

AMAZON PRODUCT REVIEW ANALYSIS FOR

Musical Instruments and Digital Music

By:

SHREYAS KULKARNI

BHAVESH

YUKTI GOYAL

Major Objectives

Understanding
what data says

```
graph TD; A[Understanding what data says] --> B[What to predict from future?]; B --> C[Technical]; C --> D[Business Suggestions];
```

What to predict
from future?

Technical

Business
Suggestions

Musical Instruments

Musical Instruments consists of three categories

1. ACCESSORIES
2. PERCUSSION INSTRUMENTS
3. STRING INSTRUMENTS

Digital Music

Digital Music consists of multiple formats such as

1. AUDIO CDS
2. VINYL
3. AMAZON VIDEO

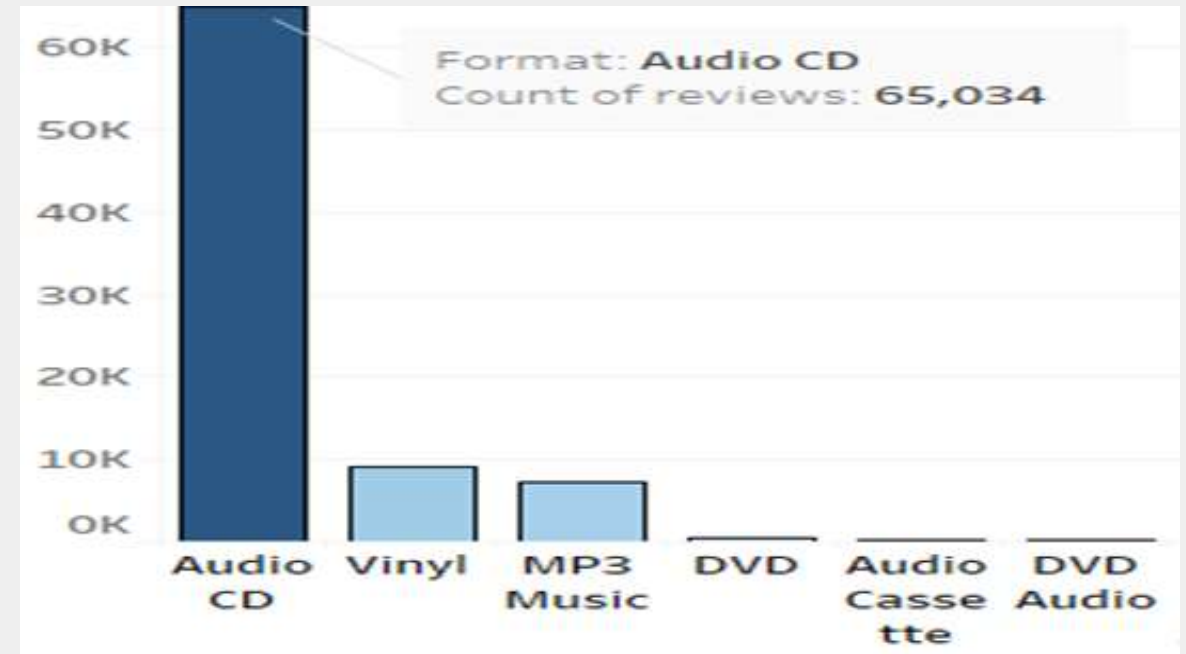
What insights do Digital Music represent?

Total reviews from 1998 to 2018



Number of the Reviews decreased after 2015.
This might be because of change in era .

Top Formats of Digital Music



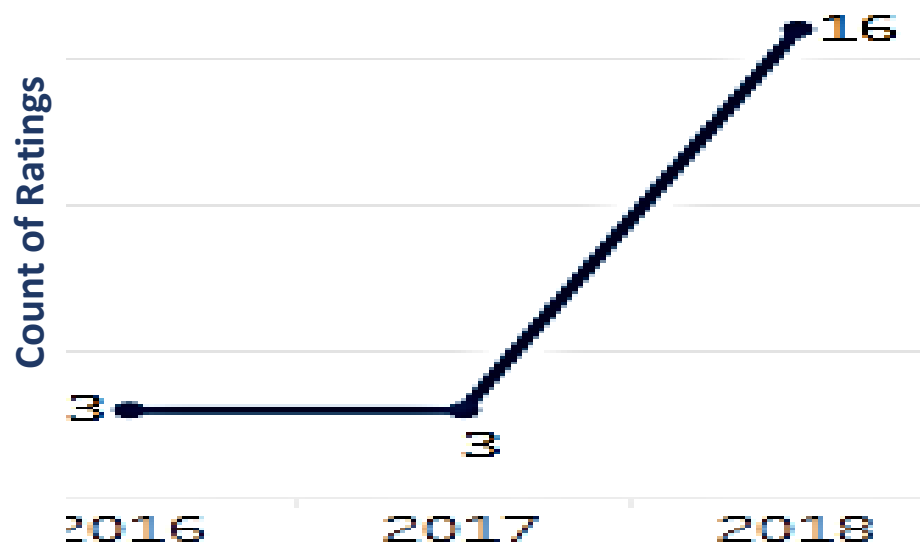
Format with highest reviews for Digital Music is in the form of Audio CD.

What insights do Digital Music represent?

Online platform

Amazon video , Prime video

Online platform reviews



Count of reviews for online platform increased from 2016 – 2018 .

Title : The Passion of Ayn Rand



Comparison of Audio CD & Amazon video .
CD's are expensive than amazon video .

Ratings

374,196

Price

1,963.31K

DIGITAL MUSIC DASHBOARD



FILTERS

Sentiment Filter : (click on buttons)

negative

neutral

positive

Month Filter :

(All)

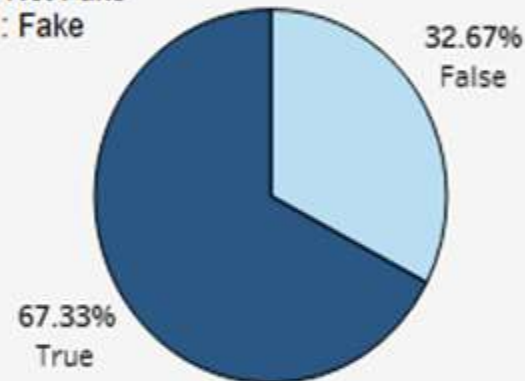
Format Filter :

(All)

