

March 23, 2023

Web Analytics Presentation

Unleashing the Power of
Web Analytics: Insights That
Will Keep You Ahead of the
Curve

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March 23, 2023

Today's Agenda

1 Introduction

2 Twitter Analysis

3 Graph Analysis

4 Topic Modelling Analysis

4 Libraries Used

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Are you ready?

Let's Begin!

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Twitter Data Exploratory Data Analysis Process

Preprocessing

- Collect data from using Snsrape Python
- Clean the data to drop NaN, None and Irrelevant rows and Columns
- Transform the data into a format that is suitable for analysis, such as converting timestamps to date-time format, split the coordinates column into Longitude and Latitude

Analysis

- Analyze the data to identify trends and insights that are relevant
- Use Python libraries like pandas for statistical analysis to identify patterns and relationships within the data, tweeting patterns, geolocation tweeting pattern, top relevant tweets etc

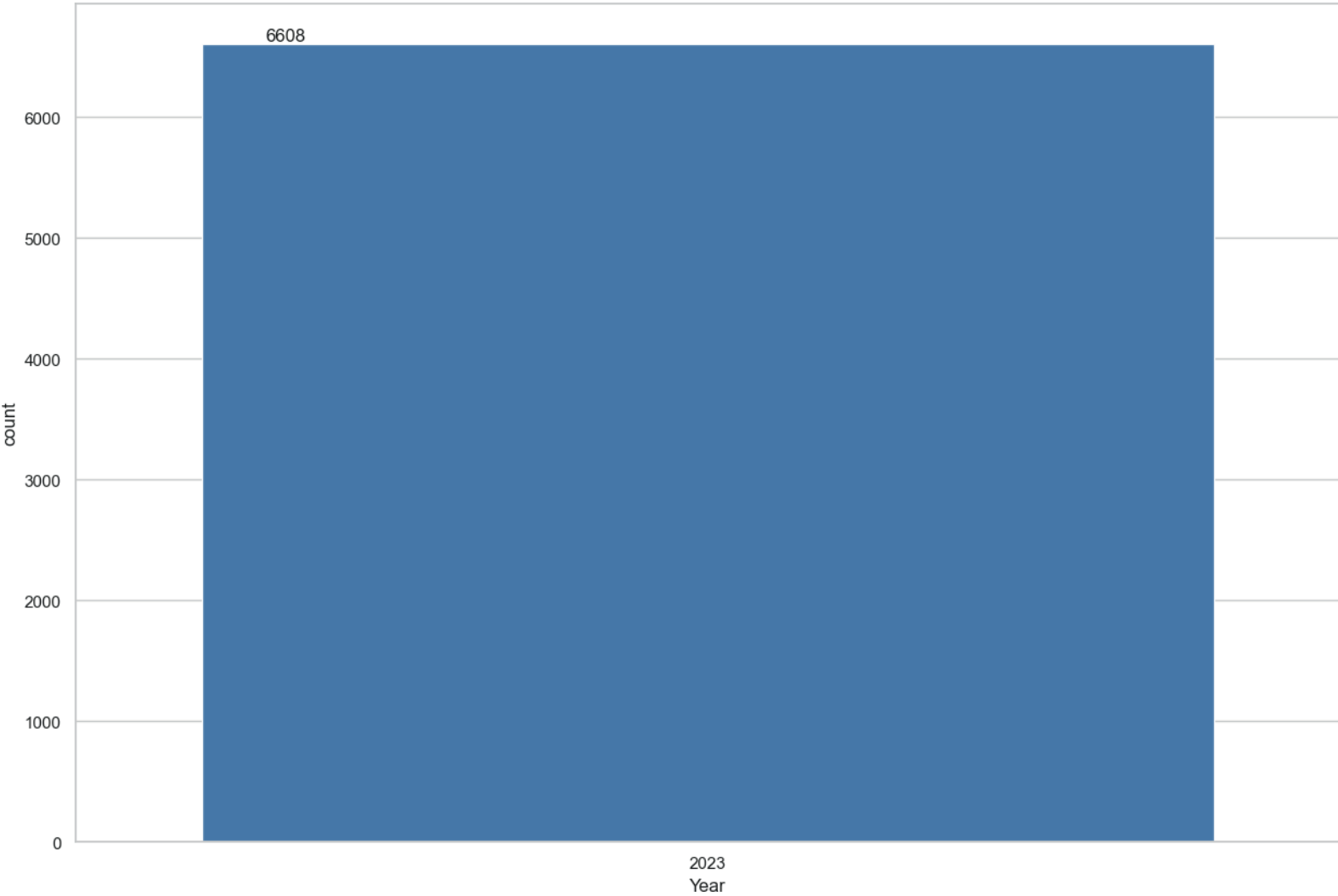
Visualization

- Use visualization tools such as matplotlib or seaborn to create visualizations that communicate the insights derived from the analysis
- Create charts, graphs, or maps to visually represent the patterns and trends within the data
- Use visualizations to tell a story about the data

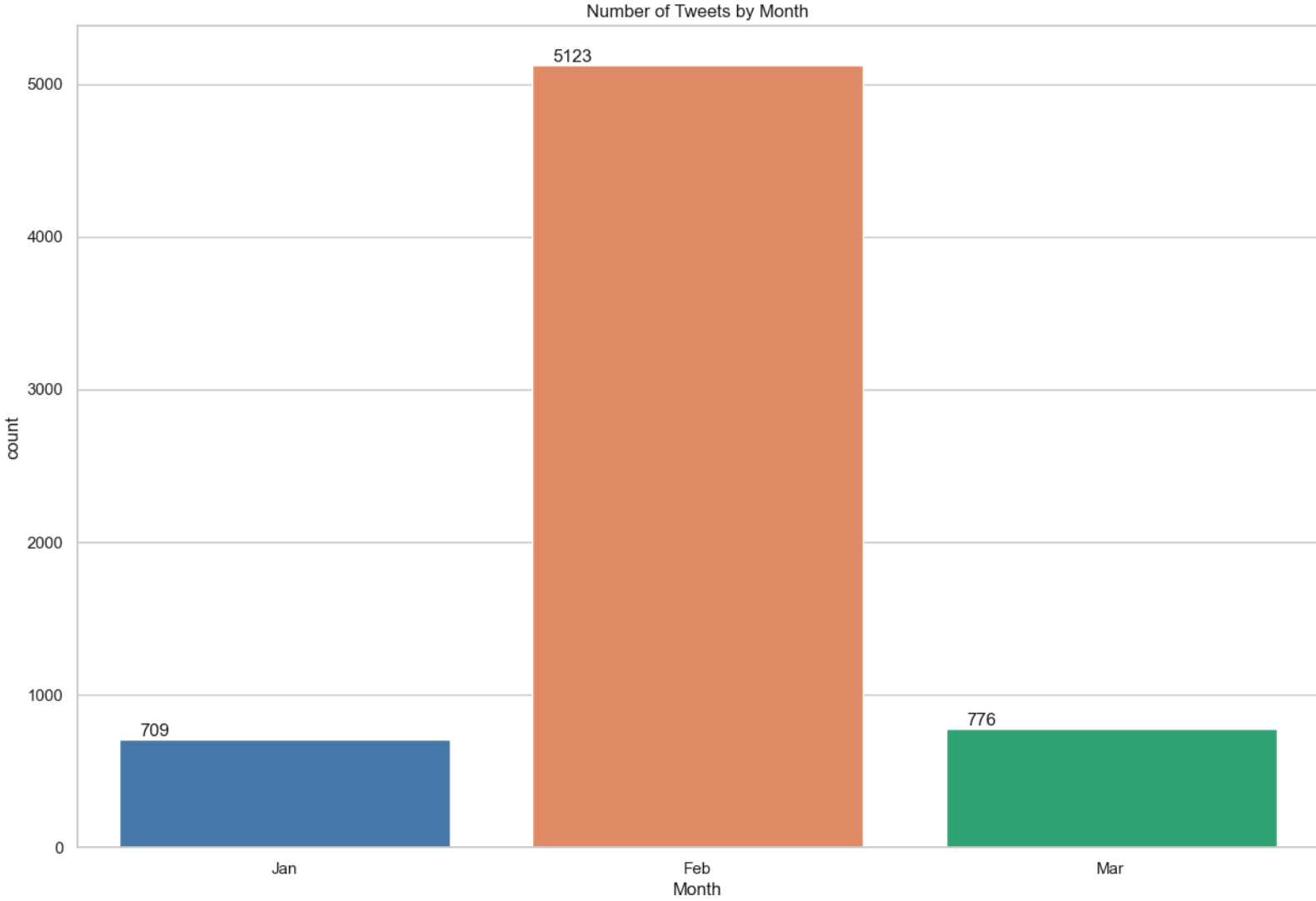
Visualizing Twitter Data (INEC)

