

Tunisia Twitter Data



Ryan Gniadek, Victoria Hardy, Sraavya Gudavalli, Steven Ruckert

CS 4624: Multimedia, Hypertext, and Information Access Capstone
Dr. Edward Fox

Virginia Tech, Blacksburg VA 24061

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Outline

- Motivation
- Project Plan
- OKRs and Approach
- Data Filtering and Sentiment Analysis
- Visualizations
- Acknowledgements
- References

Motivation

After the 2011 Arab Spring, Tunisia underwent a democratic revolution.

Political Twitter usage increased as the population exercised freedom of expression.



Project Plan

- Subtasks based on each team member's skill set/ background
- Collaboration on all aspects of the project
- One team member heads one aspect



Ryan Gniadek
Back-End & Data Management



Sraavya Gudavalli
Documentation & Visualizations



Victoria Hardy
Documentation & Visualizations



Steven Ruckert
Back-End & Data Management

OKRs

- Archive of Previous Twitter Data
 - Consolidate data into one library
 - Coordination with previous researchers/contributors
- Import of Live Twitter Data *
 - Utilize SFM framework for incoming data
 - Standardize format of imported twitter data
- Improvement of Data Filtering Methods
 - Reduce collection of short, uninformative tweets
 - Reduce collection of spam Twitter data

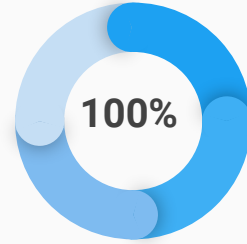
OKRs

- Analysis of Tunisia Twitter Data
 - Produce new data trends
 - Add trends to existing research
- Visualization of Analysis
 - Single platform to view data trends
 - Compare the old and new data
- Development and Demonstration of Professional Work Skills
 - High attendance
 - Fair work distribution

