Twitter Hashtag Prediction

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Under the Guidance of

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Contents

Introduction

- Twitter is one of the most popular social media platforms that provides a platform to communicate and exchange information through messages called "tweets".
- The use of hashtags has become a popular trend, and the emergence of trending hashtags has led to the need for predicting the trend of hashtags.
- Twitter trending hashtag prediction is a process of forecasting the popularity of a hashtag in the future.
- In this project, we will explore the various techniques used for predicting the trending hashtags on Twitter and evaluate their effectiveness.
- This can help social media analysts, marketers, and individuals to understand and anticipate the trends of hashtags and create relevant content that can help them reach a larger audience.

Objective

- To accurately forecast the hashtags that will become popular and trend on the platform in the near future.
- This can help individuals, businesses, and organizations, to prepare and plan their social media strategy accordingly.
- Stay ahead of the curve by engaging with their audience on the right topics at the right time.
- Accurate hashtag prediction can also help social media platforms like Twitter to improve their algorithmic recommendations and provide a better user experience for their users.

Different available approaches

- There are several approaches that have been proposed in the literature for predicting trending hashtags on Twitter. Some of the most popular ones include:

1. Machine Learning-Based Approaches
2. Time-Series Analysis-Based Approaches
3. Network Analysis-Based Approaches
4. Hybrid Approaches

- Overall, each approach has its advantages and disadvantages, and the choice of approach depends on the specific requirements of the application and the available data.

Literature Review

- Here are some of the recent literature on Twitter trending hashtag prediction:

1. "Predicting Twitter Trends by Recurrence-Based Graph Embedding" by S. Zhang, Y. Chen, and X. Chen, published in IEEE Access in 2021. The paper proposes a novel approach based on recurrence-based graph embedding to predict Twitter trends accurately.

2. "An Effective Approach for Predicting Twitter Trending Hashtags" by Y. Huang and J. Wu, published in Information Processing & Management in 2020. The authors propose a new approach based on a convolutional neural network to predict trending hashtags on Twitter.

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3. "Time-Aware Hashtag Recommendation for Microblogging Platforms" by L. Chen, X. Liu, and X. Chen, published in IEEE Transactions on Knowledge and Data Engineering in 2019. The paper presents a time-aware hashtag recommendation method that can predict trending hashtags on Twitter.

4. "Predicting Trending Hashtags Topics in Twitter using Convolutional Neural Networks" by M. Babar and A. Abbasi, published in Proceedings of the IEEE/WIC/ACM International Conference on Web Intelligence in 2018. The paper proposes a convolutional neural network approach to predict the trending topics on Twitter.

Cont..

5."A Hybrid Approach for Predicting Trending Hashtags on Twitter" by A. Rizwan, M. Yousaf, and M. Ikram, published in Social Network Analysis and Mining in 2018. The authors propose a hybrid approach that combines supervised and unsupervised learning to predict the trending hashtags on Twitter.

These papers propose various methods and techniques for predicting trending hashtags on Twitter, including machine learning models, neural networks, and graph embedding methods. They also use different features, such as text, user profile, network structure, and temporal information, to improve the accuracy of the prediction.

