SENTIMENT ANALYSIS FOR MARKETING

PHASE 5 SUBMISSION DOCUMENT

Project Title : Sentiment analysis for marketing

Phase 5: Development Part III

ABSTRACT:

Sentiment analysis has emerged as a pivotal tool in the field of marketing, enabling businesses to gain valuable insights into customer emotions, opinions, and preferences. In today's highly competitive and data-driven marketplace, understanding the sentiments expressed by customers has become essential for crafting effective marketing strategies. This abstract provides an overview of the importance, methods, and benefits of sentiment analysis in marketing.

In the realm of marketing, sentiment analysis involves the systematic evaluation of text data from various sources, such as social media, customer reviews, and surveys, to gauge the emotional tone of the content. The primary objective is to determine whether the sentiments expressed are positive, negative, or neutral, and to what degree. This data-driven approach enables marketers to understand customer reactions and sentiments towards their products, services, and brand, thereby helping them make informed decisions

Sentiment analysis techniques range from rule-based methods and lexicon-based approaches to more advanced machine learning and natural language processing (NLP) models. Machine learning algorithms, such as neural networks, have significantly improved the accuracy and granularity of sentiment analysis. NLP models can detect not only positive or negative sentiment but also subtler emotions and opinions, making them valuable tools for marketing professionals.

INTODUCTION:

The opinions of others have a significant influence in our daily decision-making process. These decisions range from buying a product such as a smart phone to making investments to choosing a school—all decisions that affect various aspects of our daily life. Before the Internet, people would seek opinions on products and services from sources such as friends, relatives, or consumer reports. However, in the Internet era, it is much easier to collect diverse opinions from different people around the world. People look to review sites (e.g., CNET, Epinions.com), e-commerce sites (e.g., Amazon, eBay), online opinion sites (e.g., TripAdvisor, Rotten Tomatoes, Yelp) and social media (e.g., Facebook, Twitter) to get feedback on how a particular product or service may be perceived in the market. Similarly, organizations use surveys, opinion polls, and social media as a mechanism to obtain feedback on their products and services. sentiment analysis or opinion mining is the computational study of opinions, sentiments, and emotions expressed in text. The use of sentiment analysis is becoming more widely leveraged because the information it yields can result in the monetization of products and services. For example, by obtaining consumer feedback on a marketing campaign, an organization can measure the campaign's success or learn how to adjust it for greater success. Product feedback is also helpful in building better products, which can have a direct impact on revenue, as well as comparing competitor offerings. This white paper will describe the various types of sentiment classification, explore how to convert unstructured

Tools required for sentiment analysis for marketing:

What is GitHub?

GitHub is a web-based interface that uses Git, the open source version control software that lets multiple people make separate changes to web pages at the same time. As Carpenter notes, because it allows for real-time collaboration, GitHub encourages teams to work together to build and edit their site content.

How can GitHub help my team and me?

GitHub allows multiple developers to work on a single project at the same time, reduces the risk of duplicative or conflicting work, and can help decrease production time. With GitHub, developers can build code, track changes, and innovate solutions to problems that might arise during the site development process simultaneously. Non-developers can also use it to create, edit, and update website content, which Carpenter demonstrates in her tutorial.

How do I speak GitHub?

There are some common terms teams will need to understand when using GitHub. They are:

- **Git** — a tool that allows developers and others to use version control
- **GitHub** — one of many web interfaces for using Git
- **Organization (org)** — a grouping mechanism allowing teams to collaborate across many projects at once
- **Repository (repo)** — a folder in which all files and their version histories are stored
- **Branch** — a version of the repo that allows work without affecting other branches. Repos may have many branches for different possible changes being tested or considered, along with a default branch that serves as the source of truth.
- **Fork** — a new repository that inherits from a parent "upstream" repo. It is used to suggest changes to an "upstream" public repo by someone who doesn't have access to edit in the repo's home org.
- **Markdown (.md)** — a way to write content that converts plain text to formatted text.
- **Commit Changes** — a saved record of a change made to a file within the repo.
- **Pull Request (PR)** — a request for changes made to a branch to be pulled into another branch. Allows multiple users to see, discuss and review work being suggested.
- **Merge** — after a pull request is approved, the commit will be pulled in (or merged) from one branch to another and then, deployed on the live site
- **Issues** — allow users to report issues or bugs and track progress of assigning the fix for the issues.
- **Federalist** — a platform that securely deploys a website from a GitHub repository in minutes and lets users preview proposed and published changes.
- **Projects** — allows you to use GitHub for project management and tracking a set of issues, either for a specific repo or an entire org
- **Wiki** — a section of a repo made for hosting documentation. Documentation may be in the repo's README files instead.Becoming fluent in Gitterminology

How do I use GitHub?

In the demonstrations on this page, both presenters show how files are changed and merged in GitHub. This can be done by any member on the team, developers and non-developers, that has access to a GitHub repository. The following is a step-by-step method in which GitHub users can develop their websites:

- **Step 1** — Team members will open an issue via a project board.
- **Step 2** — Team members will create a new branch from the most recent version of the main branch in the repository where the entire team works to avoid conflicts.
- **Step 3** — Team members will add commits (edits or changes) to their respective branches.
- **Step 4** — Team members will open a pull request in which users can assign other team members to review content changes and internally discuss the details of the commits.
- **Step 5** — After waiting for the Federalist build to complete, team members can preview the change on a test version of the website and request reviewers to approve or comment on the change. Once the reviewers approve the pull request, the commits merge into the main branch and are published on the live site.