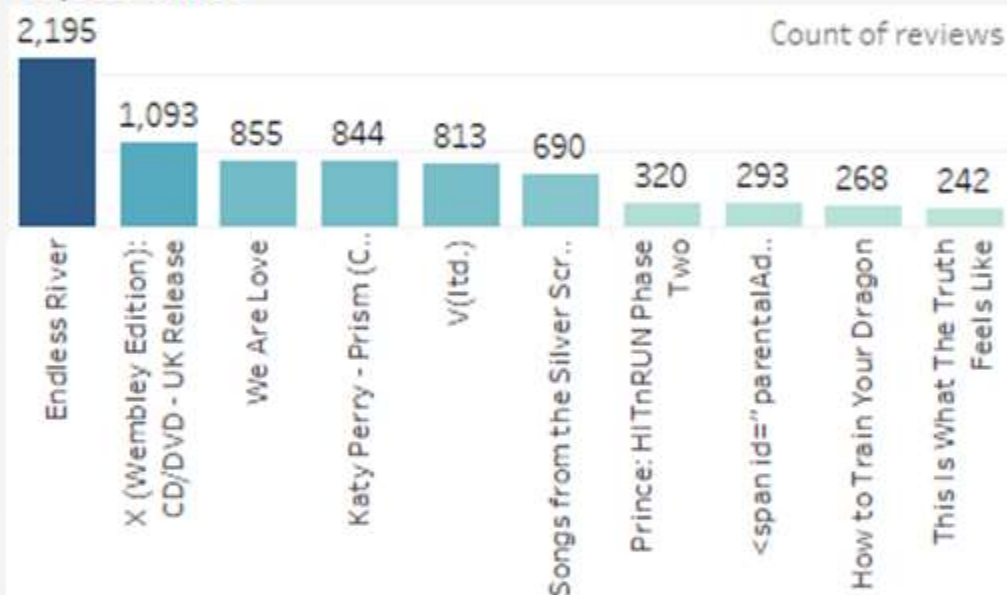
Verification :

(click on any section for filtration)

True : Not Fake
False : Fake



Top 10 titles



Ratings Filter :

(Click buttons)

1

2

3

4

5

Conclusion :

- More no. of positive ratings .
- After 2015 there is a dip
- Top brand -> Pink Floyd .
- Highest reviews in 2015.
- Top selling music title -> Endless River
- From total reviews 67.33% reviews are verified.

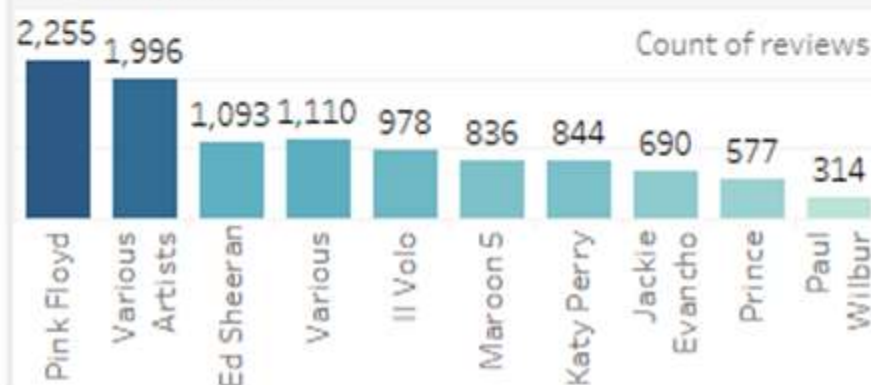
Total reviewers

82,390

Reviews over the years



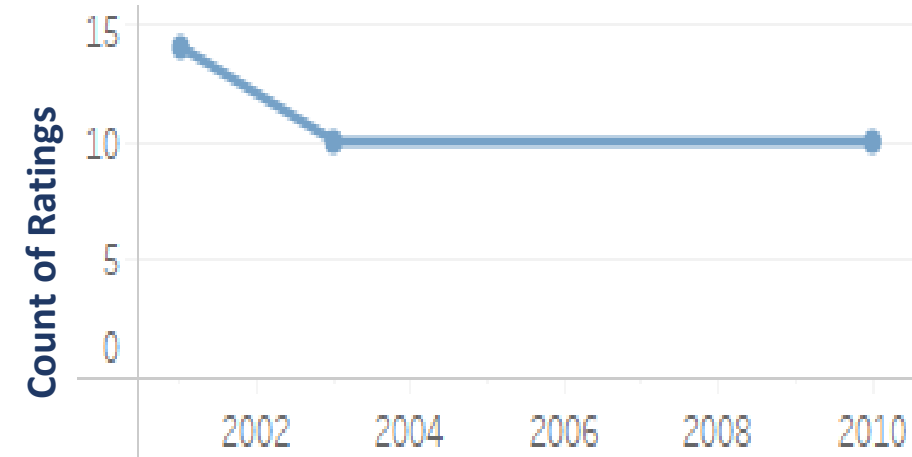
Top 10 brands



What insights do Digital Music represent?

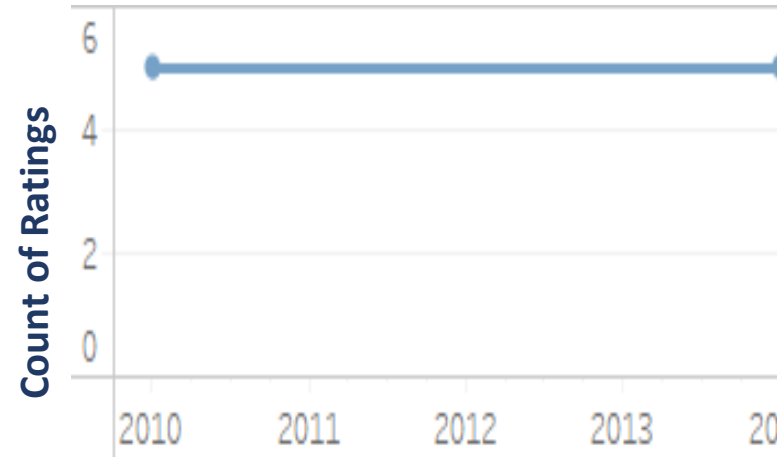
Formats having no reviews : VHS-Tape , MP3-CD , CD-R

VHS-Tape



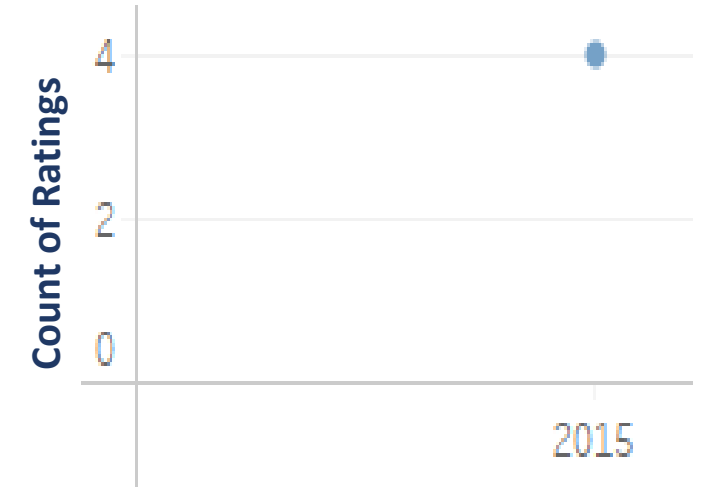
Count of reviews for VHS-Tape have no reviews after 2010 .

