

Digitimes #45
November 2024

NAVIGATING WORK ABROAD TRENDS AND THE "BRAIN DRAIN" IMPACTS THROUGH PUBLIC SENTIMENTS ON #KABURAJADULU



CfDS
CENTER FOR DIGITAL SOCIETY

Room BC 201-203
Faculty of Social and Political Sciences
Universitas Gadjah Mada
Jalan Socio Yustisia 1, Bulaksumur, Yogyakarta
(0274) 563362, Ext. 116 | cfds.fisipol@ugm.ac.id



RESEARCHER AND CONTRIBUTORS

Authors

Mahardi Nalendra Syafa

Editor

Achmed Faiz Yudha Siregar

Designer and Layouter

Hanny Handayani

November 2024

Table of Content

2	Introduction
3	Research Questions
4	Technical-Methodological Concepts
7	Result and Discussion
16	Conclusion
17	References





INTRODUCTION

Jobstreet by SEEK, a prominent job search platform, recently published a survey report titled *Decoding Global Talent 2024: Worker Mobility Trends*. According to the report, 67% of Indonesians expressed a desire to work abroad in 2023 (Jobstreet, 2024). This marks a significant shift in public perception compared to previous years, where working abroad was often associated with the deployment of Indonesian migrant workers (TKI), a practice that has sparked numerous controversies over time (Malik, 2018). Perubahan ini memberikan peluang dan juga tantangannya tersendiri, perubahan yang perlu diperhatikan dengan seksama.

The current trend shows that more professionals from high-demand sectors, particularly in digital fields, are eager to work overseas. Specifically, 81% of professionals in data science and artificial intelligence (AI) development are looking for opportunities abroad. Similarly, 77% of engineers, 76% of creative professionals and researchers, and 75% of information technology (IT) specialists share this aspiration. On the other hand, professionals in social services and administrative roles exhibit less interest in relocating abroad due to the localized nature of their work (Jobstreet, 2024).

While the growing desire among highly skilled workers to seek opportunities abroad reflects Indonesia's increasing presence in global talent pools, it also raises concerns about a potential "brain drain." Many of those pursuing work abroad possess high levels of expertise and intelligence, and their departure could hinder Indonesia's ability to foster economic growth (Duwi Yunitasari, 2021).

Recognizing this challenge, Indonesia's development framework has placed increasing emphasis on cultivating a skilled workforce as a crucial driver of economic progress. In response, the government has launched various programs focused on enhancing education and vocational training to meet the demands of a rapidly evolving job market, particularly in high-demand sectors such as technology and engineering (Yoana, 2024). These skilled workers are essential to the nation-building process, and their loss could slow the country's advancement in fields that require specialized knowledge and expertise.

This phenomenon has sparked widespread discussion on social media, particularly on Twitter/X, where the hashtag "#KaburAjaDulu" has gained considerable traction. The hashtag captures the growing public interest in leaving Indonesia for professional opportunities abroad.

Sentiment Analysis and Social Network Analysis (SNA) are powerful tools for understanding the public's motivations and the broader social dynamics driving the trend of professionals seeking opportunities abroad (Federico Alberto Pozzi, 2017). Given the growing interest in this issue, there is a need to identify the underlying factors influencing this shift, such as economic conditions, job satisfaction, and perceptions of career opportunities. These methods allow researchers to analyze large volumes of social media data to uncover public sentiment, revealing not only the reasons behind this trend but also the emotional tone and urgency of the conversation. With hashtags "#KaburAjaDulu" trending, understanding these sentiments is crucial for policymakers and organizations aiming to retain top talent and address the concerns of the workforce.



RESEARCH QUESTION

1. How are the conversations using the hashtag #KaburAjaDulu distributed among social media X users?
2. How is public opinion formed as a result of factors driving the desire to work abroad?
3. How the term "Brain Drain" is used and relates to this matter?

TECHNICAL-METHODOLOGICAL CONCEPTS

→ Social Network Analysis

Social Network Analysis (SNA) is a powerful methodological approach that allows us to visualize and analyze the social structure within a community or society by focusing on networks of relationships. In this approach, the components of the network—actors or entities—are represented as nodes, while the connections or relationships between these actors are represented as ties, edges, or links (Marc A. Smith, 2015). These connections reveal how actors interact within a network, offering valuable insights into the dynamics, communication flow, and social phenomena within the community.

SNA is particularly useful for examining online communities on social media platforms like Twitter, where user interactions often reveal the social structures and community dynamics. In the context of Twitter, actors are represented by individual users, and relationships are mapped through various interactions, such as followers/following connections, likes, replies, retweets, and mentions. Analyzing these interactions allows us to understand how information circulates and how users engage with one another, illustrating the underlying social structure of the online community. (Austin P. Logan, 2023)

Hashtag-based discussions, such as those surrounding #KaburAjaDulu, create topical communities where users share a common interest. Within these communities, each user's role can be assessed based on their contribution to the conversation, identifying influential nodes or central actors that shape the discussion.

Additionally, SNA can be extended by integrating bigram analysis of the tweet content itself. By preprocessing and extracting bigrams—pairs of adjacent words—from tweets, we can create a graph that visualizes word associations, showing how words are connected within the conversation. In this graph, each node represents a word, while edges represent the bigram connections, illustrating how certain words commonly co-occur. This network of word associations complements user-interaction analysis, providing a deeper understanding of prevalent themes, sentiments, and topics within the hashtag community.



