

# United Breaks Guitar Analysis

## Business Objective

To conduct a comprehensive content analysis of the United Breaks Guitars controversy on social media, and provide actionable insights to United Airlines on how to mitigate the rapidly growing public relations disaster. The analysis will include a thorough examination of the terms being used in searches, the demographics of users, and the tone of the discussions. The ultimate goal is to provide United Airlines with a clear understanding of the situation and recommend measurable steps that can be taken to explain the situation and improve their public image.

## Introduction

- Background of United Breaks Guitars Controversy
- Objectives of the Study

## Context of the Incident

- Summary of the Incident
- Key Players Involved
- Resolution of the Situation
- Impression of the Incident
- Suggestions for Improvement

## Analysis and Conclusion

- Appropriate Response on Social Media
- Better or Different Use of Social Media
- Steps to Avoid Similar Situations in the Future

## Social Media Map

- Graphic Illustration of Social Media Activity
- Explanation of Social Media Activity

## Relationship Assessment Questionnaire

- Qualitative Data Collection from the Public
- Relevant Questions for Analysis
- Sample Questionnaire or Development of Own

## Conclusion

- Summary of Findings
- Recommendations for United Airlines

## References

- List of References Used in the Study

```
In [72]: # import necessary libraries
import pandas as pd
import numpy as np
import matplotlib.pyplot as plt
import seaborn as sns
import datetime as dt
import regex as re
from textblob import TextBlob
import plotly.express as px
import nltk
from nltk.corpus import stopwords
from wordcloud import WordCloud

# download necessary resources from nltk library
nltk.download('vader_lexicon')
nltk.download('words')
words = set(nltk.corpus.words.words())
nltk.download('punkt')

# increase the maximum number of columns, rows and column width to display
pd.set_option("display.max_columns", None)
pd.set_option("display.max_rows", None)
pd.set_option("display.max_colwidth", None)

import warnings
warnings.filterwarnings("ignore")

[nltk_data] Downloading package vader_lexicon to
[nltk_data] /Users/raphael/nltk_data...
[nltk_data] Package vader_lexicon is already up-to-date!
[nltk_data] Downloading package words to /Users/raphael/nltk_data...
[nltk_data] Package words is already up-to-date!
[nltk_data] Downloading package punkt to /Users/raphael/nltk_data...
[nltk_data] Package punkt is already up-to-date!
```

```
In [9]: # read in CSV file and store it in a pandas dataframe
df = pd.read_csv('Final Tweets.csv')

# display the first 5 rows of the dataframe
df.head()
```

```
Out[9]:
```

	Unnamed: 0	Date	User	Tweet
0	0	2023-02-02 21:12:46+00:00	PulletsReprise	@musiccitymark i will now state an affirmative case for "united breaks guitars"
1	1	2023-02-02 15:58:26+00:00	mananpuri04	@sugandhabee @IndiGo6E Few years back, the didn't allow me to carry mine in the cabin. Marked fragile and checked-in, got it back in 2 pieces..Threatened them with creating a 'united breaks guitars' kind of a video. Got a refund!\n\nHence, be adamant about cabin or change airlines..
2	2	2023-02-02 04:01:42+00:00	hey_cole_man	@barstoolsports Really wanting another United Breaks Guitars "mishap" after this
3	3	2023-01-31 19:05:33+00:00	noahsbwilliams	I played @DaveCarroll's "United Breaks Guitars" to tell her the story of how United got bankrupted in the 2010s and now it's stuck in my head 🤔
4	4	2023-01-31 04:24:19+00:00	MarsModeMusk	@enevah_lapon_17 United breaks guitars...\n\nNonetheless...\n\nUnited we stand.

```
In [12]: # check basic info of the data set
df.info()
```

```
<class 'pandas.core.frame.DataFrame'>
RangeIndex: 34360 entries, 0 to 34359
Data columns (total 5 columns):
 #   Column      Non-Null Count  Dtype
---  -
 0   Unnamed: 0   34360 non-null  int64
 1   Date         34360 non-null  object
 2   User         34359 non-null  object
 3   Tweet        34360 non-null  object
 4   date         34360 non-null  datetime64[ns, UTC]
dtypes: datetime64[ns, UTC](1), int64(1), object(3)
memory usage: 1.3+ MB
```

```
In [13]: # convert to date time column
df['Date'] = pd.to_datetime(df['Date'])
```

```
In [14]: # check again
df.info()
```

```
<class 'pandas.core.frame.DataFrame'>
RangeIndex: 34360 entries, 0 to 34359
Data columns (total 5 columns):
#   Column          Non-Null Count  Dtype
---  ---
0   Unnamed: 0      34360 non-null   int64
1   Date            34360 non-null   datetime64[ns, UTC]
2   User            34359 non-null   object
3   Tweet           34360 non-null   object
4   date            34360 non-null   datetime64[ns, UTC]
dtypes: datetime64[ns, UTC](2), int64(1), object(2)
memory usage: 1.3+ MB
```

```
In [15]: df.head()
```

```
Out[15]:
```