MP3-CD



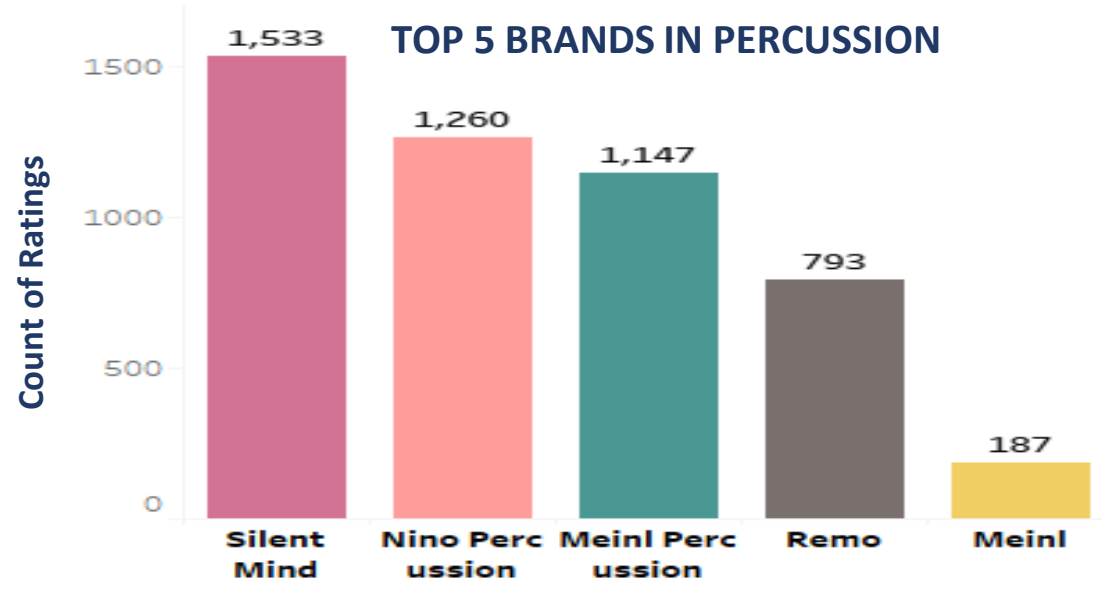
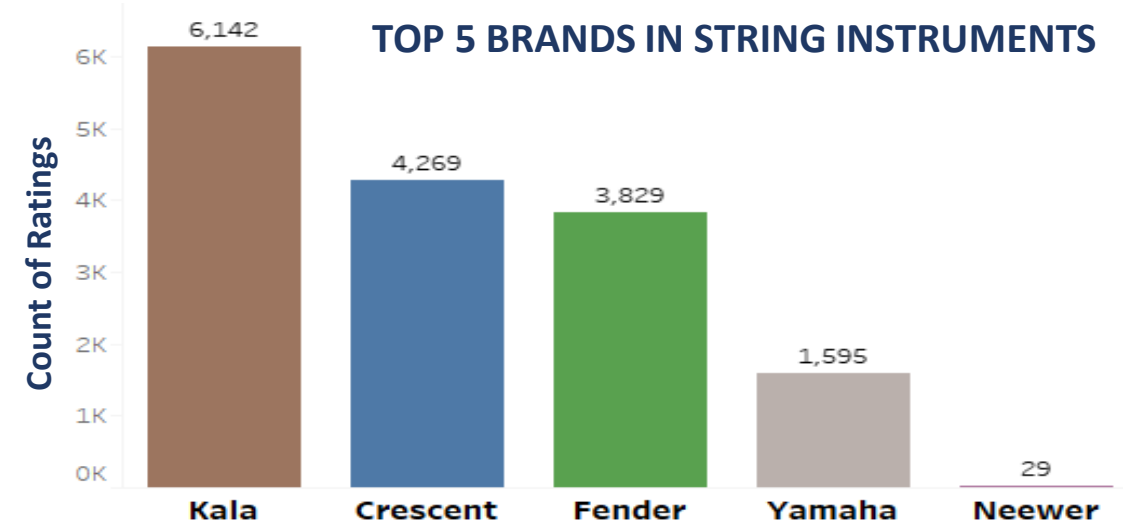
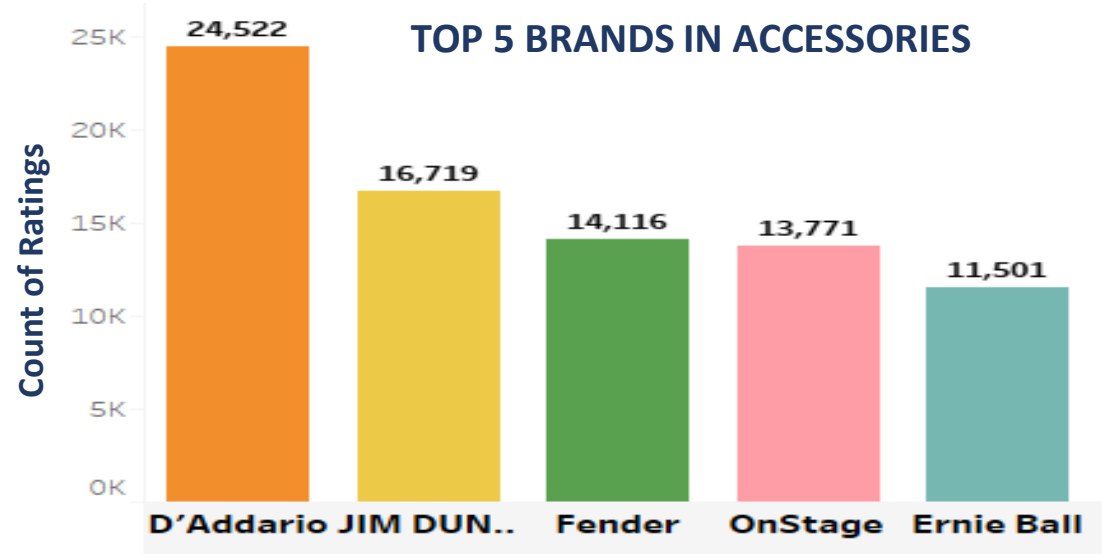
Count of reviews for MP3-CD have no reviews after 2014 .

CD-R



Count of reviews for CD-R have no reviews after 2015 .

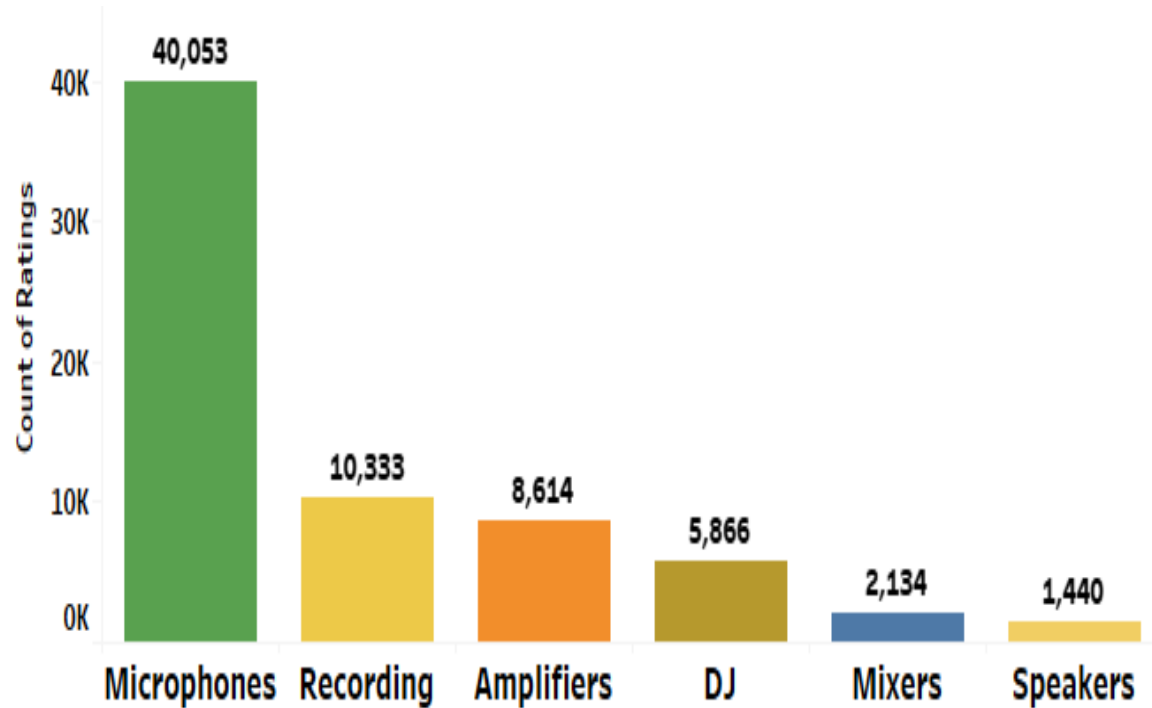
Which are the Best Brands in Musical Instruments?