→ Sentiment Analysis

Sentiment analysis, also known as opinion mining, is a process for identifying and interpreting emotions conveyed in digital text. This approach is widely used to gauge public opinions on various issues and events across the globe. Focused on concepts such as evaluation, attitudes, and emotions, sentiment analysis has emerged as a significant field within Natural Language Processing (NLP). The goal is to develop sophisticated tools capable of extracting subjective information—specifically, sentiments or opinions—from textual data. Much of this data is sourced from social media platforms, particularly Twitter, a widely-used microblogging platform that provides a rich stream of real-time opinions on diverse topics (Tiwari, 2020).

In this study, sentiment classification on Twitter data is achieved using NLP techniques to categorize tweets into positive, negative, or neutral sentiments. For this purpose, the IndoBERT model, a pre-trained language model specifically fine-tuned for the Indonesian language, is utilized. IndoBERT is particularly well-suited to analyzing Indonesian tweets as it has been trained on extensive Indonesian language text corpora, equipping it to capture linguistic nuances and context effectively (Fuad Muftie, 2023). By using IndoBERT, this study achieves a more accurate classification of sentiments, thereby offering a deeper and more culturally relevant understanding of public sentiment within Indonesia.



→ **Data Collection and Analysis Process**

The data for this study will be collected from Twitter/X using the hashtag “#KaburAjaDulu” posted between September 2, 2023 and September 30, 2024. This time frame was selected to capture all tweets containing the hashtag, from its first use until the conclusion of the study.

Once the data is collected, the first step will be preprocessing to remove irrelevant information such as URLs, usernames, additional hashtags, and stop words. After cleaning the data, it will be ready for sentiment analysis.

For sentiment analysis, a pre-trained machine learning model, IndoBERT, will be employed to classify the polarity of the tweets. Additionally, the model’s accuracy will be assessed to measure its performance.

To further explore the information contained in the tweets, several visualization techniques will be applied, including the creation of a word cloud, topic modeling, and bigram analysis. The results of the bigram modeling will be visualized using social network analysis (SNA) to identify the relationships between key terms and phrases present in the tweets.

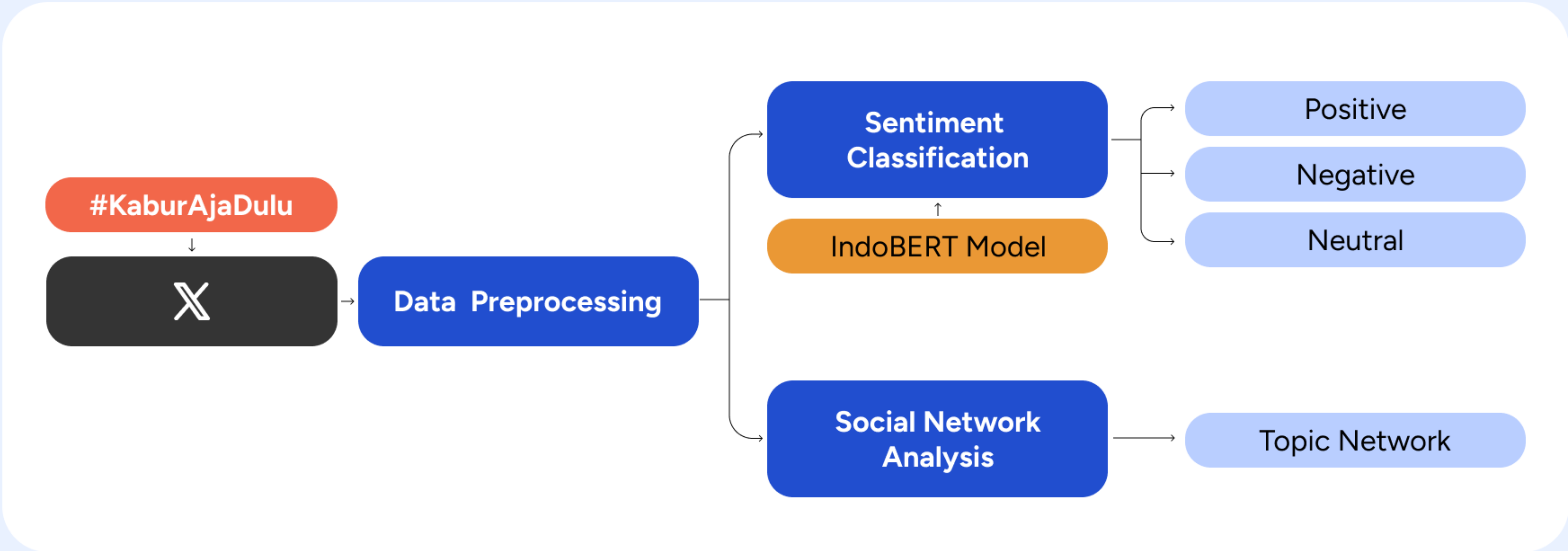


Figure 1. Research Framework

TECHNICAL-METHODOLOGICAL CONCEPTS

→ The Trend of Conversations

Between September 2023 and November 2024, the researchers analyzed 909 tweets collected from Twitter using the hashtag "#KaburAjaDulu." The data revealed an interesting trend, particularly in September 2024, when there was a significant surge in tweets expressing the desire to work abroad. This spike coincided with the emergence of a viral social media campaign titled "Peringatan Darurat" (Emergency Alert), symbolized by a blue Garuda. The campaign helped propel the topic into widespread public discourse, resulting in 305 tweets in September alone.

In contrast, during the other months, discussions about working abroad remained relatively consistent, with an average of 10 tweets per month. This indicates that while the topic remained of interest, the public's attention was primarily focused on the event in September 2024.

