TEAM TRM

Project Proposal

**Goal**: The goal of this project is to classify music pieces into their respective genres.

**Data**: The data that will be used will be from .mp3 type files.

There is a collection called “Million Song Dataset” that houses audio features and metadata for a plethora of contemporary popular music tracks. This collection’s purpose is to “encourage research on algorithms that scale to commercial sizes” and to “provide a reference dataset for evaluating research.” This is not the actual audio file but will serve as extra features to tag the audio files that will be used to train the algorithm.

From what the website states, there is 280 GB of data available, and a subset of 10,000 songs is about 1.8 GB. That is more than enough to work with. There are also services such as YouTube and Spotify where we can extract the audio file, however, not sure how legal this is going to be.

All these sources are free, especially since all of this is being used for educational purposes only so not special permission is needed.

**Ground Truth**: Most of these audio files already have an attached tag that states what genre they are categorized under. For more ground truth, the open music encyclopedia, MusicBrainz will be used to reference more metadata on music identification.

There is not a clear path as to how to generate more ground truth tagging genres to music, however the pre-existing and ever-growing music encyclopedia should be enough.

Creating a blind test may be difficult considering how much of this data is freely open to the public. New music is being created all the time so it would be blind if the test were done on the day that music piece was released. With that said, it is possible to create covers of songs and change it ever so slightly to a different genre and that is something anyone can create so there can be many different variations of the same song.

**Error Metric**: The error metric that will be appropriate for this problem would be to somehow quantify how genres are different and the degree of separation between them. This will be computed by giving each genre that are being used for classification an equal weight and then using false classifications to compute that error metric.

**Assignment 03 - Due Wednesday 1/23, 11:59pm - 10 points**

* Discuss project ideas with your project team
* Decide on one project that you want to propose to the class and write up a one to two page proposal for this project. This proposal should be a PDF document and named the following: ProjectProposal\_Teamname.pdf where team name is replaced with your team name.
* Your proposal should discuss the following:
  + Goal: What is the overall goal of the project?
    - The goal is to deduce the genre(s) of the music being played.
  + Data: What sort of data will be used? Is the data easily available/obtainable? How much data is available? Do we need any special permission to obtain the data?
    - The data that will be use is .mp3.
    - The datasets are on certain
    - No we don’t need permission.
  + Ground truth: Is ground truth available for the data? Can we generate more ground truth easily (and how) to create a blind test set?
    - People have already accepted the genres of certain songs and so that will be the standard that we follow.
  + Error Metrics: What error metric would be appropriate for this problem? How can it be computed?
    - Quantify how genres are different
* Be prepared to present your project idea to the class on Thursday (next class). You can include a 1-2 slide presentation in your assignment submission to present the project idea.
* <https://labrosa.ee.columbia.edu/millionsong/>
* <https://musicbrainz.org/release-group/19a8b6e5-f753-36c6-a3c6-189390d09935>