Music Genre Classification Using Machine Learning

(Proposal)

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1 Introduction:

Music is something that we all appreciate at some point in our lives. It's the sound that's created by a combination of instruments and singing voices. Music is not just created artificially, but it may also be found in nature. It's melody in the mornings, the swishing of the waves in the ocean, the whistle of the wind, and the whispering of trees and leaves are all forms of music in their own sense. Music is a universal language that everyone can understand. It has the ability to bring people together, to make us feel at ease, and to make us feel understood. We can dance to it, bond over it, and even listen to it while we're alone.

Percussion, string, brass, woodwind, piano/keyboard and many others are examples of types of music instruments. These instruments is used by musicians to create various of beautiful sounds and harmony. There are numerous types of music genres too, including rock, pop, classical, blues, jazz, R&B, hip-hop, and many more. The interplay of the instruments characterizes all of these musical genres. Rock music, for example, is frequently louder and features more percussion and string instruments, whereas jazz is known for its use of the saxophone.

Music genres provide us with a valuable tool for improving our musical experience. When employed properly, genres have the ability to significantly improve our understanding of music, boost our recognition of innovative musicians, and raise our personal enjoyment of music.

This project will study and evaluate a dataset in order to use a machine learning model to classify the genres of music. The remainder of this proposal is organized as follows: Section 2 shows the problem definition of this project. Section 3 presents the project aim and objectives. Section 4 discusses the methodology and how to achieve the project aim. Finally, the conclusion is in section 5.

2 Problem definition:

Music genres classification is significant topic to investigate as the genres are one of the few and most valuable tools we have for comprehending and analyzing the works of artists. These classifications have the capacity to significantly improve our knowledge, recognition, and pleasure of the music we hear when utilized flexibly and descriptively. Music categorization makes it easier for us to find music that suits our tastes, as well as for artists to sell their music in a way that distinguishes them from the competition. Therefore, in this project I propose the use of ML models to classify the music genres. In order to achieve this aim, the project fixates on answering the following questions:

- What are the main genres of music to be considered?
- What are useful features that will help identify the genre of music?
- How music genre would be classified?

3 Aim and objectives:

This project aims to classify music genre by building an efficient model using ML techniques. The before mentioned aim will be accomplished by fulfilling the following objectives:

- Select a dataset that contain an acceptable number of music instances
- Study and analyze music features
- Build an efficient model
- Evaluate the efficiency of the model

4 Methodology:

In order to classify music genre, a ML model will be utilized along side with a selected dataset. The dataset was acquired from one of the MachineHack Hackathon[1]. It consists of a training dataset of 17,996 rows with 17 columns and a test dataset of 7,713 rows with 16 columns. The columns can be defined as follows: artist name, track name, popularity, 'danceability', energy, key, loudness, mode, 'speechiness', 'acousticness', 'instrumentalness', liveness, valence, tempo, duration in milliseconds and time_signature. More importantly, the target variable is the 'Class' column that will be used to determine the genre of music.

5 Conclusion

Music genres are important because they provide the foundation for comprehending and appreciating music as an art form. When done correctly, the classification process considerably improves our understanding, recognition, and pleasure of the music we hear. In this proposal, I seek to investigate and analyze the dataset to identify relevant features that will help a ML model to classify music genres

[1] https://www.kaggle.com/purumalgi/music-genre-classification