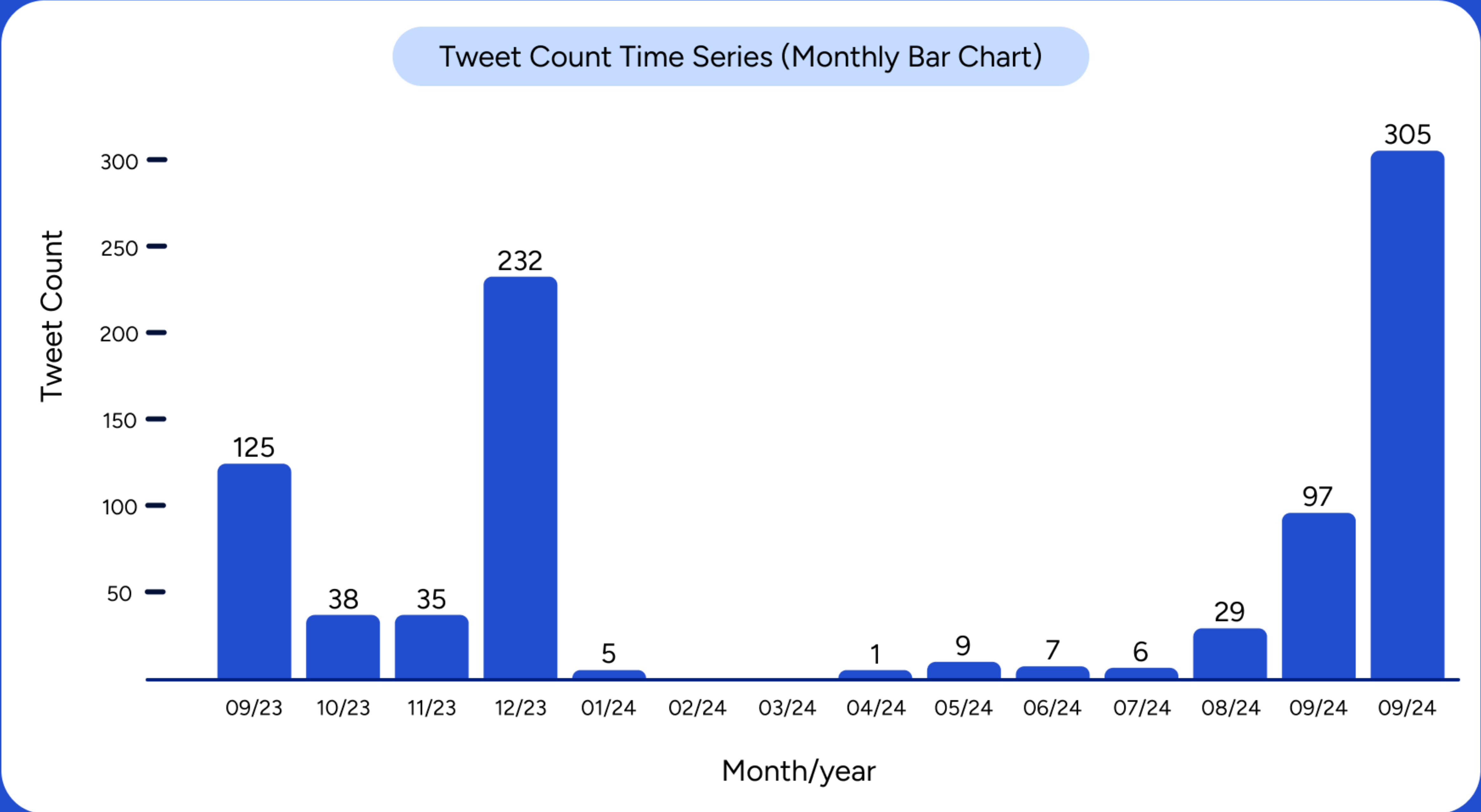


Figure 2. Conversation Trends in Twitter/X

→ Topic Spread using Social Network Analysis

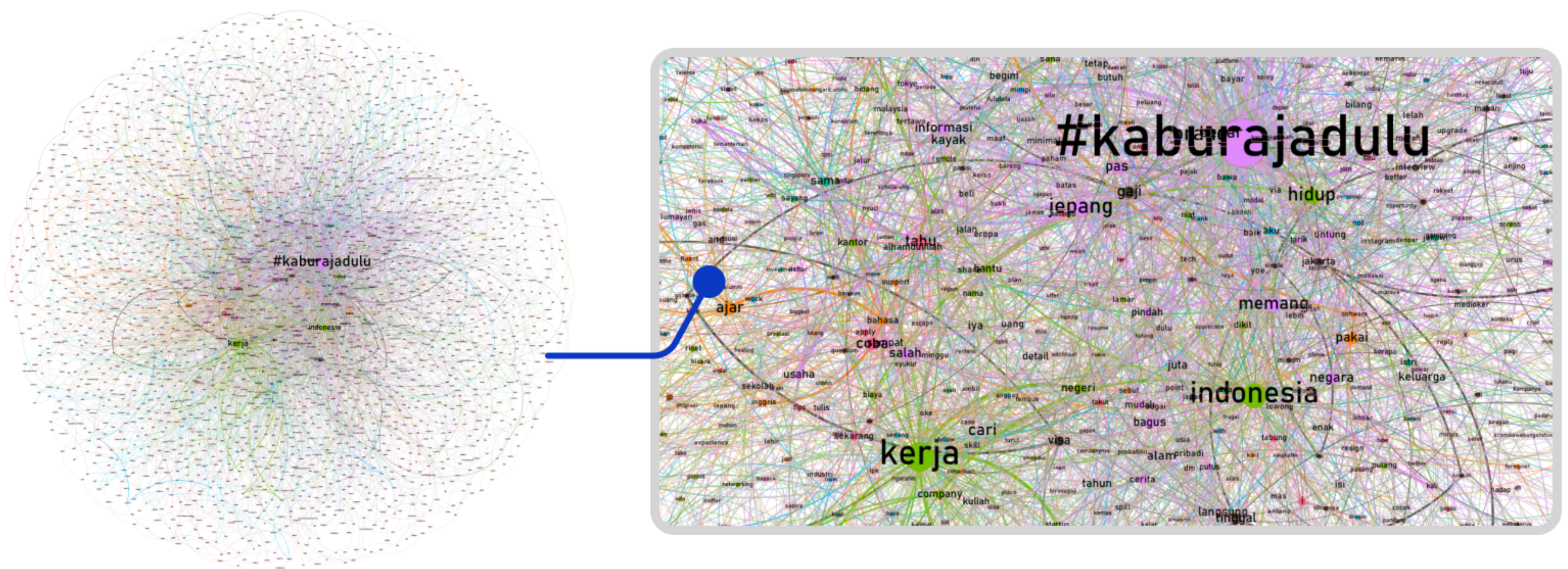


Figure 3. Topic SNA

Through the results from the Social Network Analysis (SNA) of Twitter conversations, it was found that the closer and more centralized the network, the more frequently the topic is discussed and the more interconnected the users are. Topics that are closely connected and often discussed in relation to #KaburAjaDulu include 'Jepang', 'Indonesia', 'kerja', 'hidup', dan 'gaji'. Twitter users tend to