June 1,2021

Total Tweets



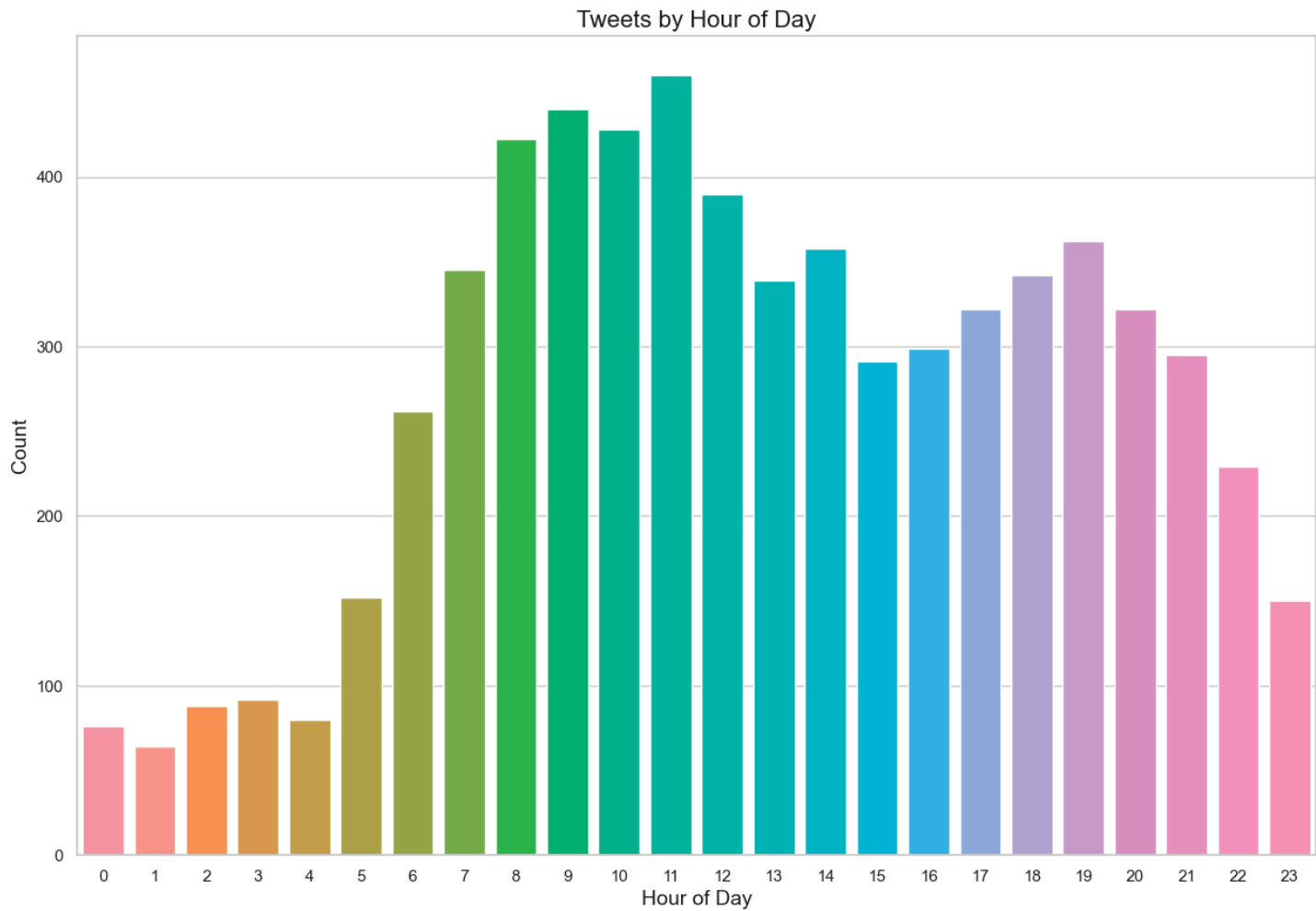
Tweets by Month



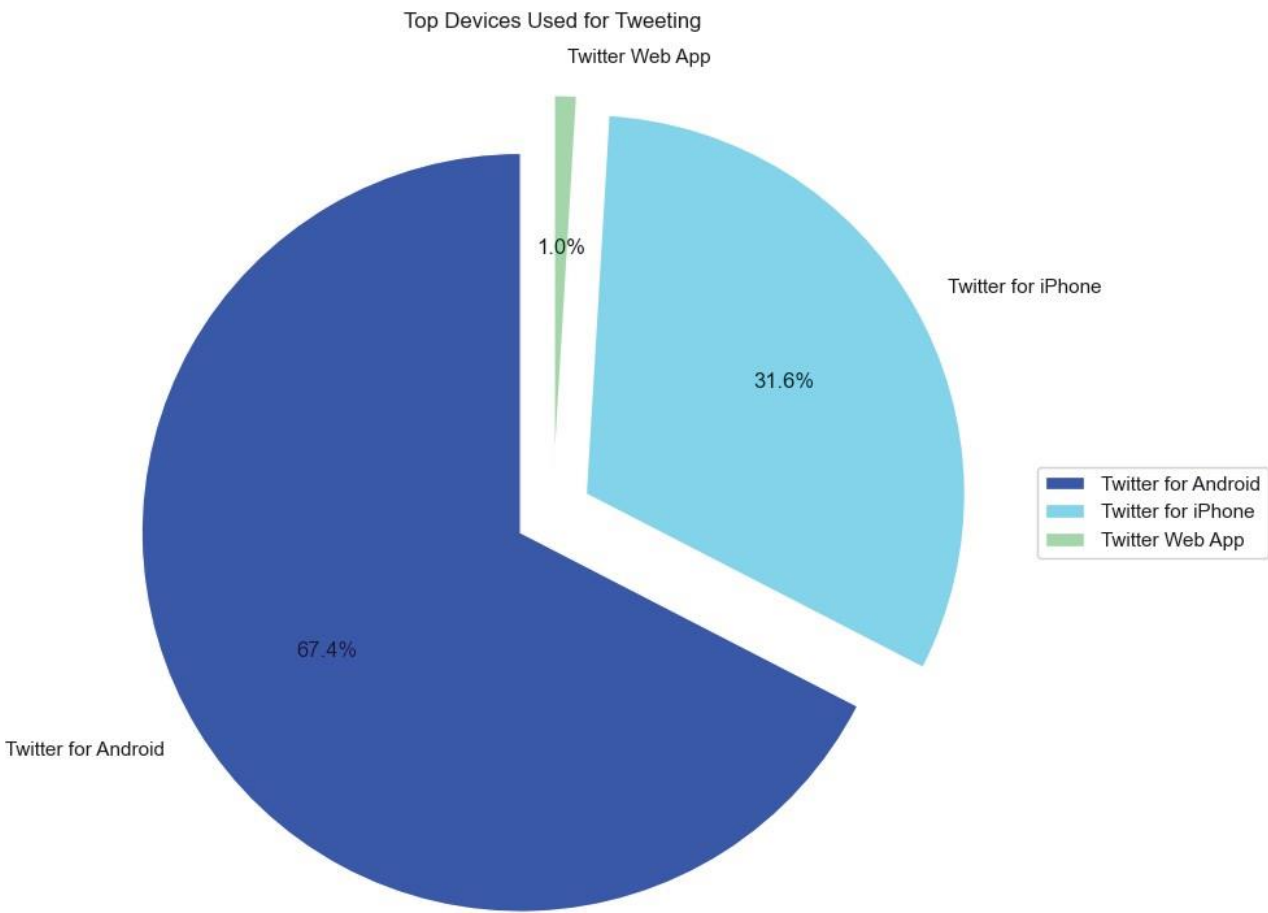
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Active Hours



