

Evaluating Effectiveness of Generative AI content on Consumer Behavior

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Introduction

Background

- In today's digital age, Artificial Intelligence (AI) has become an integral part of our lives, transforming industries and shaping decisions made by people.
- Generative technologies like ChatGPT have started finding applications in various industries.
- The consumers are greatly impacted by these technologies, and there is a clear need to evaluate the effectiveness of the content they generate.
- This research aims to evaluate the effectiveness of generative AI content on consumer behavior through a comprehensive analysis of existing literature, and sentiment analysis of YouTube comments.

Research Questions

What are the factors that influence the effectiveness of generative AI content on consumer behavior?

How effective is Generative AI content on influencing consumer behavior?



Factors affecting effectiveness

The Analysis of various literature showed us the following important factors for evaluating effectiveness of generative ai content

- Anthropomorphism
- Quality of content
- Trust
- Personalization
- Perceived Utility

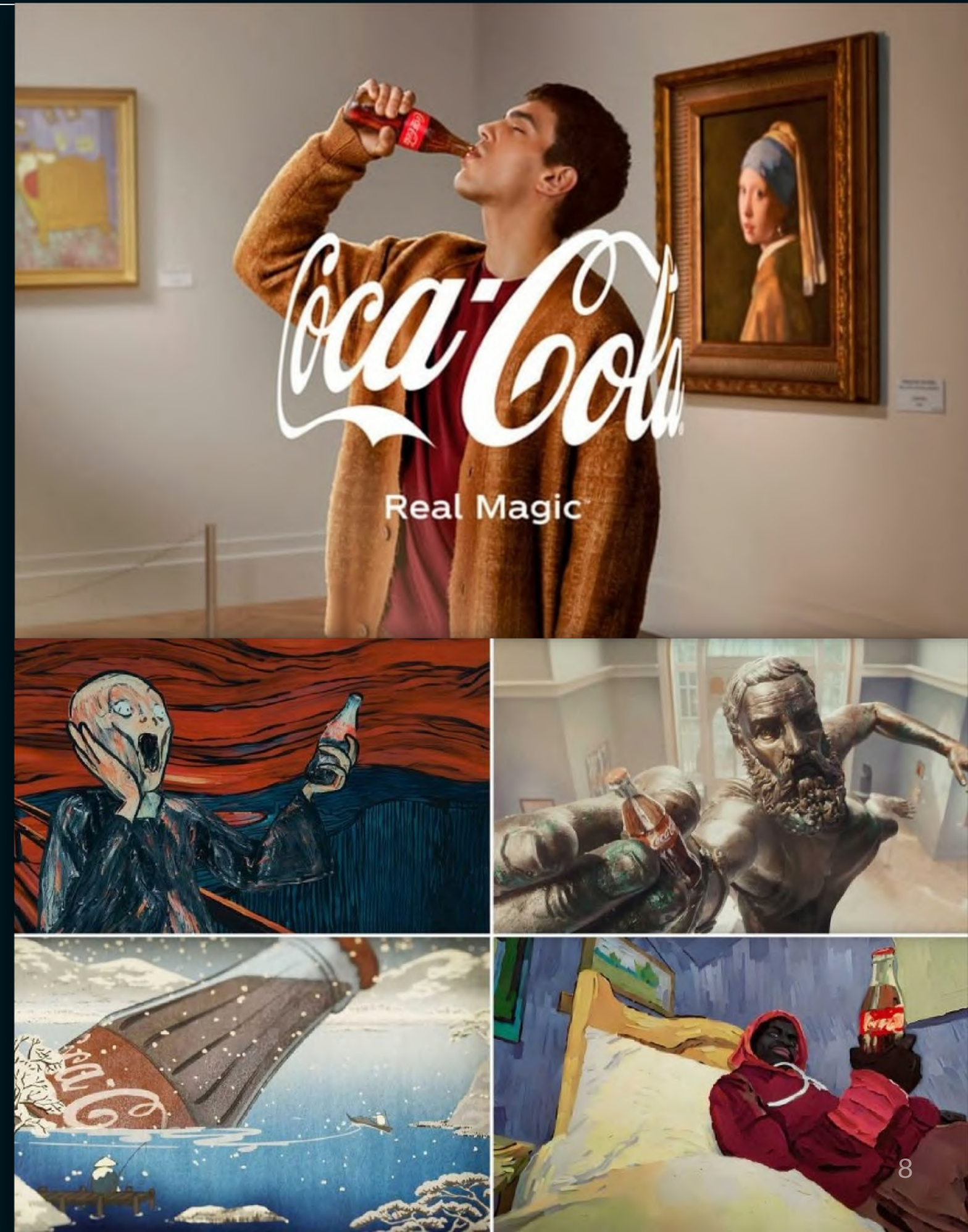




Methodology

Background

- Recently Coca-Cola launched an Advertisement called Masterpiece.
- This advertisement campaign was launched on social media platforms and received a lot of attention.
- The ad campaign uses generative AI to showcase its iconic Coke bottle passing through famous artworks, adapting to each artist's style.
- It celebrates the brand's ability to provide uplifting refreshment in critical moments and includes classic and contemporary works by renowned and emerging artists from around the world.
- The campaign features a two-minute commercial, 3D billboards, and an online gallery with artist interviews. The campaign's YouTube video serves as our data source.



