The Hunt for the Perfect Pedalboard
-Dyllan Usher

Agenda

- Introduction
- Methodology
- Sentiment Analysis
- Topic Modelling
- Conclusions/Future Work

Introduction

GOAL: Find the best guitar pedals:

▶ **Predict** sentiment of google shopping reviews.

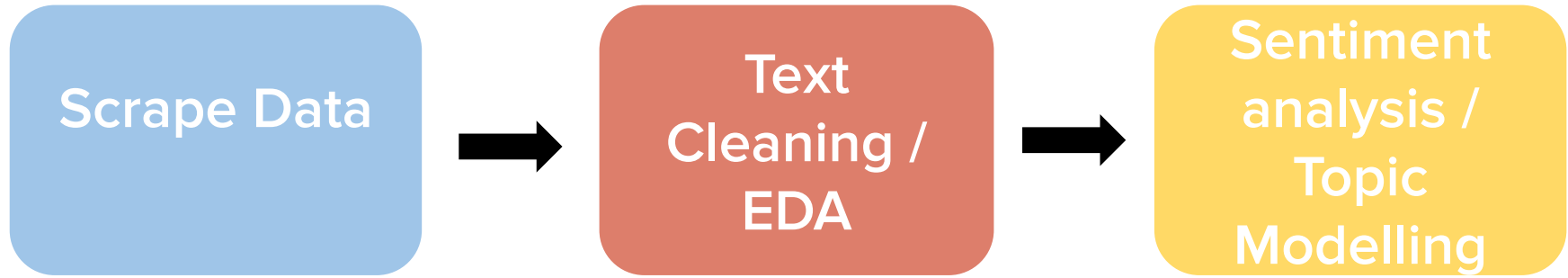▶ **Analyze** what people are saying in the reviews.

Methodology - Data Acquisition

► Google Shopping Scraper
► Queries:
   ► Delay Pedal
   ► Wah Pedal
   ► Octave Pedal
   ► Fuzz Pedal

Methodology

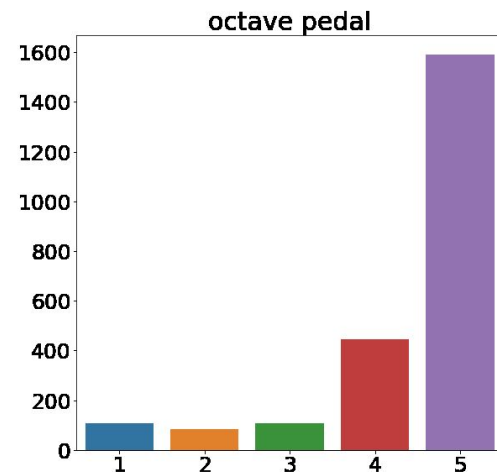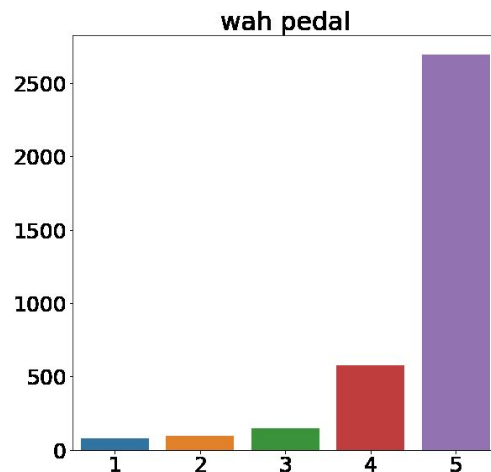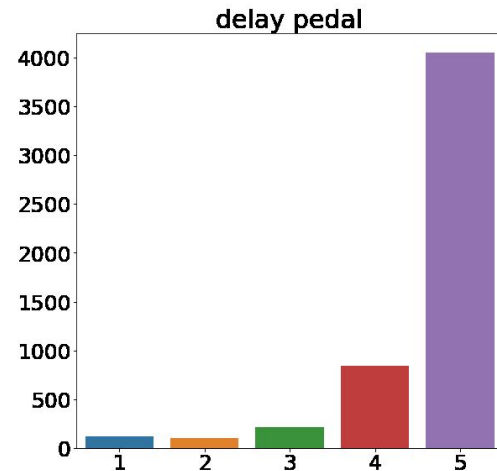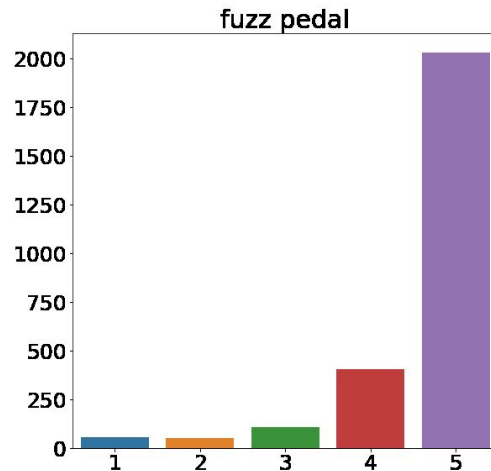Scrape Data → Text Cleaning / EDA → Sentiment analysis / Topic Modelling