Pros & Cons

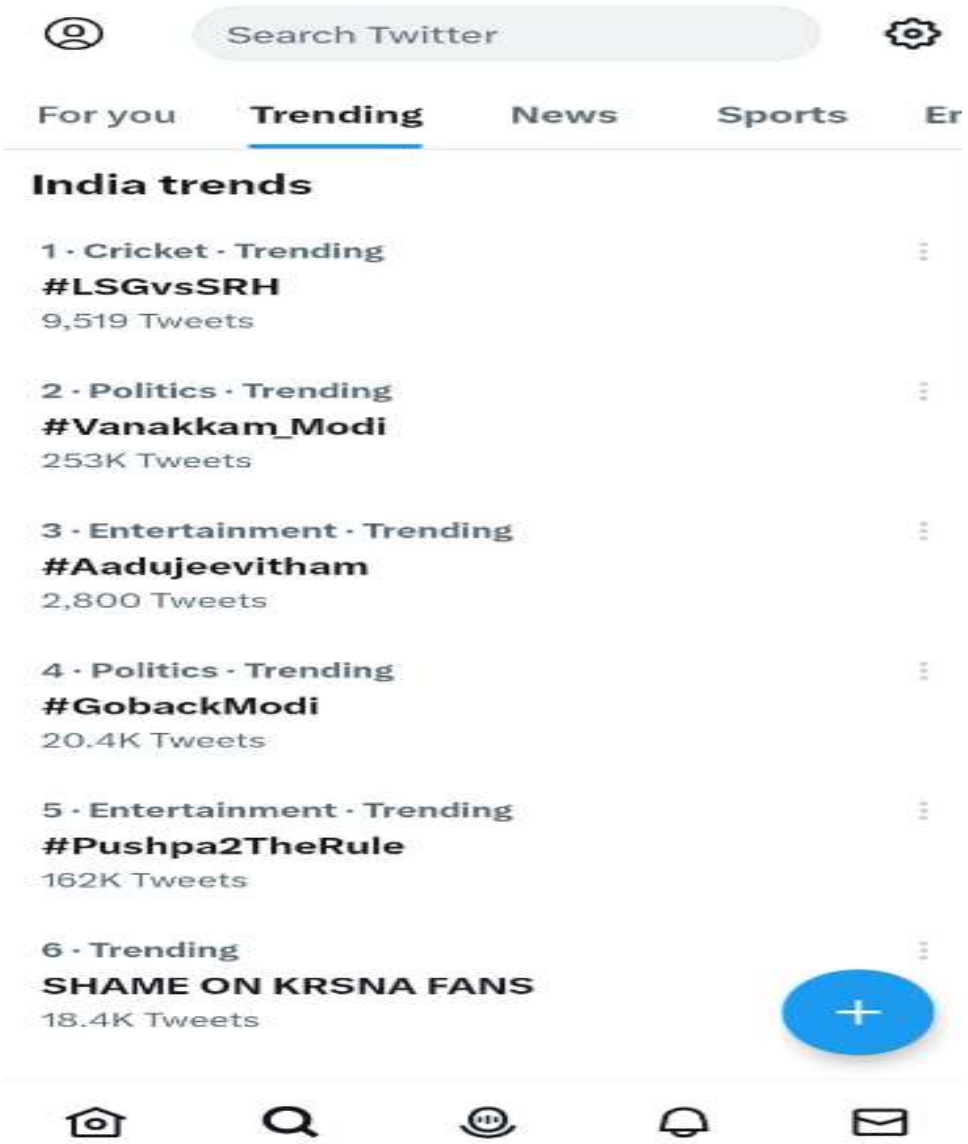
- **Pros:**

✓ Provides real-time insight into popular topics and discussions on Twitter
✓ Can help businesses and individuals identify trending topics and hashtags to engage with their audience
✓ Can be used for social media monitoring and sentiment analysis
✓ Can be used by journalists to identify breaking news and follow developing stories

- **Cons:**

✓ Accuracy of predictions can vary based on the complexity of the algorithm and the quality of data used for training
✓ Over-reliance on hashtag prediction can result in a narrow focus on popular topics and a lack of diversity in content and engagement
✓ Can be easily influenced by bot-generated tweets or coordinated campaigns to manipulate trending topics
✓ Ethical concerns around user privacy and data usage when collecting and analyzing Twitter data

Example :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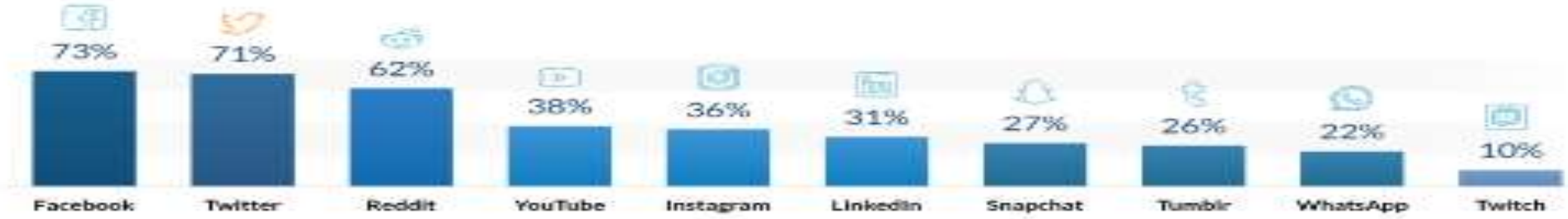
#Pushpa2TheRule
162K Tweets
6 · Trending
SHAME ON KRSNA FANS
18.4K Tweets

1 Type of content that consumers want to see more on Twitter

2 US Twitter users growth outlook, in millions

3 Twitter is second only to Facebook with most news-focused users



Problem Statement

- The problem statement is to predict which hashtags will trend on Twitter by analyzing past and current activity. This is important for businesses and individuals to stay ahead in social media marketing and increase brand awareness and engagement. Researchers can also gain insights into online communities and social media usage by accurate predictions of popular hashtags.

Scope of the project

- The Twitter trending hashtag prediction project uses machine learning to predict which hashtags will be popular on Twitter in the future based on historical data such as usage frequency and engagement.
- Potential applications include marketing, social media analysis, and journalism. This is an exciting and challenging application of machine learning that can provide valuable insights into social media dynamics and help users better engage with online content.