focus on comparing their working conditions in Indonesia, such as cost of living, salaries, and work styles, with those in other countries like Japan.

→ Sentiment Analysis

Based on the sentiment analysis of the tweets, the polarity of public opinion is fairly evenly distributed: positive sentiment accounts for 33.8%, followed by negative sentiment at 33.4%, and neutral sentiment at 32.8%. This indicates that public opinion surrounding #KaburAjaDulu is diverse, with people expressing a variety of views.

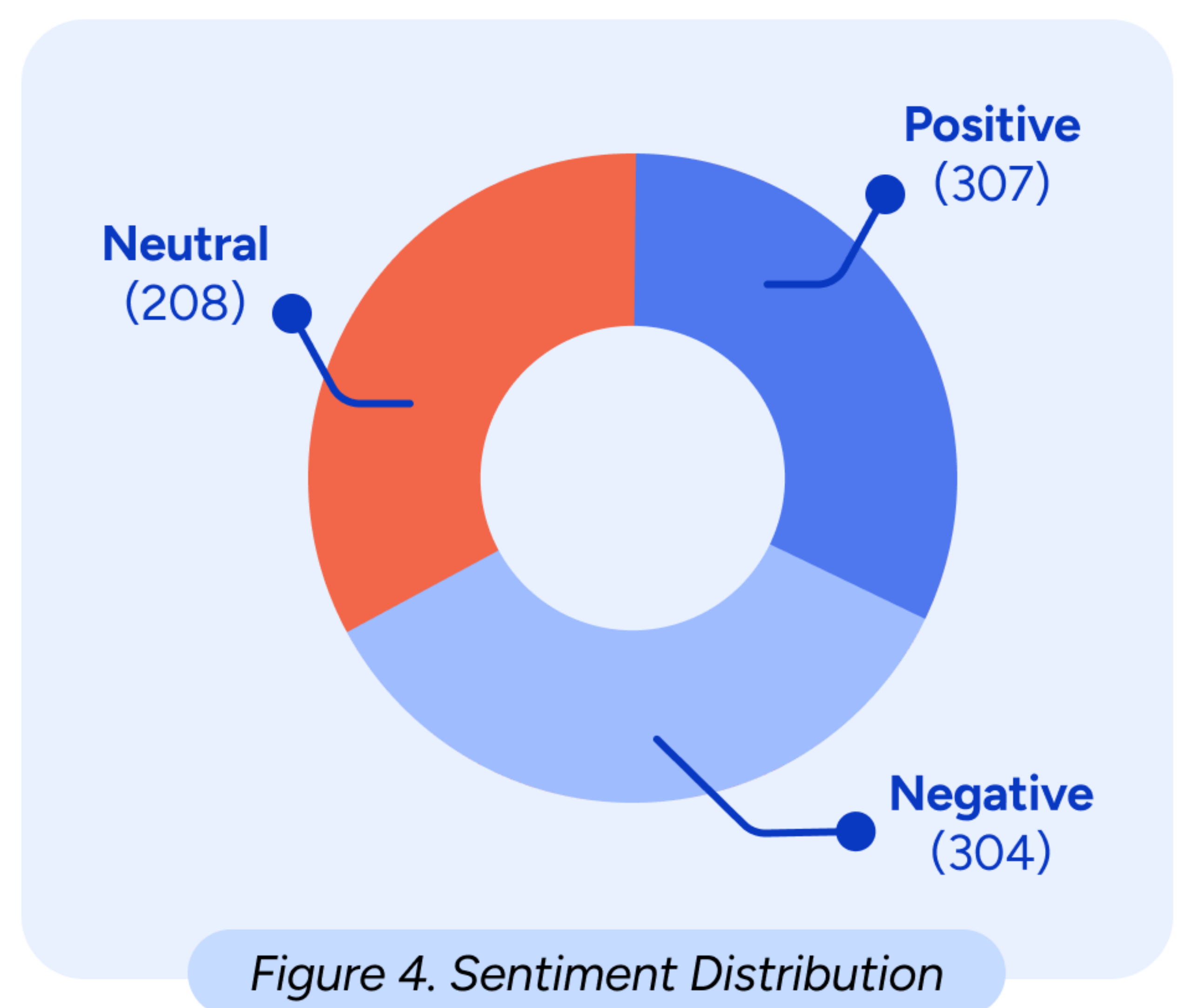
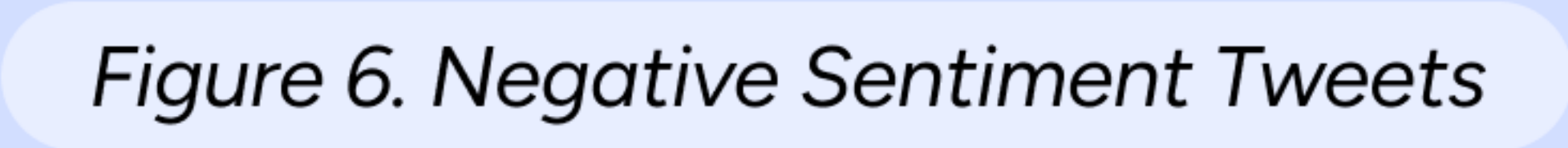