Analysis Methodology



API-based
Scraping

~410 comments using
python



BERT based
analysis and
visualization



Sentiment Analysis



Evaluation
using labelled
dataset



Model accuracy
evaluation

Tools used



Language

Python



IDE

Google Collab

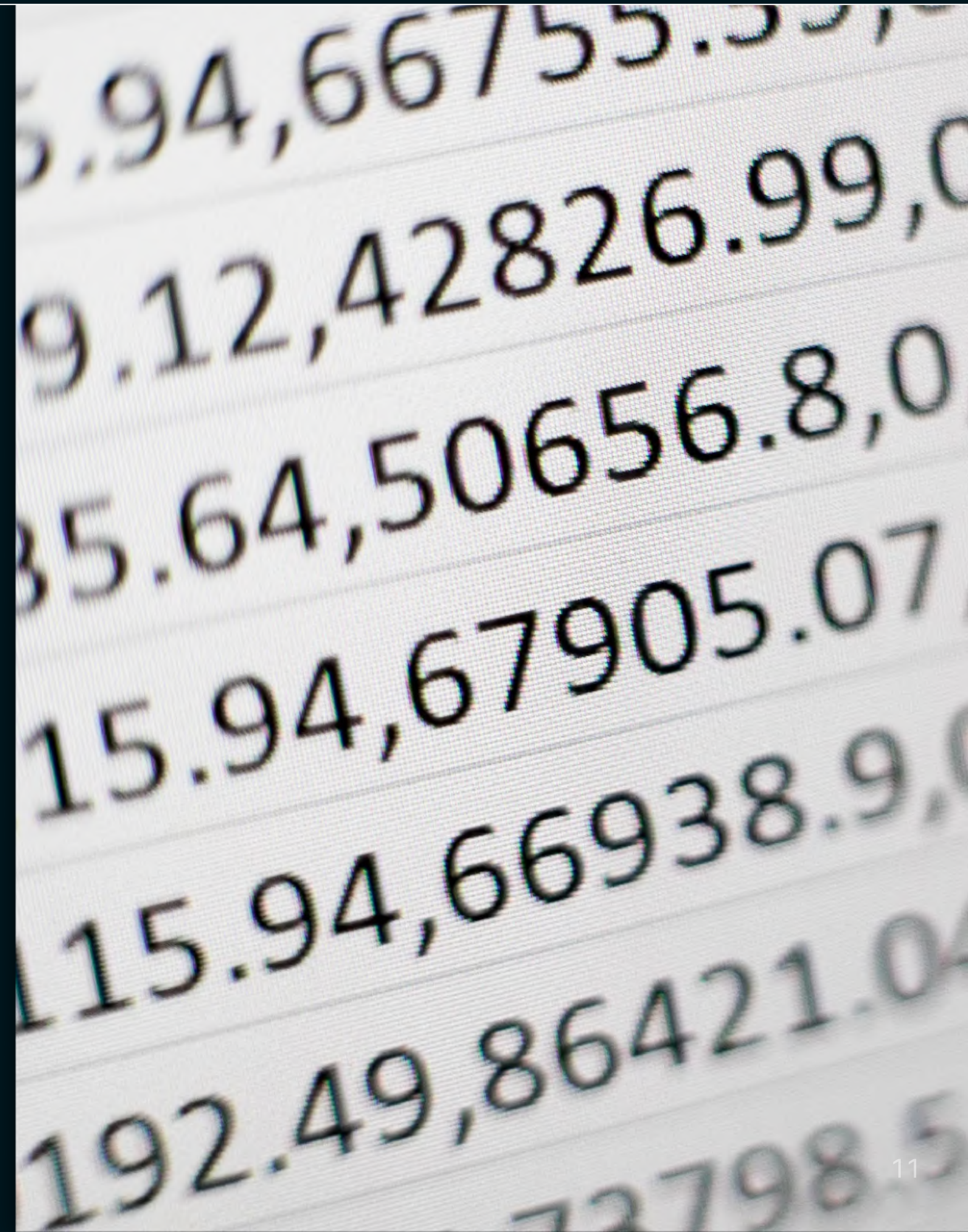


Libraries

pandas, numpy,
matplotlib, nltk, sklearn,
wordcloud

Data Collection

- The comments made by users are our data points. The comments are extracted from YouTube using a web scraping program.
- The API based scraping yields us 407 comments, which contains data in several languages, emojis and links too.
- Data was collected on July 8, 2023.
- The collected data had information about username, comments made, time of comment, the No. of likes for those comments, and the comment updated time
- The collected data was pre-processed to remove unnecessary data.



