Public opinion analysis for government's aid

Presented by:

Name of Student
TE_B_24

Guided by:
Prof.S.S.Bhandari

K. K. WAGH EDUCATION SOCIETY

K K Wagh

Contents

Introduction

- Big Data and sentimental analysis is used in many business and IT sectors but is it used by the government as well ?

- The profound changes in the network public opinion in the era of big data, based on the thinking and technology of big data, and the innovation of online public opinion management, have become an important part of promoting the modernization of the national governance system.

- Effectively carrying out public opinion analysis of big data network in supporting government decision-making.

Literature review

Name of paper published	Author	Significance
Research on Hotspot and Trend of Online Public Opinion Research in Big Data Environment.	Jianghua Wang, Jianguo Tang.	Data sources, research tools and research trend analysis.
Sentiment Analysis for Major Government Decisions.	Tarun Anand, Vikrant Singh, Bharat Bali, Biswa Sahoo, Basu Shivhare, Amar Gupta	Methodology and algorithms.
Sentimental Analysis, mining opinions, sentiments and opinions.	Cambridge University Press.	Introduction to sentimental analysis.

Working Model

Data Collection

- Blogs (e.g. Blogger, WordPress, Tumblr),
- Microblogs (e.g. Twitter),
- Social networking services (e.g. Facebook),
- Content sharing and discussion sites (e.g. YouTube, Reddit), and
- Virtual worlds (e.g. Second Life).