Figure 4. Sentiment Distribution

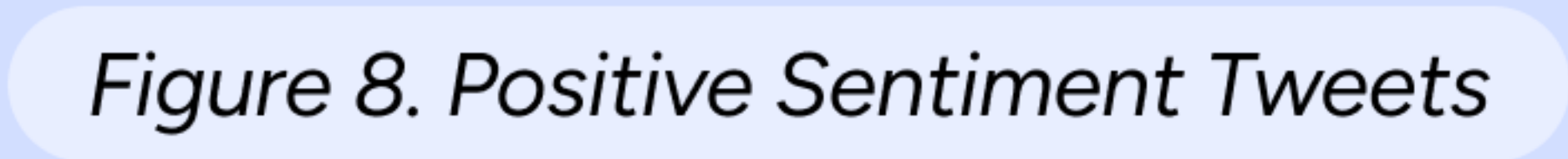
→ **Negative Sentiment**



The public tone appears mixed, with a significant portion of users expressing negative views. The analysis of 909 tweets revealed various terms that reflected these emotions. Words such as susah (difficult), Indonesia, and kabur (escape) were frequently used. These terms suggest that many people are expressing frustration with the current state of affairs in Indonesia, particularly in relation to job opportunities. Additionally, a desire to work abroad is clearly evident in these tweets.



The tweets above highlight disappointment with the Indonesian government, particularly regarding the desire to pursue a career abroad. This disappointment is linked to various factors, such as low salaries for teachers, researchers, and healthcare workers, which are considered inadequate compared to other countries.





→ Neutral Sentiment



Figure 9. Neutral Sentiment

Tweets in the neutral category mostly contain information about job opportunities abroad. Additionally, some users have expressed their perspectives as observers of the #KaburAjaDulu phenomenon, attempting to analyze the issue in more detail. These users aim to raise awareness about the potential implications of this trend, particularly how it relates to the "brain drain" phenomenon.