Sentiment Analysis

- Sentiment analysis, also known as opinion mining, is a natural language processing (NLP) technique used to determine the sentiment or emotion expressed in a piece of text
- Different models are used for sentiment analysis, but we will use a pre-trained BERT Model called RoBERTa (a pre-trained on ~124 M tweets).
- We first extract features from the comments using a bag-of-words technique.
- Then, we apply our ML model to classify comments as positive, neutral and negative using a score range from 0 to +1.
(Eg. 0.8 Positive, 0.1 negative and 0.1 neutral means 80% positive, 10% neutral and 10% negative sentiment.)
- This classification is then used to get insights in the form of visualization.



Model Evaluation

- Model evaluation is done after obtaining our results from analysis.
- A labelled data set of the extracted comments was used for training and testing.
- The results were then obtained using the classification report
- The resulting accuracy was around 72.2 %.

Accuracy: 72.22%

Classification Report:				
	precision	recall	f1-score	support
Positive	0.0000	0.0000	0.0000	0
Neutral	0.5000	1.0000	0.6667	4
Negative	1.0000	0.6429	0.7826	14
accuracy			0.7222	18
macro avg	0.5000	0.5476	0.4831	18
weighted avg	0.8889	0.7222	0.7568	18

0.72

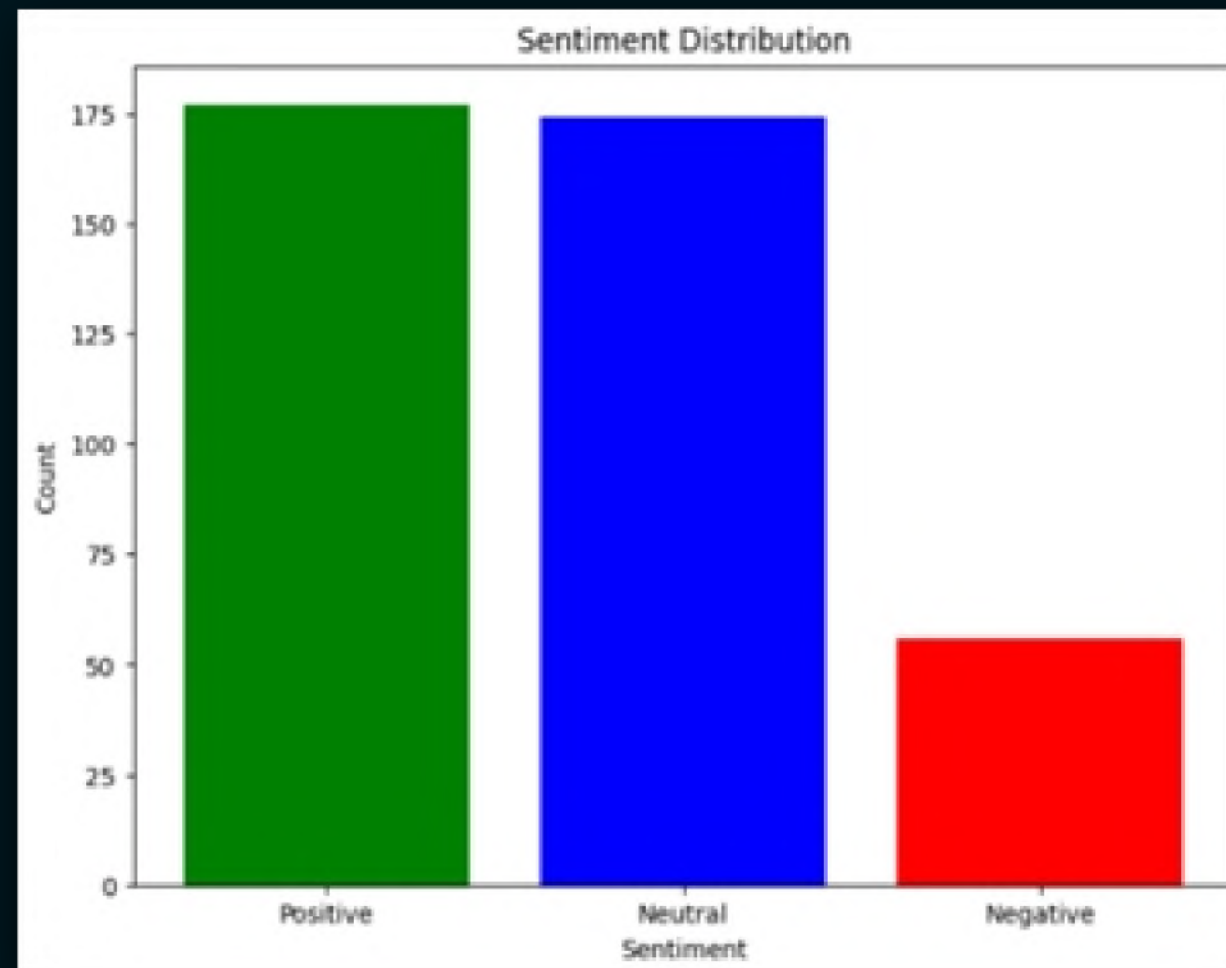
Accuracy



Results

Results

Results from our analysis



Sentiment Distribution



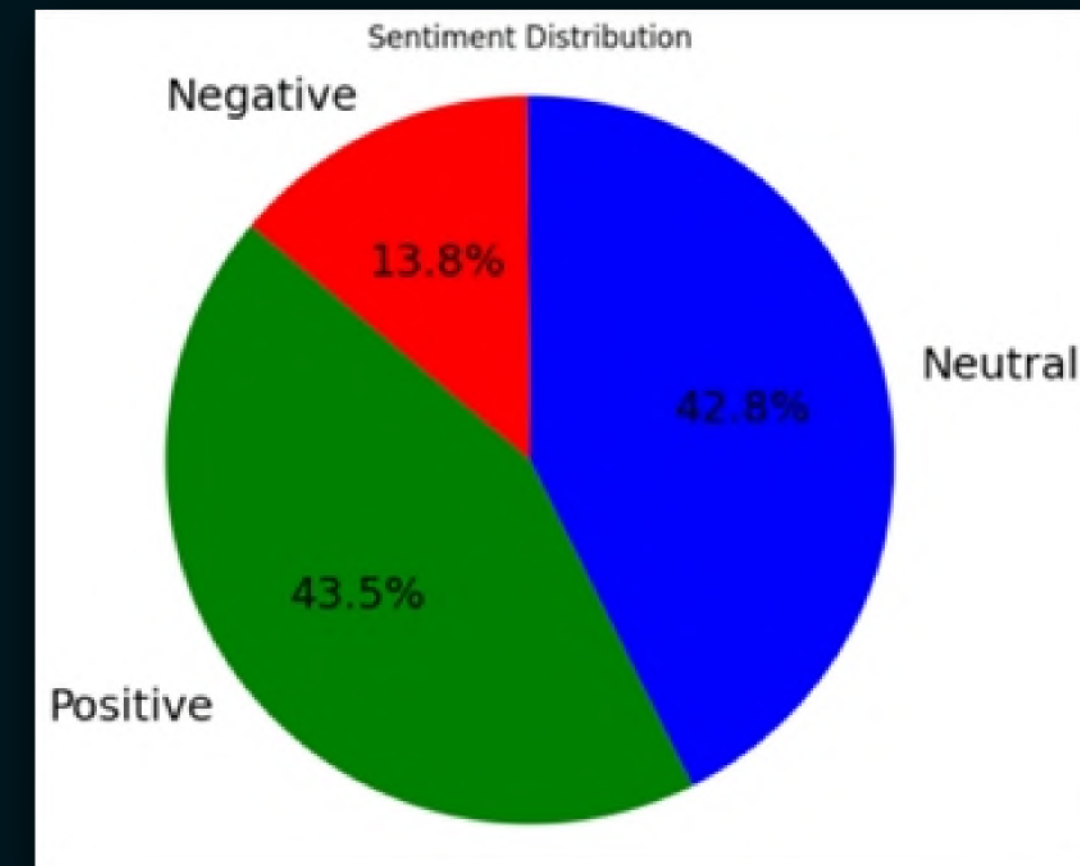
Word Cloud

Conclusion

Conclusion

Insights from analysis

- ✓ A lot of people have neutral and positive views about the advertisement
- ✓ Our model doesn't seem to be understanding the different styles of language used, contributing to a lot of neutral words.
- ✓ Word Cloud showed us words such as creative, fantastic, wow, amazing, and masterpiece.
- ✓ There are a lot of words in the word cloud such as coca cola, suggesting the high proportion of neutral comments in sentiment distribution.
- ✓ It is safe to say that generative ai influences consumers slightly as we see a good percentage of positive emotion contribution.



Limitations

Drawbacks of research

- ✓ Low data points.
- ✓ Limited literature on Generative AI and its effectiveness on Consumer Behavior
- ✓ Sentiment analysis can not work well with complex emotions, so better training of model is needed.

Future Scope

What can be done

- ✓ Highly trained sentiment analysis models can be used.
- ✓ Different languages can be taken into account for sentiment analysis.
- ✓ A framework for evaluating effectiveness.



Thank
you