Find the Best Delay, Wah, Fuzz, and Octave Pedals!

Challenges

► Large Class Imbalance

► Difficult to Scrape
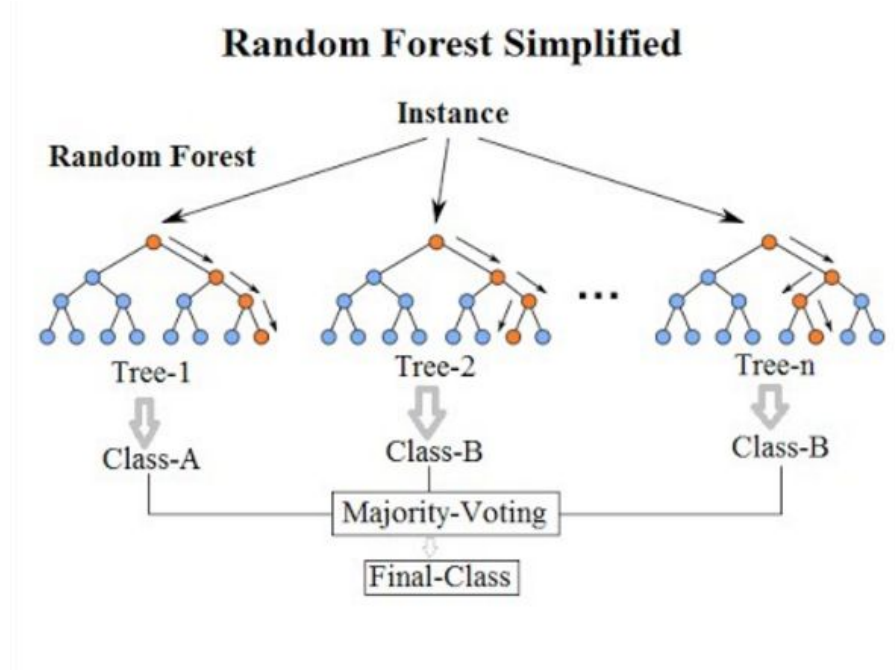
   ► Time Consuming

   ► Dynamic Webpage

Sentiment Analysis

1. Text Cleaning

2. Term Frequency Inverse Document Frequency Tokenizing

3. Target Class

    a. Negative(1-3)

    b. Positive(4-5)

