Music Mining

With the evolution of digital music and digital music players have come different proposed methods about how to represent, store, and mine digitally stored songs. Digital music has grown in popularity over the past decade along with applications and websites that sell, distribute, and play large amounts of songs from many different genres. In certain cases like Pandora they rely on matching similar songs together that they believe their users will like in. This process has to begin with extracting different features that correctly represent the song and that can be applied to similarity measures or other algorithms that can correctly cluster songs based on the genre and rhythm of the song. There are many different algorithms based on feature extraction that are grouped into two main groups; monophonic vs. polyphonic that attempt to represent the songs rhythm and melody so that it can be classified into a genre correctly by a clustering algorithm. These different features are represented as numeric vectors where a vector v contains $<v_1, v_2, \ldots, v_k>$ features that have been taken from the song. After these features are extracted for the song, the vectors can be provided as input for a classification or clustering algorithm that will group like songs based mostly on genre or artist. This process is becoming more important as websites that sell music attempt to become more tailored to the customer by suggesting music that is similar to music they have purchased in the past and by applications such as Shazam that produce the name and artist of a song based off of a short clip of the song being entered. This music information retrieval process is one of the main applications that music mining is applied to. Human classification of music is difficult enough because the genre does depend on who is classifying it whether it is Blues or Jazz but with little standardization of each process, the process of mining music remains a difficult and widely varied problem.