	Unnamed: 0	Date	User	Tweet	date
0	0	2023-02-02 21:12:46+00:00	PulletsReprise	@musiccitymark i will now state an affirmative case for "united breaks guitars"	2023-02-02 21:12:46+00:00
1	1	2023-02-02 15:58:26+00:00	mananpuri04	@sugandhabee @IndiGo6E Few years back, the didn't allow me to carry mine in the cabin. Marked fragile and checked-in, got it back in 2 pieces.. Threatened them with creating a 'united breaks guitars' kind of a video. Got a refund!\n\nHence, be adamant about cabin or change airlines..	2023-02-02 15:58:26+00:00
2	2	2023-02-02 04:01:42+00:00	hey_cole_man	@barstoolsports Really wanting another United Breaks Guitars "mishap" after this	2023-02-02 04:01:42+00:00
3	3	2023-01-31 19:05:33+00:00	noahsbwilliams	I played @DaveCarroll's "United Breaks Guitars" to tell her the story of how United got bankrupted in the 2010s and now it's stuck in my head 🤔	2023-01-31 19:05:33+00:00
4	4	2023-01-31 04:24:19+00:00	MarsModeMusk	@enevah_lapon_17 United breaks guitars...\n\nNonetheless...\n\nUnited we stand.	2023-01-31 04:24:19+00:00

```
In [16]: # create new columns for the date and time
df['Dates'] = pd.to_datetime(df['Date']).dt.date
df['Time'] = pd.to_datetime(df['Date']).dt.time
```

```
In [17]: df.head()
```

```
Out[17]:
```

	Unnamed: 0	Date	User	Tweet	date	Date
0	0	2023-02-02 21:12:46+00:00	PulletsReprise	@musiccitymark i will now state an affirmative case for "united breaks guitars"	2023-02-02 21:12:46+00:00	2023-02-02 21:12:46+00:00
1	1	2023-02-02 15:58:26+00:00	mananpuri04	@sugandhabee @IndiGo6E Few years back, the didn't allow me to carry mine in the cabin. Marked fragile and checked-in, got it back in 2 pieces.\nThreatened them with creating a 'united breaks guitars' kind of a video. Got a refund!\n\nHence, be adamant about cabin or change airlines..	2023-02-02 15:58:26+00:00	2023-02-02 15:58:26+00:00
2	2	2023-02-02 04:01:42+00:00	hey_cole_man	@barstoolsports Really wanting another United Breaks Guitars "mishap" after this	2023-02-02 04:01:42+00:00	2023-02-02 04:01:42+00:00
3	3	2023-01-31 19:05:33+00:00	noahsbwilliams	I played @DaveCarroll's "United Breaks Guitars" to tell her the story of how United got bankrupted in the 2010s and now it's stuck in my head 🤔	2023-01-31 19:05:33+00:00	2023-01-31 19:05:33+00:00
4	4	2023-01-31 04:24:19+00:00	MarsModeMusk	@enevah_lapon_17 United breaks guitars...\n\nNonetheless...\n\nUnited we stand.	2023-01-31 04:24:19+00:00	2023-01-31 04:24:19+00:00

```
In [18]: # Create new columns
df['day'] = df['Date'].dt.day
df['month'] = df['Date'].dt.month
df['year'] = df['Date'].dt.year
```

```
In [19]: df.info()
```

