

Exploratory Data Analysis of Metal Bands

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INTRODUCTION

SUMMARY

Metal music has been a prominent genre in the music industry for over four decades. The genre has a distinct sound characterized by heavy guitar riffs, fast-paced drum beats, and powerful vocals. In recent years, metal music has gained an increasingly larger fan base, with numerous sub-genres emerging within the larger category. This report presents an exploratory data analysis (EDA) of a Metal Bands dataset containing information about various metal bands and their associated attributes.

THE GOAL OF THE PROJECT

The goal of the following work is to Understand the distribution of metal bands by country, genre, and formation year and identify any significant trends or patterns in the data.

The findings of this analysis can be used by music industry professionals, fans of metal music, and researchers to gain insights into the trends and patterns within the metal music industry.

SOURCES

The data used in the analysis came from Kaggle.com, it is consisting of two databases about metal bands and the world population. According to the author of the dataset, the metal band information originally was scraped from the website <http://metalstorm.net/>. The world population information from the original dataset was transformed by me into database world_population_1970_2020.csv by adding fresh data from <https://www.worldometers.info/>.

DATA DESCRIPTION

The analysis includes the processing of the two datasets:

- Metal Bands dataset – The main dataset
- The World Population – The additional dataset

The main dataset consists of 5000 rows and 6 columns. The dataset includes the following information:

- **Band Name**
- **Number of Fans**
- **Formation year**
- **Origin**
- **Split Year**
- **Style**

The addition dataset contains population data from 1970 to 2020 by country. In the analysis that followed, only world population in 2020 was used as the most current data.

DATA CLEANING

Data cleaning is an essential step in the data analysis process that involves identifying and correcting errors, inconsistencies, and missing data in a dataset. Data cleansing included handling duplicates, missing values, converting data types, and splitting complex values into atomic ones.

DUPLICATES

- ✓ 50 duplicates were dropped from the dataset

MISSING VALUES

- ✓ 8 missing values in the column 'Origin' were filled in
- ✓ 3 missing values in the column 'Formed' were filled in

CONVERTING DATA TYPES

- ✓ The data type of the column 'Formed' was converted into an integer

SPLITTING COLUMNS

- ✓ Column 'Origin' was split into two – 'Major country' and 'Country 2'
- ✓ Column 'Style' was split into six – 'Major style' and other additional styles

EXPLORATORY DATA ANALYSIS

MOST POPULAR METAL BANDS

According to the number of fans the most successful metal bands in the dataset are Iron Maiden, Opeth and Metallica (see fig.1). These bands are really super famous, and even those who don't like metal at all can name them.

