INTRODUCTION

1.1 Overview

Music is like a mirror, and it tells people a lot about who you are and what you care about, whether you like it or not. We love to say "you are what you stream,".Companies nowadays use music classification, either to be able to place recommendations to their customers (such as Spotify, Soundcloud) or simply as a product (for example Shazam). Determining music genres is the first step in that direction. Machine Learning techniques have proved to be quite successful in extracting trends and patterns from the large pool of data. The same principles are applied in Music Analysis also. This project is aimed at using the KNN classification algorithm to detect the genre of music from an audio file. The ability to classify an audio file and categorize them according to their genres, has proven to put a huge impact on services mentioned above. This way, they engage their customers more by predicting what type of music a particular customer is interested in and further applying state of the art deep learning methods to give recommendations.

1.2 Purpose

Music genre classification aims to predict the genre using an audio signal as its input. The objective of automating the music classification is to make the selection of songs quick and less cumbersome. If one has to manually classify the songs or music, one has to listen to a whole lot of songs and then select the genre. This is not only time-consuming but also difficult. Automating music classification can help to find valuable data such as trends, popular genres, and artists easily. Determining music genres is the very first step towards this direction.

2.LITERATURE SURVEY

2.1 Existing system

In existing system, we used k-nearest neighbor (k-NN) to classify the genres. This doesn't give an absolute reasonable correlation between learning strategies for classification of music. It uses filter modeling before Piece wiseGaussianModelling. However, these improvements don't seem to be statistically significant. This procedure doesn't increases classification accuracy and it doesn't achieve the efficiency prediction. Most of the genre classification studies focuses on finding the simplest set of temporal features, transformations, and filters that best represent the music. The author of the data-set we are using also attempted to search out the set of features that best represent a music. Other studies will try and find combinations of well-known music theories like rhythm analysis to feature new features to the classification problem. We believe that this significantly limit the performance of models because these features are ultimately extracted by humans and that we are going to be missing some important features that would be extracted by a neural network. Other studies have tried to use some AI/Machine learning techniques like Hidden Markov Model to classify music genres, and even SVM. However, they still have limited performance. In recent years, deep learning and neural networks have also been widely applied to classifications problems, including musical style classification. More specifically, using CNN as a music feature extractor was studied by T. LH. Li, A. B. Chan, and A. HW. Chun. They used MFCC audio representation and trained a music pattern extractor to classify style. There are LSTM musical genre classification works being done but mostly focused on lyrics.