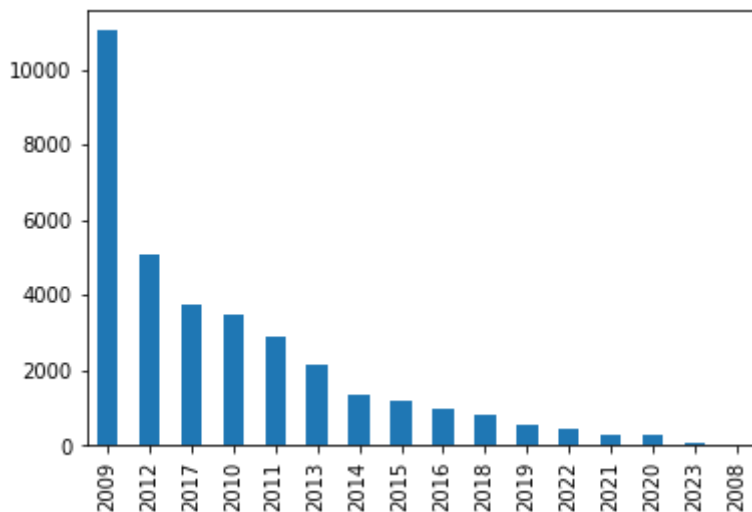
```
<class 'pandas.core.frame.DataFrame'>
RangeIndex: 34360 entries, 0 to 34359
Data columns (total 10 columns):
#   Column      Non-Null Count  Dtype
---  ---
0   Unnamed: 0   34360 non-null  int64
1   Date         34360 non-null  datetime64[ns, UTC]
2   User         34359 non-null  object
3   Tweet        34360 non-null  object
4   date         34360 non-null  datetime64[ns, UTC]
5   Dates        34360 non-null  object
6   Time         34360 non-null  object
7   day          34360 non-null  int64
8   month        34360 non-null  int64
9   year         34360 non-null  int64
dtypes: datetime64[ns, UTC](2), int64(4), object(4)
memory usage: 2.6+ MB
```

```
In [20]: # look at the year distribution
df['year'].value_counts()/len(df.Dates)*100
```

```
Out[20]: 2009      32.077998
          2012      14.834109
          2017      10.881839
          2010      10.066938
          2011       8.472061
          2013       6.298021
          2014       3.975553
          2015       3.533178
          2016       2.782305
          2018       2.322468
          2019       1.580326
          2022       1.318393
          2021       0.864377
          2020       0.832363
          2023       0.157159
          2008       0.002910
          Name: year, dtype: float64
```

```
In [21]: # Plot the year counts as a bar chart using the 'plot.bar' method of a pandas
df['year'].value_counts().plot.bar()
```

```
Out[21]: <AxesSubplot:>
```



## Observation

- The bar graph showing each year (2009 to 2023) and the number of tweets indicate the trend in the volume of tweets over time.
- It provides an insight into the level of attention the topic has received on Twitter over the years.
- The trend is normal, where from 2009- 2016, we can see a gradual drop, but a sudden peak in 2017.

```
In [24]: df.head()
```

```
Out[24]:
```

	Unnamed: 0	Date	User	Tweet	date	Date
0	0	2023-02-02 21:12:46+00:00	PulletsReprise	@musiccitymark i will now state an affirmative case for "united breaks guitars"	2023-02-02 21:12:46+00:00	2023-02-02 21:12:46+00:00
1	1	2023-02-02 15:58:26+00:00	mananpuri04	@sugandhabee @IndiGo6E Few years back, the didn't allow me to carry mine in the cabin. Marked fragile and checked-in, got it back in 2 pieces.\nThreatened them with creating a 'united breaks guitars' kind of a video. Got a refund!\n\nHence, be adamant about cabin or change airlines..	2023-02-02 15:58:26+00:00	2023-02-02 15:58:26+00:00
2	2	2023-02-02 04:01:42+00:00	hey_cole_man	@barstoolsports Really wanting another United Breaks Guitars "mishap" after this	2023-02-02 04:01:42+00:00	2023-02-02 04:01:42+00:00
3	3	2023-01-31 19:05:33+00:00	noahsbwilliams	I played @DaveCarroll's "United Breaks Guitars" to tell her the story of how United got bankrupted in the 2010s and now it's stuck in my head 😂	2023-01-31 19:05:33+00:00	2023-01-31 19:05:33+00:00
4	4	2023-01-31 04:24:19+00:00	MarsModeMusk	@enevah_lapon_17 United breaks guitars...\n\nNonetheless...\n\nUnited we stand.	2023-01-31 04:24:19+00:00	2023-01-31 04:24:19+00:00

```
In [25]: # Create a new column 'Hashtags' in the dataframe that contains a list of h
df['Hashtags'] = df['Tweet'].str.findall(r'#.*?(?=\s|$)')
```