Most Popular Metal Bands

Top 10 most popular metal bands by the number of fans

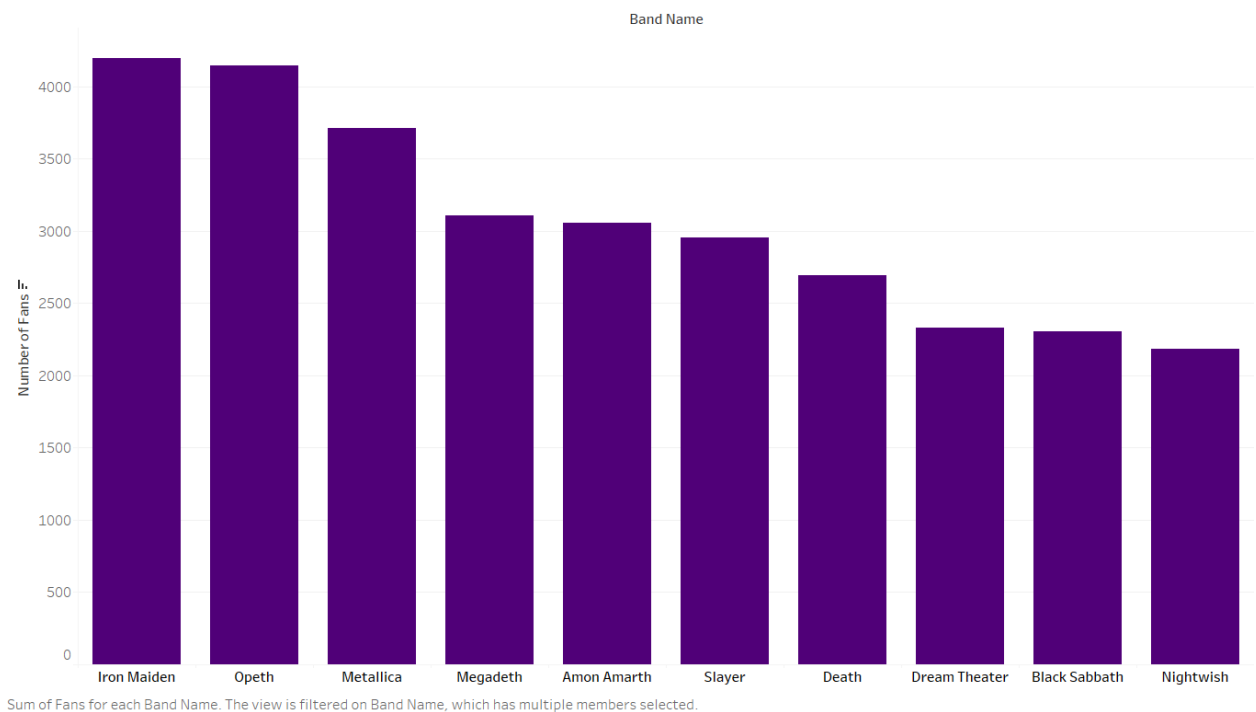


Figure 1. Most successful metal bands by the number of fans.

EXPLORATORY DATA ANALYSIS

COUNTRIES ARE LEADERS IN METAL MUSIC

The countries which are contributing the most to Metal music were explored by counting the appearance of each country in the database. The most productive countries in metal music are the USA, Sweden, Germany, the UK and Finland (see fig. 2).

Top 10 Countries with the Most Metal Bands
The USA, Sweden and Germany produce the most metal bands in the world