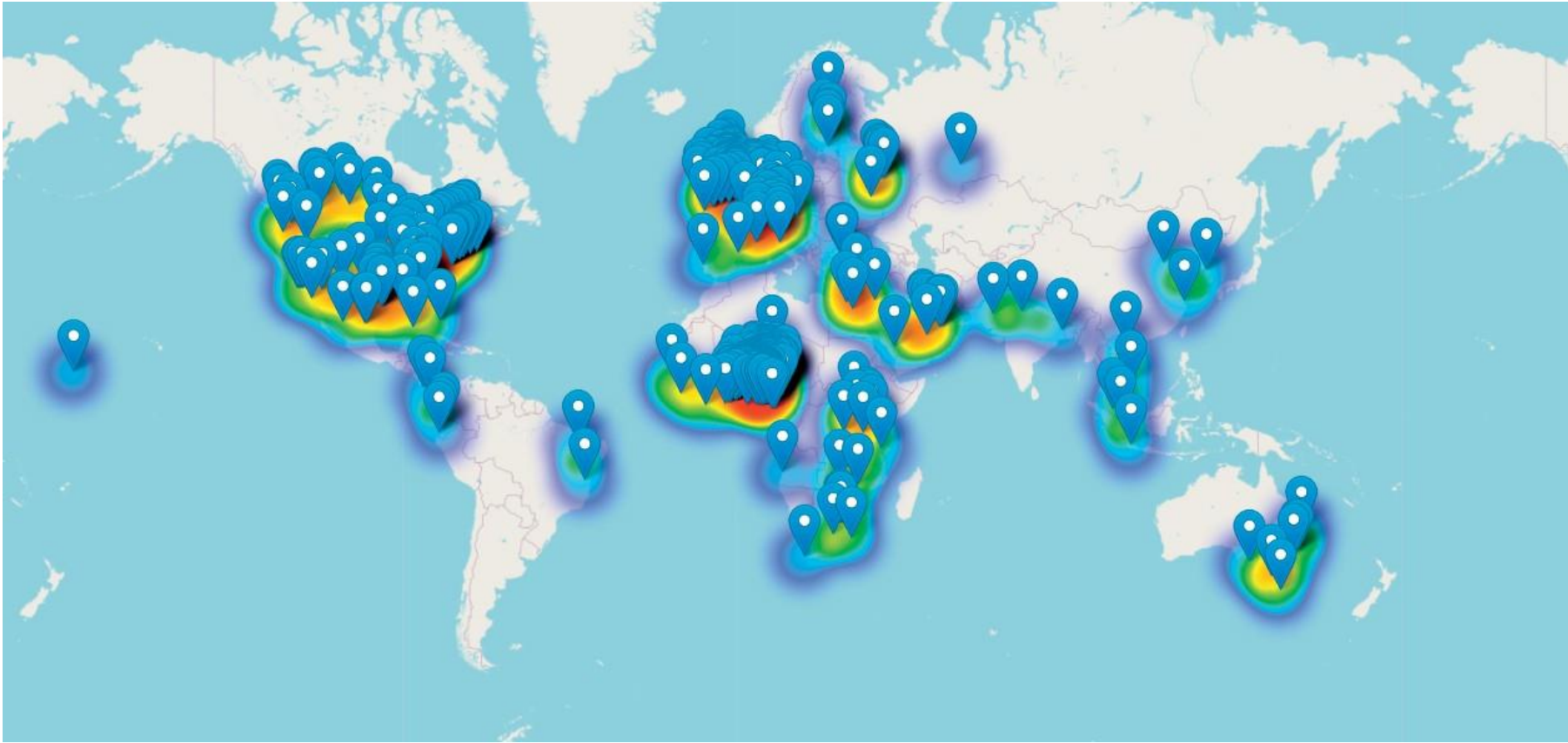
Top Devices



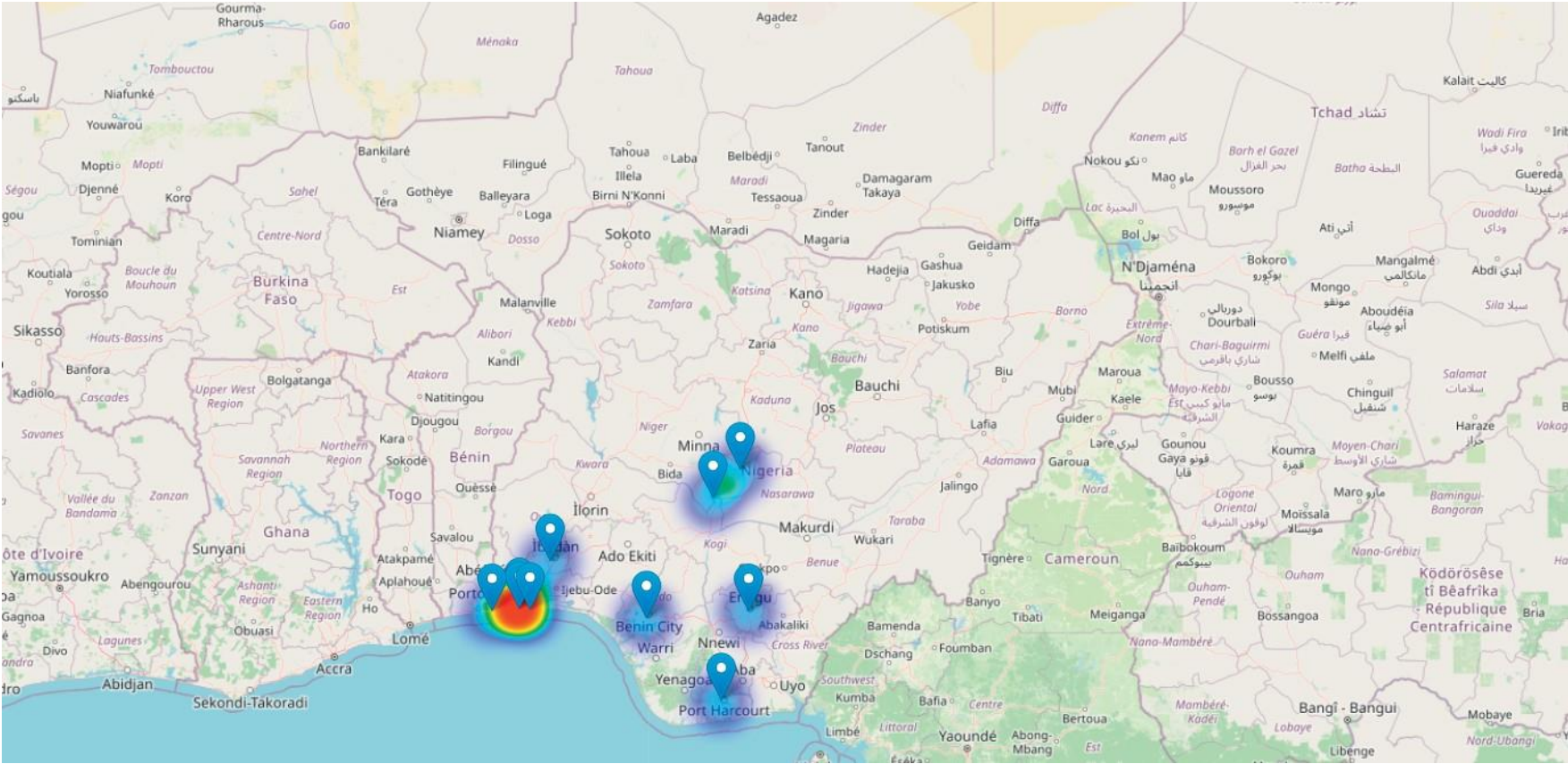
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Heat Map

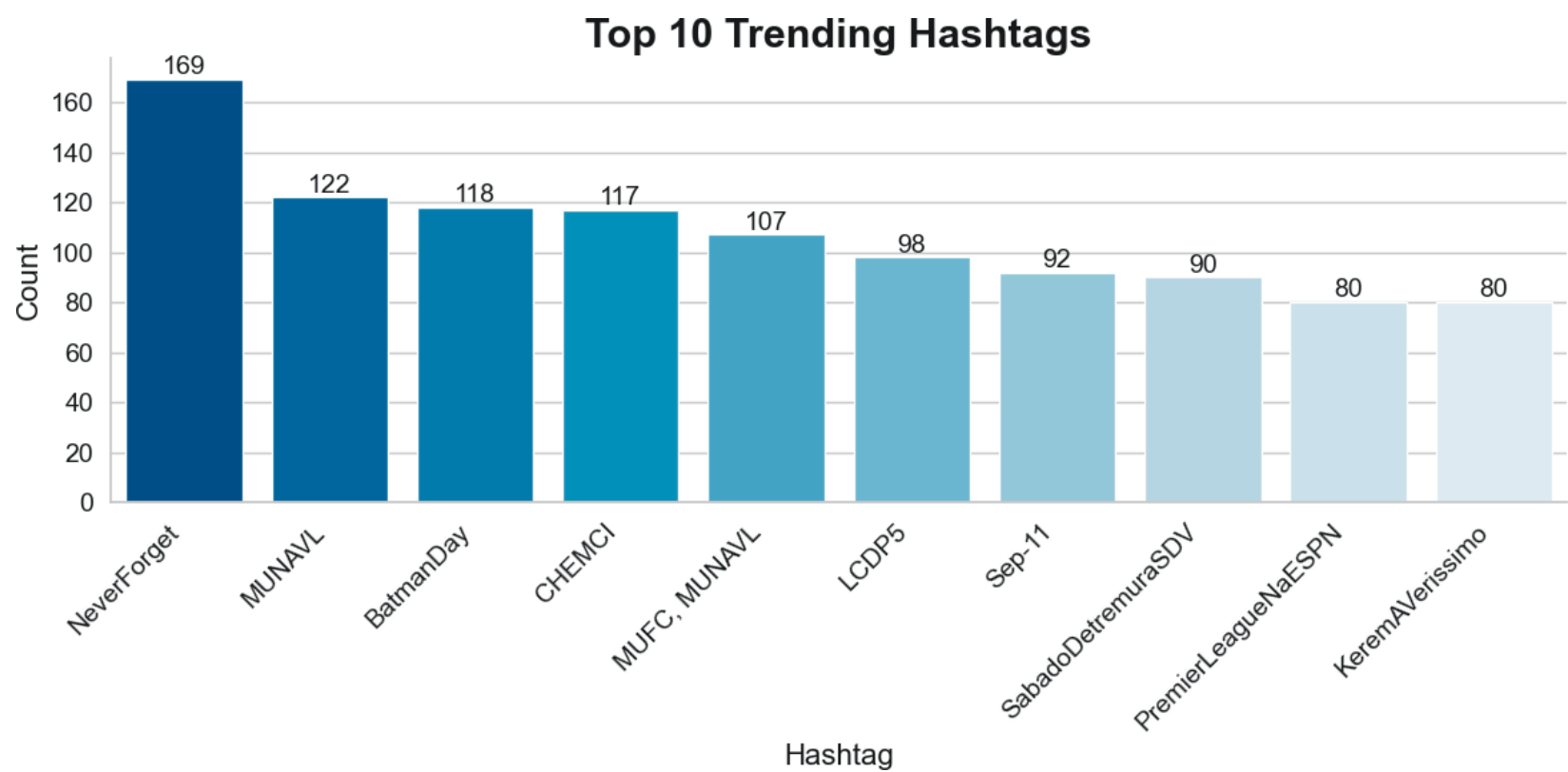


Top Ten Location



Visualizing Twitter Data (INEC)

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Top Ten Trending Hashtags

INEC Chairman, Prof Mahmood Yakubu today declared the National Collation Centre open in Abuja