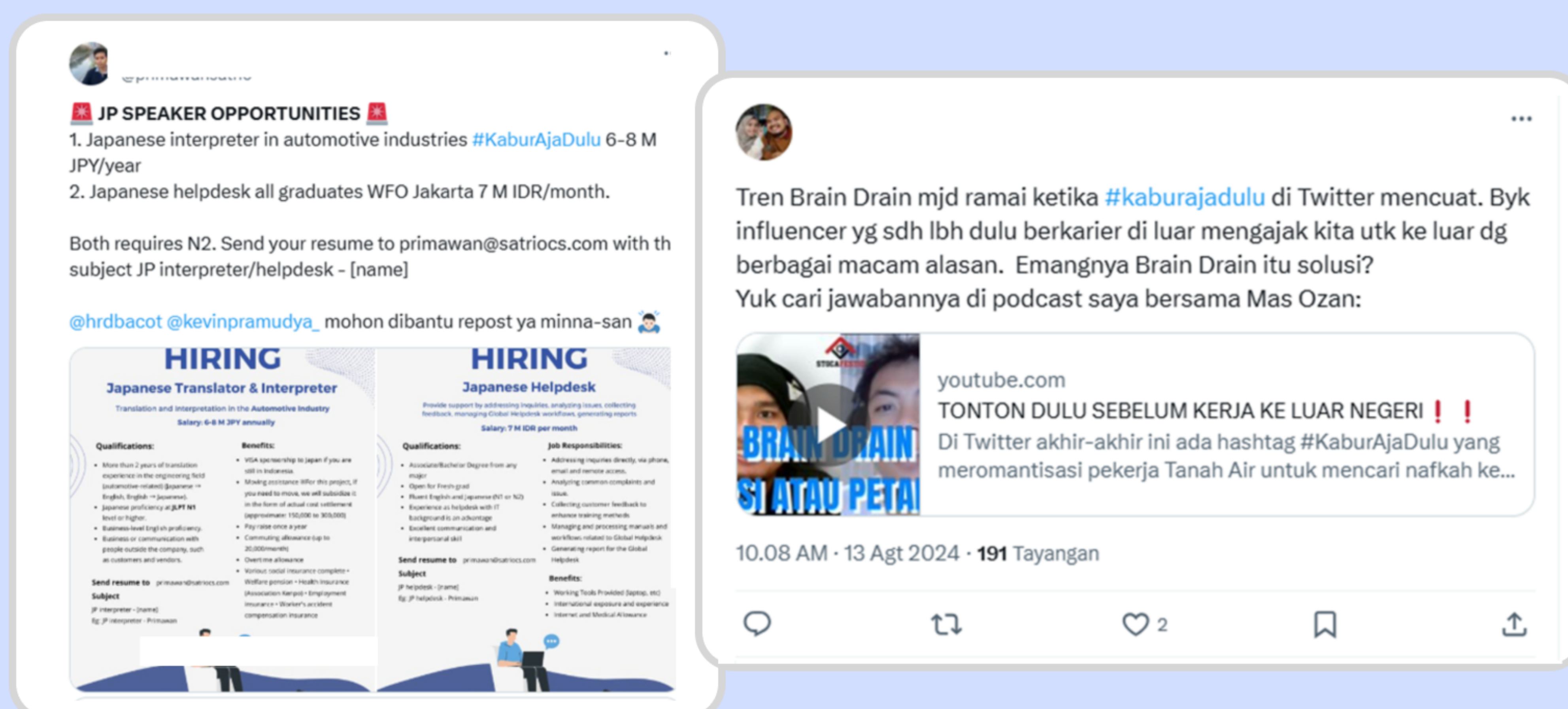


Figure 10. Neutral Sentiment Tweets

→ Topic Modelling

Amount	Topic	Representation	Tweet Example
23	9_engineer_engineering_software_machine	[engineer, engineering, software, machine, kompatibel, compiler, workshop, xcode, bikin, befedevops, mobiledata data]	[bagus question coba bantu orang adik da mle devops scope percaya diri bantu backend frontend react mobile react native flutter ios android product engineer fullstack engineering manager engineering directorhead engineering scope percaya diri data engineer data analyst data science machine learning engineer devops embedded system, about overpopulated software engineer benar banget cari benar bagus memang susah susah bikin workshop kaburjadulu femes kaya sama profunder kaya kabur ck lebih baik medioker kabur, about overpopulated software engineer benar banget cari benar bagus memang susah susah bikin workshop kaburjadulu femes kaya sama profunder kaya kabur ck lebih baik medioker kabur]
23	2_jepang_japan_japanese_jepangnya	[jepang, japan, japanese, jepangnya, tokyo, yokohama, korea, kaijisan, foreigner, seoul]	[tutup kasih simpul reply kaijisan founder kapanjapan terima kasih kaijisan beri added poin attached share sudut pandang keluarga banyak teman single reply bilang tabung bilang ngepas tulis umr tokyo gada bilang underpaid rate begini rate normal japanese engineer tmntmn outlier share rate rate normal bidang engineer lupa share intangible benefit taraf hidup baik udara bersih air bersih transportasi publik bagus banyak twit faktor keluarga sandwich gen tahu sekarang tahu standardnya segimana tangible intangible benefitnya tugas selaras kondisi beda hitung rinci salah standardnya alhamdulillah coba usah bilang aneh tahu hidup social media moga mimpi tinggal jepang wujud jalan baik amin, jepang, jepang]



Through the use of the BERTopic method, the BERT model not only performs sentiment analysis but also identifies distinct topics within the conversation. Some of the key topics identified in the analysis are as follows:

→ **Topic 1: Engineering and Tech Professions**

This topic includes terms related to engineering and technology professions such as engineer, engineering, software, machine, compatible, compiler, Xcode, backend, frontend, DevOps, mobile, React, iOS, Android. Tweets related to this topic often focus on careers in software engineering, data analysis, data science, DevOps, and full-stack engineering. The recurring theme is that individuals often consider these professions when discussing working abroad under the hashtag #KaburAjaDulu. Many users express their struggles with finding good job opportunities locally, especially in tech-related fields, and highlight these positions as desirable career paths abroad.

→ **Topic 2: Japan as a Destination**

Japan consistently appears as a key topic in the tweets related to #KaburAjaDulu. The conversation surrounding Japan often compares its better living conditions, such as clean water, good public transportation, and high standards of living with those in Indonesia. Users also express aspirations to work in Japan, often discussing job opportunities and benefits in the country.

These topics suggest that engineering and technology roles, particularly in software development and data science, are frequently mentioned by those considering working abroad under the #KaburAjaDulu movement. Furthermore, Japan stands out as a popular destination, with users highlighting its superior quality of life and job opportunities in tech.

→ The Brain Drain Effect

The term "Brain Drain" is often associated with the phenomenon of #KaburAjaDulu. Several tweets have also explained this issue from a neutral standpoint by mapping this phenomenon using the term "brain drain."

"Brain drain" refers to the international migration of human resources, often involving the movement of highly educated individuals from developing countries to developed nations (Docquier, 2014). In everyday contexts, this term is frequently used to describe the migration of professionals such as engineers, doctors, scientists, and other skilled workers (The brain drain from developing countries: The brain drain produces many more losers than winners in developing countries).

→ Is the Brain Drain Effect a Serious Problem?

One of the most significant negative consequences of brain drain is the decline in the quality of the workforce (Docquier, 2006). As skilled professionals leave the country in search of better opportunities abroad, Indonesia faces a shortage of talent in critical sectors such as technology and engineering (ILO, 2019). This shortage can result in slower industrial and economic growth, as industries rely on a skilled labor force to innovate, improve productivity, and maintain competitiveness.

The lack of qualified professionals in Indonesia poses a considerable challenge to its industrial activities (ADB, 2018). This gap may inhibit the country's ability to improve its infrastructure, adopt new technologies, and provide essential services. Consequently, Indonesia's development efforts are slowed, and its global standing as a competitive economy may be undermined.



The table below illustrates the migration trends of Indonesian workers based on their education levels between 2019 and 2022. While it is clear that migration is not always linked to highly skilled individuals, the data highlights the significant number of Indonesians migrating for work and the educational levels of these migrants.

Education	2019	2020	2021	2022
SD	62.460	27.963	18.468	39.253
SMP	115.119	44.366	25.638	64.051
SMU	95.918	39.589	26.500	90.956
Diploma	2.465	949	1.613	4.381
Sarjana	1.495	562	399	2.074
Pasca Sarjana	32	7	6	47
Total	277.489	113.436	72.624	200.761

Source: Analisis Pasar Kerja Luar Negeri 2023, Kementerian Ketenagakerjaan RI.