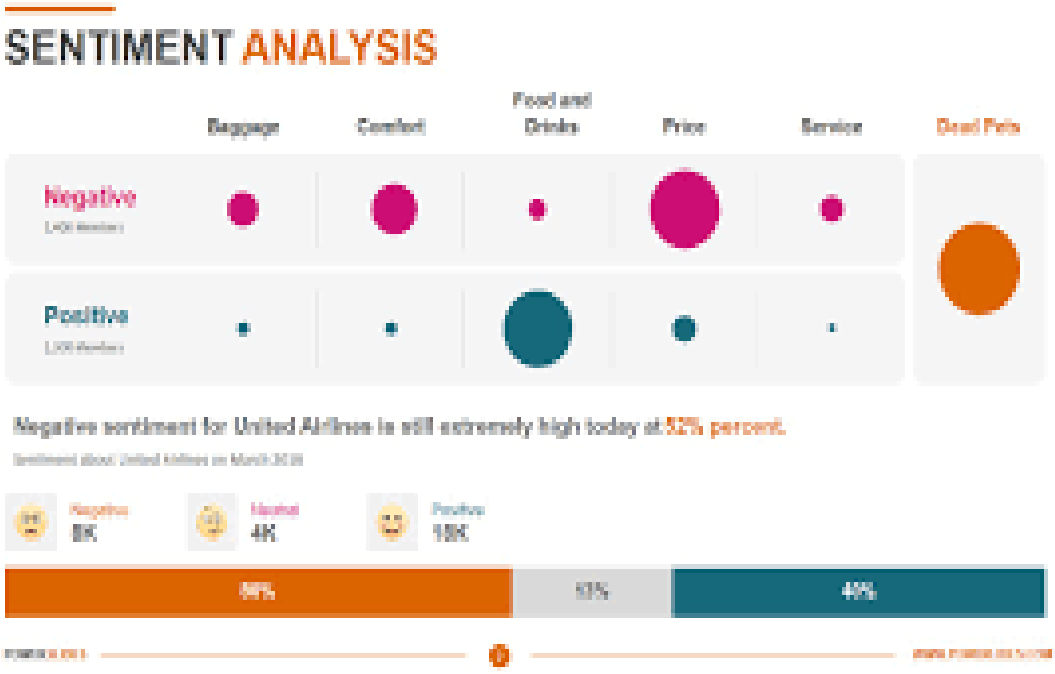
What else do I need to know about GitHub?

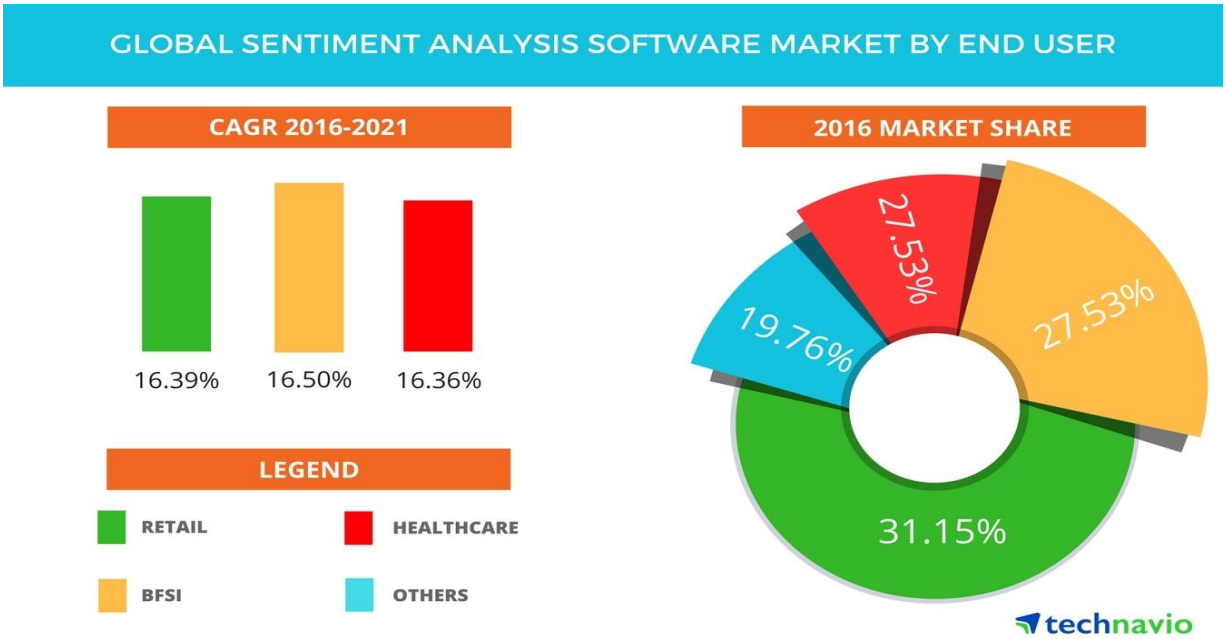
When starting a project using issues and project boards, write your content on external word processors or via Google Docs, and then, save these files to their respective project boards. These steps allow developers and content creators to have a master copy of the file(s), thus helping them track changes over the course of a project.

In addition, developers should consider downloading GitHub Desktop. GitHub Desktop allows users to do everything that could be done on GitHub's web interface, but locally on a user's machine.