2.2 Proposed system

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3.THEORETICAL ANALYSIS

3.1 Block diagram
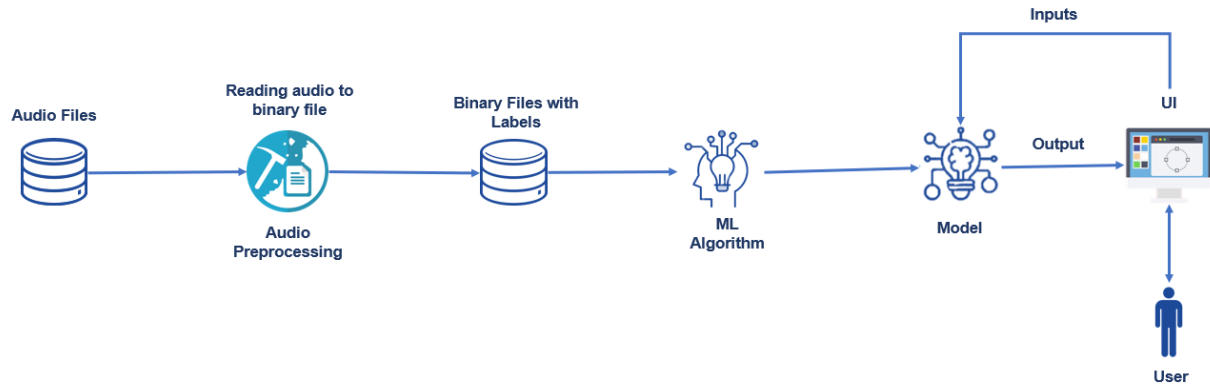
3.2 Hardware designing

Processor : Intel i3 Core Processor

Hard Disk : 4 GB Hard Disk

Network : Wi-Fi Internet or Cellular Network

Software specification

Operating System : Windows 10 Home

Web Application : Jupyter Notebook

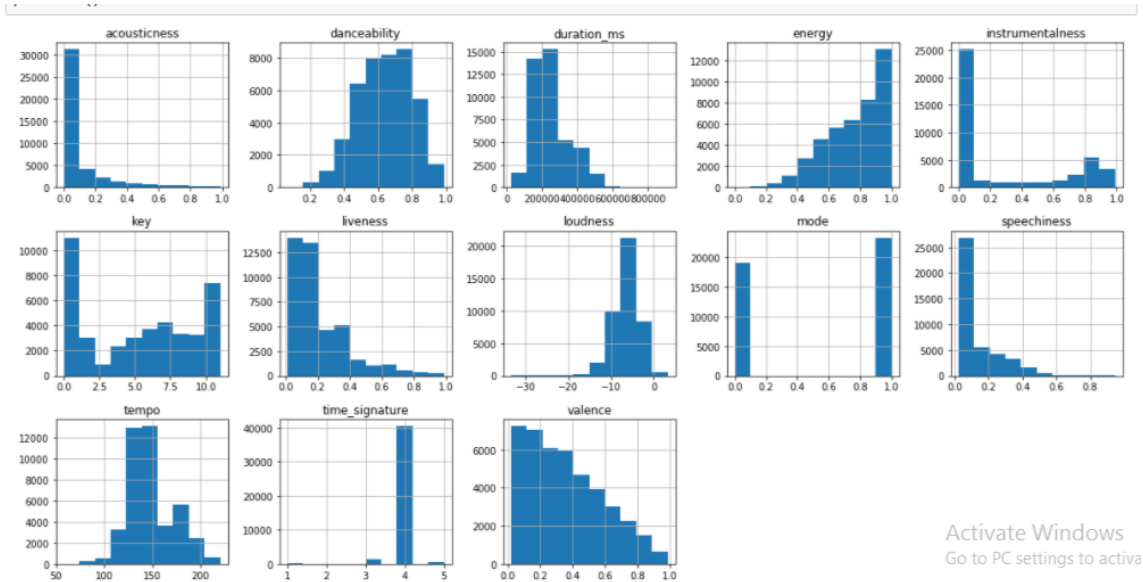Front End : HTML, CSS   Back End : Python, Flask