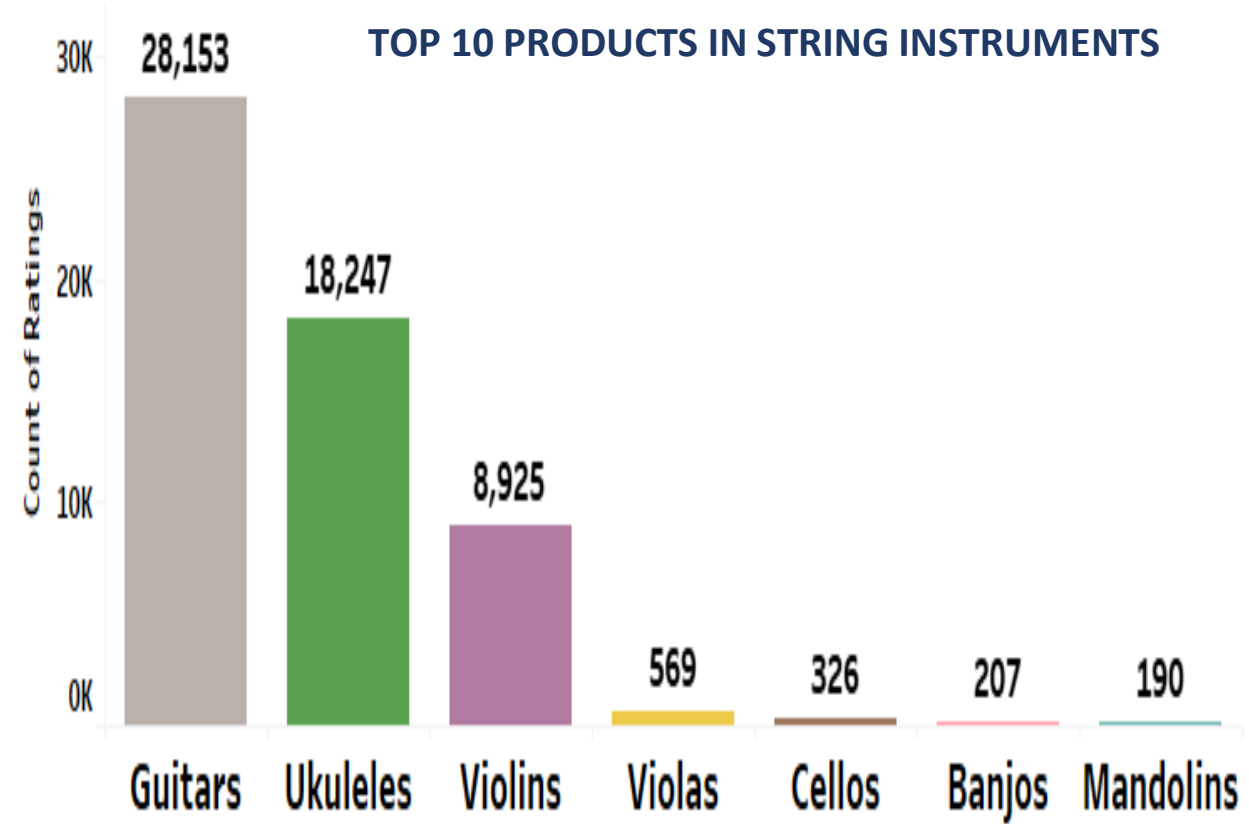
Top Brands which are having demand in Accessories, String and Percussion Instruments are shown above

Which are the Best Products in Musical Instruments?

TOP 10 PRODUCTS IN ACCESSORIES



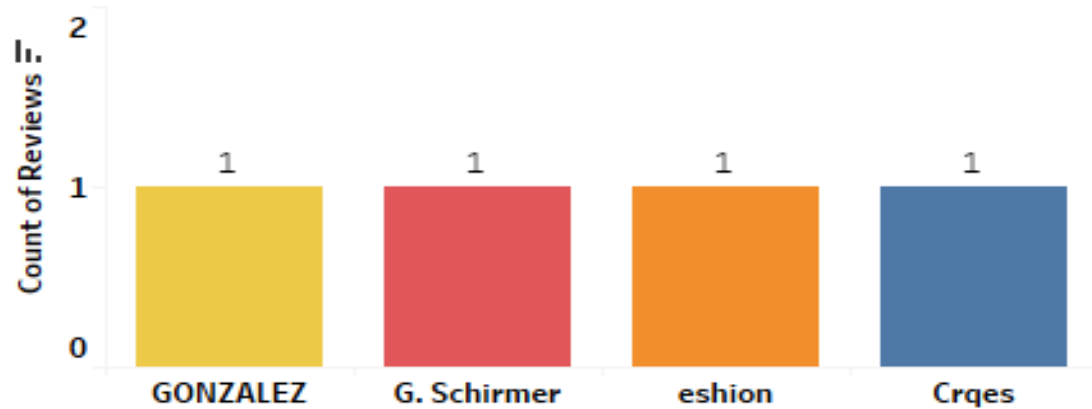
TOP 10 PRODUCTS IN STRING INSTRUMENTS



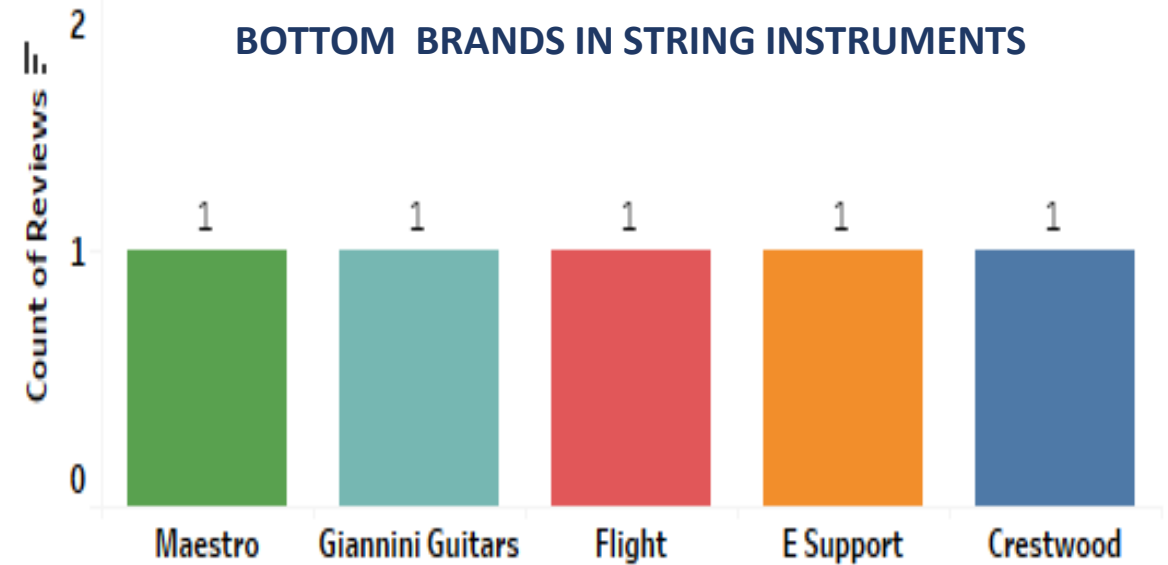
Top Products which are having demand in Accessories and String Instruments are shown above

Which are the Bottom Brands in Musical Instruments?