Dataset

tweets.xlsx

WPS Office | tweets.xlsx

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	A	B	C	D	E	F	G	H	I	J	K
1	TEXT	HASHTAGS									
2	Just watched a great movie	#movie									
3	I love playing tennis	#tennis									
4	New blog post: 10 tips for social media marketing	#blog									
5	Excited for the new iPhone release	#iPhone									
6	Amazing dinner with friends last night	#friendshipgoals									
7	Check out my new YouTube video	#YTvideo									
8	Just finished my morning workout	#fitness									
9	Excited for the new season of Game of Thrones	#GameofThrones									
10	Love the new album by Taylor Swift	#TaylorSwift									
11	Check out my new blog post on machine learning	#machinelearning									
12	Beautiful sunset at the beach	#sunset									
13	Can't wait to travel to Europe next month	#Europe									
14	Amazing concert last night	#music_concert									
15	Great weather today in New York City!	#newyorkcity									
16	Check out this amazing recipe for vegan lasagna!	#vegan									
17	Excited to see the new movie from my favorite director!	#movies									
18	Can't wait to visit Paris next week!	#paris									
19	I love exploring nature!	#hiking									
20	Can't believe I just saw a shooting star!	#astronomy									
21	Just finished a great book!	#bookworm									
22	This book is a must-read for anyone interested in psychology.	#psychology									
23	Had an amazing time at the beach today!	#beach									
24	Looking for a new restaurant to try in San Francisco.	#sanfrancisco									
25	Excited to start my new job next week!	#career									