GitHub is built to be a collaborative interface. By allowing multiple users to work on the same project simultaneously and requiring cross-team approval for pull requests,

DESIGN FOR SENTIMENT ANALYSIS FOR MARKETING:





MODELS FOR SENTIMENT ANALYSIS FOR MARKETING:

Building a sentiment analysis model for marketing involves several steps, including data collection, preprocessing, model selection, and evaluation. Here's a high-level overview of how you can create such a model:

1. Data Collection:

- Gather data relevant to your marketing goals. This could include social media posts, customer reviews, survey responses, or any textual data where sentiment analysis can provide insights.

2. Data Preprocessing:

- Clean the data by removing noise, such as special characters, URLs, and irrelevant information.
- Tokenize the text into words or subword tokens (using tools like spaCy or NLTK).
- Handle issues like stemming and stop words based on your requirements.

3. Labeling:

- Annotate your data with sentiment labels, such as positive, negative, or neutral. You may also use a scale (e.g., 1 to 5) for fine-grained sentiment analysis.

4. Feature Extraction:

- Convert the textual data into numerical features suitable for machine learning. Common techniques include TF-IDF (Term Frequency-Inverse Document Frequency) or word embeddings like Word2Vec, GloVe, or FastText.

5. Model Selection:

- Choose an appropriate sentiment analysis model based on your data and goals. Common choices include:
    - **VADER (Valence Aware Dictionary and sEntiment Reasoner):** A rule-based model suitable for social media data.
    - **Naive Bayes:** A simple and effective probabilistic model.
    - **Support Vector Machines (SVM):** Often used for text classification tasks.
    - **Recurrent Neural Networks (RNNs):** Suitable for sequences of text data.
    - **Convolutional Neural Networks (CNNs):** Effective for text classification using convolutional layers.
    - **Transformer-based models (e.g., BERT, GPT-3):** State-of-the-art models that can capture complex contextual information.

6. Model Training:

- Split your data into training, validation, and test sets.
- Train the selected model on the training data and fine-tune hyperparameters.
- Validate the model on the validation set and adjust hyperparameters as needed.

7. Evaluation:

- Assess the model's performance using appropriate evaluation metrics like accuracy, F1 score, precision, recall, or ROC-AUC, depending on the nature of the problem and the chosen model.

8. Fine-tuning:

- Based on the evaluation results, refine the model and parameters to improve its performanc

FEATURES FOR SENTIMENT ANALYSIS FOR MARKETING:

- Sentiment analysis for marketing involves analyzing text data to determine the sentiment or emotional tone expressed by consumers or the public about a product, brand, or marketing campaign. To perform effective sentiment analysis for marketing, you need to consider a range of features and techniques. Here are some key features and considerations:

- **Text Preprocessing:**
  - Tokenization: Break text into individual words or phrases.
  - Lowercasing: Convert all text to lowercase to ensure case insensitivity.
  - Stopword Removal: Eliminate common words (e.g., "and," "the") that may not carry sentiment information.
  - Removing Punctuation: Strip out punctuation marks.

- **N-grams:**
  - Unigrams: Single words as features.
  - Bigrams, Trigrams, etc.: Pairs or groups of adjacent words as features, capturing context.

- **TF-IDF (Term Frequency-Inverse Document Frequency):**
  - Calculate TF-IDF scores to weigh the importance of words in a document relative to a corpus of documents.

- **Word Embeddings**:
  - Word2Vec, GloVe, or FastText: Pre-trained word embeddings can be used to represent words as dense vectors, which capture semantic relationships.

- **Sentiment Lexicons:**
  - Utilize sentiment lexicons like SentiWordNet, AFINN, or the NRC Emotion Lexicon to assign sentiment scores to words.

- **Part-of-Speech (POS) Tagging:**

- Extracting the part of speech of each word can help identify sentiment-carrying words (e.g., adjectives and verbs).

- **Named Entity Recognition (NER):**
  - Recognize and categorize named entities, like product names or brands, to assess sentiment towards specific entities.
- **Emoticons and Emoji Analysis:**
  - Recognize and analyze emoticons and emojis to capture emotional context in text.
- **Aspect-Based Sentiment Analysis:**
  - Identify specific aspects or features of a product or service and assess sentiment towards each aspect individually.
- **Sentiment Score Aggregation:**
  - Calculate sentiment scores for individual features (e.g., sentences or paragraphs) and aggregate them to obtain an overall sentiment for a document.
- **Machine Learning Models**:
  - Train supervised machine learning models (e.g., Naive Bayes, Support Vector Machines, or deep learning models) to classify text into sentiment categories (positive, negative, neutral).
- **Sentiment Analysis APIs**:
  - Leverage sentiment analysis APIs like those provided by popular cloud providers, which offer pre-trained models for sentiment analysis.
- **Social Media-Specific Features**:
  - For social media sentiment analysis, consider features like user mentions, hashtags, and retweet counts.
- **Time-Series Analysis:**
  - Analyze sentiment changes over time to identify trends and monitor the impact of marketing campaigns.

- **User Reviews and Ratings:**

- Consider incorporating user ratings and reviews as features for sentiment analysis, especially for e-commerce and product marketing

Sentiment Analysis using Python [with source code]:

Sentiment Analysis – One of the most popular projects in the industry. Every customer facing industry (retail, telecom, finance, etc.) is interested in identifying their customers' sentiment, whether they think positive or negativeabout them.
Python sentiment analysis is a methodology for analyzing a piece of text to discover the sentiment hidden within it. It accomplishes this by combining machine learning and natural language processing (NLP). Sentiment analysisallows you to examine the feelings expressed in a piece of text.

