LAMS 155

Los Alamos Middle School and Los Alamos High School

Computer Science

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Programming Language: Python

Interpreting and Classifying Music

Music has appeared throughout the history of mankind and is one of the most ancient and complex art forms. From classical to pop, music has evolved over the centuries. This project aims to learn what makes each individual form of music unique, and find ways to identify music based on these categories by identifying important indicators of music such as key signature, time signature, and tempo, as well as other factors such as chord progressions and rhythmic patterns. Eventually, this program will recognize different genres of music (classical, jazz, etc.) Using these patterns, we can interpret and classify music.

We intend to accomplish this end goal using several steps. The first step is to be able to identify time and key signature. Time signature is how many beats are in a measure and what note gets the beat (e.g. the waltz has 3 quarter, or 1/4th, notes in one measure so the time signature is ¾). Key signature is what determines how each note is played (e.g. in F Major, the note on the ¨**B**¨ line is played as **B ♭** unless marked otherwise). Tempo is how fast the notes are played, usually portrayed in music as BPM (Beats per Minute). The next step is to be able to recognize different patterns in music, such as chords and rhythms. The final step will be using these recognized patterns to determine what genre of music it falls under. We will use online music databases to "train" our program what music classifies with which genre.