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Patoh254code

Merge pull request #13 from Patoh254code/patrice-branch

f38a5d2 · 3 minutes ago

.ipynb_checkpoints	add notebook.pdf and requirements.t...	2 hours ago
__pycache__	Update files and add deployment	19 hours ago
anaconda_projects/db	add notebook.pdf and requirements.t...	2 hours ago
data	business understanding	3 days ago
deployment	final updates	5 minutes ago
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README.md	update README.md	18 hours ago
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README

Product Brand Sentiment Analysis

1.0 Overview

This project focuses on analyzing Twitter sentiment towards tech brands and products during the SXSW 2011 conference. By leveraging Natural Language Processing (NLP) techniques and machine learning models, we aim to build an automated sentiment classification system. The goal is to help companies gain real-time, data-driven insights into public perception of their products and competitors.

2.0 Business and Data Understanding

2.1 Stakeholder Audience

The primary stakeholders include marketing teams, product managers, and brand strategists from tech companies. These stakeholders require timely and accurate insights into how their products are perceived online, especially during high-visibility events such as SXSW.

2.2 Dataset Description

The dataset is sourced from CrowdFlower on Data.World. It includes:

`tweet_text`: The tweet content. `emotion_in_tweet_is_directed_at`: The brand/product mentioned.
`is_there_an_emotion_directed_at_a_brand_or_product`: Sentiment label (Positive, Negative, No emotion, or I can't tell).

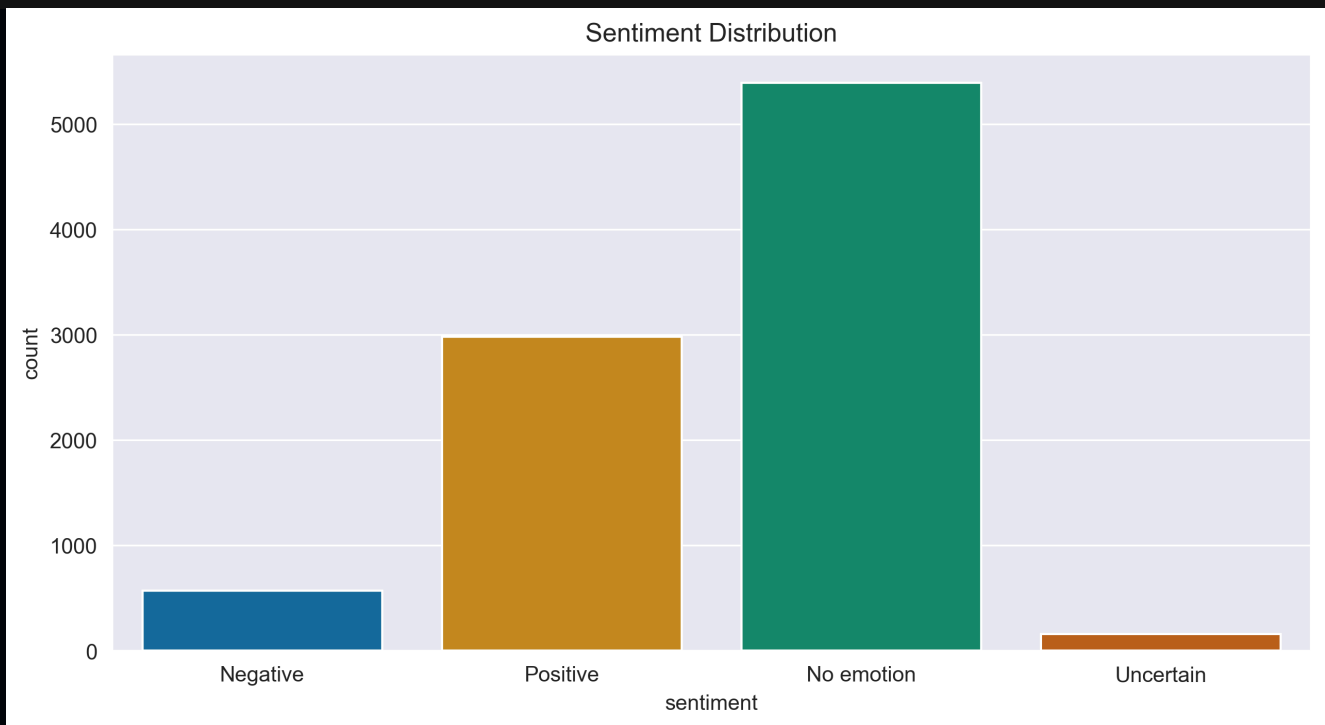
2.3 Data Challenges

Key challenges include:

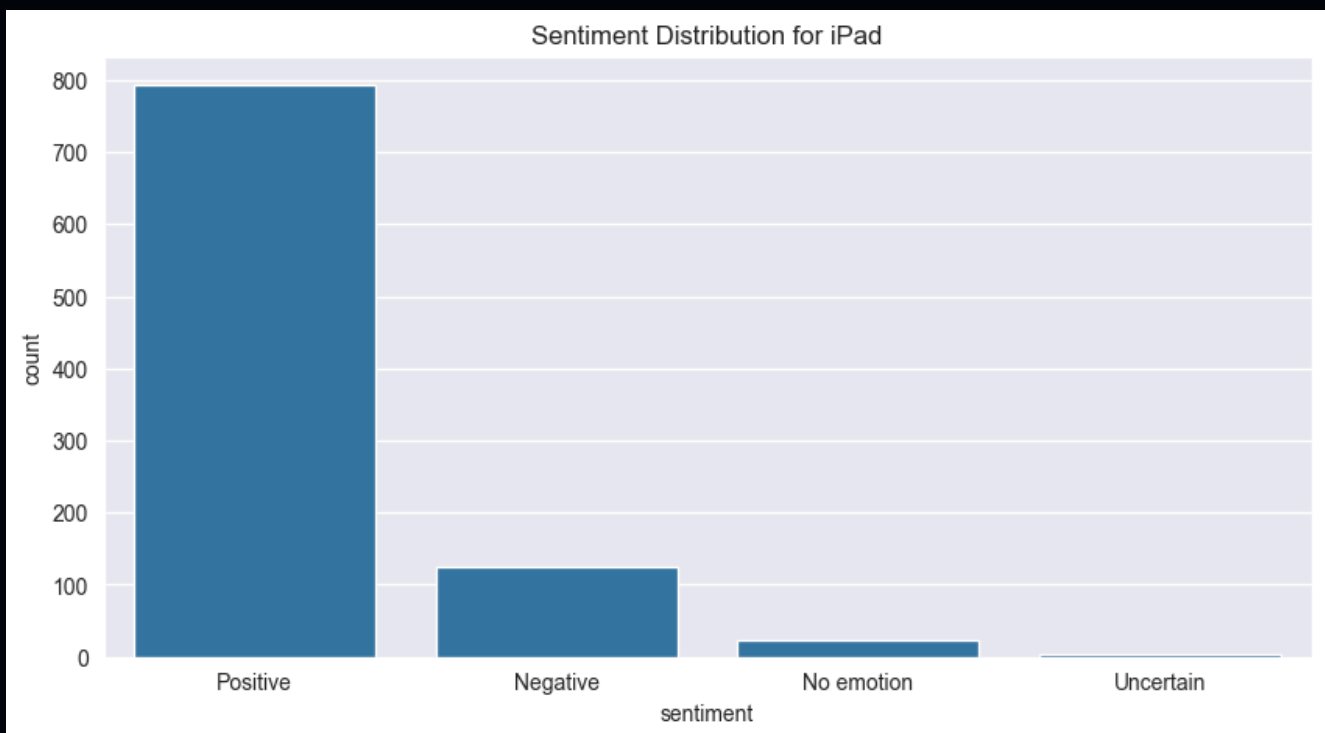
- Analyzing unstructured text data from tweets to extract meaningful sentiment
- Handling ambiguous or sarcastic tweets that might be misclassified
- Dealing with imbalanced classes in sentiment categories
- Identifying which brands/products receive the most attention and strongest sentiment
- Developing a robust sentiment classification model that performs well across different brands