When we have everything in place, we can start by importing everything wewill need during implementation.

```
import torch
from torch
import nn from
torch import
optimimport
numpy as np

import
matplotlib.pyplot as
pltimport pandas as pd

from sklearn.model_selection import
train_test_splitfrom sklearn.metrics import
accuracy_score

from torchtext.data.utils import get_tokenizer
```

```
from torchtext.vocab import
build_vocab_from_iteratorfrom
torch.utils.data import DataLoader, Dataset
```

Additionally, we have to specify what device we will be training an LSTM on:

```
device = torch.device("cuda" if torch.cuda.is_available() else "cpu")
```

I strongly recommend using **cuda**. Otherwise, training will be very time-consuming. Ifyou don't have access to a GPU machine, consider using a free one

on collab or kaggle.

And as the last setup step, we'll specify a global random seed for reproducibility:

```
np.random.seed(42)
```

Finally, we will define a path to our dataset:

```
DATA_PATH = "./trip-advisor-hotel-reviews/tripadvisor_hotel_reviews.csv"
```

Loading and Inspecting Data

First things first, loading data to panda's **DataFrame**:

```
df = pd.read_csv(DATA_PATH)
df.head()
```

n a real-world situation, this `Rating` column would be more than enough for us to train the review scoring regression model. But instead of that, we'll

demonstrate how to workwith less informative data. We'll categorize reviews into three categories:

- negative: ratings below 4
- neutral: ratings equal to 4
- positive: ratings equal to 5

```
neutral_range = {"low": 4, "high": 5}df["Sentiment"] = "neutral"
df["Sentiment"].loc[df["Rating"] < neutral_range["low"]] = "negative"
df["Sentiment"].loc[df["Rating"] >= neutral_range["high"]] = "positive"
df.head()
```

Data split and Baseline

As usual, we'll be splitting our data into train and validation subsets while ensuring thatthe resulting split is stratified.

```
X_train, X_validation, y_train, y_validation = train_test_split(df["Review"],
df["Sentiment"], test_size=0.2,
stratify=df["Sentiment"])
```

To correctly evaluate created model, we have to establish some initial baseline first. In our case (sentiment classification), we can build a simple model that picks sentiment atrandom. `class RandomBaseline:`

```
def__init__(self):
self.categories = {}
```

```
def fit(self, data, target_col):
cat_names =
data[target_col].unique() agg =
data.groupby(target_col).count()for
n in cat_names:
self.categories[n] = agg.loc[n][0] / len(data)


def predict(self, data):
return np.random.choice(list(self.categories.keys()), len(data),
list(self.categories.values()))
```

Now we can “train” our random model.

```
rb = RandomBaseline()
rb.fit(df.iloc[X_train.index],
"Sentiment")pred = rb.predict(X_test)
accuracy_score(y_test, pred)


# 0.3273969260795316
```

Data preparation

Before we start modeling, we have to transform reviews to form “understandable” for theneural network. We’ll do it by:

1. tokenizing each review – converting it to a list of words (tokens)
2. building a vocabulary – mapping each token to index

tokenization:

```
tokenizer =
get_tokenizer('basic_english')
tokenizer("the place was nice")
```

```
# ['the', 'place', 'was', 'nice']
```

building a vocabulary:

```
def tokenized_review_iterator(reviews):
for r in reviews:
yield tokenizer(r)


vocab = build_vocab_from_iterator(tokenized_review_iterator(X_train), special
s=["<unk>"])
vocab.set_default_index(vocab["<unk>"])
vocab(['the', 'place', 'was', 'nice'])
# [22, 21, 2006, 15]
```

Now we need to implement a custom PyTorch Dataset that will handle preparing andserving data during training and evaluation.

```
target_map
= {
"positive":
0,
"neutral": 1,
"negative": 2
}text_pipeline = lambda x: vocab(tokenizer(x))label_pipeline = lambda x:
target_map[x
class ReviewDataset(Dataset):
def_init_(self, X, y, text_pipeline,
label_pipeline): self.X = X
self.y = y
self.text_pipeline =
text_pipeline self.label_pipeline
= label_pipeline
```

```
def__len__(self):
return len(self.X)

def__getitem__(self, idx):
text =
torch.tensor(self.text_pipeline(self.X.iloc[idx]))
length = torch.tensor(len(text))
label =
torch.tensor(self.label_pipeline(self.y.iloc[idx]))
return {"text": text, "length": length, "labels": label}


train_dataset = ReviewDataset(X_train, y_train, text_pipeline,
label_pipeline
)
test_dataset = ReviewDataset(X_test, y_test, text_pipeline, label_pipeline)
```

Additionally, as we work with reviews that don't have equal lengths, we'll have toprovide a function that will pad shorter sequences in batch with blank tokens.

```
def collate(batch):


batch.sort(key=lambda x: x["length"], reverse=True)
text, lengths, labels = zip(*[d.values() for d in batch])
text = torch.nn.utils.rnn.pad_sequence(text,
batch_first=True)lengths = torch.stack(lengths)
labels =
torch.stack(labels)return
text, lengths, lab
```

output:


Sentiment Histogram
8000
6000
4000
2000
0
neutral
negative
positive

GRAPH STRUCTURE OF SENTIMENT ANALYSIS:

Improving brand sentiment :

- Brand sentiment analysis is a way of determining the general your brand,product, or service.
- attitude toward
- Companies can use sentiment analysis to track their reputation metrics such as sentiment score, net promoter score, customer satisfaction score, etc.
- It can assist you in understanding the most relevant and impactful feedback from your audience, which you can use to create a feedback loop. This loop can also be used for improving customer satisfaction, customer acquisition and product development.
- Lifecycle of customer feedback, source: Helpshift
- Improving factors such as prompt issue redressal and timely resolution can go a long way in improving brand image. You can scale these features with the help of AI sentiment analysis tools, since AI tools can comb through a lot of data in minutes. This can be especially helpful in crisis situations, where the need to address issues quickly is paramount.

Example of improving brand sentiment:

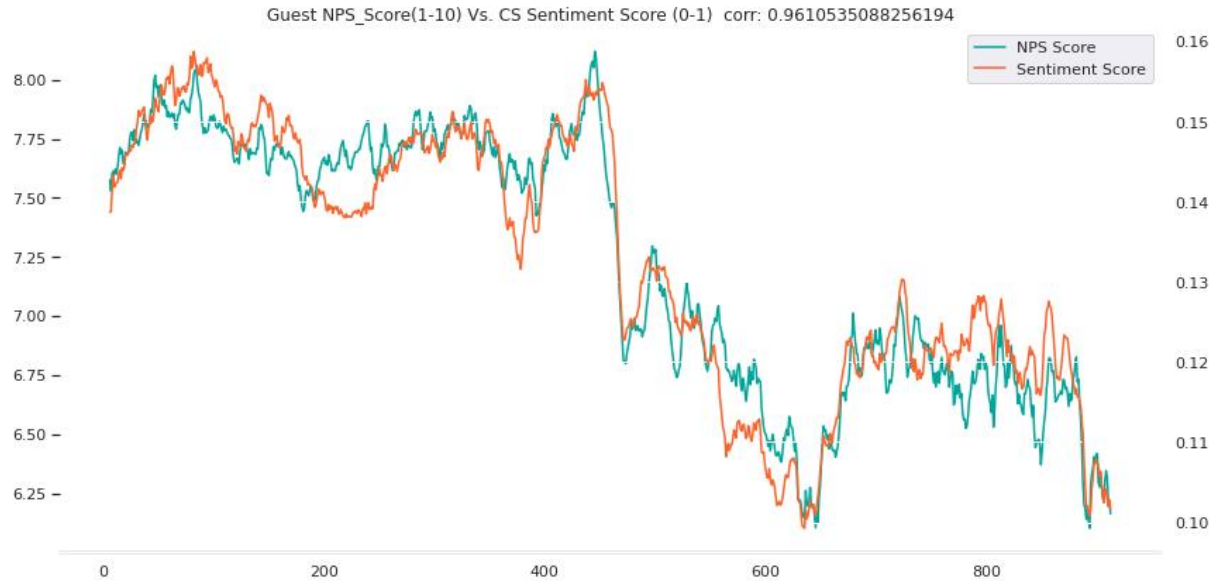
Let's see this with an example of Starbucks, the multi-billion coffee chain. They get an average of 10 tweets per second. And let's say that they need to track consumer insights about a new flavor they have just launched.
How long do you think a human needs to read through those tweets and generate product-specific insights? Let's not forget that in addition to tweets about the new flavor, there would also be other tweets, such as customer complaints, news articles, etc. This means that a human operator must sift through a mound of text to access relevant details.
However, processing such a large amount of data is easy for AI. AI algorithms can easily classify and catalog specific mentions of their new flavor and run sentiment analysis on them. They can also use this information to generate product-specific consumer insights and trends.
This is probably the reason why Starbucks' social image is mostly positive. Both male and female demographics reasonably like the brand, and the overall trend leans towards the positive side.

Improving customer service :

- Almost 80% of customers stop business with a brand if they receive poor customer service. In contrast, companies that provide exceptional customer service record more revenue and get more referrals, leading to continued business. Improving customer service is a sureshot way to increase a business's ROI.
- Since enhancing customer service is of such importance to brands, many companies have now started using sentiment analysis to understand what their customers are saying about them. This is especially helpful in a B2C scenario where you have a lot of customers to manage.
- Sentiment analysis allows you to engage in a proactive manner. You can use it to capture and process the voice of the customer (VoC). This information can also be used to identify and address specific pain points, which can improve customer satisfaction and retention.
- A customer-first mindset would help your brand become more empathetic to customer needs and strengthen your reputation. Let's see this with an example.