and set the ground rules for the proceedings. He appealed to political parties and the media to draw their figures only from the figures released by INEC as the only body <https://t.co/QWjYUs984v>

BREAKING NEWS

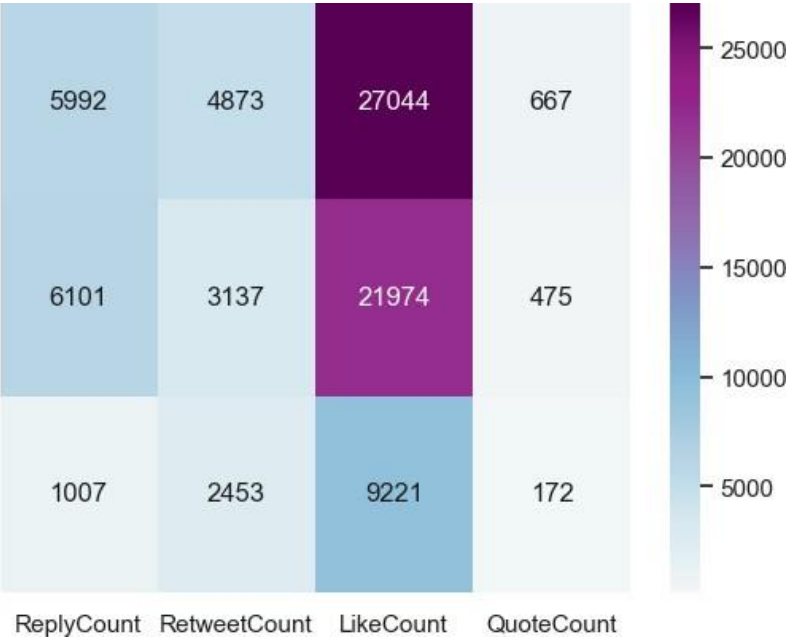
Ekiti State moments ago became the first to officially submit the Presidential Election result to the INEC Chairman, Prof. Mahmood Yakubu at the National Collation Centre, Abuja.