2.4 Objectives

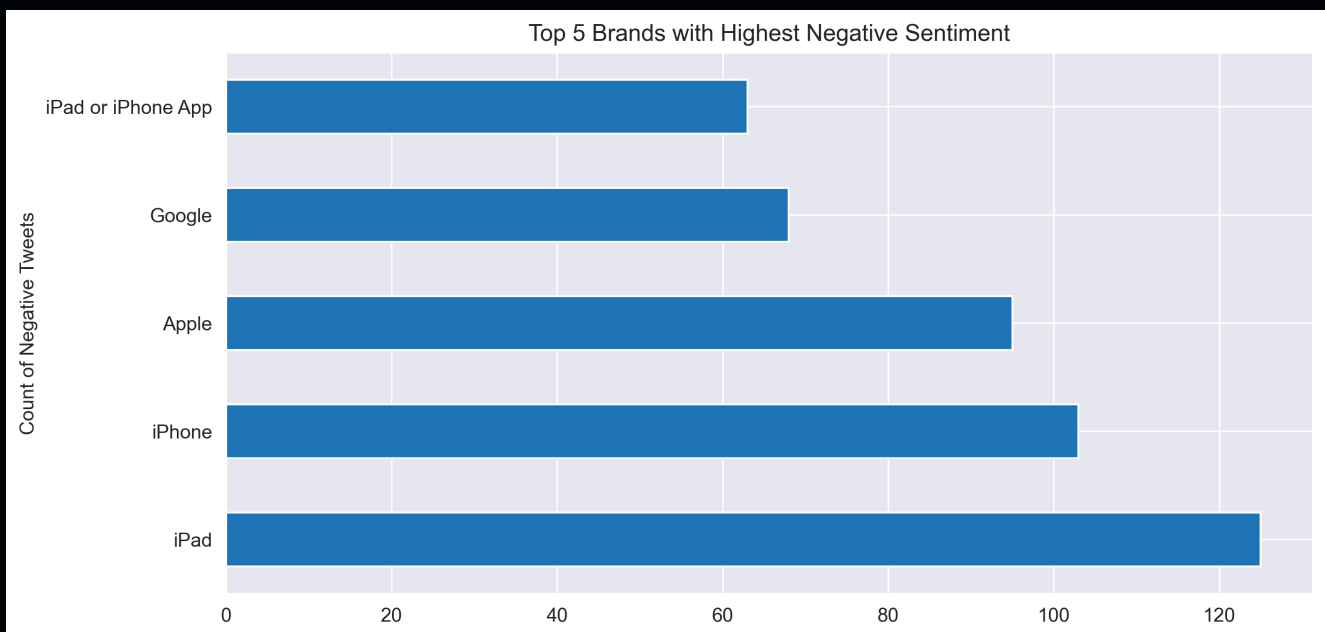
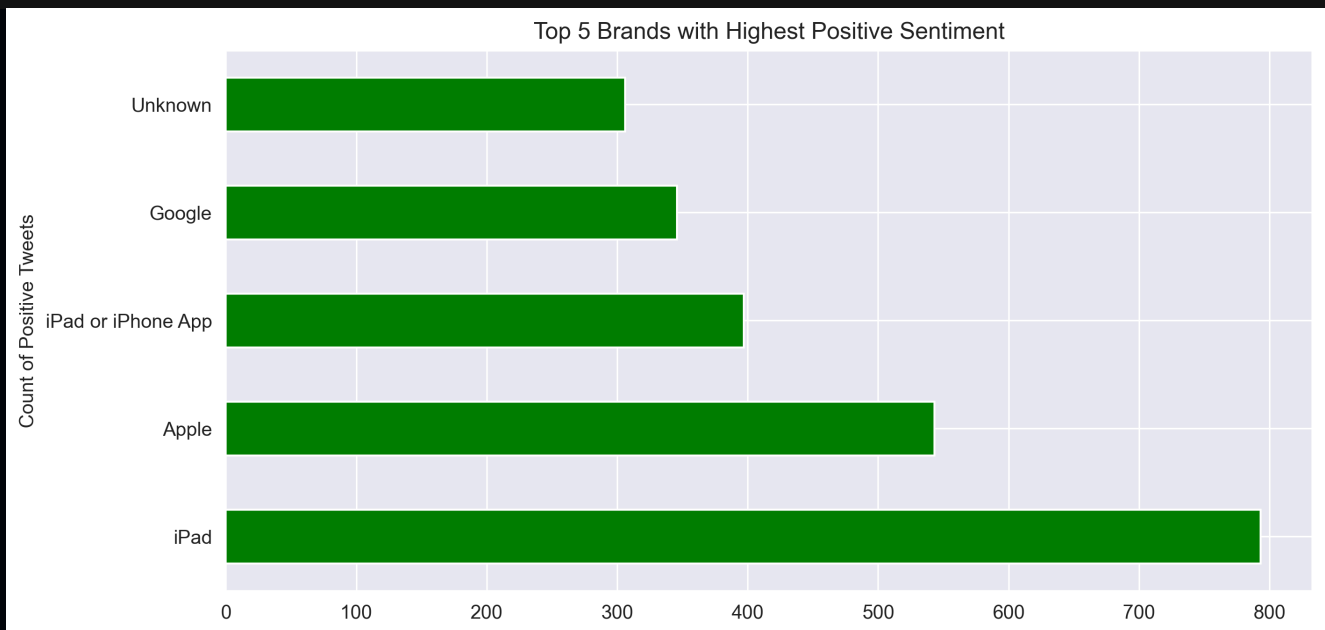
- To explore the distribution of sentiment across different tech brands and products



- To analyze the relationship between brand category and sentiments



- To identify which brands/products generate the most positive/negative sentiment



- To build and evaluate a sentiment classification model that achieves good performance
- To create a deployable API for real-time sentiment analysis

3.0 Modeling

3.1 Data Preparation

- Cleaned and preprocessed tweet text (removing URLs, mentions, special characters, etc.).
- Mapped raw sentiment labels to simplified categories: Positive, Negative, No emotion, and Uncertain.
- Dropped tweets labeled Uncertain to improve model clarity.