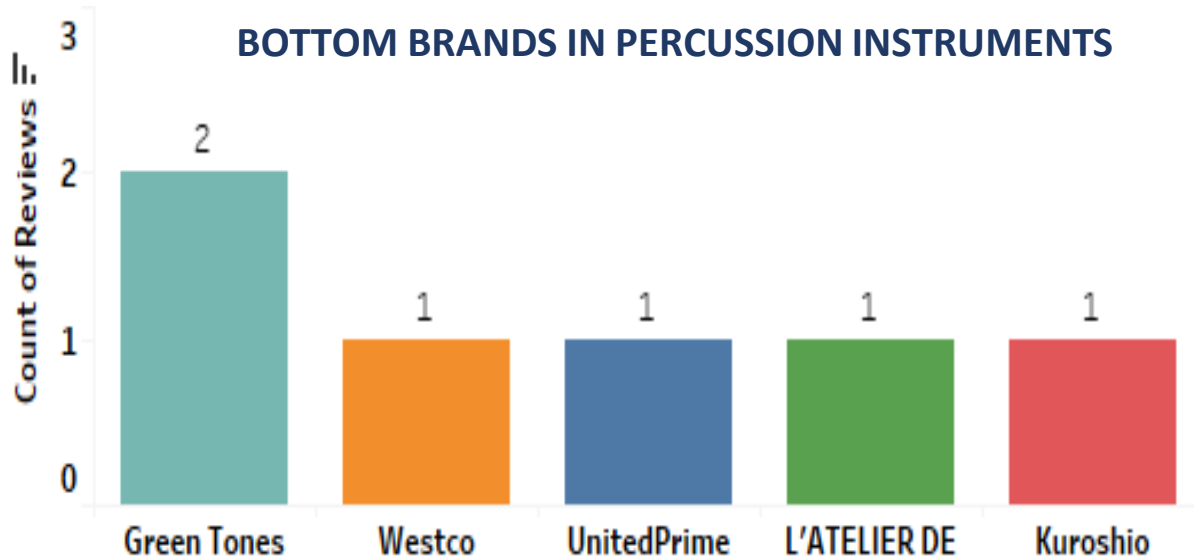
BOTTOM BRANDS IN ACCESSORIES



BOTTOM BRANDS IN STRING INSTRUMENTS



BOTTOM BRANDS IN PERCUSSION INSTRUMENTS



Bottom Brands in Accessories, Percussion and String Instruments has shown above.

Total Reviews:

560,445

Reviews

Not Verified	51,101
Verified	509,344

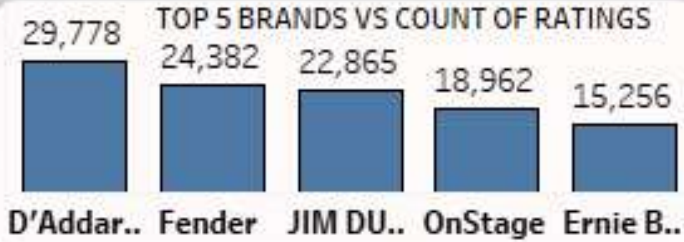
MUSICAL INSTRUMENTS DASHBOARD

SENTIMENT FILTER

Negative

Neutral

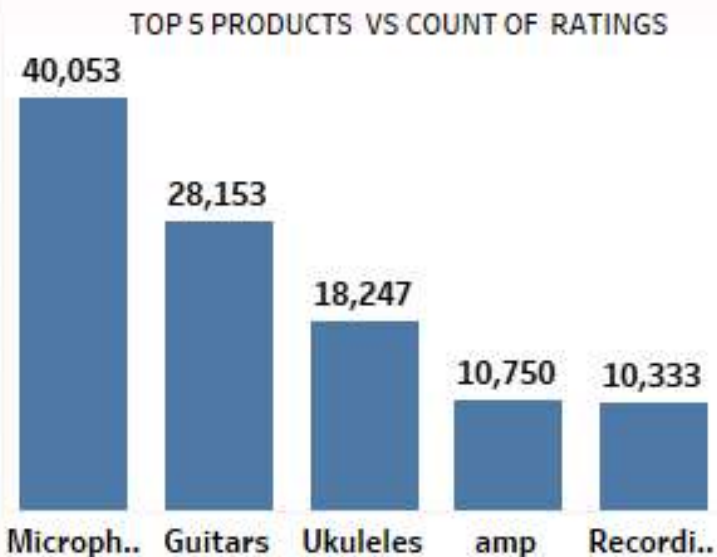
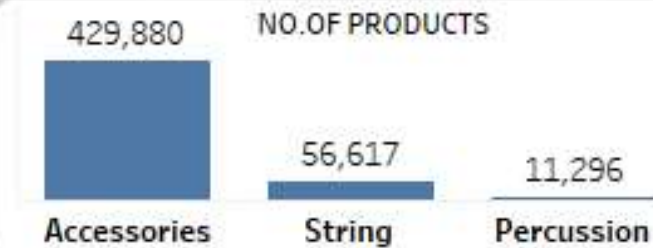
Positive



TOP 5 PRODUCTS VS RATINGS

Products	Avg. Price	Count of Overall
Accessories	\$18.49	344,416
Microphones	\$16.94	40,053
Stage	\$28.05	30,930
Guitars	\$45.99	28,153
Ukuleles	\$17.87	18,247