While Indonesia has not experienced a massive brain drain, certain factors contribute to the migration of skilled workers. According to a study by Tutik Inayati, two primary factors driving brain drain from Indonesia are education and economic conditions (Tutik Inayati, 2012). The lack of advanced educational and research opportunities within the country prompts many talented individuals to seek better academic and career prospects abroad, particularly in developed countries that offer superior infrastructure, research facilities, and post-graduation job opportunities. Additionally, economic instability, low wages, and limited job prospects in key industries push professionals, such as engineers, doctors, and IT specialists, to migrate to countries with higher salaries, better work conditions, and greater career growth potential, with many perceiving wages in Indonesia as insufficient compared to nations like Japan, the US, or Australia.

CONCLUSION

This study conducted sentiment analysis and social network analysis on the public opinion surrounding the desire to work abroad, as expressed on Twitter through the hashtag #KaburAjaDulu. The data collected spans from the inception of the hashtag until the time the research was conducted. The sentiment analysis results revealed that sentiment polarity is mostly equally distributed: 33.8% of the tweets were positive, 33.4% negative, and 32.8% neutral. This suggests that public opinion on the #KaburAjaDulu phenomenon is quite diverse, with mixed feelings being the dominant tone. Negative sentiment was expressed through words like 'susah' (difficult), 'Indonesia', and 'kabur' (escape), indicating disappointment with the current state of affairs in Indonesia and a desire to seek work opportunities abroad. On the other hand, positive sentiment often conveyed optimism, with many people viewing the decision to #KaburAjaDulu as a step toward better opportunities, and some shared their personal experiences of successfully working abroad. Interestingly, the word 'Japan' frequently appeared in positive sentiments, indicating that Japan is a popular destination for Indonesians looking to work abroad.

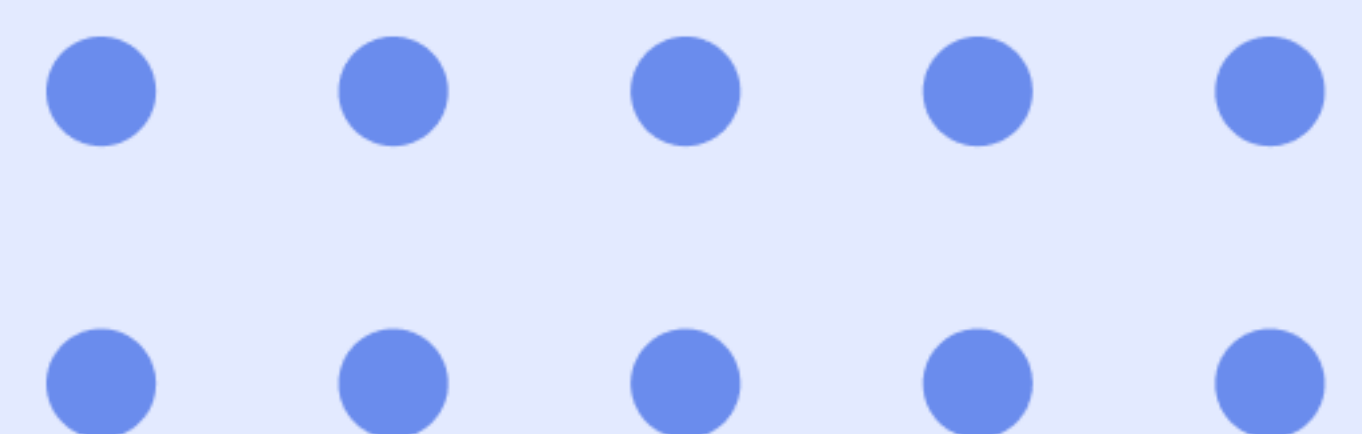
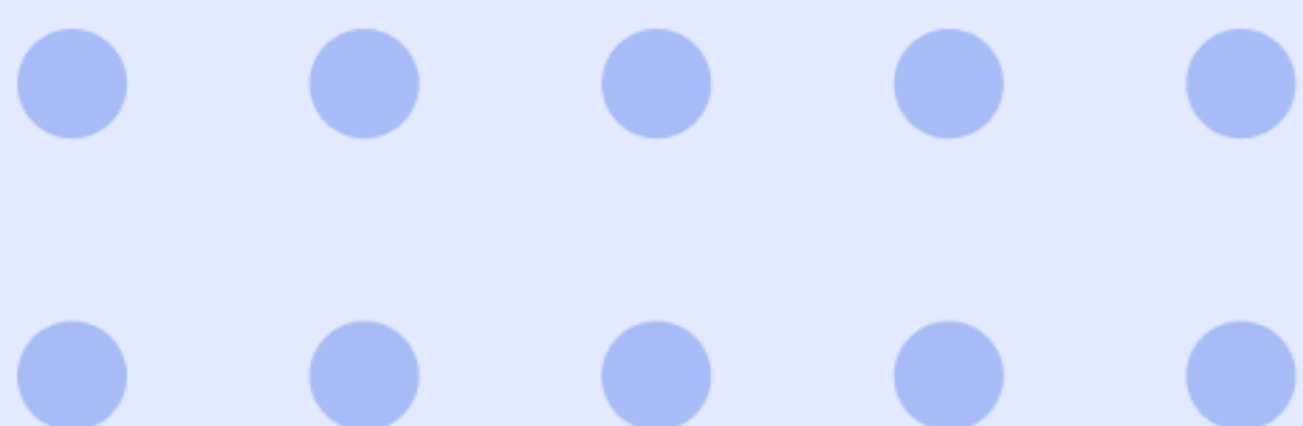
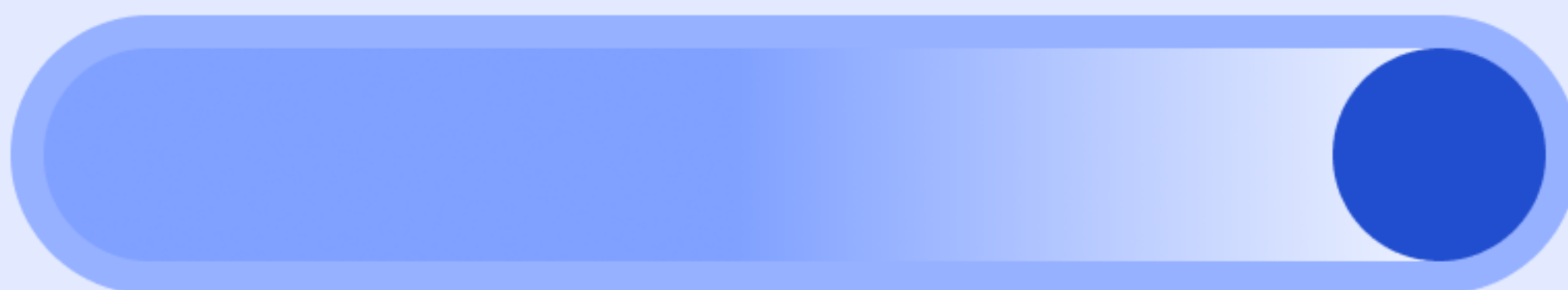
The trend toward seeking work abroad aligns closely with the concept of "brain drain." While Indonesia has not experienced a massive brain drain, several factors contribute to this migration of skilled workers. According to a study, education and economic factors are the primary drivers, with education being the leading factor, followed by economic reasons. This phenomenon poses a significant challenge for the Indonesian government, as it could lead to a decline in the quality of the domestic workforce, potentially hindering industrial performance. A shortage of skilled professionals in key sectors may slow down the country's progress and development, exacerbating inequality and reducing social welfare. The government must address these issues to mitigate the adverse effects of brain drain on Indonesia's future.