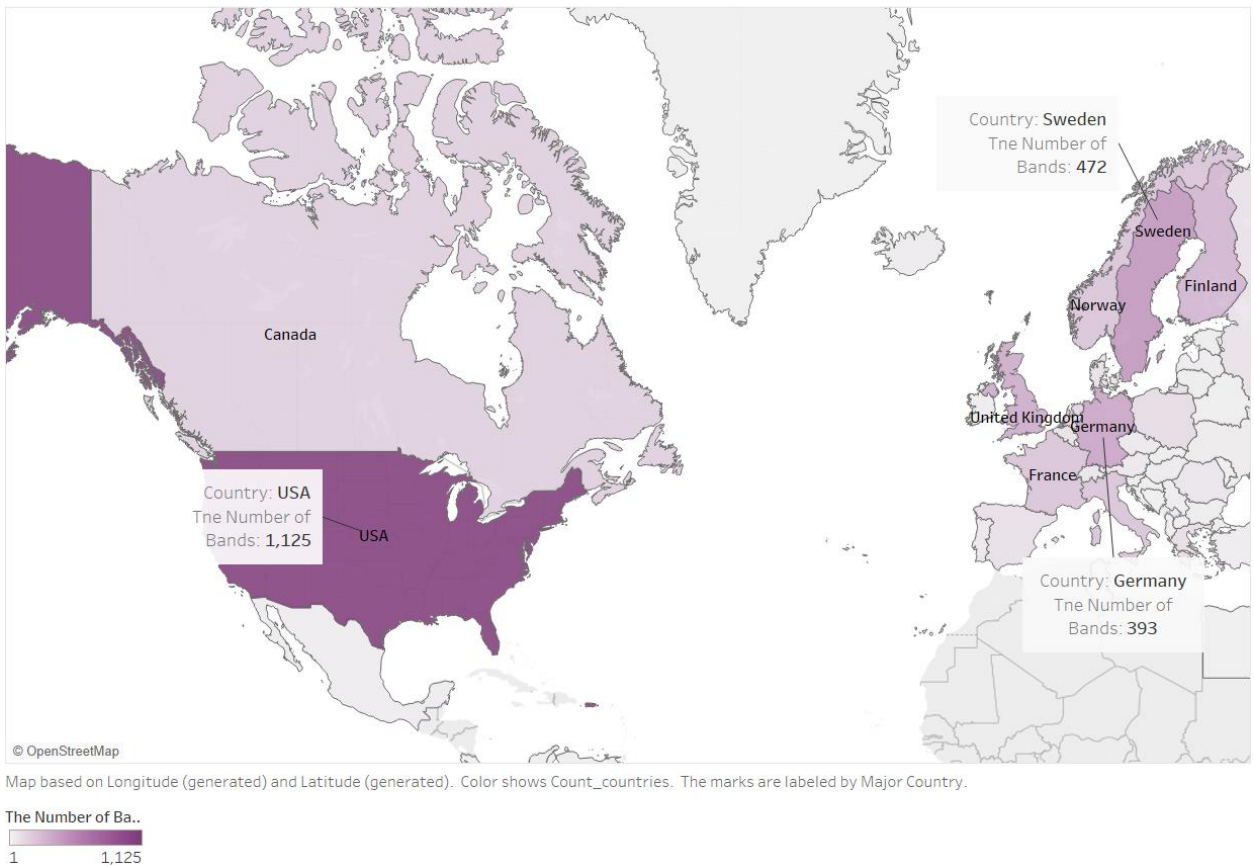


Figure 2. Top 10 Countries Producing Metal Bands

EXPLORATORY DATA ANALYSIS

SUBGENRES OF METAL MUSIC

The metal includes various subgenres. Our database includes 297 unique subgenres and complement styles of the metal. Although all this variety of styles, the most popular and successful styles are Black Metal, Death Metal and Heavy Metal (see fig. 3).