In [26]: `df.head()`

Out[26]:

	Unnamed: 0	Date	User	Tweet	date	Date
0	0	2023-02-02 21:12:46+00:00	PulletsReprise	@musiccitymark i will now state an affirmative case for "united breaks guitars"	2023-02-02 21:12:46+00:00	2023-02-02 21:12:46+00:00
1	1	2023-02-02 15:58:26+00:00	mananpuri04	@sugandhabee @IndiGo6E Few years back, the didn't allow me to carry mine in the cabin. Marked fragile and checked-in, got it back in 2 pieces.\nThreatened them with creating a 'united breaks guitars' kind of a video. Got a refund!\n\nHence, be adamant about cabin or change airlines..	2023-02-02 15:58:26+00:00	2023-02-02 15:58:26+00:00
2	2	2023-02-02 04:01:42+00:00	hey_cole_man	@barstoolsports Really wanting another United Breaks Guitars "mishap" after this	2023-02-02 04:01:42+00:00	2023-02-02 04:01:42+00:00
3	3	2023-01-31 19:05:33+00:00	noahsbwilliams	I played @DaveCarroll's "United Breaks Guitars" to tell her the story of how United got bankrupted in the 2010s and now it's stuck in my head 🤔	2023-01-31 19:05:33+00:00	2023-01-31 19:05:33+00:00
4	4	2023-01-31 04:24:19+00:00	MarsModeMusk	@enevah_lapon_17 United breaks guitars...\n\nNonetheless...\n\nUnited we stand.	2023-01-31 04:24:19+00:00	2023-01-31 04:24:19+00:00

In [27]: `# Create a new column 'Hashtags' in the dataframe that contains a list of mentions`  
`df['mentions'] = df['Tweet'].str.findall(r'[@@]([^\s#<>|{}]+)')`

In [28]: `df.head(20)`

Out[28]:

	Unnamed: 0	Date	User	Tweet	date	Date
0	0	2023-02-02 21:12:46+00:00	PulletsReprise	@musiccitymark i will now state an affirmative case for "united breaks guitars"	2023-02-02 21:12:46+00:00	2023-02-02 21:12:46+00:00
1	1	2023-02-02 15:58:26+00:00	mananpuri04	@sugandhabee @IndiGo6E Few years back, the didn't allow me to carry mine in the cabin. Marked fragile and checked-in, got it back in 2 pieces.\nThreatened them with creating a 'united breaks guitars' kind of a video. Got a refund!\n\nHence, be adamant about cabin or change airlines..	2023-02-02 15:58:26+00:00	2023-02-02 15:58:26+00:00
2	2	2023-02-02 04:01:42+00:00	hey_cole_man	@barstoolsports Really wanting another United Breaks Guitars "mishap" after this	2023-02-02 04:01:42+00:00	2023-02-02 04:01:42+00:00
3	3	2023-01-31 19:05:33+00:00	noahsbwilliams	I played @DaveCarroll's "United Breaks Guitars" to tell her the story of how United got bankrupted in the 2010s and now it's stuck in my head 🤔	2023-01-31 19:05:33+00:00	2023-01-31 19:05:33+00:00
4	4	2023-01-31 04:24:19+00:00	MarsModeMusk	@enevah_lapon_17 United breaks guitars...\n\nNonetheless...\n\nUnited we stand.	2023-01-31 04:24:19+00:00	2023-01-31 04:24:19+00:00



```
In [29]: def remove_hashtags_usernames(tweet):  
    # Use regex to match hashtags (starting with #) and usernames (starting  
    # Replace the matched hashtags and usernames with an empty string  
    tweet = re.sub(r'#\w+', '', tweet)  
    tweet = re.sub(r'@\w+', '', tweet)  
    tweet = re.sub(r"http\S+", "", tweet)  
    return tweet  
  
    # Create an empty list to store the cleaned tweets  
    cleaned_tweets = []  
  
    # Loop through each tweet in the original dataframe  
    for tweet in df['Tweet']:  
        # Remove hashtags and usernames from the tweet text  
        cleaned_tweet = remove_hashtags_usernames(tweet)  
  
        # Remove non-alphanumeric characters from the tweet text  
        cleaned_tweet = re.sub('\W+', ' ', cleaned_tweet )  
  
        # Append the cleaned tweet to the list of cleaned tweets  
        cleaned_tweets.append(cleaned_tweet.lower())
```

```
In [30]: # create a new column and add the cleaned tweets there  
df['cleaned_tweets'] = cleaned_tweets
```

```
In [31]: df.head()
```

```
Out[31]:
```