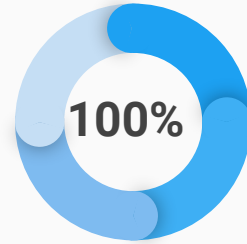
OKR Overview: Progress



Archive of Previous
Twitter Data



Improvement of Data
Filtering Methods



Analysis of Tunisia
Twitter Data

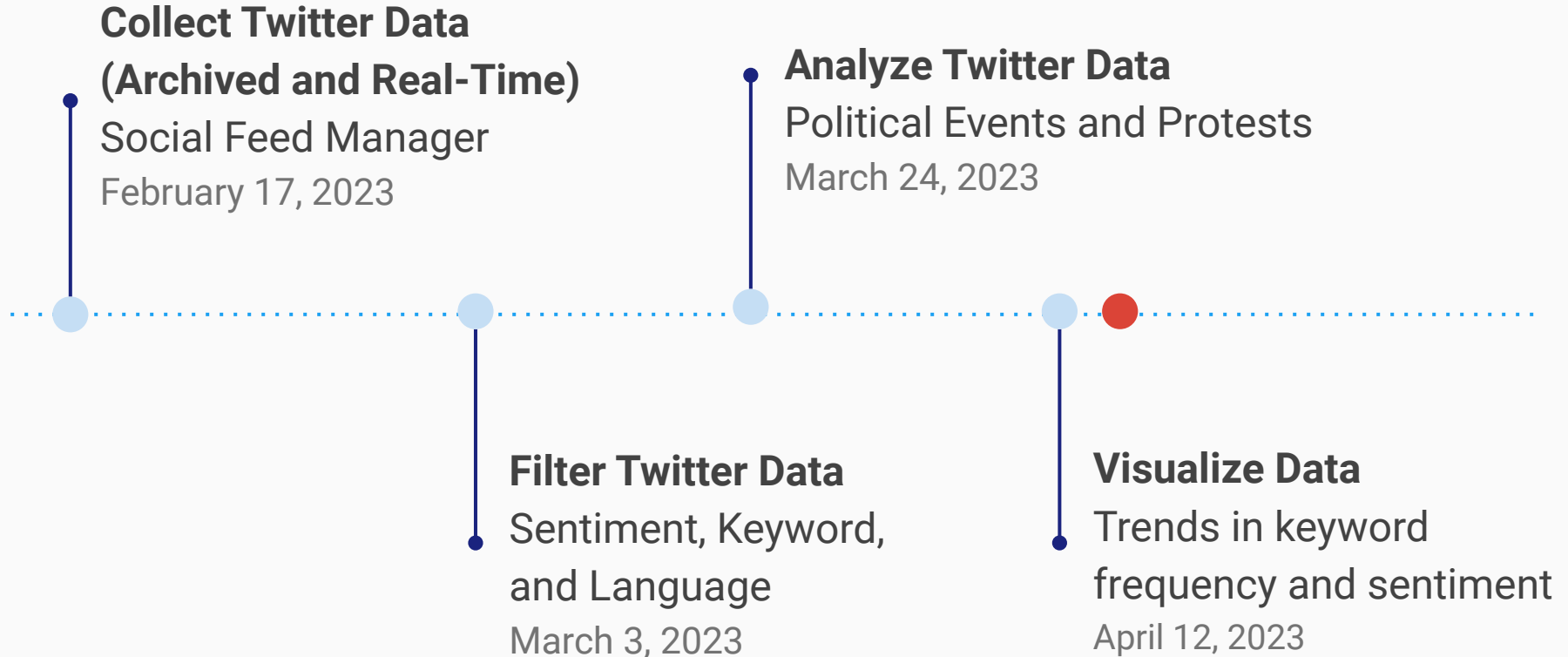


Real-Time Import
of New Twitter
Data



Visualization of
Analysis

OKR Project Approach



Approach

- Using the Social Feed Manager system, Twitter data was collected
 - Due to uncertainty around Twitter API access, ongoing collection was not possible. Tweets were added through February 2023
- Format of existing tweet archive needs to be standardized and consolidated
- Language and sentiment analysis determined for tweet contents
- Interactive visualizations of Twitter data using modern web technologies

Data Filtering and Sentiment Analysis

#Tunisia
#Saied
#25juillet
#July25
#Referendum
#TnElec2019
#TnElection
#TunisiaVotes
#TunisiaDecides
#Tunisie
#kaisSaid
#constitutionélections
#législatives

Thread

 **Ilhan Omar** ✓
@IlhanMN

If we believe in democracy and human rights, we should be loudly decrying the current assault on democracy in Tunisia—the heart of the Arab Spring.

If Tunisia's president does not reverse course, we should suspend all security aid, as is required by law.