3.2 Feature Engineering

- TF-IDF Vectorization for text features.

- Handled class imbalance through data analysis, strategic filtering and SMOTE.

3.3 Models Applied

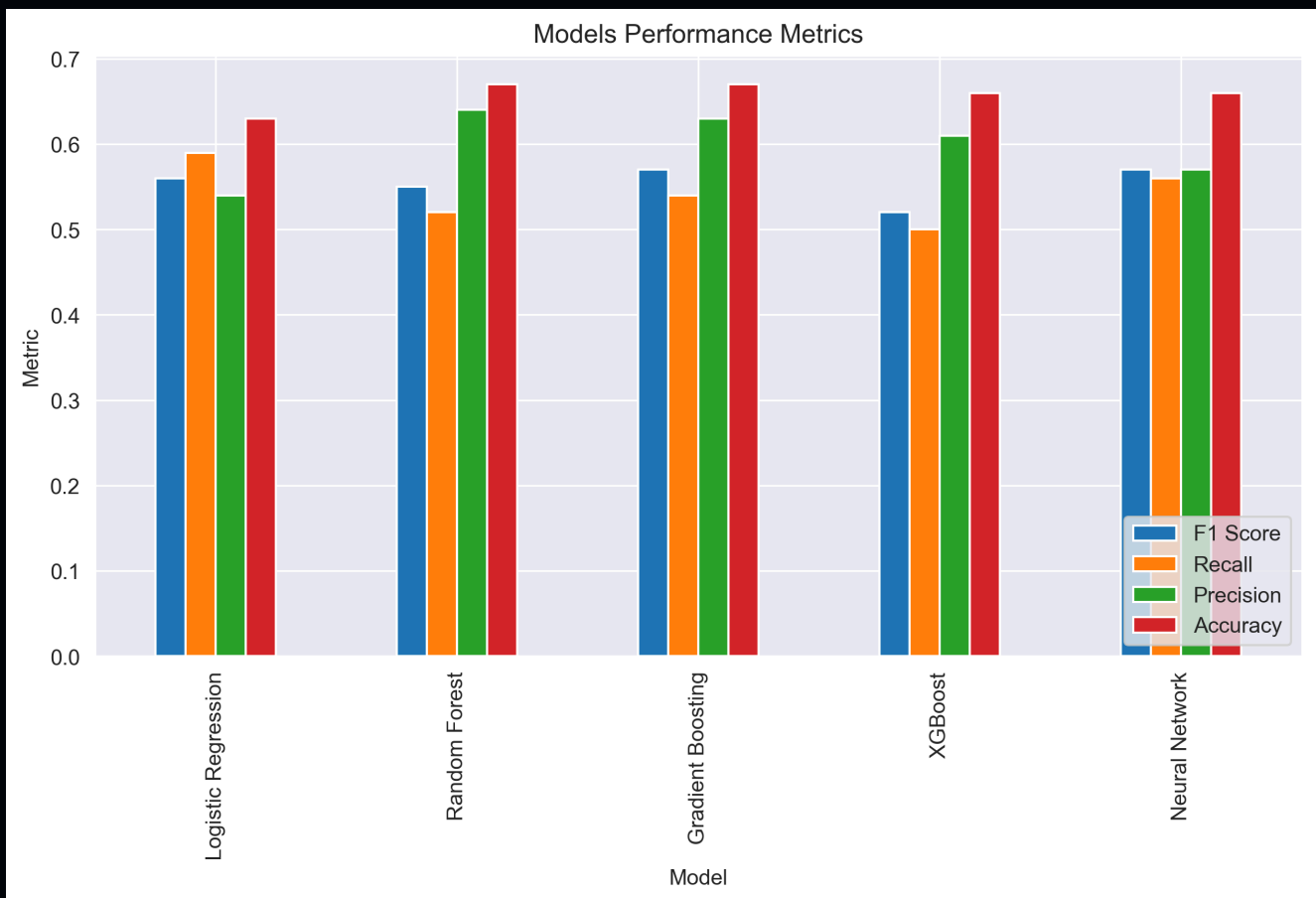
- Logistic Regression
- Random Forest Classifier
- Gradient Boosting Classifier
- XGBoost Classifier
- MLPClassifier (Neural Networks)

4.0 Evaluation

Metric Used:

- Accuracy
- Confusion Matrix
- Classification Report (Precision, Recall, F1-score).

Key visualization:



Observations:




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Packages

No packages published
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Contributors 3


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-  **oguda55**
-  **denosah**

Languages




Suggested workflows


Based on your tech stack

- 

SLSA Generic generator
Generate SLSA3 provenance for your existing release workflows

Configure
- 

Jekyll using Docker image
Package a Jekyll site using the jekyll/builder Docker image.

Configure
- 

Django
Build and Test a Django Project

Configure

[More workflows](#)

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