- Since NPS is oftentimes slow and doesn't tell the full story, Airbnb uses NPS combined with sentiment analysis to generate real-time customer insights from their data. Furthermore, it allows them to reach a wider customer base than feedback forms

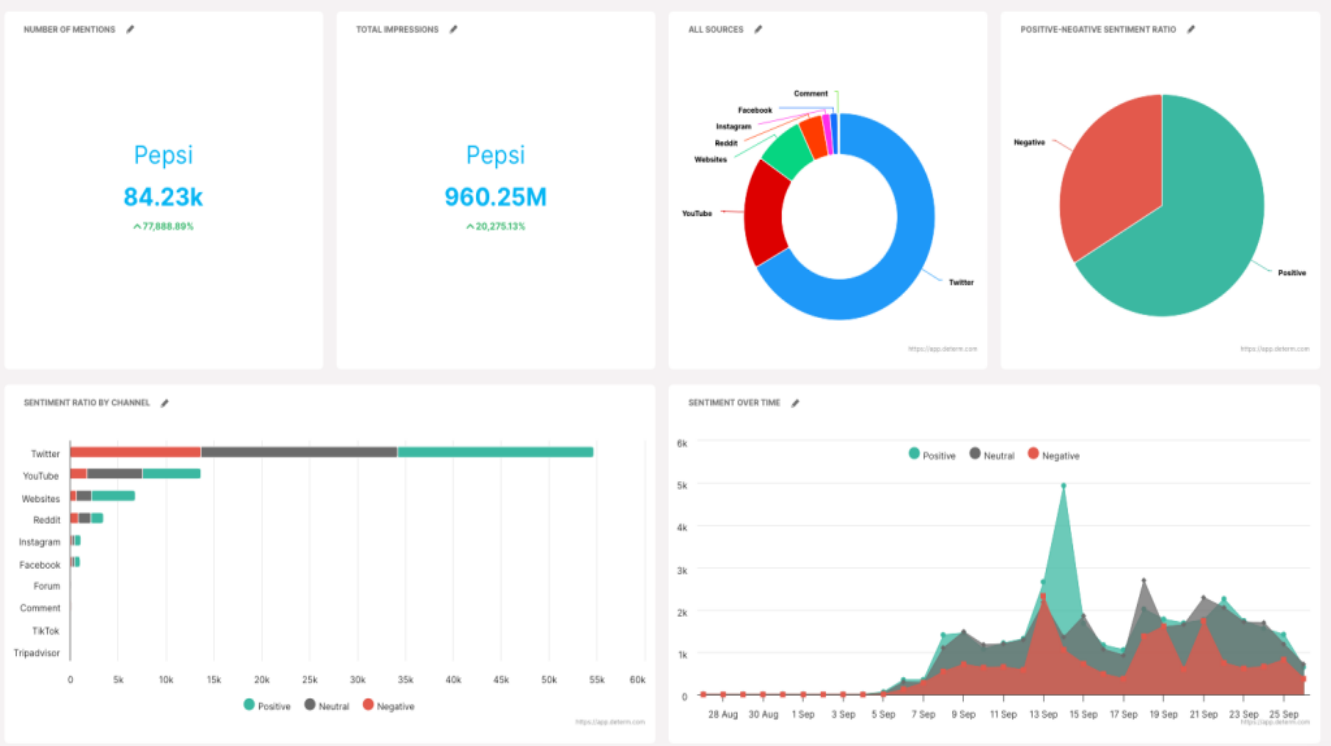
.



Refining marketing strategy :

- As mentioned above, sentiment analysis/opinion mining can be used to understand your audience and target them with the right message. If your marketers understand your audience, they can develop better content and adjust their copy to best fit their audience.
- Through sentiment analysis, you can segment your audience and tailor your message for specific segments. This enables marketers to optimize existing content to better target their customers and improve the effectiveness of their campaign.
- Marketers can use sentiment analysis to inform marketing strategies and create customized user journeys. You can also use it to identify customer trends.

- What's more, you can take advantage of sentiment analysis to analyze VoC. Sentiment analysis can be used to answer product-specific questions such as
- An amazing example of this is Pepsi. They have often mentioned that they use sentiment analysis to track brand mentions and understand public perception. This allows them to generate timely consumer insights and identify industry-specific trends.
- They do this with the help of smart tags, which allow them to process large amounts of data automatically. Pepsi report charts in Determ
- Pepsi uses this information to segment its audience and engage customers through relevant content.
- This enables them to create a strong social media presence, improve their social media reach, and make better marketing decisions.
- They can also use this information to identify cultural and regional preferences, which can help identify emerging markets.



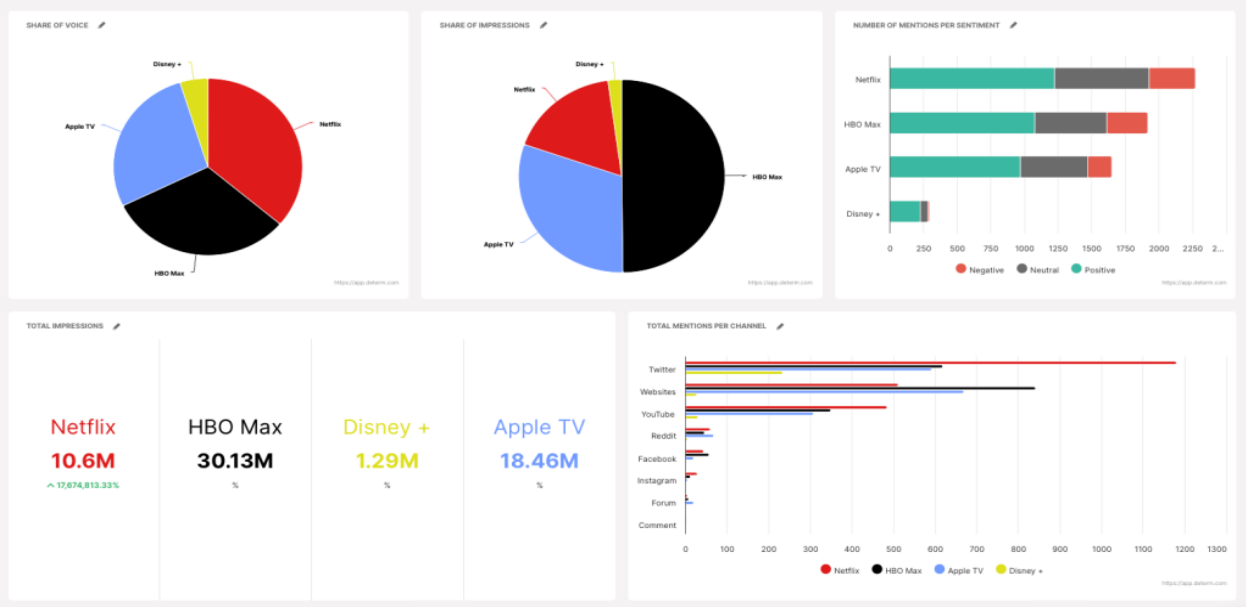
Product development:

- You can use sentiment analysis to track audience sentiments and understand their thoughts about a specific product or service. This allows you to track product adoption and see if your new product is being well received in the

market or not. The same methodology can also be used to understand feature adoption.

- Sentiment analysis enables marketers to identify market trends, which is useful for generating new product ideas. What's more, you can use it to analyze individual product objectives.
- For example, you can create a survey to ask your customers if they like your product pricing tiers. You can analyze their answers via sentiment analysis to identify if they exhibit dissatisfaction with your current pricing model. If the answer's yes, you can look into changing your price tiers as per market requirements.
- Moreover, you can use sentiment analysis to identify bugs and issues with your product. Specific feedback can be used to create support tickets and release fixes.
- Example of sentiment analysis for product development
- Google uses sentiment analysis to analyze customer mentions. They use this information to find out what customers have to say about their products and services.
- For example, their Chrome development team constantly checks direct and indirect user feedback and runs them through sentiment analysis algorithms.
- Moreover, they analyze specific keywords, such as mentions of new features, scalability and security issues, UI considerations, etc. It is always important to keep tabs on what language and words your audiences are using. This is great input for content development and in combination with rank tracking software to find the "voice of the customer" and what they are searching for. They also track product recommendations and inclinations to specific browser elements/extensions.
- This allows the company to document its product's strong and weak points and identify which features its users like. It also helps them recognize areas of future research and development.
- Competitor analysis
- You can run sentiment analysis on your customer's social media mentions to generate competitor insights. For many businesses, it's a legitimate way to benchmark their product against their competitors and compare their offerings.
- Understanding which competitors' features fail or succeed can help you create a development strategy. You can check which product features of your competitors their users like. This can help you identify which features to add to your own product.

- From a marketing perspective, you can also use this analysis to compare your product's strengths and weaknesses against your competitors. Their pricing strategies can be used to modify your own strategies, and gaps in their content can be used to identify opportunities for your website. You can add this information to your landing pages to improve conversions.
- Doing this process over a period of time can have a long-term impact on your ROI. It also saves a lot of time and effort since you don't have to run A/B tests with those sceneries.
- From a customer service perspective, you can use sentiment analysis to analyze how your competitors engage with their customers. Later, you can check if their engagement has a net positive and negative impact on their brand image. If the impact is positive, you can include those customer service elements in your outreach strategy.
- Streaming platforms competitive case study
- Let's see a case study between the biggest streaming platforms, Netflix, Disney+, and HBO Max. Using a sentiment analysis tool to check user sentiments for these platforms, you'll find that Netflix has the most social media mentions, followed by HBO Max and Apple TV. Also, Netflix has the highest number of positive mentions by percentage, followed by HBO Max and Disney+.
- If you delve deeper into the data, you'll be able to see the reason why Netflix is so popular. Firstly, it's one of the oldest streaming platforms in the market. They also aim to be a customer-centric brand. For instance, Netflix prompts its consumers to downgrade their plans for services they don't need.



BENEFITS FOR SENTIMENT ANALYSIS:

Sentiment analysis benefits are pervasive throughout the areas of product, customer, and market experience. Sentiment analysis helps various marketing functions and is invaluable in critical industries such as healthcare.

1. Social Media Sentiment Analysis

- Sentiment mining from social media listening helps you analyze audience intent and opinions expressed on various social platforms. You can get granular market analysis of customer likes and dislikes about products, brands, advertising content, and more through techniques such as TikTok social listening and Instagram social listening, for example. Similarly, you can harness market insights about a product from comments on a how-to video through YouTube video analysis.
- Doing so can give you much-needed information about products, your target demographic, the common themes in comments and their comparison across different social platforms, and more.

2. Brand Experience Insights

- You can gather valuable brand experience insights that can give you a peep into hidden market sentiment about your brand and what customers expect from you. These insights are important because they allow you to understand market-gap issues, retain customers, build a loyal customer base, and increase sales conversions.

3. Patient Insights

- A sentiment analyzer is a great asset in the healthcare industry where patient voice analysis is used to measure the efficiency of healthcare delivery, discover any lacuna in out-patient and in-patient service, smoothen operations in pharmacies, and more. Patient and caregiver surveys help healthcare organizations find out about patients' changing needs, improve critical care and hospice care, as well as deliver healthcare to areas that are lacking in primary service.