19:56 · 27/07/2021 · TweetDeck

141 Retweets 23 Quote Tweets 1,200 Likes



Sentiment Analysis



Positive



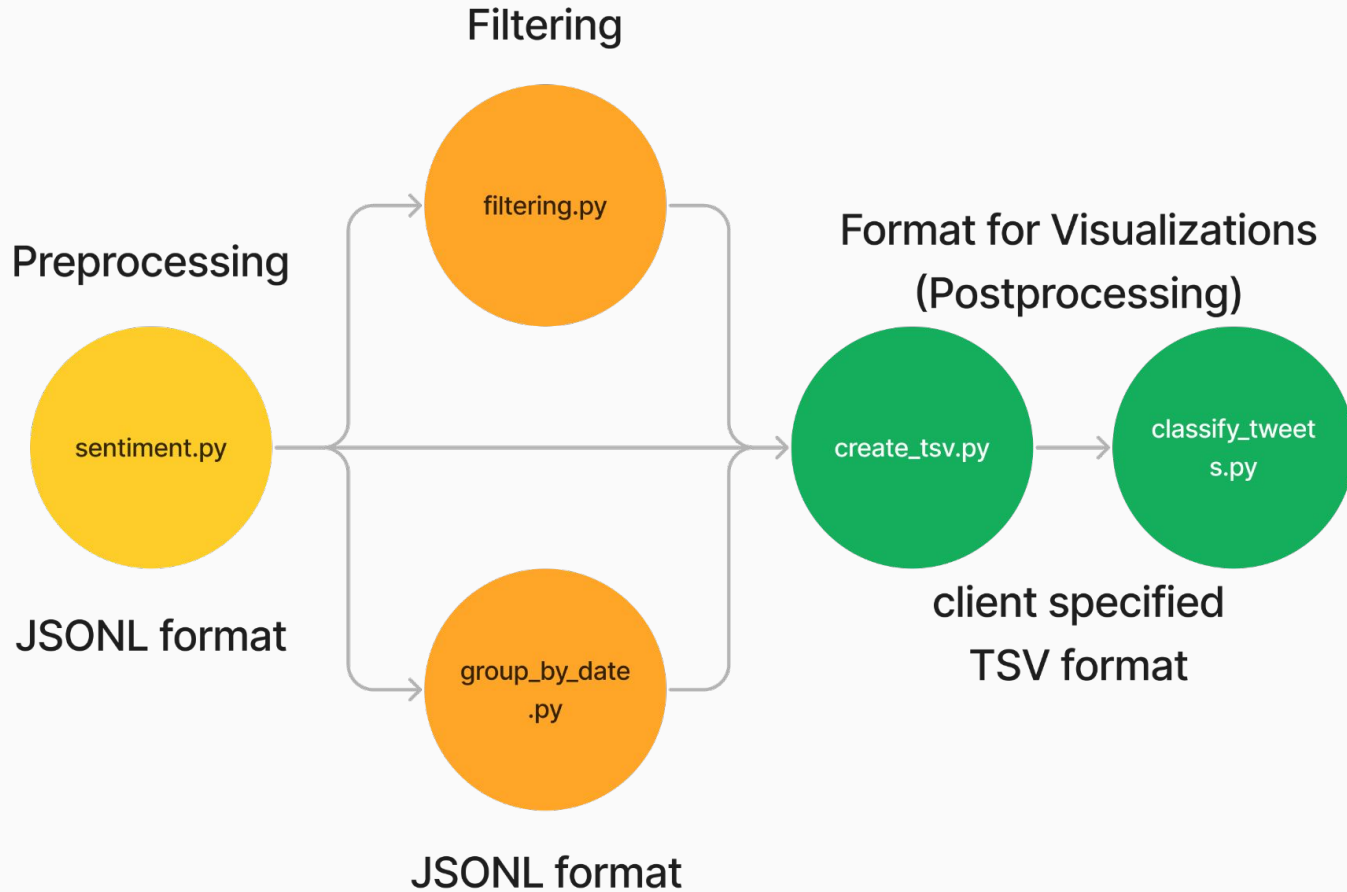
Negative



Neutral



Data Filtering and Sentiment Analysis



Data Filtering and Sentiment Analysis

FOR each line of tweets in JSONL file

TRY:

FOR each tweet in the line

Get the language of the tweet as 'lang'

IF: Lang is 'en':

TRY:

Calculate sentiment of tweet's text & add to 'sentiment' attribute

Write tweet as JSON string to output_filename

EXCEPT: Print "Skipped tweet - No Sentiment Score"

ELSE: Print "Skipped tweet - Not in English"

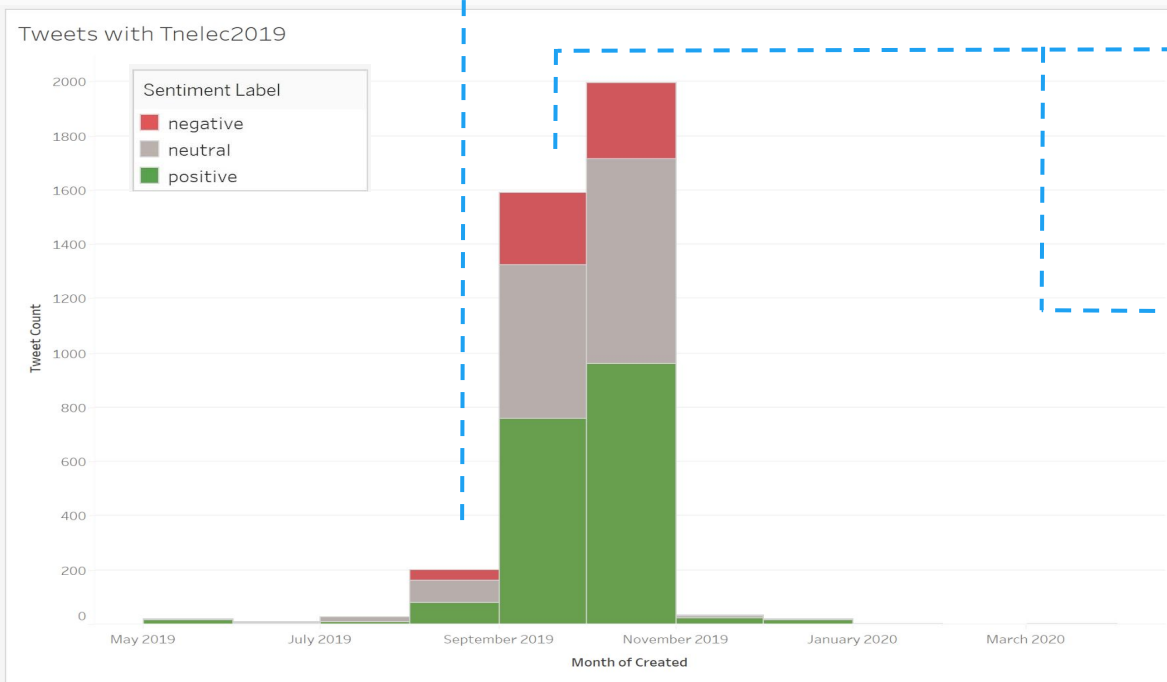
EXCEPT: Print "Skipped line"