Sentiment Analysis

Random Forest Simplified

Instance

Random Forest

Tree-1   Tree-2   ...   Tree-n

Class-A   Class-B   Class-B

Majority-Voting

Final-Class

- ► Random Forest Classifier

- ► Model Scoring on unobserved reviews

  - ► F1 Score Average : 0.97

Topic Modeling

TFIDF + Non-Negative Matrix Factorization
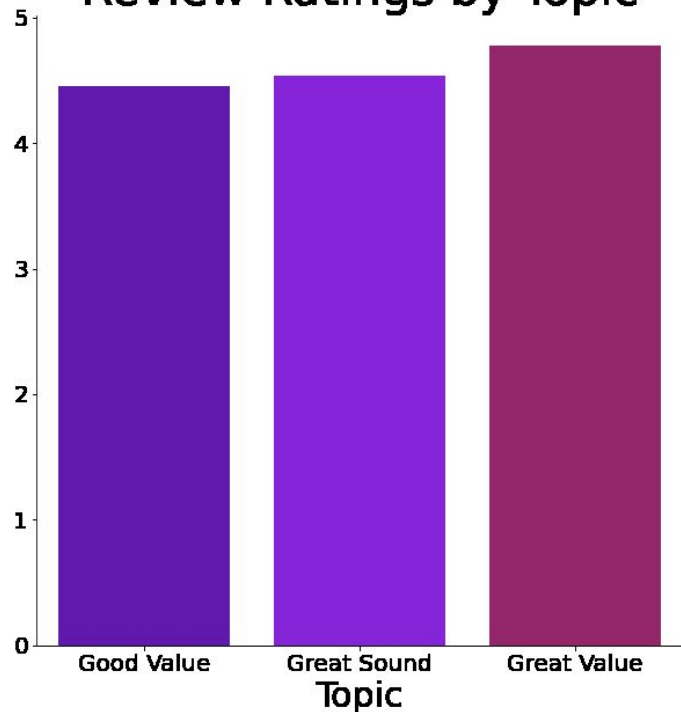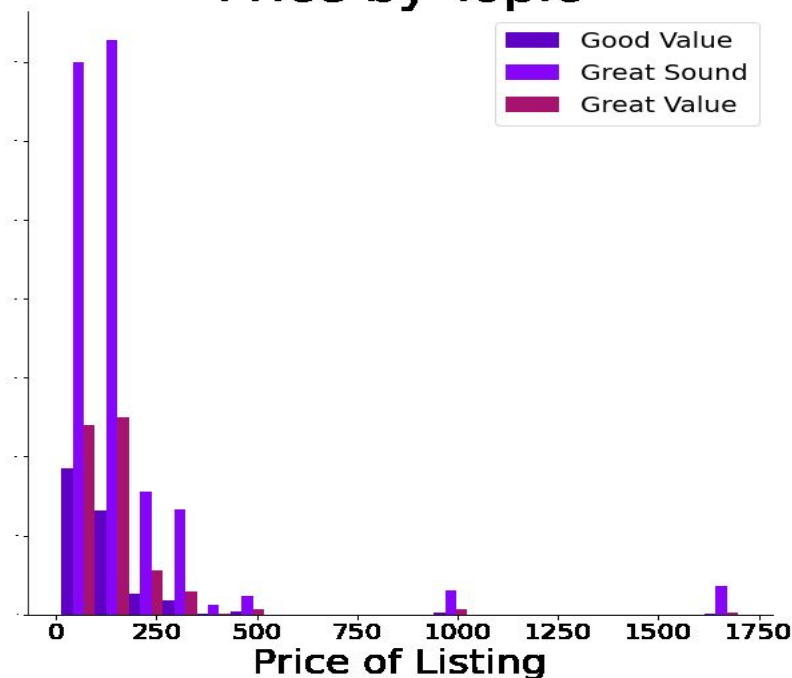
Great Sound

Great Value

Good Value

Topic Modeling

TFIDF + Non-Negative Matrix Factorization

Conclusions/Future Work

- Best Pedals:

    - TC Electronic Flashback Delay

    - JHS Mini Foot Fuzz

    - DigiTech Whammy 5 Expressive Pitch Shifting

    - Dunlop Dimebag Cry Baby from Hell wah pedal

- Word Embedding

    - Utilize Google Collab GPU support for better topic modelling

- Review API

    - Pay for an API to fetch review data instead of scrapping

ANY QUESTIONS?