SCHOOL OF COMPUTING
Faculty of Engineering

Project Proposal Form MCST1043
Sem: 2 Session: 2024/25

SECTION A: Project Information.

Program Name: **Masters of Science (Data Science)**

Subject Name: **Project 1 (MCST1043)**

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Project Title: Sentiment Analysis of Public Opinion on Trump's 2025 China Tariff Policy Based on "X

Supervisor 1:
Supervisor 2 / Industry

Advisor(if any):

SECTION B: Project Proposal

Introduction:

In recent years, the Trump administration's capricious trade policies have attracted widespread attention in the global market. Tariffs are one of its important means. Kennan and Riezman (2013) pointed out that big countries can use tariffs to manipulate trade conditions to benefit from them, but this may lead to retaliation. So, in the face of the Trump administration's 2018 tariffs on China and the new tariff policies in 2025, it has also aroused fierce discussions among the public on social media. Especially Twitter can directly provide real - time news and other information to the audience. Also, since Trump was first elected in November 2016, the frequency of Trump's tweets on the social media platform Twitter has gradually increased. Among them, the study found that tweets containing words such as "product" and "tariff" have a negative impact on the stock market (Gjerstad et al., 2021). And Twitter data has been widely used in various applications, including the detection and location of disasters (Loynes et al., 2022) and the prediction of business trends (Qiu, Rui, & Whinston, 2013). Therefore, this study is based on Twitter data. Through natural language processing and emotional analysis, this paper analyzes the public sentiment before and after the release of Trump's tariff policy on China in 2025..

Problem Background:

Previous studies have found that the sentiment on Twitter can predict stock prices and the prices of cryptocurrencies. For some dimensions of public sentiment, the accuracy of predicting the rise and fall of the closing price of the Dow Jones Industrial Average can be increased to 87.6% through a self organizing fuzzy neural network model (Bollen, Mao, & Zeng, 2011). Social media can also spread investors' emotions and affect the prediction of future market behavior (Brown & Cliff, 2004). Moreover, through machine learning, it has been found that social media sentiment has a lasting impact on international market dynamics - emotion - driven market fluctuations follow a peak pattern of emergence and disappearance (Abdollahi et al., 2024). During major events, people may use sentiment analysis to monitor

market fluctuations and difficulties. Most previous studies have focused on the impact of Trump's tweets on financial markets and the stock market (Nishimura & Sun, 2025; Zhang, Frömmel, & Baidoo, 2024).

However, there is a gap in understanding people's sentiment towards the tariff policies proposed by the

Trump administration. Whether people's sentiment can be used as a reference factor for policy - making is particularly important for regulatory and market institutions. This project will use Twitter data to analyze the static emotional distribution, and compare the emotional distribution before and after the release of the tariff policy on China..

Problem Statement:

Although previous studies have proven that there is a significant correlation between social media

sentiment and variables such as financial markets and consumer behavior (Carmona, Delcoure, &

Fernandez, 2020), currently there is a lack of empirical research on the changes in social media sentiment caused by Trump's tariff policies in 2025. Especially in the time period before and after the official

announcement of the policies, there is currently no data to support whether the changes in public

sentiment have a directionality (for example, changing from support to opposition, or vice versa). So the core issues that this project intends to solve are:

1. Analyze the English tweets related to "Trump's new tariff policies in 2025" on the Twitter platform to explore whether the public's emotional reactions are mainly positive support or mainly negative

opposition.

2. Are there obvious changes in this emotional tendency before and after the release of the policies?
This study will collect relevant tweets from the Twitter platform, conduct text cleaning, and use

sentiment analysis tools such as VADER to process the text, and count the proportion of different

sentiment categories. It aims to contribute new perspectives and data support to the research in this field and provide a basis for subsequent public opinion prediction and evaluation of policy responses. in addition, the research uses sentiment labels generated by VADER as pseudo labelsT scope is extended by constructing a supervised learning model.

REFERENCES

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Aim of the Project:

1. Analyze the public's emotional tendency towards Trump's tariff policies in 2025 on Twitter, and judge whether it is mainly positive support or negative opposition.

2. Explore whether there are significant changes in the emotional tendency before and after the policy announcement.

3. Determine emotions using VADER emotion model. The resulting sentiment scores are then used to generate pseudo-labels to train a supervised learning model in the next stage.

Objectives of the Project:

1. Utilize the existing Twitter dataset to collect tweet data related to "Trump tariff".
2. Preprocess the data, which includes text cleaning, format conversion, and language screening.
3. Apply the VADER sentiment analysis tool to classify the sentiment of the tweets into positive and negative categories.
4. Count and visualize the sentiment distribution, and analyze the changes in sentiment before and after the policy is released.

Scopes of the Project:

Data scope: Twitter data on Trump's tariff policies before June 2025, mainly analyzing English tweets.

(As Twitter tightened API access since 2023, we'll use existing public data initially. Later, depending on project progress, consider using simulated data or applying for advanced permissions to supplement samples.)

Method scope: Mainly use open - source pre - trained models like VADER on Hugging Face, Kaggle.

Through parameter invocation, label recognition, result comparison and trend visualization, build a complete process for sentiment recognition and classification.

Research depth: Initially focus on static data analysis. Later, expand to areas like sentiment prediction and cross - platform comparison. The pseudo-label balanced dataset was constructed by VADER sentiment score, and the term Frequency-Inverse Document Frequency (TF-IDF) was used to extract features to verify the effectiveness of the "pseudo-label + integrated supervision model".

Expected Contribution of the Project:

1. Add more examples of using social media sentiment analysis. Provide data for future academic research.
2. Show charts of sentiment distribution. Give policy - makers direct references.
3. Provide data for future studies (like analyzing dynamic trends or comparing across platforms).
4. Verify the validity of "pseudo-label+integrated supervision model"

Project Requirements:

Software: Python Pandas、NumPy、VADER、Matplotlib、Seaborn、Jupyter Notebook

Hardware: A standard PC or laptop with at least 16GB of RAM and 500GB of storage.

Technology/Technique/ Training: NLP , Sentiment Analysis (VADER) , Data Visualization , Pseudo-labels + Supervised model

Methodology/Algorithm: logistic regression, support vector machine (SVM), random forest , Gradient Boosting

Type of Project (Focusing on Data Science):

[√] Data Preparation and Modeling

[√] Data Analysis and Visualization

[ ] Business Intelligence and Analytics

[√] Machine Learning and Prediction

[ ] Data Science Application in Business Domain

Status of Project:

[√] New

[ ] Continued

If continued, what is the previous title? _____

SECTION C: Declaration

I declare that this project is proposed by:

[√] Myself
[ ] Supervisor/Industry Advisor ( )

Student Name: LI HONGLIN

Signature **Date**

SECTION D: Supervisor Acknowledgement

The Supervisor(s) shall complete this section.

I/We agree to become the supervisor(s) for this student under aforesaid proposed title.

Name of Supervisor 1:

Signature **Date**

Name of Supervisor 2 (if any):

Signature **Date**

SECTION E: Evaluation Panel Approval

The Evaluator(s) shall complete this section.

Result:

[ ] FULL APPROVAL
[ ] CONDITIONAL APPROVAL (Major)*
[ ] CONDITIONAL APPROVAL (Minor)
[ ] FAIL*

***** Student has to submit new proposal form considering the evaluators' comments.

Comments:

[ ] Continued

Name of Evaluator 1: ----------

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Signature **Date**

Name of Evaluator 2: ----------

Signature	**Date**