	Unnamed: 0	Date	User	Tweet	date	Date
0	0	2023-02-02 21:12:46+00:00	PulletsReprise	@musiccitymark i will now state an affirmative case for "united breaks guitars"	2023-02-02 21:12:46+00:00	2023-02-02
1	1	2023-02-02 15:58:26+00:00	mananpuri04	@sugandhabee @IndiGo6E Few years back, the didn't allow me to carry mine in the cabin. Marked fragile and checked-in, got it back in 2 pieces.. Threatened them with creating a 'united breaks guitars' kind of a video. Got a refund! Hence, be adamant about cabin or change airlines..	2023-02-02 15:58:26+00:00	2023-02-02
2	2	2023-02-02 04:01:42+00:00	hey_cole_man	@barstoolsports Really wanting another United Breaks Guitars "mishap" after this	2023-02-02 04:01:42+00:00	2023-02-02
3	3	2023-01-31 19:05:33+00:00	noahsbwilliams	I played @DaveCarroll's "United Breaks Guitars" to tell her the story of how United got bankrupted in the 2010s and now it's stuck in my head 🤔	2023-01-31 19:05:33+00:00	2023-01-31
4	4	2023-01-31 04:24:19+00:00	MarsModeMusk	@enevah_lapon_17 United breaks guitars... Nonetheless... United we stand.	2023-01-31 04:24:19+00:00	2023-01-31

```
In [42]: # Create an empty string to store the words in the tweets
comment_words = ''

# Create a list of additional stopwords to include in the stopwords set
add_stop = ['https', 'rt']

# Create a set of stopwords by combining the default stopwords from the nltk
stopwords_1 = set(list(stopwords.words('english'))+add_stop)

# Print the stopwords set
print(stopwords_1)

{'having', 'against', 're', "doesn't", 'over', "mustn't", "you'll", 'it',
's', 'yourselves', 'had', 'again', 'how', 'more', 'those', 'why', 'too',
'mustn', 'then', 'as', 'needn', "couldn't", 'with', "should've", 'when',
'very', 'couldn', 'weren', "you'd", 'by', 'been', 'll', 'them', 'me', 'ar',
'e', 'into', 'which', 'down', 'on', 'yours', 'doing', 'doesn', "don't", 't',
'hat', "haven't", 'were', 'no', 'wasn', 's', 'herself', 'in', 'so', 'might',
'n', 'be', 'ain', "wasn't", 'the', 'both', 'won', 'own', 'all', 'there',
'she's', "shan't", 'they', 'nor', 'at', 'his', 'will', 'himself', 'your',
'here', 'hers', 'does', 'each', "that'll", 'and', 'than', 'these', 'our',
's', "you're", "needn't", 'my', 'itself', 'her', 'or', "you've", 'haven',
'of', 'this', "weren't", 'from', 'has', 'once', 'isn', 'shan', 'shouldn',
'hasn't', 'd', 'only', 'don', "wouldn't", 'but', 'before', "aren't", 't',
'o', 'further', 'o', 'i', 'under', 'because', 'any', 'between', 'was', 'fo',
'r', 'their', 'what', 'have', 'an', 'not', 'myself', 'ourselves', 'about',
'do', 'during', 'below', 'up', 'some', 'themselves', 'if', 'm', 'aren',
'yourself', 'through', 'after', "didn't", 'ma', 'he', 'above', 'same',
'a', 'it', 'him', 'theirs', 'is', 'whom', 'https', "isn't", 'few', 'bein',
'g', 'did', 'just', 'who', 'you', 'such', "hadn't", 'wouldn', "mightn't",
'most', 'can', 'didn', 't', 'rt', 've', 'other', 'now', "shouldn't", 'whe',
're', 'until', 'while', 'she', 'off', 'am', 'out', 'y', 'hadn', 'hasn', 'o',
'ur', 'should', 'we', "won't", "it's"}
```

```
In [38]: # Create an empty string to store the words in the tweets
comment_words = ''

# Loop through each cleaned tweet in the 'cleaned_tweets' column of the data
for val in df['cleaned_tweets']:

    # Convert the value to a string if it's not already a string
    val = str(val)

    # Split the string into a list of tokens (words)
    tokens = val.split()

    # Loop through each token and convert it to lowercase
    for i in range(len(tokens)):
        tokens[i] = tokens[i].lower()

    # Join the tokens back into a string, separated by spaces
    comment_words += " ".join(tokens) + " "
```

```
In [44]: # Define the sentiment objects using TextBlob

sentiment_objects = [TextBlob(tweet) for tweet in df['cleaned_tweets']]

sentiment_objects[0].polarity, sentiment_objects[0]
```

```
Out[44]: (0.6,
          TextBlob(" i will now state an affirmative case for united breaks guitar
          s "))
```

```
In [46]: # Create a list of polarity values and tweet text

sentiment_values = [[tweet.sentiment.polarity, str(tweet)] for tweet in sen

# Print the value of the 0th row.

sentiment_values[0]
# Print all the sentiment values

# sentiment_values[0:99]
```

```
Out[46]: [0.6, ' i will now state an affirmative case for united breaks guitars ']
```

```
In [47]: # Create a dataframe of each tweet against its polarity
sentiment_df = pd.DataFrame(sentiment_values, columns=["polarity", "tweet"])
sentiment_df
df['polarity'] = sentiment_df['polarity']
```

```
In [48]: df.head()
```

```
Out[48]:
```

