

# SMAI Project Checkpoint 1

Team: **Team-1**

Project ID: **11**

TA: **Naimeesh**

## Team Details:

Member Name	Roll Number
Divij	2021101001
Bhav Beri	2021111013

## ***Generating Music with Machine Learning***

### Objectives (Final Project Deliverables):

- Making music generation models using the following four different approaches:
  - Simple Naive Bayes
  - Vanilla Neural Network
  - Long-Short-Term-Memory RNN
  - Encoder-Decoder Model

The objective here is to generate music that sounds similar to what humans can create without overfitting the models. There will be testing done from the given dataset as the model tries to predict the next note/chord in the sequence.

Optionally, we can also get manual feedback from other people regarding the quality of the song and if it sounds human-generated.

- Music Genre Classifier
  - Building a music genre classifier for 4 genres:
    - Classical
    - Jazz
    - Metal

- Pop

We evaluate our model on 2 bases:

- Quantitative (involves a measure of F1 Score, Precision, and Recall)
- Qualitative (Analyzing the spread through various graphs)
  - Running the music genre classifier on the output of the Music-generation models made.

## Datasets:

- Classical Piano Dataset (<http://www.piano-midi.de/> and <https://www.classicalarchives.com/>)
- GTZAN Genre Collection Dataset

## Timeline:

Event	Submission Date (if relevant)	Week
<b>Checkpoint 1 submission</b>	7 October, 2023	
Data Preparation, visualization, and exploration		1
Understanding of Implementation and Implementation		2
Implementation and preliminary testing		3
<b>Checkpoint 2 submission</b>	30 October, 2023	
Model evaluation and Hyperparameter Tuning		4
Implementation of Classifier model and preliminary evaluation		5
Combining the 2 models and extensive evaluation		6
Analysis of all the outcomes for models, final touches, and conclusion		7
<b>Checkpoint 3 submission</b>	27 November, 2023	
<b>Final Submission</b>	30 November, 2023	