Cloud : IBM Cloud

1. IBM Watson studio: Watson Studio provides the environment and tools for collaborate work on data to solve business problems. It provides the tools to analyze and visualize data, to cleanse and shape data, to ingest streaming data, or to create and train machine learning models.
2. IBM Watson Machine learning: IBM Watson Machine Learning is a full-service IBM Cloud offering that makes it easy for developers and data scientists to work together to integrate predictive capabilities with their applications.
3. IBM Cloud Object storage: IBM Cloud Object Storage is a service offered by IBM for storing and accessing unstructured data. The object storage service can be deployed on-premise, as part of IBM Cloud Platform offerings, or in hybrid form.
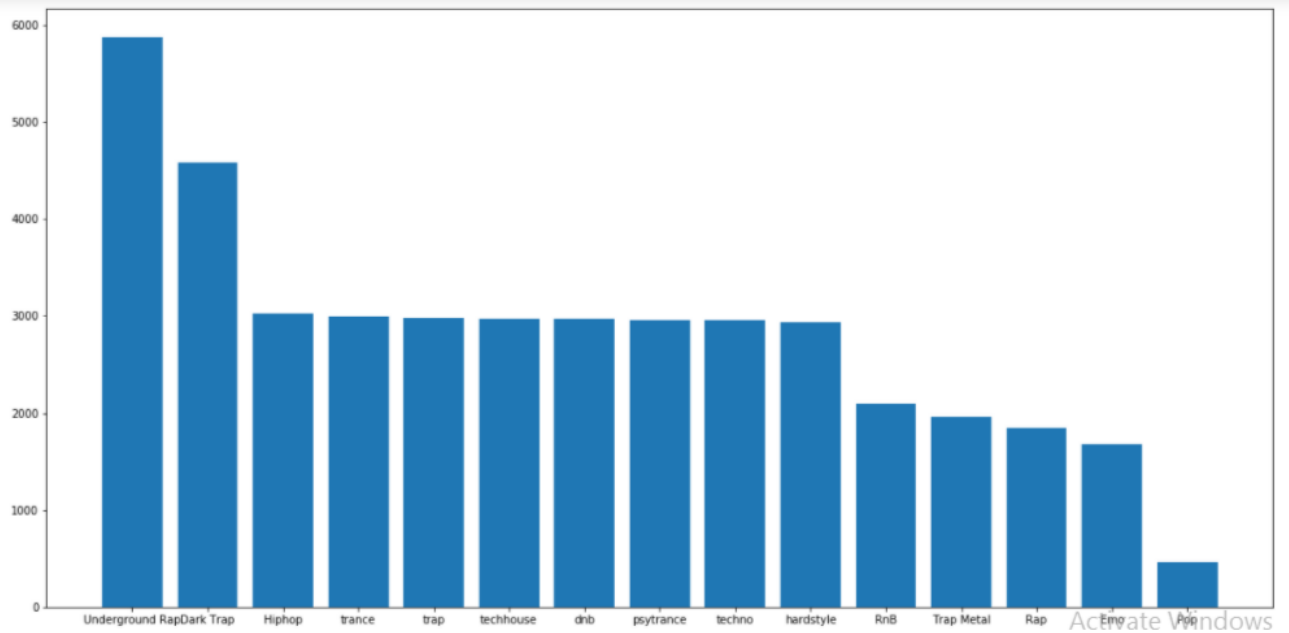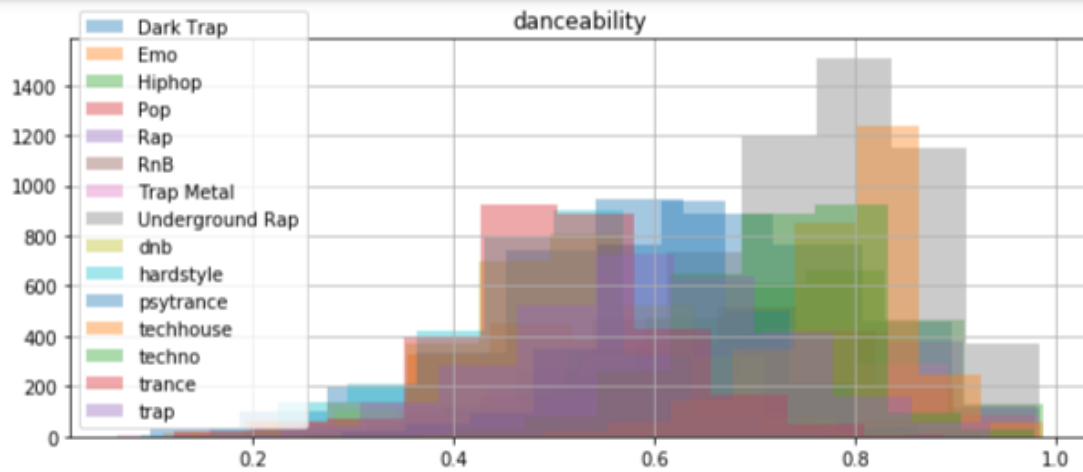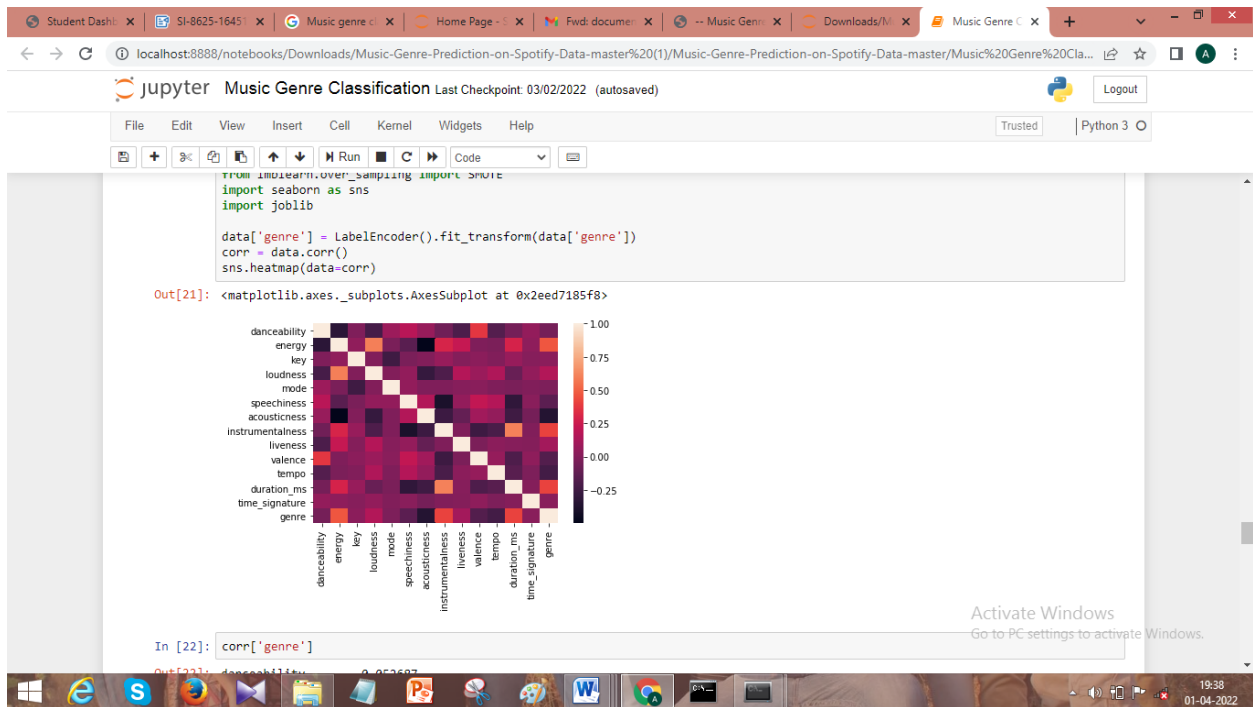
4. EXPERIMENTAL INVESTIGATION