Data Preparation and Preprocessing

1) Data cleaning

2) Data Integration

3) Data Reduction

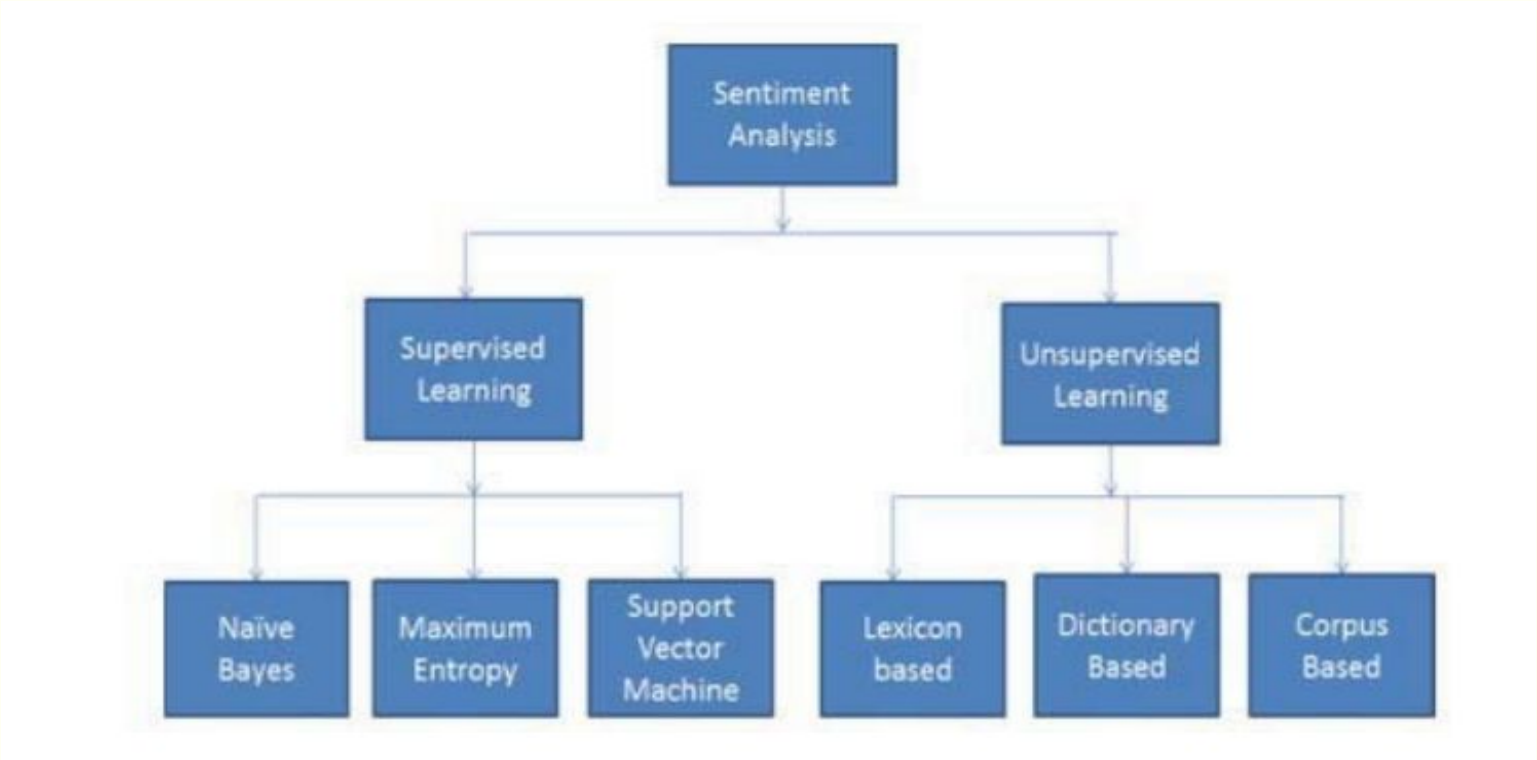
Sentimental Analysis

- Different levels of analysis.
- Kinds of analysis.
- Types of opinions.
- Challenges
- Main ways to do sentimental analysis