Visualizations

- Created for tweet data filtered by keyword
 - Keyword-in-tweet volume
 - Tweet sentiment trend
- Analysed with respect to Tunisian political events between 2019-2023

```
1+ Search Term,Number of Tweets
2+ tunisia,4836
3+ saied,781
4+ 25juillet,485
5+ july25,19138
6+ referendum,24
7+ tnelec2019,2891
8+ tnelection,33656
9+ tunisiavotes,435
10+ tunisiadecides,596
11+ tunisie,403
12+ kaissaid,13
13+ constitutionélections,0
14+ législatives,0
15+ |
```

“Tnelec2019” Keyword Visualization



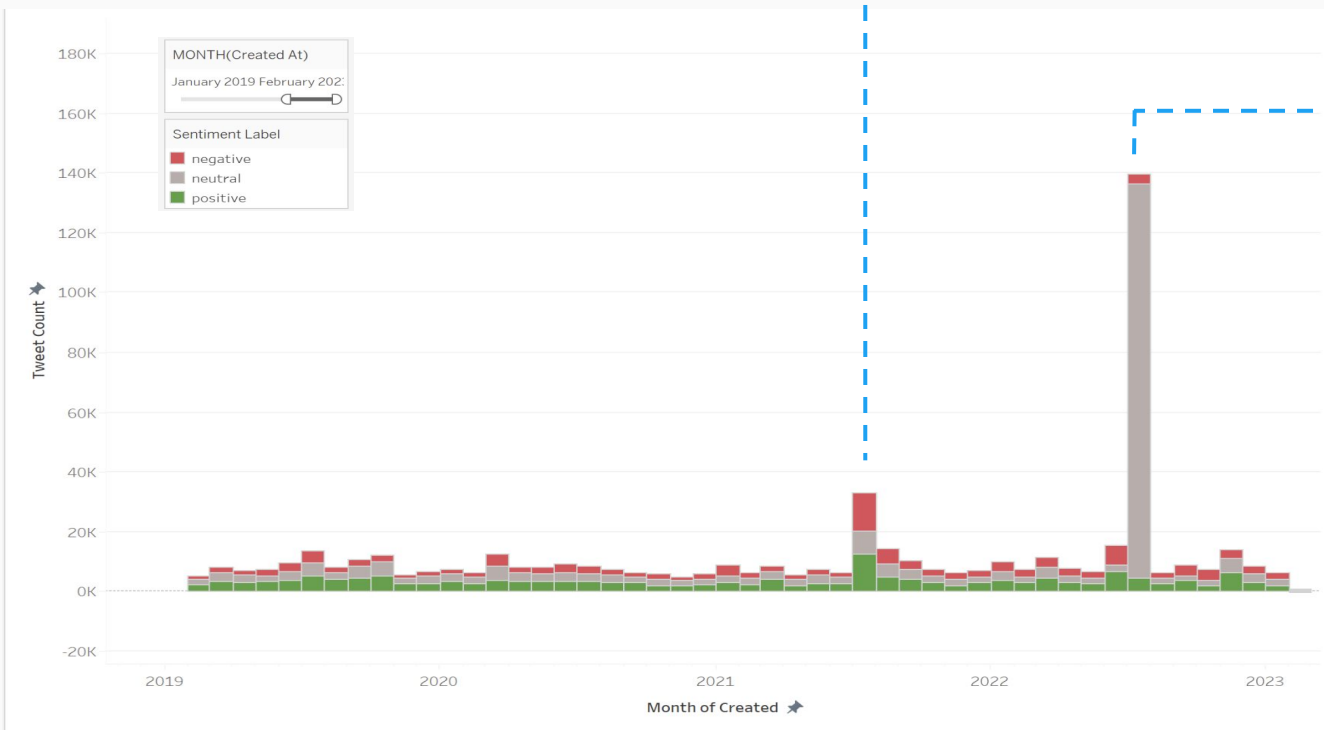
September 15, 2019
Presidential
elections