There was no objection from all party agents present. [#NigeriaDecides2023](https://t.co/9NvbwZwxm1) <https://t.co/9NvbwZwxm1>

At the 1st briefing on INEC's preparedness for the 2023 General Election held at ICC, Abuja on 23rd Feb, Prof Mahood Yakubu said:

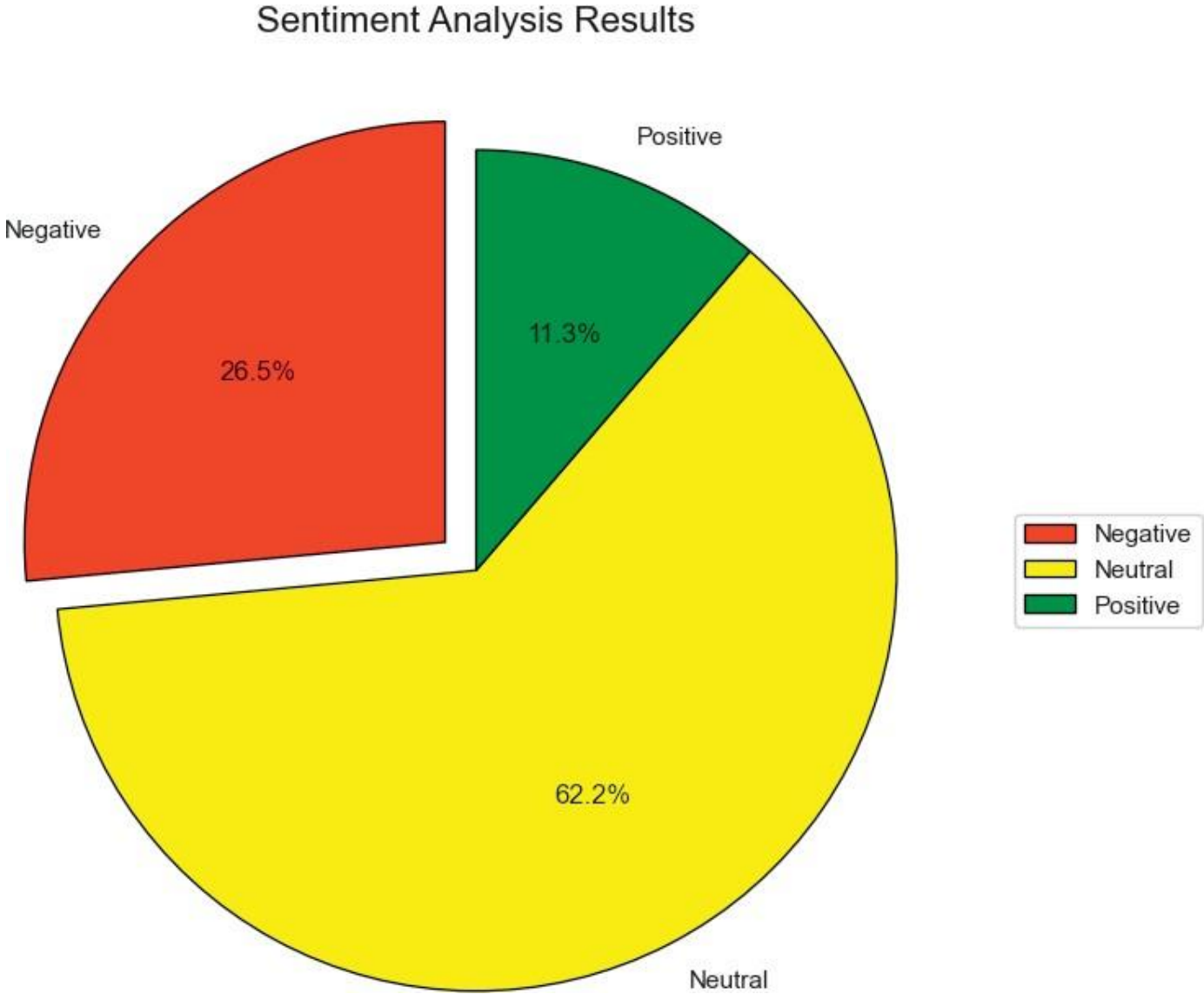
- ☐ BVAS is mandatory
- ☐ No PVC, no voting
- ☐ Ban on use of mobile phones in voting cubicles still in place
- ☐ INEC is committed to credible polls <https://t.co/WjMSZLiyWU>

Most liked Tweets



Visualizing Twitter Data (INEC)

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Sentiment Analysis

Graph Analysis Process of Enron Email

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Data Processing

- Data collection: The first step is to obtain the Enron email dataset. This dataset is available from multiple sources, such as Network Repository.

Visualization

- Graph construction: After preprocessing the data, the next step is to construct a graph using the email addresses as nodes and the emails exchanged between them as edges.
- Feature extraction: extract relevant features from the graph. These features are centrality measures, such as betweenness or eigenvector centrality, clustering coefficients, degree distributions and community structures.