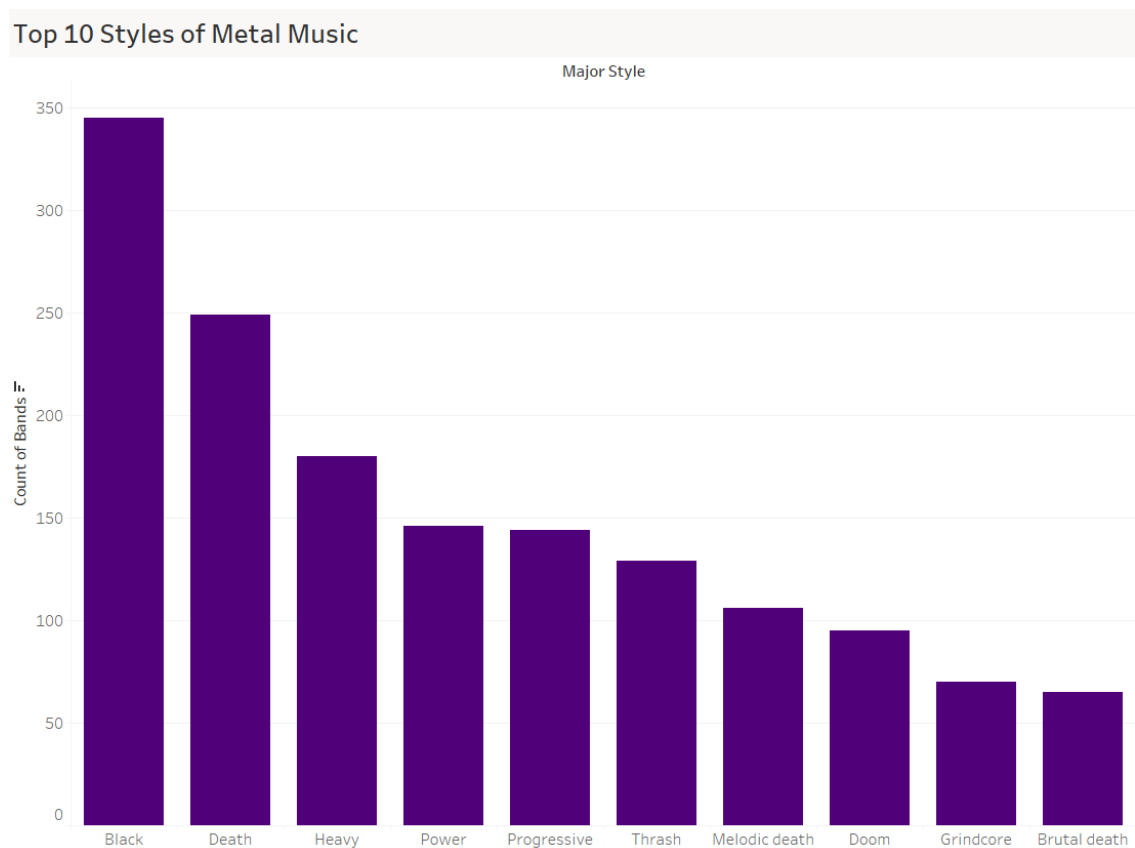


Figure 3. Top 10 Metal Subgenres

DETAILED DATA ANALYSIS

LENGTH OF METAL BANDS ACTIVE YEARS

Currently the oldest metal band is Alice Cooper, it has been on the scene for 59 years.

Analysis of the data showed that the average age of the 50 most popular metal bands is 32 years. If we talk about all the groups in the database, then their average duration of active years is 20 years (see fig. 4).

The Average Life Cycle of Metal Bands

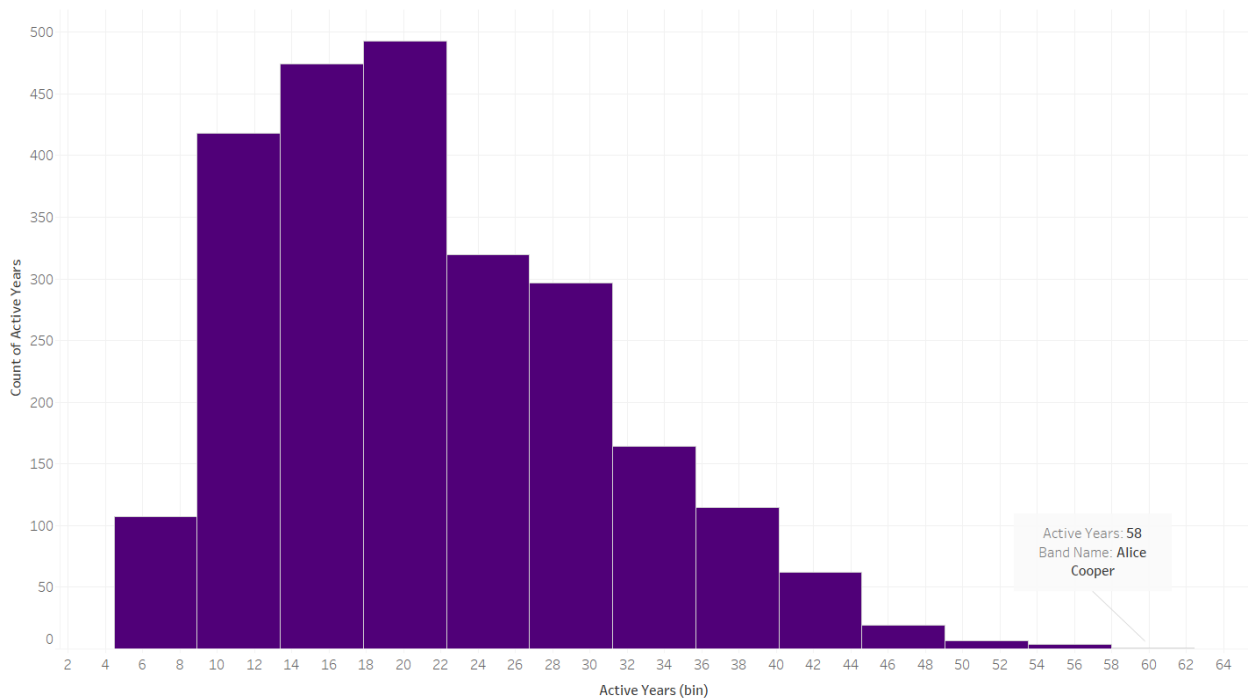


Figure 4. Top 10 Metal Subgenres

DETAILED DATA ANALYSIS

METAL BANDS PER CAPITA

The USA is a leader in the number of metal bands and metal fans. However, it is more important to count metal bands per capita to estimate the significance of the metal community among the total population.