REFERENCES

- ADB, A. D. B., 2018. Indonesia Enhancing Productivity Through Quality Jobs, Mandaluyong: s.n.
- Austin P. Logan, P. M. L. B. J. L., 2023. Social network analysis of Twitter interactions: a directed multilayer network approach. *Social Network Analysis and Mining*, Volume 13, p. 65.
- Docquier, F., 2006. Brain Drain and Inequality Across Nations. IZA Discussion Papers Institute of Labor Economics.
- Docquier, F., 2014. The brain drain from developing countries. *IZA World of Labor*, p. 31.
- Duwi Yunitasari, K. K. M. F., 2021. The Implication Of Brain Gain On Brain Drain Phenomenon In Overcoming The Problem Of Educated Unemployment In Indonesia. *LSP-Jurnal Ilmiah Dosen*.
- Federico Alberto Pozzi, E. F. E. M. B. L., 2017. Sentiment analysis in social networks. United States: Elsevier.
- Fuad Muftie, M. H., 2023. IndoBERT Based Data Augmentation for Indonesian Text Classification. *International Conference on Information Technology Research and Innovation (IC-ITRI)*, pp. 128-132.
- ILO, I. L. O., 2019. Skills shortages and labour migration in the field of information and communication technology in India, Indonesia and Thailand, Geneva: Printing and Distribution Branch (PRODOC).
- Jobstreet, 2024. Decoding Global Talent 2024: Dream Destinations and Mobility Trends, s.l.: s.n.
- Malik, N., 2018. *Dinamika Pasar Tenaga Kerja Indonesia*. Vol. 1 penyunt. s.l.:UMMPress.
- Marc A. Smith, I. H. L. R. S., 2015. The Structures of Twitter Crowds and Conversations. *Transparency in Social Media*, pp. 67-108.
- Tiwari, S. V. A. G. P. B. D., 2020. Social Media Sentiment Analysis On Twitter Datasets. *6th International Conference on Advanced Computing and Communication Systems (ICACCS)*, pp. 925-927.
- Tutik Inayati, T. A. U. S. P., 2012. SIMULATION ANALYSIS OF BRAIN DRAIN PHENOMENA FROM INDONESIA USING SYSTEM DYNAMICS. *International Journal of BRIC Business Research (IJBBR)*, Volume 1, p. 1.
- Yoana, A. I. R., 2024. The role of vocational education on unemployment in Indonesia. *COGENT EDUCATION*, Volume 11.



ABOUT CFDS

Center for Digital Society (CfDS) is the research center established by the Faculty of Social and Political Sciences, Universitas Gadjah Mada. The institution is created under the concern over the contemporary dynamics of socio-political condition of the world that is accentuated by the impeccable influence of information technology. The phenomenon triggers the new patterns and complexities in the society, and thus requires new approaches in managing such complexities.

CfDS pledged to delve more on the study of contemporary digital society, including related issues surrounding the topic; such as the issues of smart city and urban development. The emphasis is then put on the utilization of technology to shape the society in becoming digitalized, as well as to bring solvency to social issues.

VISION

Solving Social Problem and Accelerating Prosperity through Indonesia Digital Society

ACTIVITIES

- Research and development
- Dissemination and Publication
- Educational and Policy Advocacy



 facebook.com/cfds.ugm

 [@cfds_ugm](https://line.me/@cfds_ugm)

 [Center for Social Society \(CfDS\)](https://www.linkedin.com/company/Center-for-Social-Society-(CfDS))

 [@cfds_ugm](https://twitter.com/cfds_ugm)

 [Cfds_ugm](https://www.instagram.com/Cfds_ugm)

 [CfDS UGM](https://www.youtube.com/CfDS-UGM)