KNN Model,
- Android App front-end (Android Studio & conversion of input file to .wav)
- Android App back-end (Google Colab)

10/27/2020 - Final meeting on Discord:

- Round up the project, work on the report / presentation slides

10/28/20 - Submit Report/Presentation Slides



## Resources & Tutorials

KNN Model Tutorial: <https://data-flair.training/blogs/python-project-music-genre-classification/>

- This tutorial makes use of the dataset below in order to train a KNN model using the mfcc feature.

Dataset: <https://www.kaggle.com/andradaolteanu/gtzan-dataset-music-genre-classification>

- This dataset contains wav. Files, image representation of each wav. File, and two CSVs containing several features such as the length, the root mean squared mean, and other spectral features

Android Studio: <https://developer.android.com/training/basics/firstapp/building-ui>

- This tutorial guides you through how to build a simple Android app using Android Studio.

Recorder.js: <https://blog.addpipe.com/using-recorder-js-to-capture-wav-audio-in-your-html5-web-site/>

- Reference tutorial for how to use Recorder.js.