أكاديمية سدايا
SDAIA Academy

Optical Music Recognition

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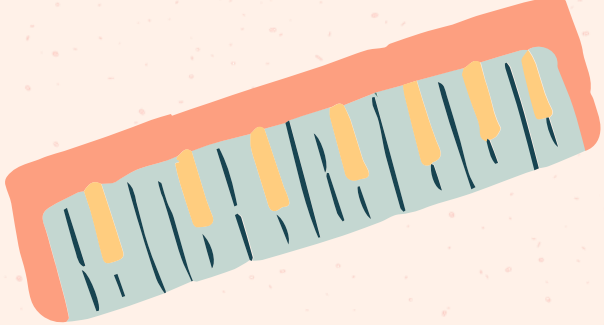


Goal

Develop a sheet music reader to classify each music note then produce the music

Data Collection

Music Sheets

5,000 Images

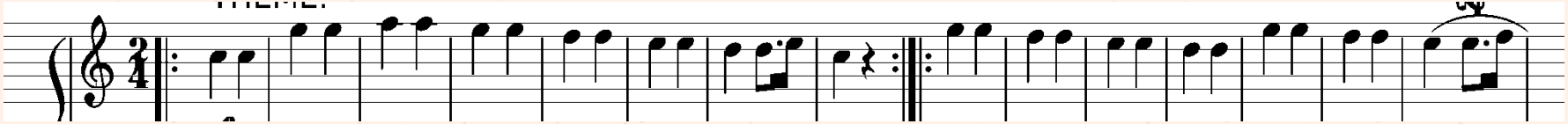
Predefined Model

To label the notes

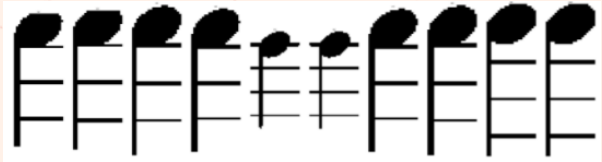
The dataset contains **44,980 notes** and their **labels** & **ID**

Labeling Process

Original Sheet



First 10 Notes



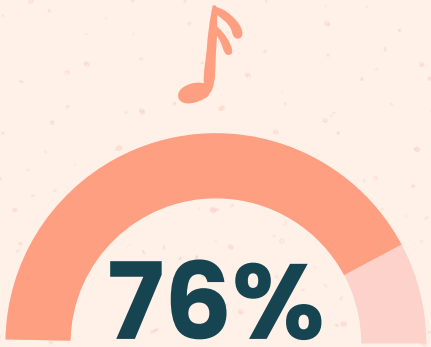
['c4', 'c4', 'g4', 'g4', 'a4', 'a4', 'g4', 'g4', 'f4', 'f4']

Model:
Convolutional Neural Network

with 5 convolution layers

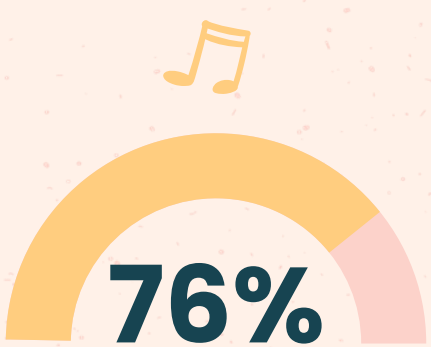
Activation Functions	Softmax & Relu
Loss Function	Categorical Cross Entropy
Optimizer	Adam
Metric	Accuracy

Results



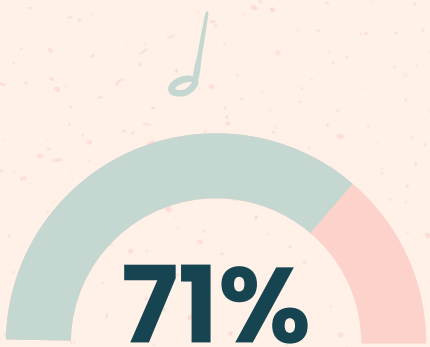
Training

3k Music Sheets



Validation

1k Music Sheets



Testing

1k Music Sheets

Can we produce music with Python?

How to produce music with Python?

- **scipy.io.wavfile**
  - Method: write
    - Writes a NumPy array as a Waveform (WAV) Audio File Format

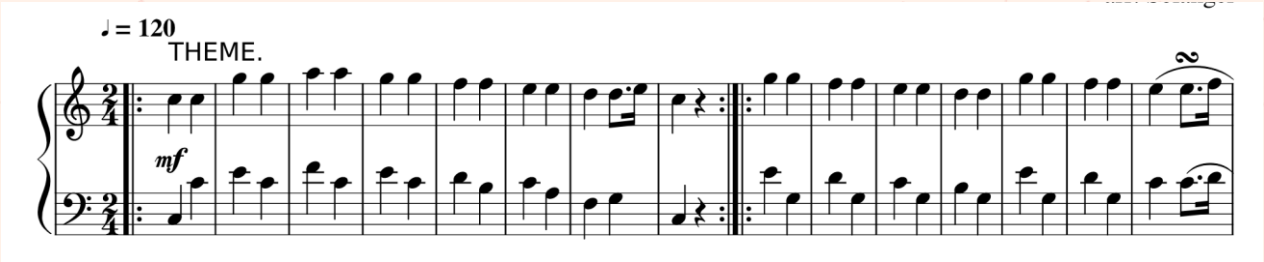
Data Collection II

Note Frequencies

Scraped from Wikipedia

The dataset contains **15 notes** and their **frequency**

Output Example



THANK YOU