4. Improve Customer Service

- Benefits of sentiment analysis include improving customer service through customer experience analysis. Emotion mining chatbot histories, customer service call transcripts, customer complaint emails, returns and refunds customer comments, and customer surveys, all can be harnessed to improve customer satisfaction and help you develop brilliant customer experience.

5. Multilingual Insights

- Sentiment analysis can be used to analyze customer data across geographies, ethnicities, and cultures in order to get the most intrinsic insights about product popularity, competitive brands, success rates of advertising campaigns, and more.
- Multilingual sentiment analysis is helpful in e-commerce and hospitality in a special way because both these industries often have customers from different backgrounds, especially when audiences are located in cosmopolitan cities.

6. News Trend Analysis

- Sentiment analysis is used to extract emerging trends from news websites, videos, articles and magazines, online platforms that include blogs, social media like Twitter and Facebook, and other sources to anticipate market behavior. This includes news on current affairs such as new political scenarios, international crude-oil trading, and share movements of enterprises. Take this news article for example.
- Industries such as banking, insurance, real estate, automotive, cosmetics, etc. use ML-based sentiment analysis to understand and analyze such news in order to speculate, plan, and be ready for any situation. This includes planning supply chain, managing PR, altering new product launches, and other marketing and operational functions.

7. Real-Time Sentiment Insights

- Sentiment analysis benefits also extend to real-time analysis of sentiment from live video streams and live texts and comments. This is used to analyze audience participation and satisfaction during live shows, live corporate events, seminars, promotional events like trade and car shows, live radio broadcasts, and others.
- Read in detail about real-time sentiment analysis.

8. Customer Feedback

- Another major area that utilizes the benefits of sentiment analysis is customer feedback analysis. Through analyzing data collected from customer review platforms like Reddit, OpenTable, Trustpilot, GoogleMyBusiness, Amazon, and others, companies can get critical information about product likes and dislikes, customer pain points, and product and service deficiencies.

- These insights are very important because you can use them to dig deeper into the roots of these issues in order to prepare a more sustainable strategy for product and service improvement.

9. Online Reputation Management

- AI-driven, automated sentiment analysis helps companies manage their brand reputation by enabling them to make timely decisions on how to respond to negative brand mentions and thus avert risks. For example, by setting alerts on the sentiment analysis platform, you can immediately be notified of a negative mention on the platforms you are tracking.
- Thus, you are able to address a situation before it snowballs into a bigger issue. This also helps you in attracting better candidates and clients, increasing your customer base, and catapulting sales.

10. Data-Driven Marketing Insights

- Marketing strategies that are based on a data-driven analysis of not just qualitative metrics (number of likes, followers, shares, etc.) but also on quantitative metrics gained from comments analysis (percentage of positive and negative sentiment about various aspects of a business) have a higher chance of being successful.

11. Developing Relatable Advertising Content

- Knowing what type of content resonates with your target audience the most is crucial in developing the right advertising strategies and campaigns. There is nothing worse than spending thousands of dollars on a project that is not suitable to your customer demographic or that is not curated, resulting in major advertising fails.

12. Product Development

- Emotion mining from customer feedback data, surveys, news reports and articles, social media listening, and other sources can give you clever insights into how you can improve your product so that it reaches more audiences. This is also very important when launching a new product, opening a store at a new location, changing business models, and such.

13. Competitor Analysis

- Competitor insights are one of the most useful benefits of sentiment analysis. Through analyzing sentiment in publically available data you can find out why competitor products are more successful than yours, and why people prefer certain products from you but go to your competitors for others. Sentiment analysis insights help you monitor and track changing trends in the industry as well so you can relate to more audiences for business longevity.

14. Employee Experience Insights

- Sentiment analysis benefits also include those for companies looking to increase employee engagement and satisfaction for improved workforce productivity. Organizations have begun to realize that employee fatigue and loneliness, experienced by 41% of employees in the US alone, can have serious repercussions on business goals.

ADVANTAGES OF SENTIMENT ANALYSIS FOR MARKETING:

- Sentiment analysis helps marketers gain a deeper understanding of customer opinions, preferences, and attitudes. It can reveal what customers like or dislike about a product, service, or brand.
- Marketers can receive real-time feedback from social media, reviews, and other sources. This enables them to react quickly to address issues or capitalize on positive sentiment.
- Marketers can use sentiment analysis to monitor the sentiment associated with competitors. This information can inform strategies and help identify opportunities for differentiation.
- By analyzing negative sentiment, companies can identify areas for product or service improvement and address customer concerns more effectively.
- Sentiment analysis can help companies track their brand's reputation and manage any PR crises more proactively.

DISADVANTAGES OF SENTIMENT ANALYSIS FOR MARKETING:

- Sentiment analysis algorithms can struggle to accurately interpret sarcasm, irony, or ambiguous language, leading to misclassifications.
- Models trained on certain datasets may exhibit biases and may not perform as well for languages and cultures different from the training data.
- The accuracy of sentiment analysis is highly dependent on the quality and quantity of the data. Noisy or biased data can lead to inaccurate results.
- Sentiment analysis models may not always grasp the full context in which a statement is made, which can lead to misinterpretations.
- Automated sentiment analysis tools often require human oversight to validate results and ensure they align with the overall marketing strategy.

CONCLUSION:

By understanding the sentiment around their campaigns or product launches, brands can tailor their messaging to better resonate with their target audience. Overall, social media sentiment analysis is a powerful tool that enables brands to gain a deeper understanding of how they are perceived by their audience.