October 6, 2019
Parliamentary
elections

October 13, 2019
Presidential run-off

“Tunisiavotes”,
“tunisiadecides”, &
“tnelec2019” have the most
tweets in 2019.

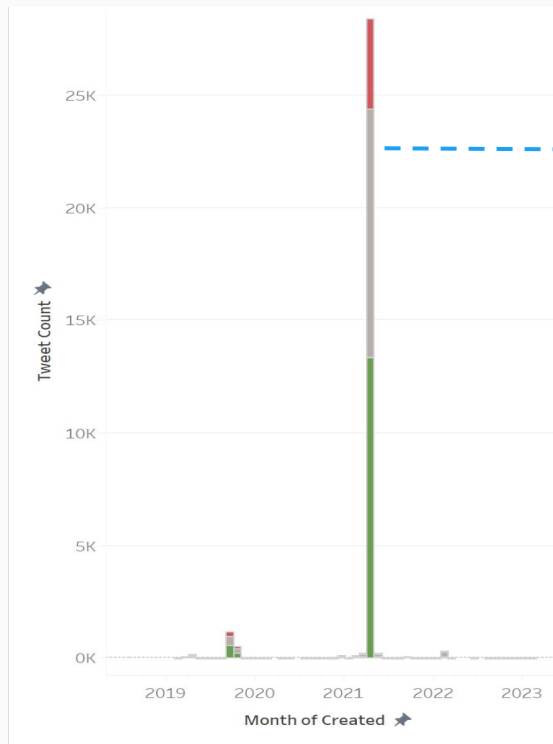
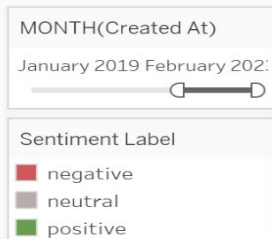
“Tunisia” Keyword Visualization



July 25, 2021
President Saied coup

July 25, 2022
Tunisians go to polls to
vote on a referendum
on a new constitution.

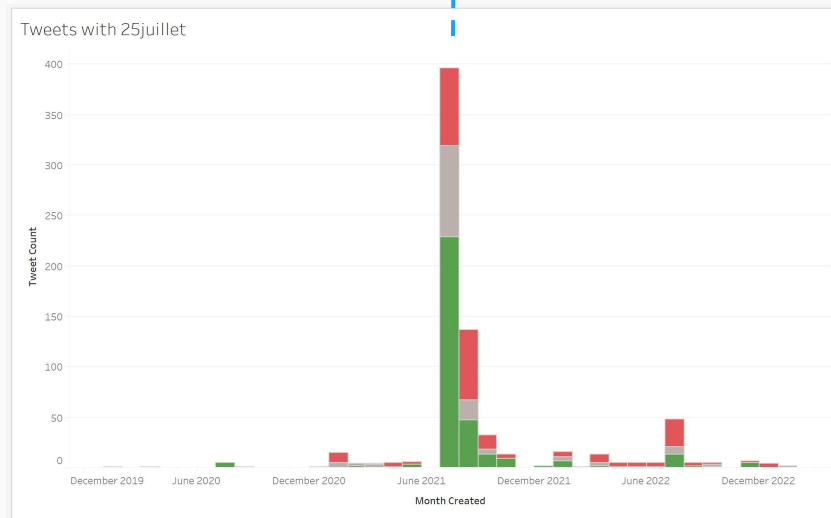
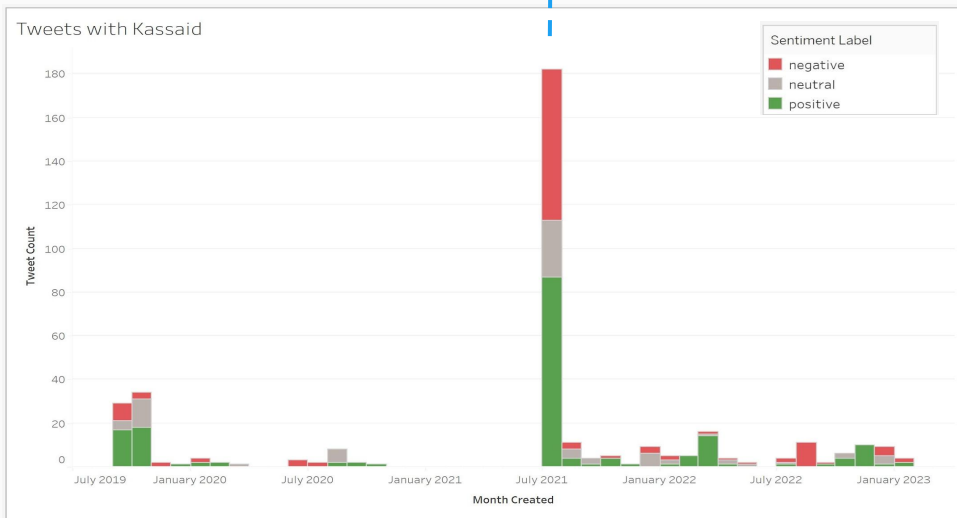
“Tnelection” Keyword Visualization