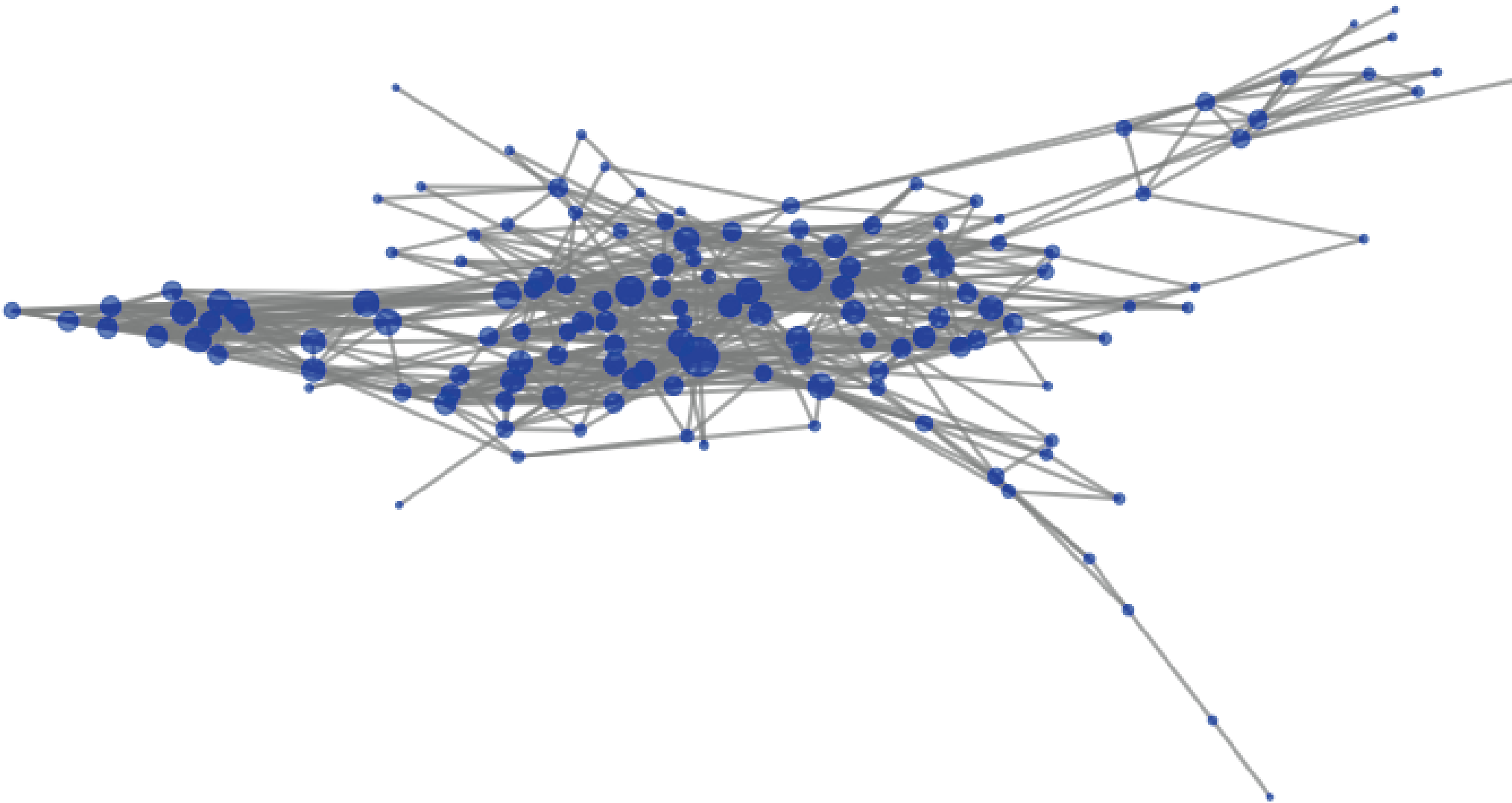
Analysis

- After feature extraction, the graph can be analyzed to answer specific research questions. For example, the graph can be analyzed to identify the key players or communities within Enron, detect anomalies or suspicious behavior, or study the spread of information through the email network.

Enron Email - Graph Analytics

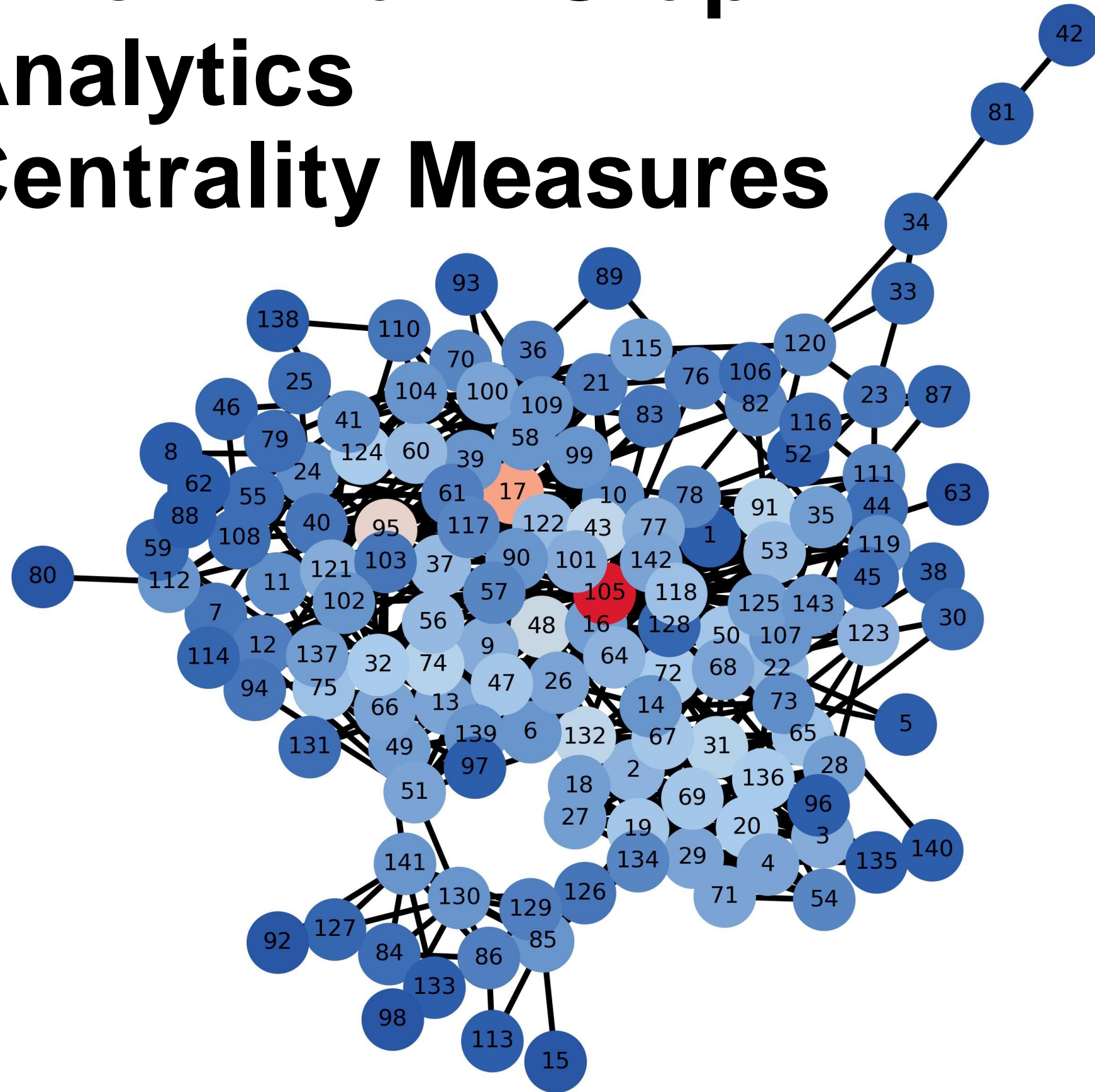
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Nodes	143
Edges	623
Average Degree	8