Here we are going to build a machine learning model that predicts the Music Genre based on the following parameters
- Energy in music
- Loudness
- Speechiness
- Instrumentalness
- Liveness
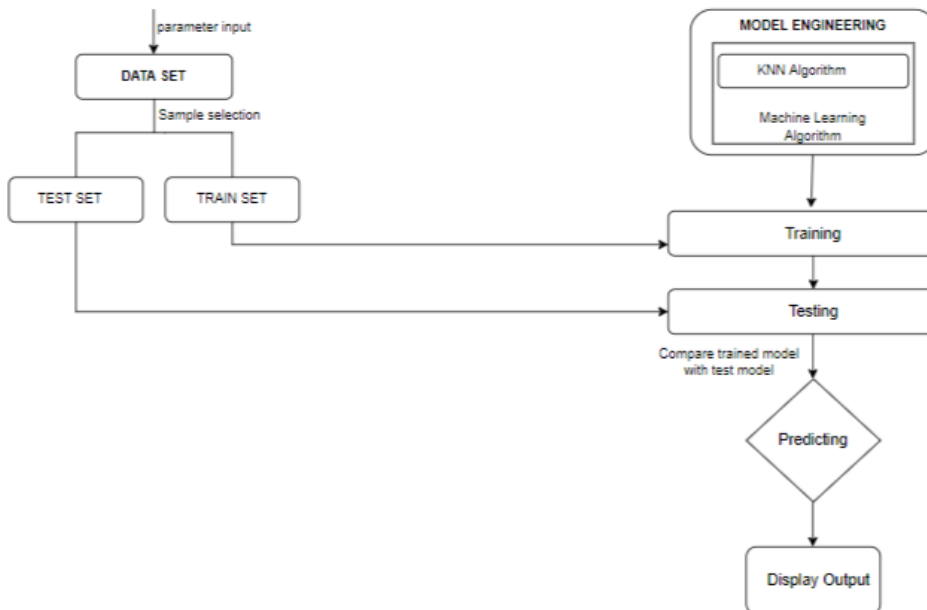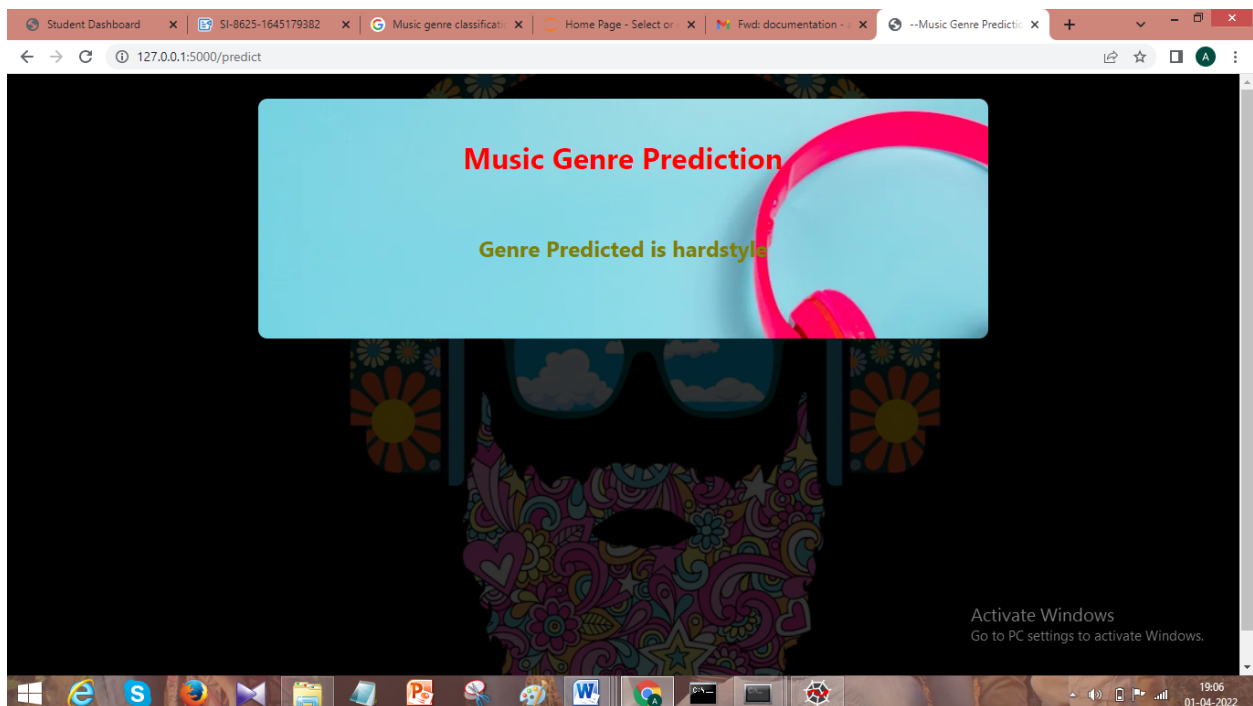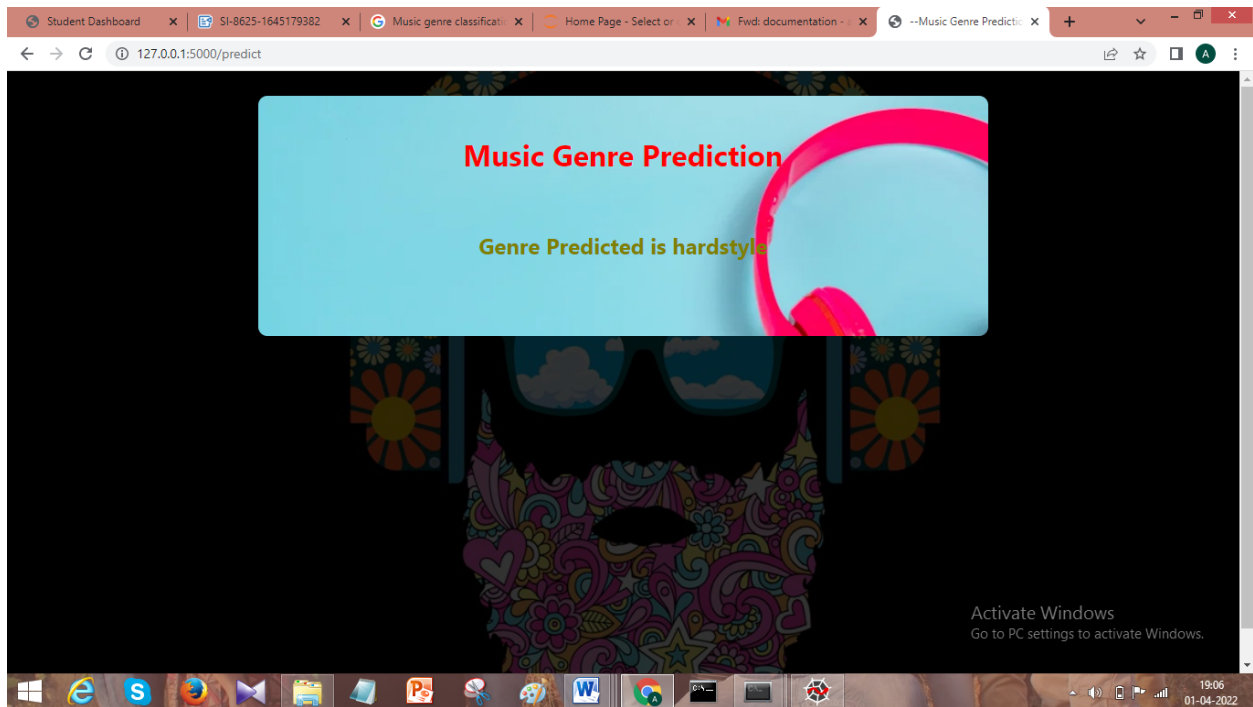- Valence
- Tempo
- Duration of music