TOP 5 STYLES VS RATINGS



YEAR VS COUNT OF REVIEWS

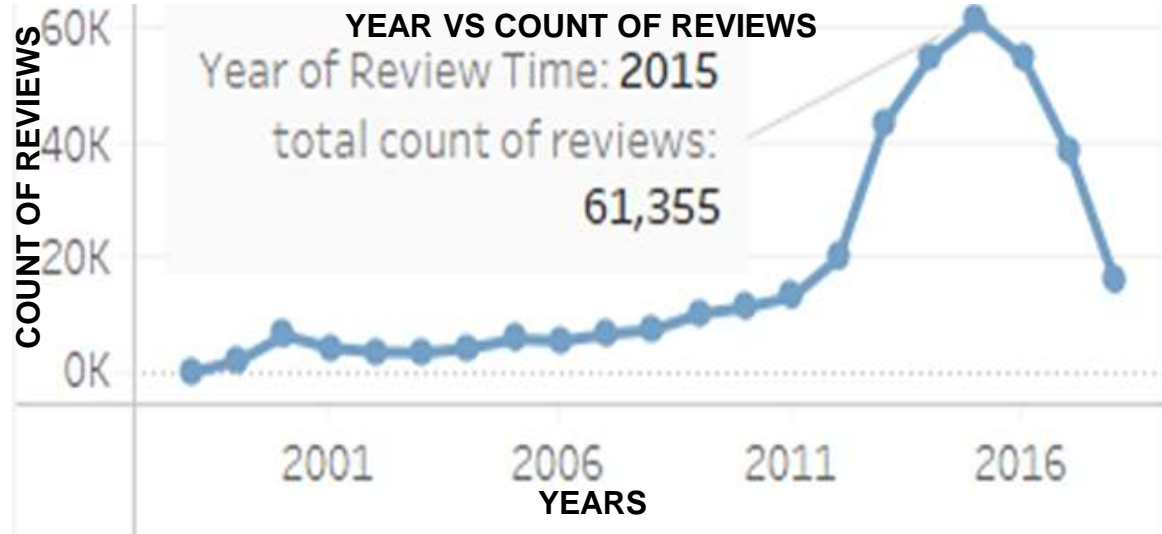


INTERPRETATION:

CATEGORY	POSITIVE REVIEWS	NEGATIVE REVIEWS	NEUTRAL REVIEWS
ACCESSORIES PRODUCTS	342,285	57,208	36,284
STRING INSTRUMENTS	96,345	13,197	8,983
PERCUSSION INSTRUMENTS	10,105	1,261	664

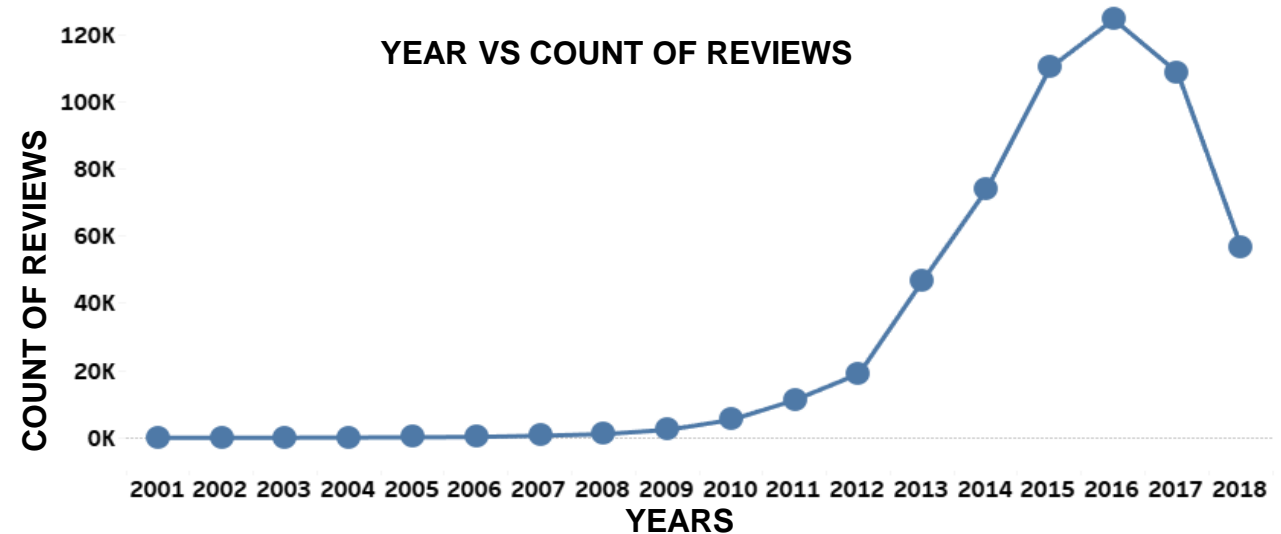
SIMILARITY BETWEEN DIGITAL MUSIC AND MUSICAL INSTRUMENTS

DIGITAL MUSIC



YEAR	COUNT OF REVIEWS
2015	61,355
2016	58,000
2017	36,000

MUSICAL INSTRUMENTS

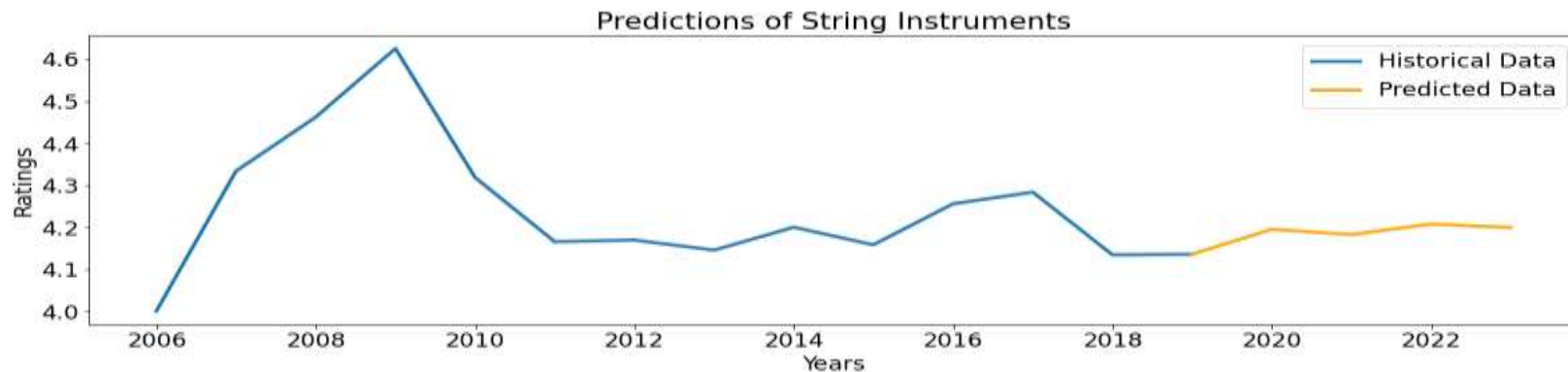
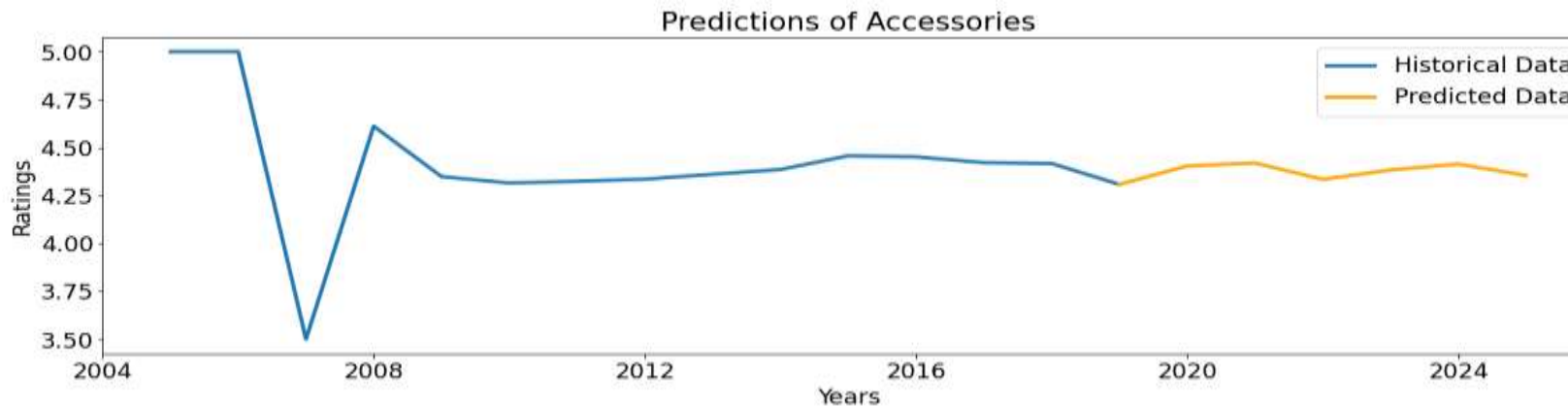
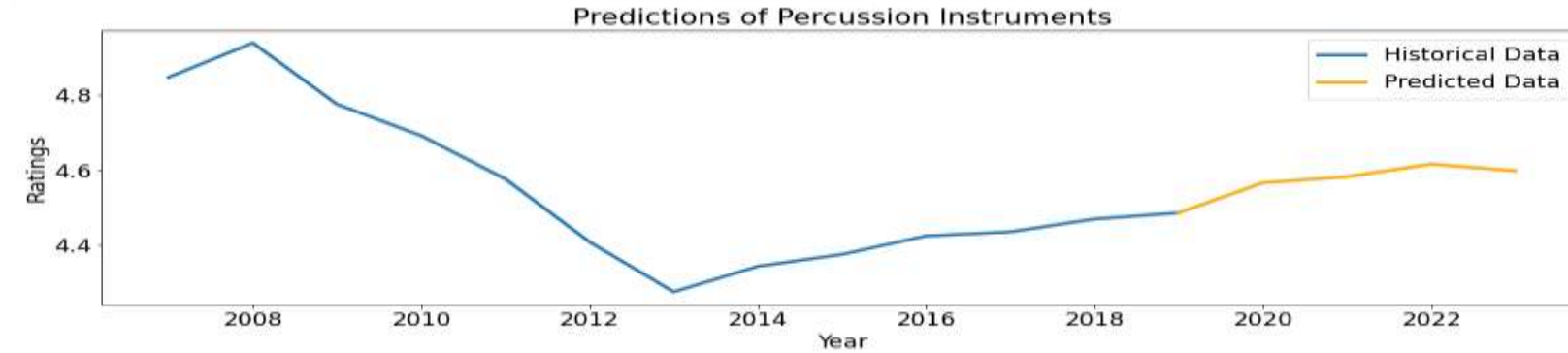