July 25, 2021
President Saied coup

“Kassaid” & “25juillet” Keyword Visualizations

July 25, 2021
President Saïed coup

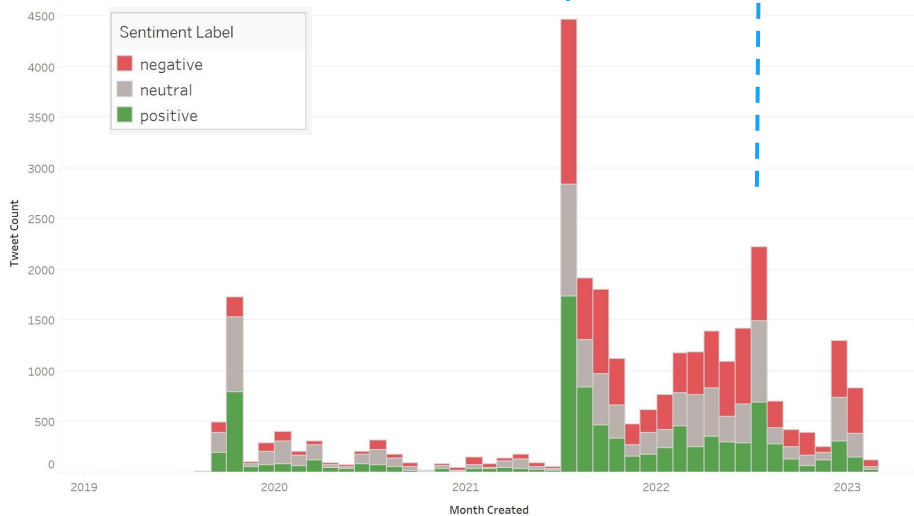


“Saied” & “Referendum” Keyword Visualizations

October 15, 2022
Islamist Ennahda and
Free Constitutional
Parties held parallel
rallies against Saied

December 17, 2022
Lower Parliament
elections are held

Tweets with Saied



Visualization Analysis Takeaways

- Tweet sentiment was always more negative than positive
- Spikes frequently occurred around major elections and protest dates
 - September 2019: Presidential elections
 - October 2019: Parliamentary elections and Saied's presidential run-offs
 - July 2021: President Saied's coup, dismissal of parliament, enforced curfew
 - July 2022: Tunisians vote for a referendum
 - October 2022: Major anti-Saied protests
 - December 2022: Lower Parliament elections

Project Takeaways

Challenges

Bias from
English-only
tweets



Successes

Use of sentiment
analysis

Learned Tableau for
visualizations

Added as authors to
research paper



Future Work

Create sentiment
algorithm for non-English
tweets

Create visualizations for
non-English tweets

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References

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