4.1 VISUALIZATION

danceability

5.FLOWCHART

6.RESULT

7. ADVANTAGES AND DISADVANTAGES

7.1 Advantages

The model is fast and accurate and it gives the exact genre of music. Its very time consuming because we use NLP in this project. It is very useful for music professionals and companies like Spotify to detect the music genre of the song. We get the output easily when we analyze so user can't wait much time for the output.

7.2 Disadvantages

People who are not well known about music will get confused while entering the music features.it is depend only on the interest of a customer so it may vary depend on the persons.

8.APPLICATIONS

1. From Authors side, be able to place recommendations to their customers.
2. From Customers side, they can know the field of interest.
3. Music genre classification web app is more user friendly.

9.CONCLUSION

We saw how to develop a Convolutional neural network for music genre recognition. In this music genre classification project, we have developed a classifier on audio files to predict its genre. We work through this project on GTZAN music genre classification data-set. It explains how to extract important features from audio files. In this deep learning project we have implemented a K nearest neighbor.

10. FUTURE SCOPE

Companies nowadays use music classification, either to be able to place recommendations to their customers (such as Spotify, Soundcloud) or simply as a product (for example Shazam).. It is very useful for the new users so there is always a future scope for the system.

11. BIBILIOGRAPHY

1)https://www.researchgate.net/publication/200688634_Musical_Genre_Classification_Is_It_Worth_Pursuing_and_How_Can_It_be_Improved

2) https://www.scielo.br/j/jbcos/a/m3Dgdb8jbcNP69wgNJZcsqN/?lang=en

3) https://www.scielo.br/j/jbcos/a/m3Dgdb8jbcNP69wgNJZcsqN/?lang=en