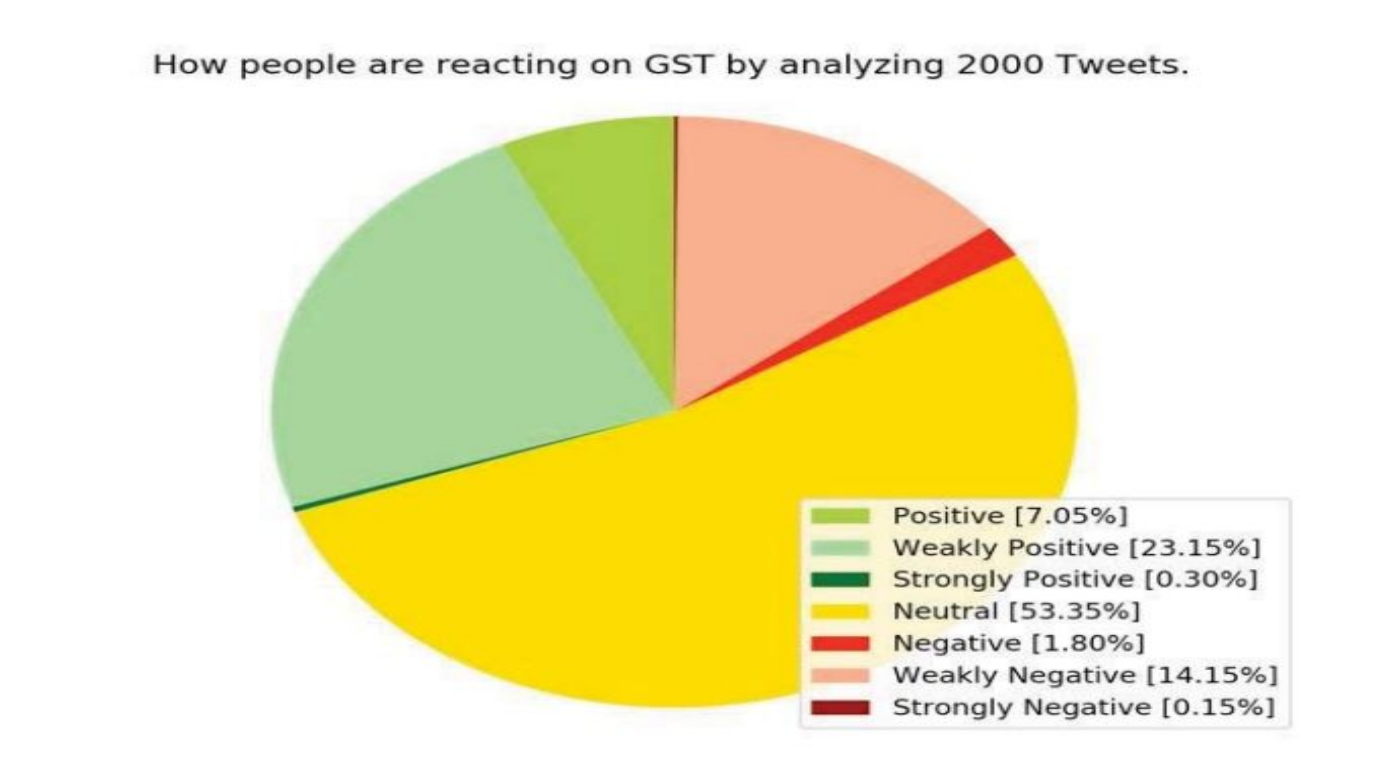
TWITTER SENTIMENT ANALYSIS WITH PYTHON

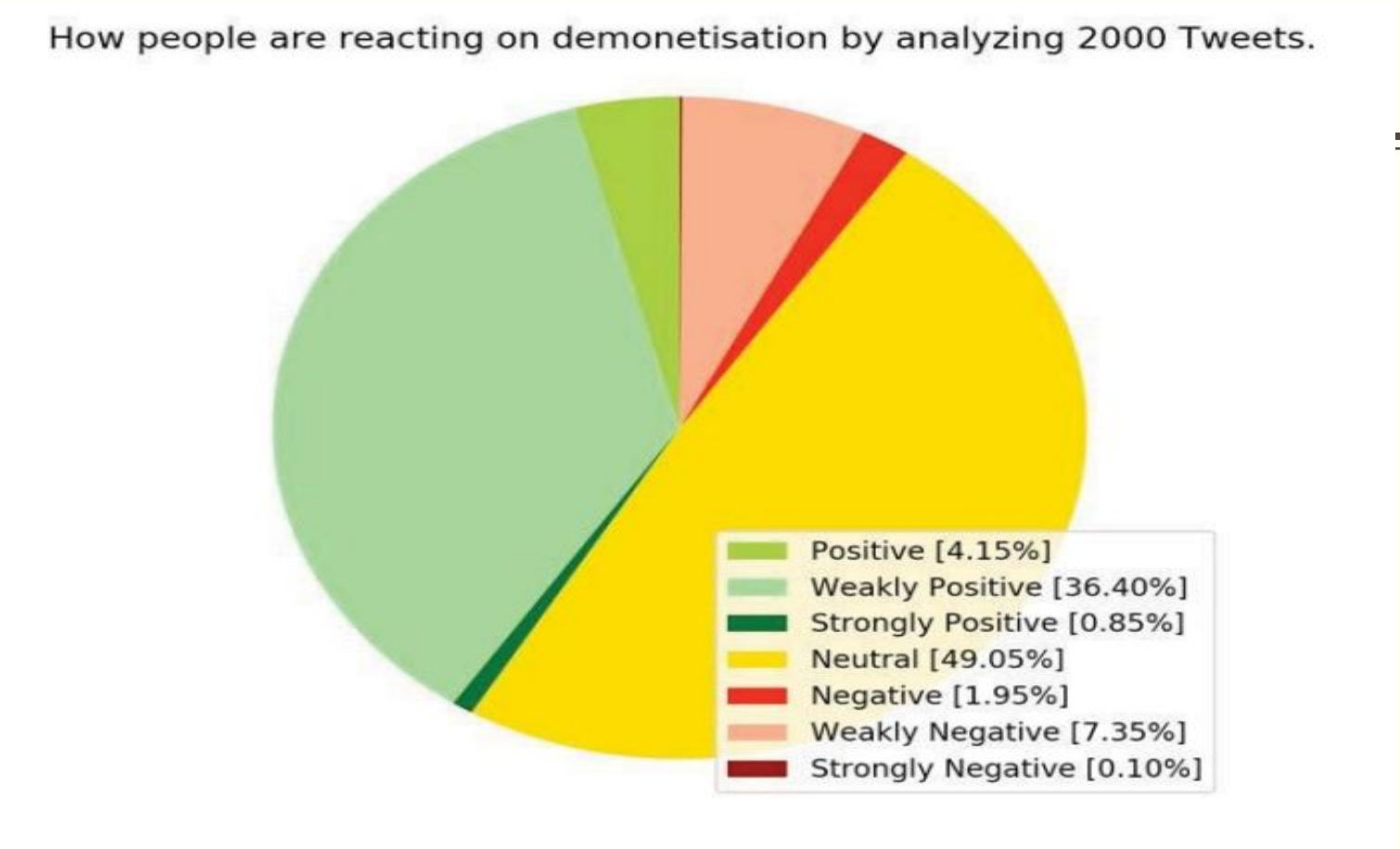
- Tweepy
- TextBlob
- Matplotlib

Sentiment Classification



Output


How people are reacting on GST by analyzing 2000 Tweets.
Positive [7.05%]
Weakly Positive [23.15%]
Strongly Positive [0.30%]
Neutral [53.35%]
Negative [1.80%]
Weakly Negative [14.15%]
Strongly Negative [0.15%]


How people are reacting on demonetisation by analyzing 2000 Tweets.
Positive [4.15%]
Weakly Positive [36.40%]
Strongly Positive [0.85%]
Neutral [49.05%]
Negative [1.95%]
Weakly Negative [7.35%]
Strongly Negative [0.10%]

Algorithm- Lexicon-based Sentiment Analysis

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- ➔ Preprocessing Steps
- ➔ Tagging Words as Positive or Negative
- ➔ Counting Numbers of Positive and Negative Words
- ➔ Calculating Sentiment Scores

Naive Bayes sentiment analysis

$$P(A|B) = \frac{P(B|A)P(A)}{P(B)}$$

Calculates P(A|B) : Probability of how often A happens given that B happens, when we know…

1.P(B|A) : how often B happens given that A happens

2.P(A) : how often A happens

3.P(B) : how often B happens

Application

1. Increase in public satisfaction could be there, had there been drop in negative public sentiments with increasing policy changes or improvements.
2. Public Voting
3. The possibility to extract opinions from social networks and classify sentiment using different machine learning algorithms, make this a valuable decision support tool for Government.