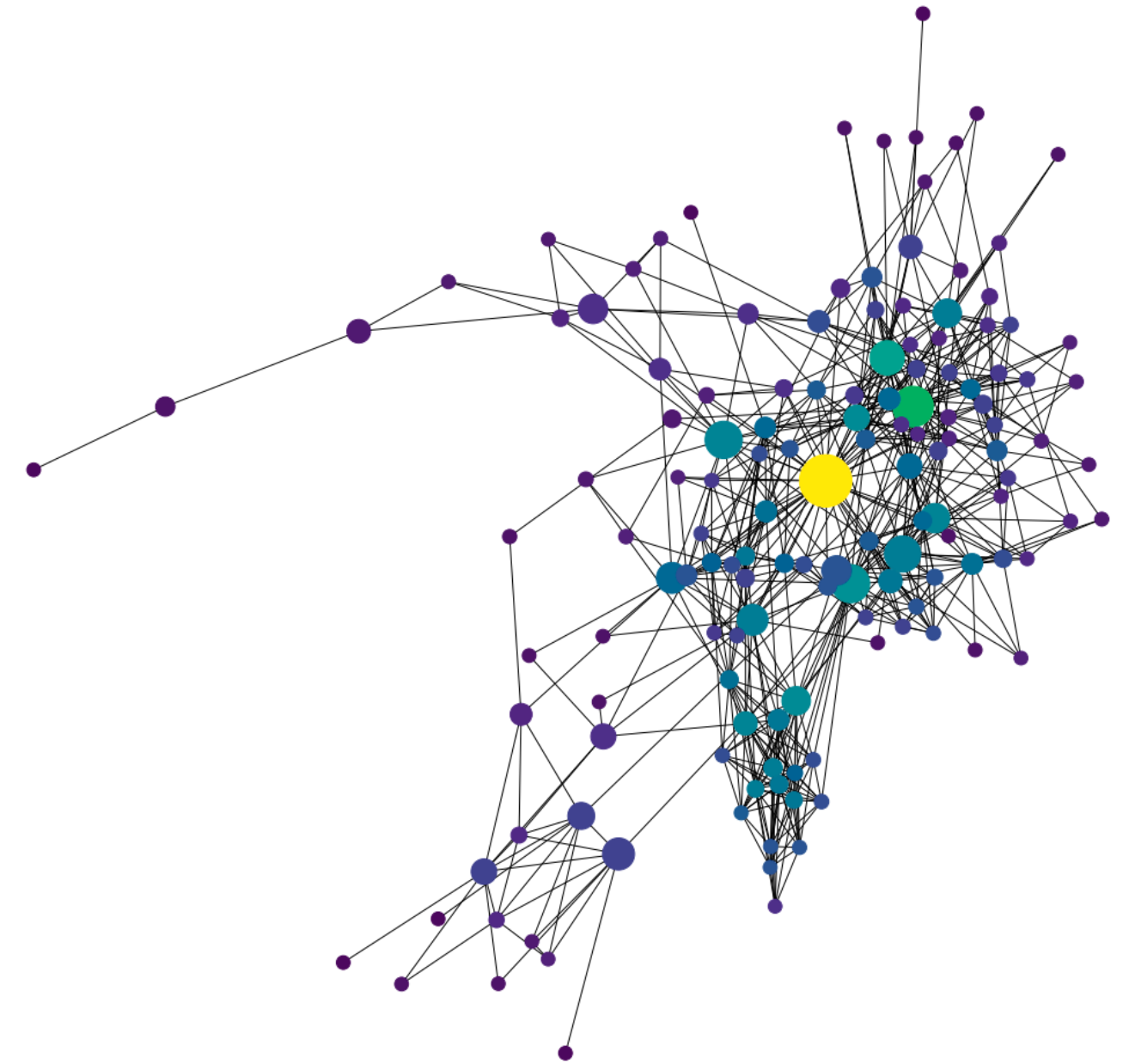


Enron Email - Graph Analytics

Centrality Measures



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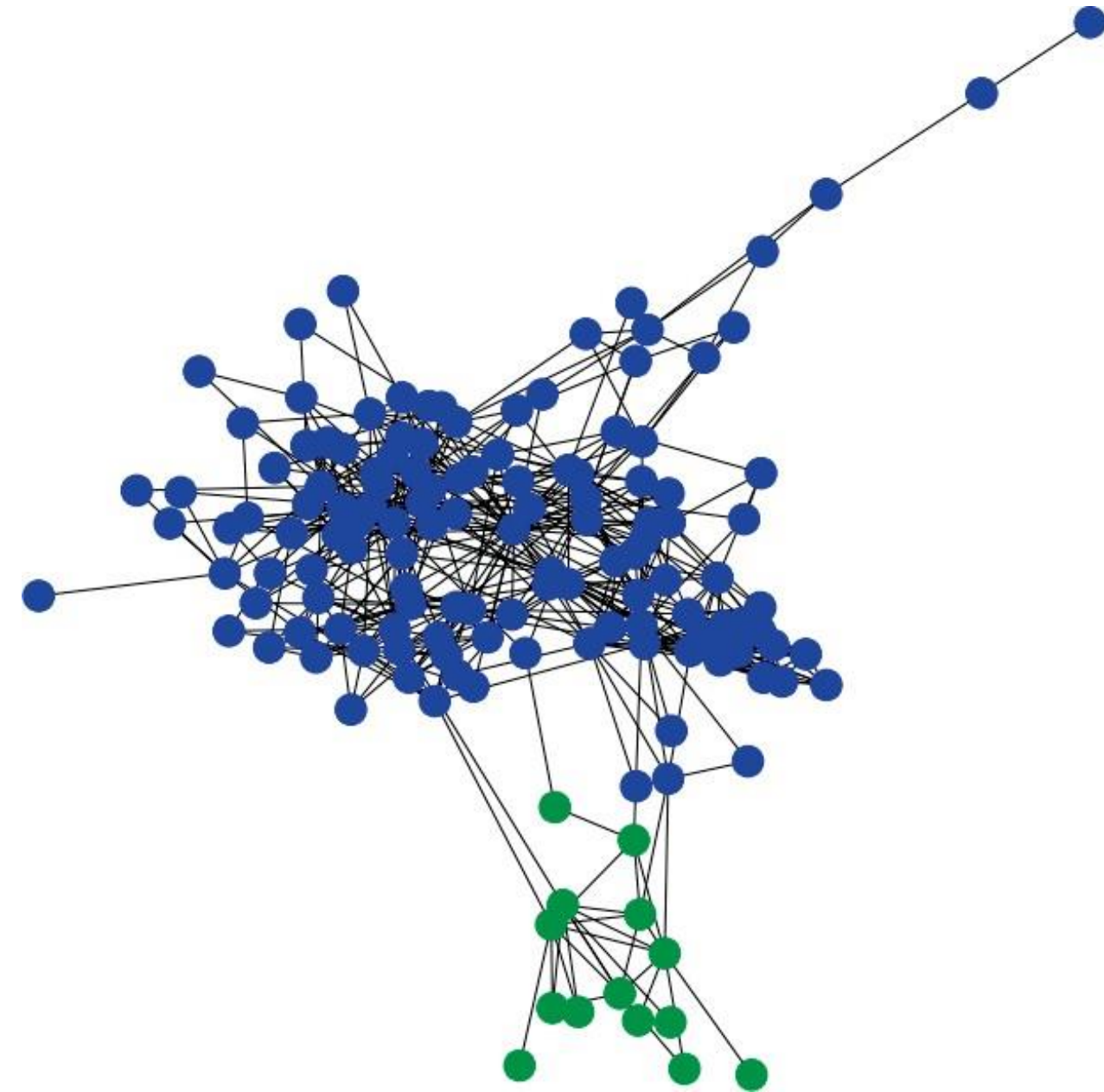


105 has the highest degree centrality value of 0.2958, followed by node 17 with a degree centrality value of 0.2112.