YEAR	COUNT OF REVIEWS
2016	124,437
2017	108,655
2018	56,766

REASON (Change in Technology):-

- Cd's, Dvd's , VHS Tapes are replaced by Online Streaming Platforms.
- Some customers are having interest in Musical Instruments Applications in Mobile Phones and laptops.

What to expect from Musical Instruments category in upcoming years?



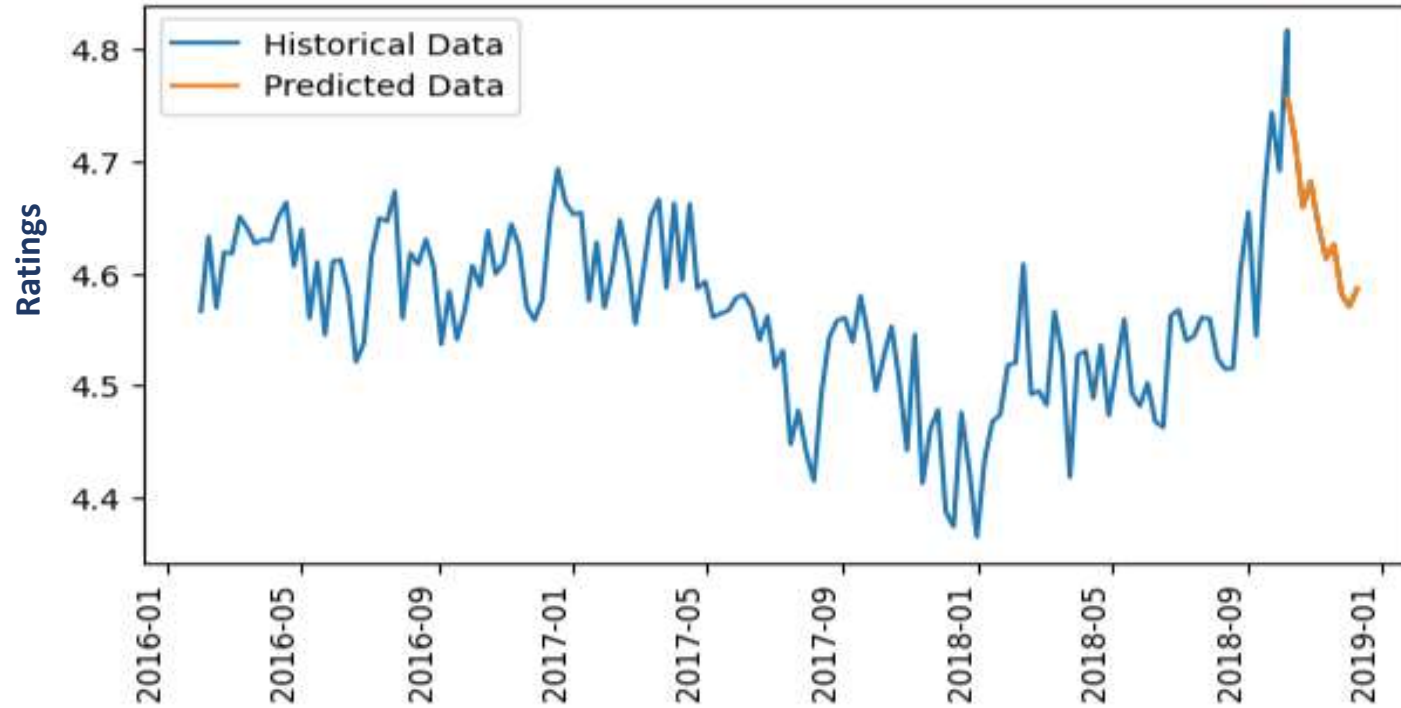
Predictions

CATEGORIES	RATINGS(range)
PERCUSSION	4.40 to 4.60
ACCESSORIES	4.25 to 4.50
STRING	4.10 to 4.20

Comparing all the three categories, String instruments has lower ratings amongst all but reviews with 4+ ratings are generally considered good .

What to expect from Digital Music category in upcoming years?

Forecast for Digital Music



The ratings for Digital Music is getting decreased over the years

- Average ratings will range between 4.4 to 4.8.
- This might indicates that maximum customers are satisfied and happy with the products ordered.
- These predicted ratings may or may not change as the forecasting cannot be extremely accurate.