4. Solution to the academic and professional debate on whether and how social media are able to transform the power relationship between politicians, bureaucrats and citizens.

Summary

On internet, there are plenty of social networking sites on which people express their perception regarding a topic every day which can be helpful for sentiment analysis.

Today, we have discussed the general procedures in sentiment analysis and how we are going to use python and its libraries for performing sentiment analysis on data retrieved from twitter's website.

So we can get the view of what public thinks of government decisions like Demonetization, Goods and Service Tax (GST).

References

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[2] Gupta, B., Negi, M., Vishwakarma, K., Rawat, G., Badhani, P., & Tech, B. (2017). Study of Twitter sentiment analysis using machine learning algorithms on Python. International Journal of Computer Applications, 165(9), 29-34.

[3] Wagh, R., & Punde, P. (2018, March). Survey on sentiment analysis using twitter dataset. In 2018 Second International Conference on Electronics, Communication and Aerospace Technology (ICECA) (pp. 208-211). IEEE.

[4] Zimbra, D., Ghiassi, M., & Lee, S. (2016, January). Brandrelated Twitter sentiment analysis using feature engineering and the dynamic architecture for artificial neural networks. In 2016 49th Hawaii International Conference on System Sciences (HICSS) (pp. 1930-1938). IEEE.

THANK YOU

Name of Student : Satyam Ajit Kale
Email : satyamkale222@gmail.com
Department of Computer Engineering
K. K.Wagh Institute of Engineering
Education & Research, Nashik