Enron Email - Graph Analytics Community Detection

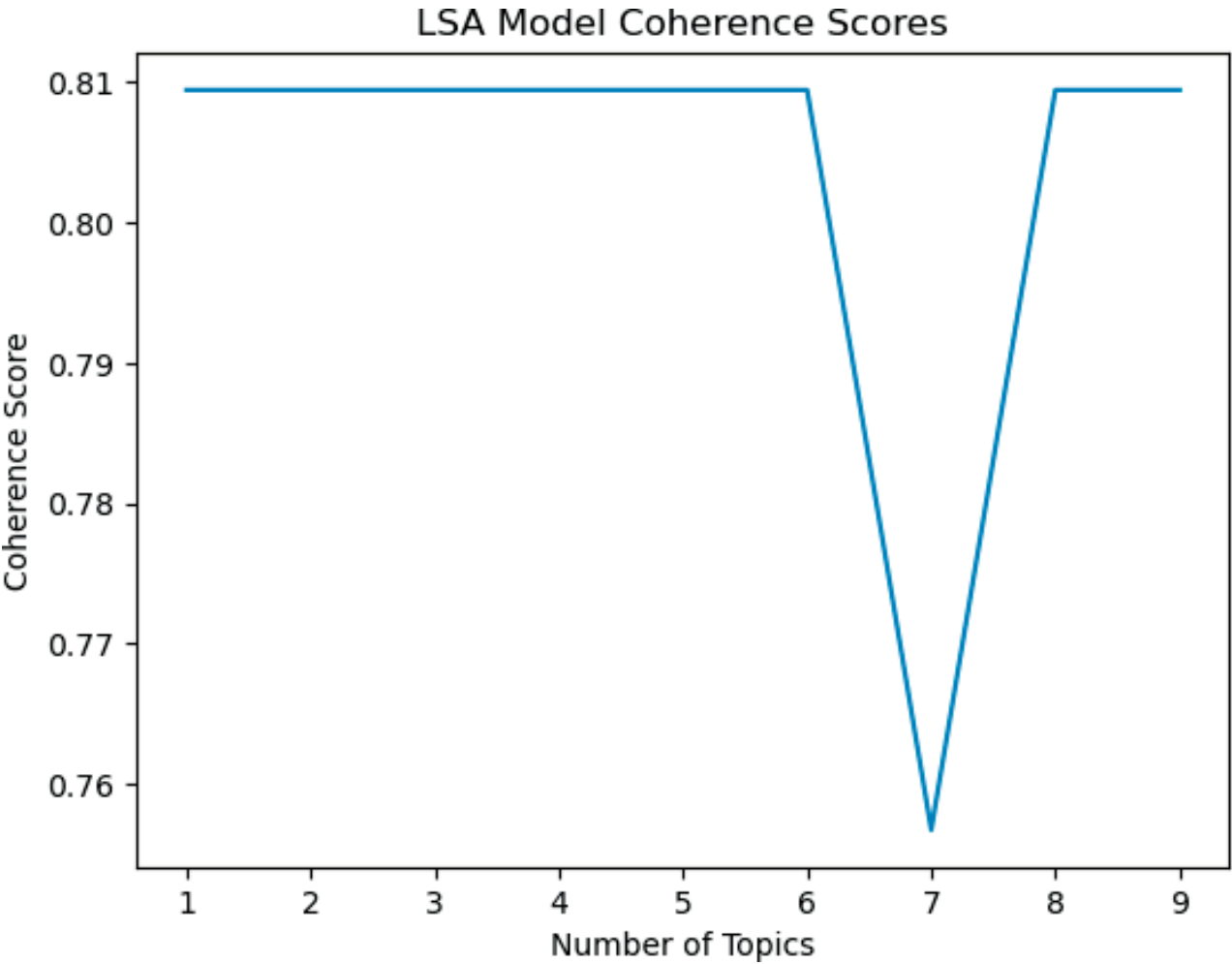
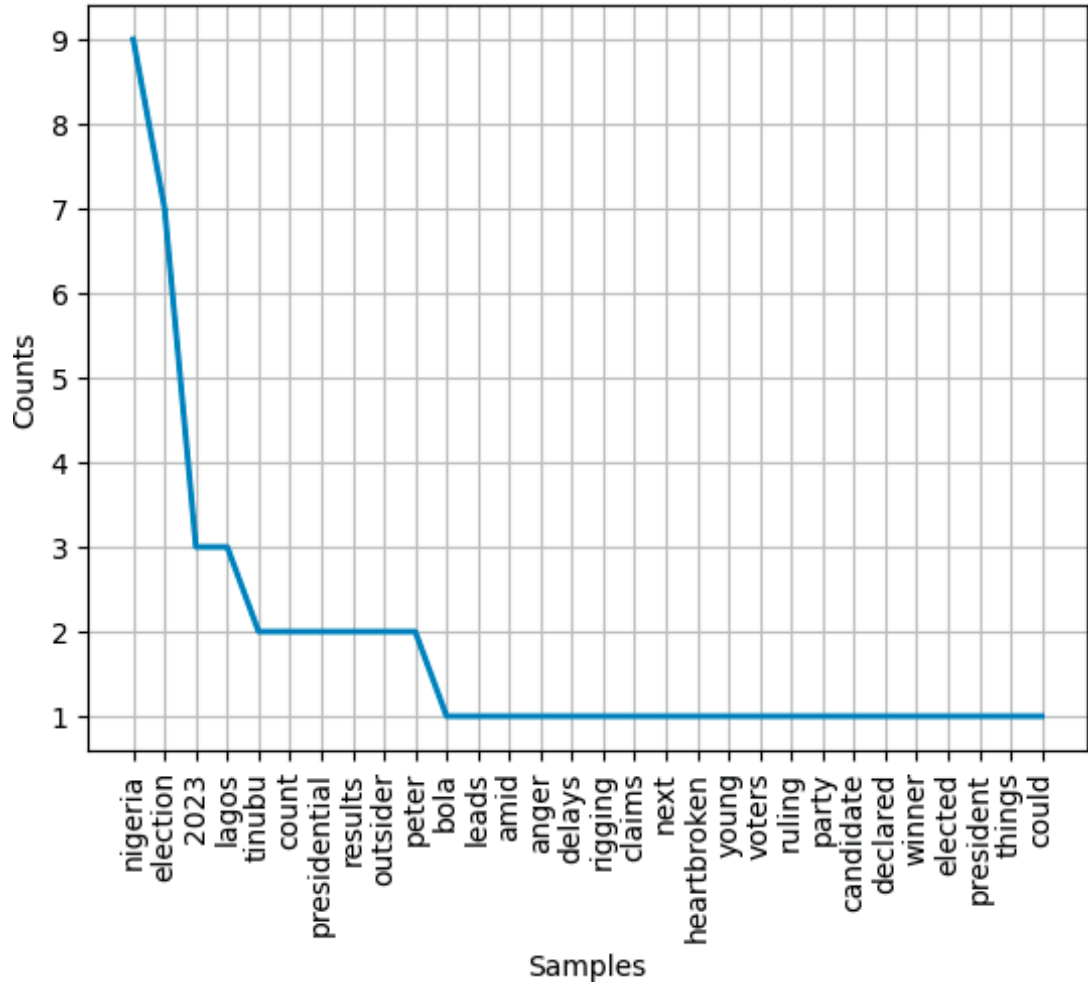
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Discovered community clusters
representing 2 different communities



Topic Modelling (INEC)

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Libraries Used

- 1 Snsrape - Twitter
- 2 Matplotlib
- 3 Networkx
- 4 Scipy
- 5 Nltk

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Thank you