KEYWORDS IN NEGATIVE REVIEWS

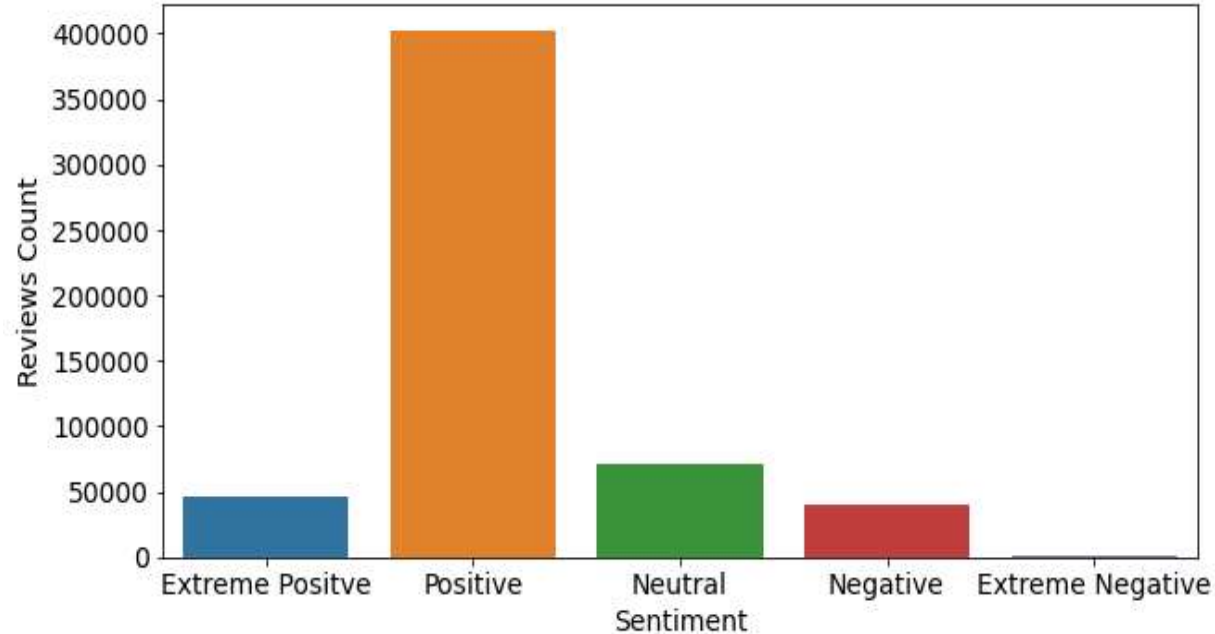


The above are the most negative keywords that are found in Negative reviews

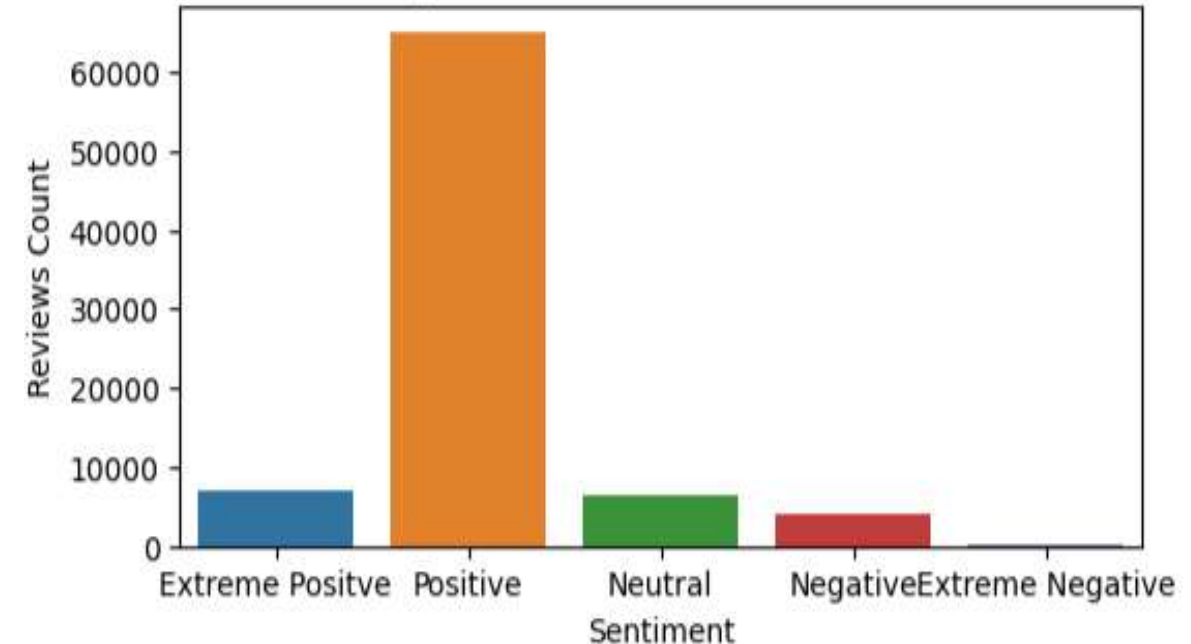
Sentiment Analysis of data

Combination of few words describes the feelings of a sentence. This is possible using Text Blob Library. The following are the types of sentiments we distinguish :

Musical Instruments



Digital Music



From the above graph , we can clearly see that amongst all, most of the reviews received till date are positive

TIME SERIES ANALYSIS

CATEGORY	MSE	RMSE	MODEL	SEASONAL DECOMPOSE	SMOOTHING TECHNIQUES
ACCESSORIES	0.0021	0.0461	ARIMA	TREND	SIMPLE EXPONENTIAL
PERCUSSION	0.0021	0.0461	ARMA	TREND	SIMPLE EXPONENTIAL
STRING	0.0046	0.0682	ARIMA	TREND	SIMPLE EXPONENTIAL
DIGITAL MUSIC	0.0167	0.1295	ARMA	TREND, SEASONALITY AND RESIDUAL	TRIPLE EXPONENTIAL

Other techniques used in project : Word Cloud , Frontend using streamlit

BUSINESS CONCLUSIONS BASED ON ANALYSIS

MUSICAL INSTRUMENTS – Inventory Optimization

CATEGORY	TOP BRANDS	TOP PRODUCTS
ACCESSORIES	<ul style="list-style-type: none">➤ D'Addario➤ Jim Dunlop➤ Fender➤ Onstage➤ Gator, Yamaha	<ul style="list-style-type: none">• Microphones• Recordings• Amplifiers• DJ Consoles• Speakers
PERCUSSION INSTRUMENTS	<ul style="list-style-type: none">➤ Silent Mind➤ Nino Percussion➤ Menial Percussion➤ Remo➤ Gammon Percussion	<ul style="list-style-type: none">• Drums
STRING INSTRUMENTS	<ul style="list-style-type: none">➤ Kala➤ Crescent➤ Fender➤ Yamaha➤ Neweer	<ul style="list-style-type: none">• Guitars• Ukleles• Violins• Violas• Cellos

DIGITAL MUSIC – Inventory Optimization

FORMAT
<ul style="list-style-type: none">➤ Amazon Video➤ Prime Video

- Keywords such as Terrible ,Broken, Disappointed, Bad, etc... in reviews depicts that these are the reasons affecting the reviews .
- Most of the bad reviews are related to guitar . So more focus can be made on this product . As in string instruments category it is the most selling product.
- Audio Cds are comparatively expensive than online platform like Amazon video and Prime Video. Hence upcoming customers would prefer these platforms over others.
- In digital music , we can consider removing the formats like CD-R , MP3-CD , VHS-Tape having no reviews after a particular time period .

THANK YOU.