	Unnamed: 0	Date	User	Tweet	date	Date
0	0	2023-02-02 21:12:46+00:00	PulletsReprise	@musiccitymark i will now state an affirmative case for "united breaks guitars"	2023-02-02 21:12:46+00:00	2023-02-02 21:12:46+00:00
1	1	2023-02-02 15:58:26+00:00	mananpuri04	@sugandhabee @IndiGo6E Few years back, the didn't allow me to carry mine in the cabin. Marked fragile and checked-in, got it back in 2 pieces.. Threatened them with creating a 'united breaks guitars' kind of a video. Got a refund! Hence, be adamant about cabin or change airlines..	2023-02-02 15:58:26+00:00	2023-02-02 15:58:26+00:00
2	2	2023-02-02 04:01:42+00:00	hey_cole_man	@barstoolsports Really wanting another United Breaks Guitars "mishap" after this	2023-02-02 04:01:42+00:00	2023-02-02 04:01:42+00:00
3	3	2023-01-31 19:05:33+00:00	noahsbwilliams	I played @DaveCarroll's "United Breaks Guitars" to tell her the story of how United got bankrupted in the 2010s and now it's stuck in my head 😂	2023-01-31 19:05:33+00:00	2023-01-31 19:05:33+00:00
4	4	2023-01-31 04:24:19+00:00	MarsModeMusk	@enevah_lapon_17 United breaks guitars... Nonetheless... United we stand.	2023-01-31 04:24:19+00:00	2023-01-31 04:24:19+00:00

```
In [50]: # Save the polarity column as 'n'.

n=sentiment_df["polarity"]

# Convert this column into a series, 'm'.

m=pd.Series(n)
```

```
In [51]: # Initialize variables, 'pos', 'neg', 'neu'.

pos=0
neg=0
neu=0

sentiment = []
# Create a loop to classify the tweets as Positive, Negative, or Neutral.
# Count the number of each.

for items in m:
    if items>0:
        sentiment.append("Positive")
        pos=pos+1
    elif items<0:
        sentiment.append("Negative")
        neg=neg+1
    else:
        sentiment.append("Neutral")
        neu=neu+1

print(pos,neg,neu)
```

11471 3593 19296

```
In [52]: # create a new column sentiment
df['Sentiment'] = sentiment
```

```
In [190]: df.head()
```

```
Out[190]:
```