Dividing the number of bands in the population we found out that the leaders in the metal bands per capita are Scandinavian countries – the Faroe Islands, Iceland and Finland (see fig. 5).

Number of Metal Bands per Capita

The highest per capita Metal Bands can be find in the Faroe Islands, Iceland and Finland

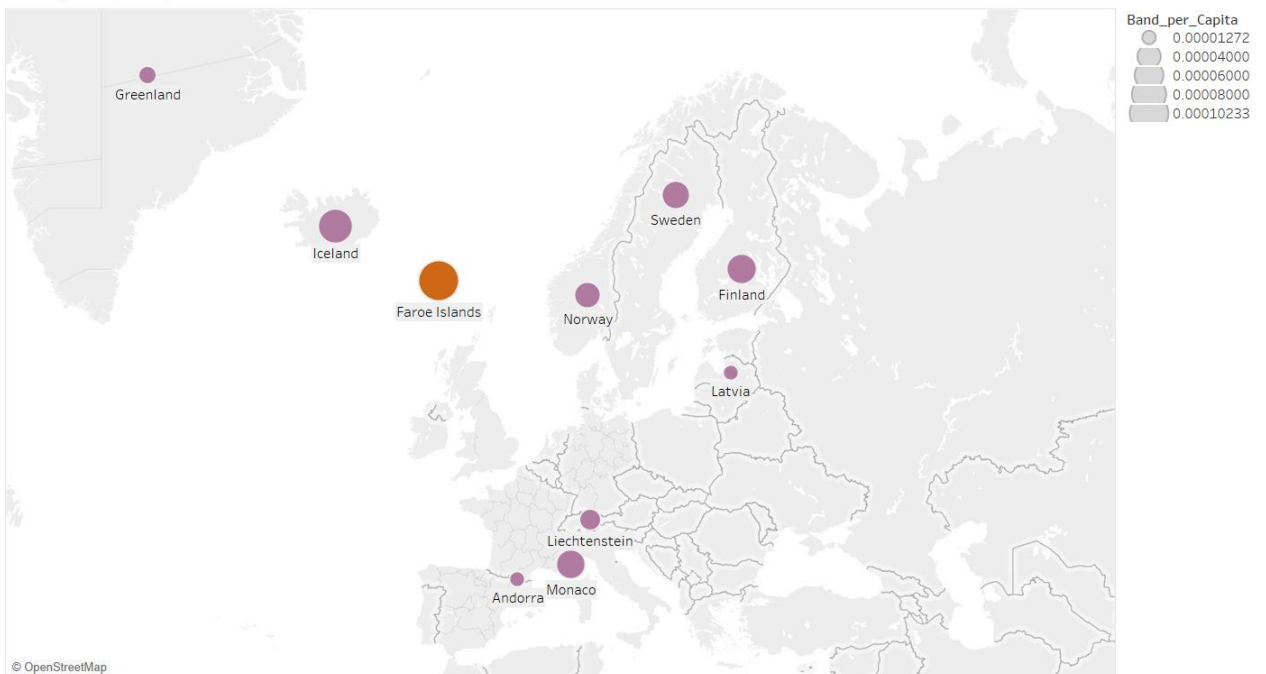


Figure 5. Top 5 countries with highest Metal bands per capita

CONCLUSIONS

Data analysis of the Metal bands dataset has revealed some major insights:

- While the majority of metal music is produced in the USA, the majority of metal bands per capita can be found in the Faroe Islands.
- The most popular metal band is Iron Maiden, and the oldest one - is Alice Cooper
- The most popular metal subgenres are Blach, Heavy and Death.
- The average life cycle length of the successful metal band is 32 years. The average life cycle length of the regular metal band is 20 years

If you wanted to start a career in metal music probably you can start with a black metal band in Faroe Island, Iceland or Finland where a significant part of the population is like metal music according to data analysis. Moreover, according to the data you can expect your music career will last about 20 years before retire.