Sheet1

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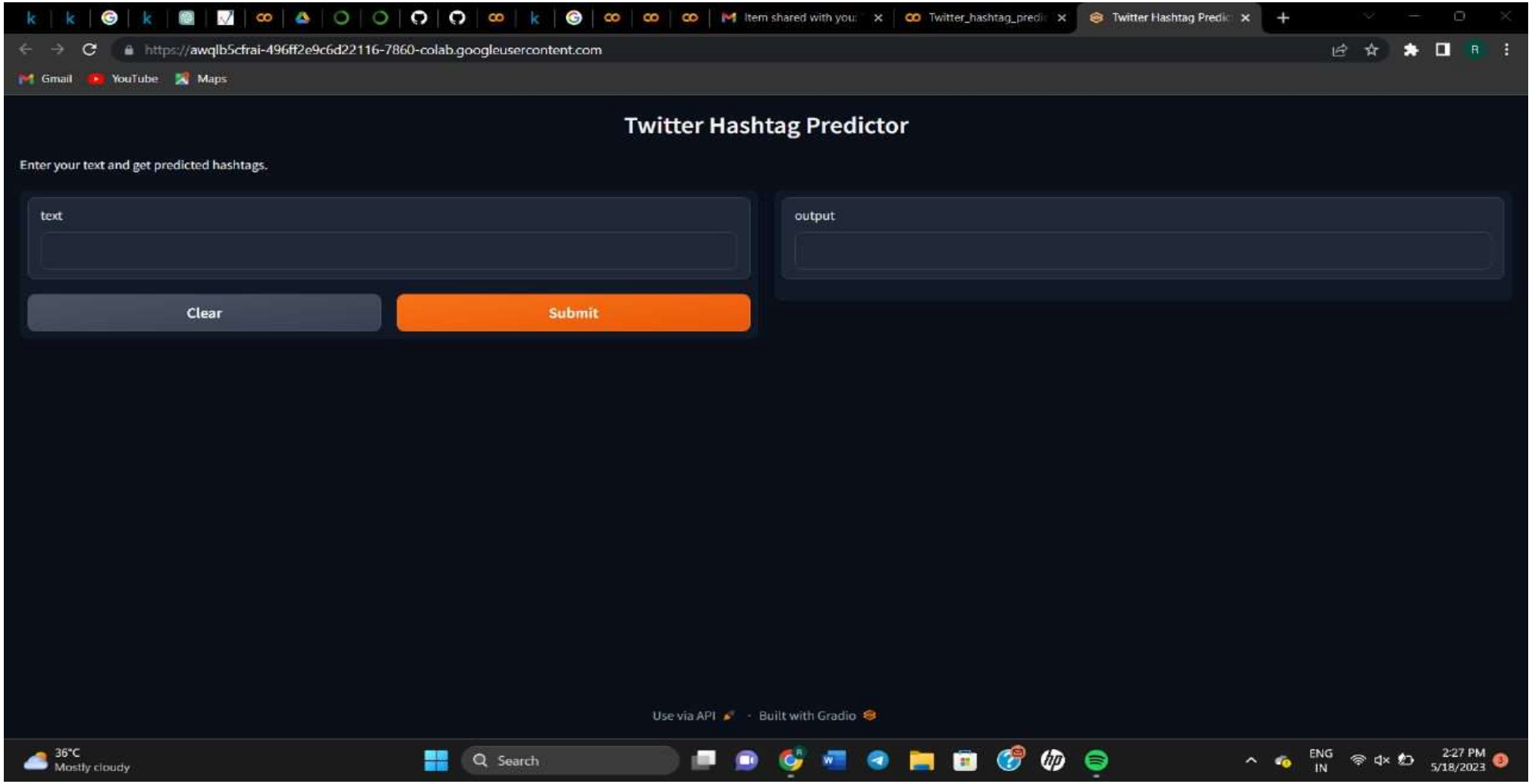
Interface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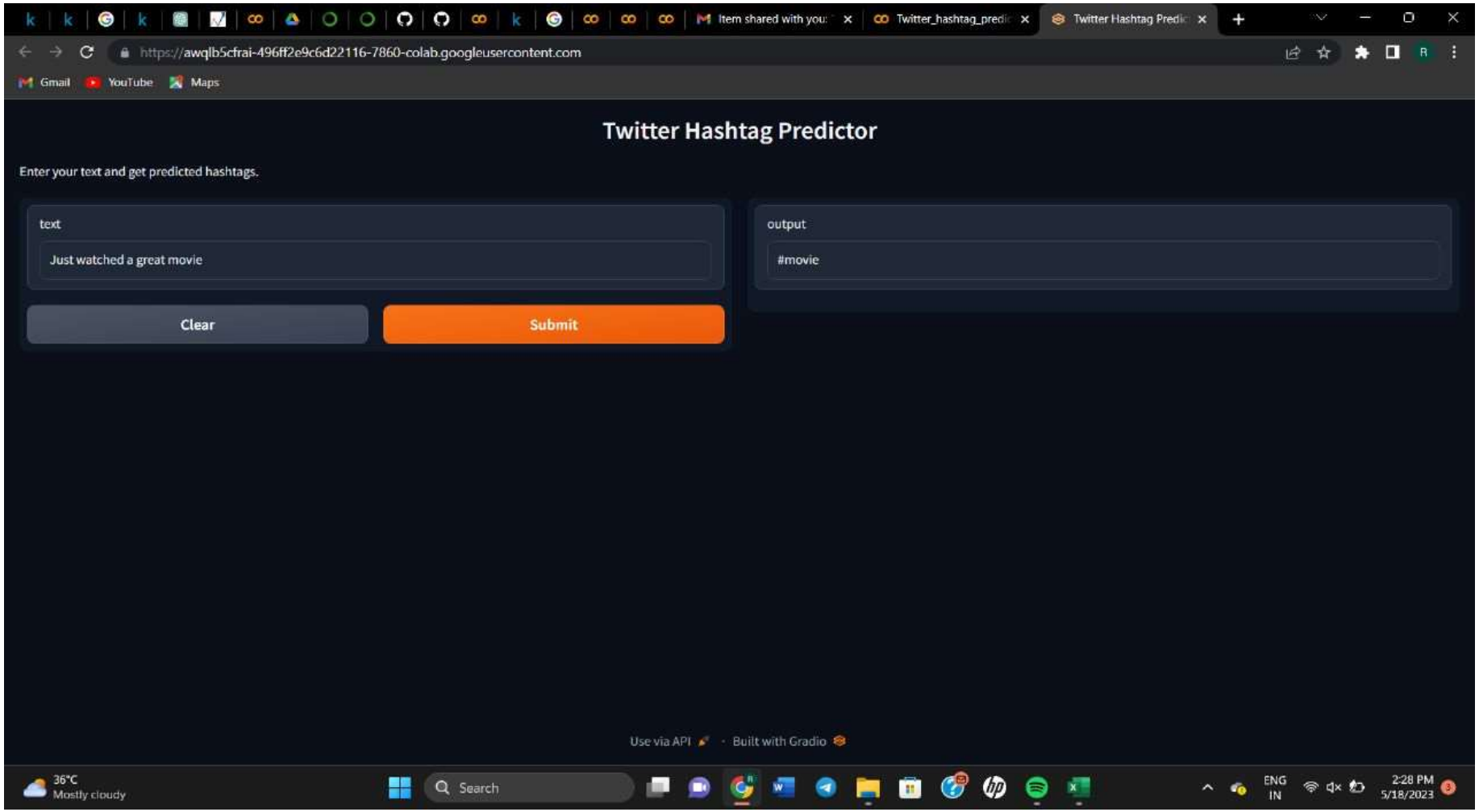
Output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Maps
Twitter Hashtag Predictor
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output
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Use via API
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Conclusion

1. Ensuring diverse and representative training data.
2. Checking for data quality issues and preprocessing the data.
3. Experimenting with different models and fine-tuning techniques.
4. Considering domain-specific features and metadata.
5. Iterating based on user feedback and expert consultation.
6. Implementing a user-friendly interface using tools like Gradio.


Thank you!