	Unnamed: 0	Date	User	Tweet	Dates	Time	day
0	0	2023-02-02 21:12:46+00:00	PulletsReprise	@musiccitymark i will now state an affirmative case for "united breaks guitars"	2023-02-02	21:12:46	:
1	1	2023-02-02 15:58:26+00:00	mananpuri04	@sugandhabee @IndiGo6E Few years back, the didn't allow me to carry mine in the cabin. Marked fragile and checked-in, got it back in 2 pieces.. Threatened them with creating a 'united breaks guitars' kind of a video. Got a refund! Hence, be adamant about cabin or change airlines..	2023-02-02	15:58:26	:
2	2	2023-02-02 04:01:42+00:00	hey_cole_man	@barstoolsports Really wanting another United Breaks Guitars "mishap" after this	2023-02-02	04:01:42	:
3	3	2023-01-31 19:05:33+00:00	noahsbwilliams	I played @DaveCarroll's "United Breaks Guitars" to tell her the story of how United got bankrupted in the 2010s and now it's stuck in my head 🤔	2023-01-31	19:05:33	3
4	4	2023-01-31 04:24:19+00:00	MarsModeMusk	@enevah_lapon_17 United breaks guitars... Nonetheless... United we stand.	2023-01-31	04:24:19	3

```
In [62]: # lemmatize the tweets for text analysis

list_words = []
from nltk.stem import WordNetLemmatizer
wordnet_lemmatizer = WordNetLemmatizer()

for sentence in df['cleaned_tweets']:
    punctuations="?:!.,;"
    sentence_words = nltk.word_tokenize(sentence)
    for word in sentence_words:
        if word in punctuations:
            sentence_words.remove(word)

    listed_sent = []
    for word in sentence_words:
        listed_sent.append((word,wordnet_lemmatizer.lemmatize(word, pos="v"))
    list_words.append(listed_sent)

In [64]: # create a new column containing list of lemmatized words
df['words'] = list_words
```



In [65]: df.head()							
Out[65]:							
	Unnamed: 0	Date	User	Tweet	date	Date	
0	0	2023-02-02 21:12:46+00:00	PulletsReprise	@musiccitymark i will now state an affirmative case for "united breaks guitars"	2023-02-02 21:12:46+00:00	2023-02-02	2023-02-02
1	1	2023-02-02 15:58:26+00:00	mananpuri04	@sugandhabee @IndiGo6E Few years back, the didn't allow me to carry mine in the cabin. Marked fragile and checked-in, got it back in 2 pieces..\nThreatened them with creating a 'united breaks guitars' kind of a video. Got a refund!\n\nHence, be adamant about cabin or change airlines..	2023-02-02 15:58:26+00:00	2023-02-02	2023-02-02
2	2	2023-02-02 04:01:42+00:00	hey_cole_man	@barstoolsports Really wanting another United Breaks Guitars "mishap" after this	2023-02-02 04:01:42+00:00	2023-02-02	2023-02-02
3	3	2023-01-31 19:05:33+00:00	noahsbwilliams	I played @DaveCarroll's "United Breaks Guitars" to tell her the story of how United got bankrupted in the 2010s and now it's stuck in my head 🤔	2023-01-31 19:05:33+00:00	2023-01-31	2023-01-31
4	4	2023-01-31 04:24:19+00:00	MarsModeMusk	@enevah_lapon_17 United breaks guitars...\n\nNonetheless...\n\nUnited we stand.	2023-01-31 04:24:19+00:00	2023-01-31	2023-01-31

```
In [66]: # df_pos = df['Sentiment'].filter(like='Positive', axis=0)
df_pos = df.where(df["Sentiment"] == 'Positive')
df_pos.dropna(inplace = True)
```

```
In [67]: df_pos.head()
```

Out[67]:

	Unnamed: 0	Date	User	Tweet	date	Dates	Time	da
0	0.0	2023-02-02 21:12:46+00:00	PulletsReprise	@musiccitymark i will now state an affirmative case for "united breaks guitars"	2023-02-02 21:12:46+00:00	2023-02-02	21:12:46	2
1	1.0	2023-02-02 15:58:26+00:00	mananpuri04	@sugandhabee @IndiGo6E Few years back, the didn't allow me to carry mine in the cabin. Marked fragile and checked-in, got it back in 2 pieces.. \nThreatened ..	2023-02-02 15:58:26+00:00	2023-02-02	15:58:26	2



[illegible]

## Observations

- The word cloud containing negative sentiment provides an understanding of the most common words associated with negative sentiment.
- It helps to identify what aspects of the topic are causing negative feelings among people and what areas require attention.

## Conclusion

- The analysis of the United Breaks Guitars controversy on social media provides valuable insights into the public's perception of the incident and its impact on the reputation of United Airlines.
- The trend in the volume of tweets over time shows that the incident has received significant attention, and the sentiment analysis shows that negative sentiment still prevails despite the years that have passed.
- The word clouds provide a clear understanding of the areas that require attention and the aspects that have received positive feedback.
- The company should take these insights into consideration when developing its social media strategy and developing measures to mitigate the impact of such incidents in the future.
- In order to regain the public's trust, United Airlines should prioritize providing prompt and adequate customer service, improving employee training, and consistently monitoring and responding to customer complaints on social media.

In [ ]: