MATH513 Practical Presentation

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Introduction

- Samsung and Apple
- Flagship phones chosen
  - S20FE
  - iPhone12
  - S20

Tools Utilised

- Rstudio
- RTweet
- Twitter Developer API
- GitHub


Research

Choosing Twitter for Analysis

- Open API Access compared to others
- Almost all data is public
- Advanced filtering and queries
- Generous Rate limiting

Hashtags

- @SamsungMobile - https://twitter.com/SamsungMobile
- @Apple - https://twitter.com/Apple
- @tim_cook - https://twitter.com/tim_cook

Data Cleaning and Feature Engineering

Data Cleaning

- Duplicate tweet and user observations were removed
- Tweet text and user bios were cleaned
  - Removed links, hash-tags, emojis, and user mentions

Feature Engineering

- Users were marked as potential bots
- User country was extracted from the location of their profile
- Tweets were marked as potential spam
- Hash-tags were extracted from the tweet text
- Product features were extracted from the tweet text
  - Display, Battery, Camera, Price, and 5G Capability
- An overall sentiment score was calculated for each tweet

Summary of Collected Data

Total Tweets: 73690 after data cleaning

Total Features: `5 (Display, Battery, Camera, Price, and 5G)`

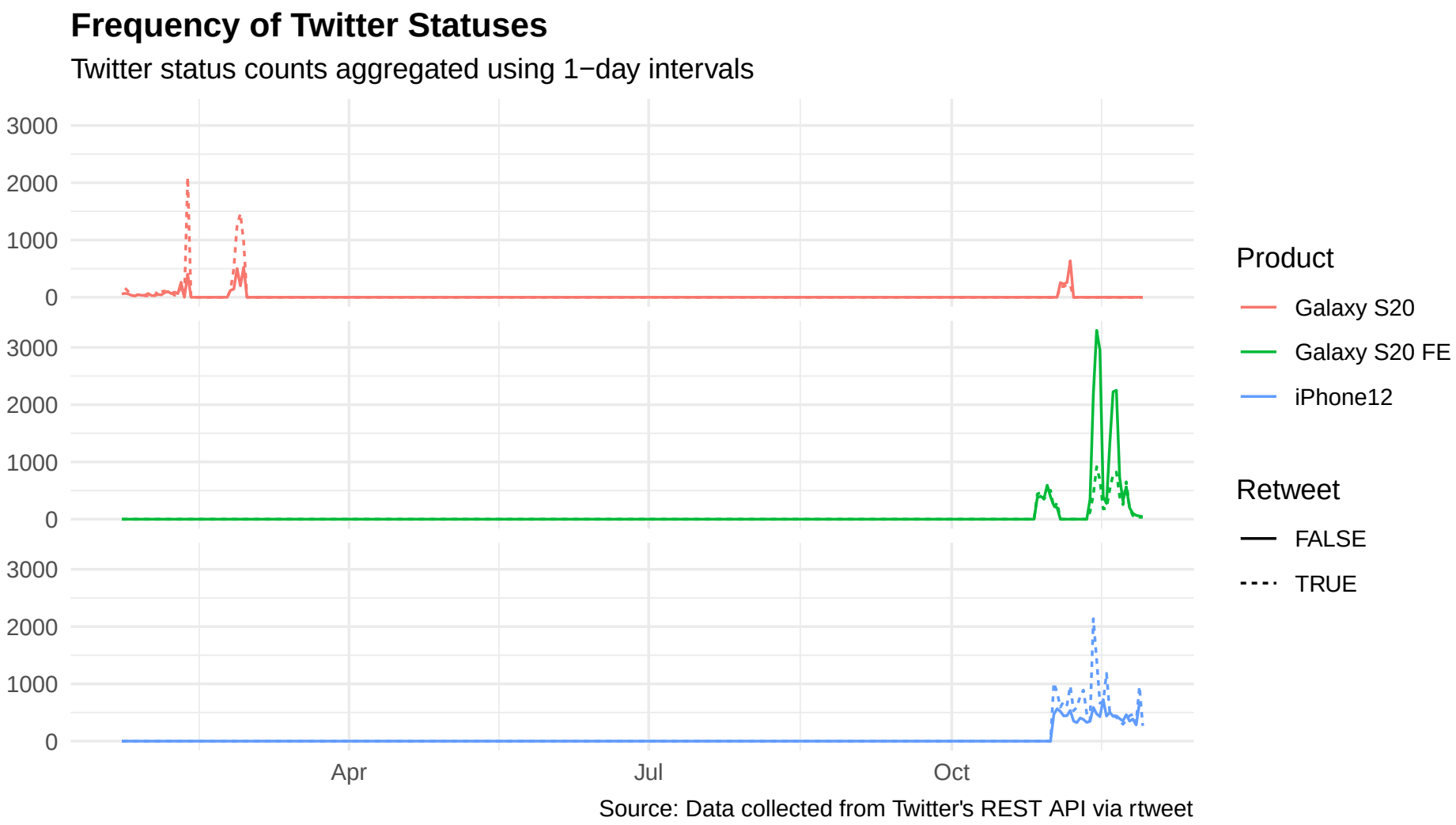
Table 1: Summary of Tweet Data

Product	Number of Tweets	% Spam Tweets	% Feature Tweets
Galaxy S20	13147	3%	20%
Galaxy S20 FE	28923	19%	19%
iPhone12	31620	13%	7%

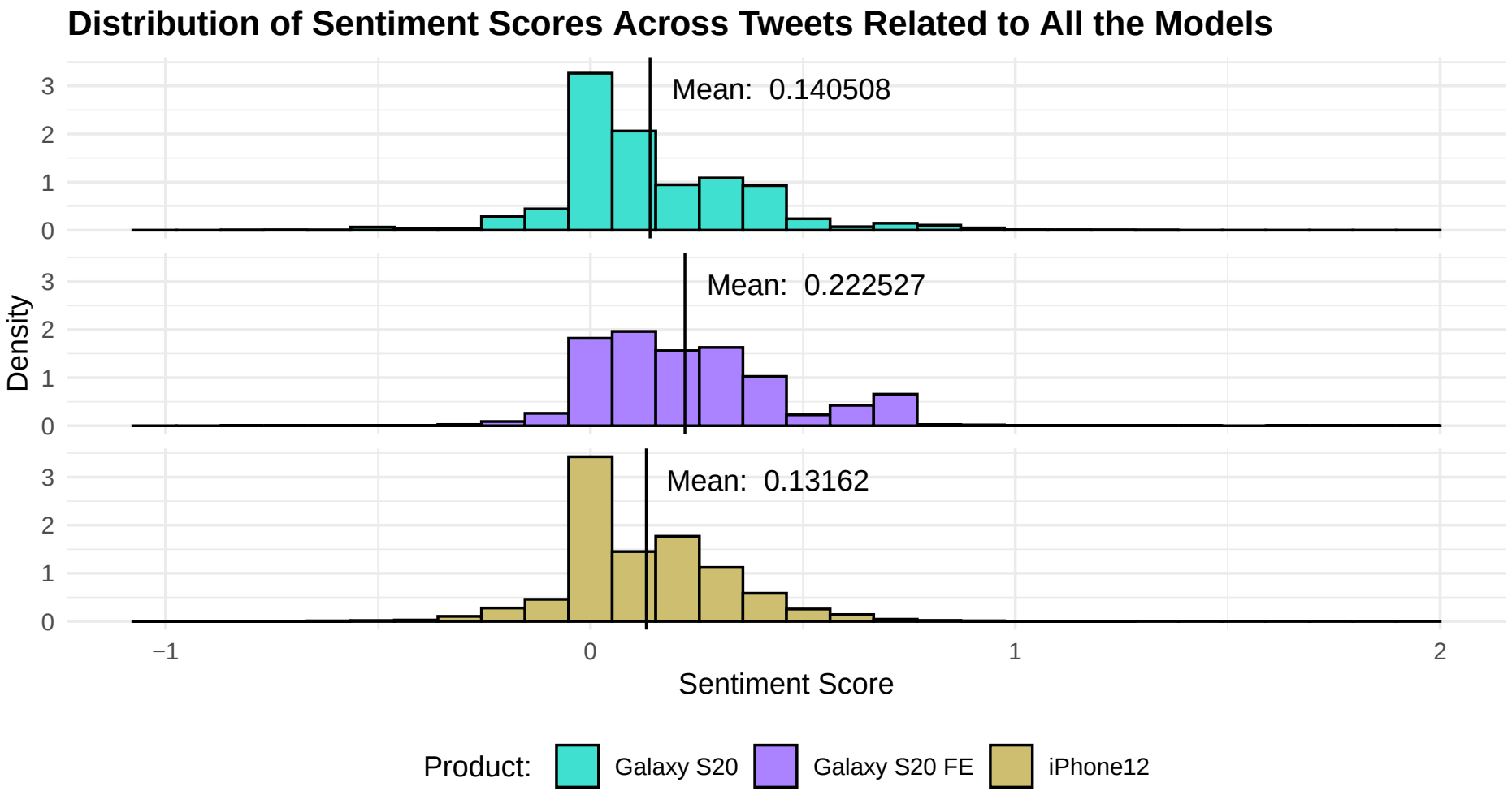
Table 2: Summary of User Data

Number of Users	% Bot Users	Unique Countries
35051	>1%	163

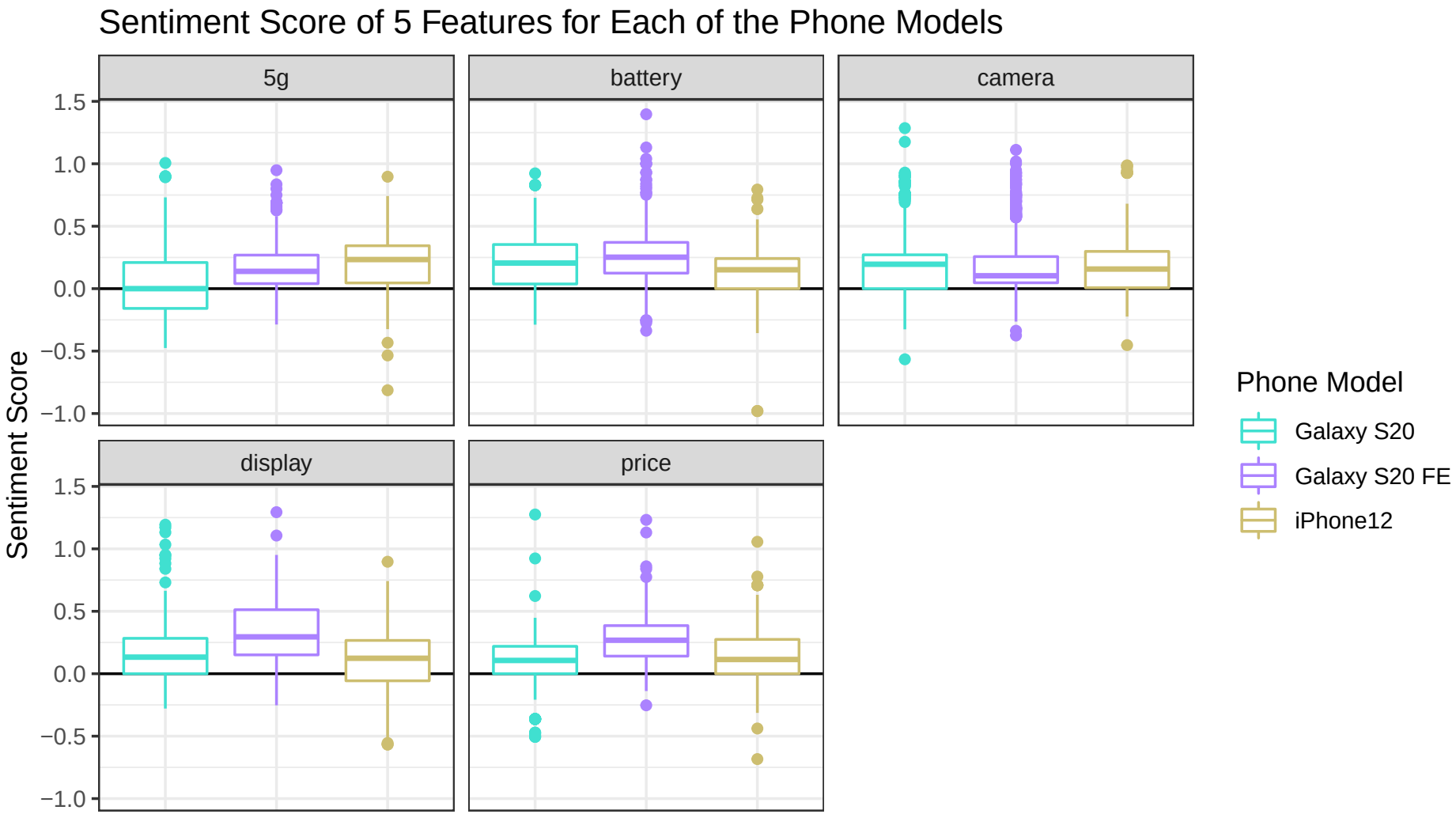
Time Periods for Data Collection



Results - Sentiment Analysis - All Tweets

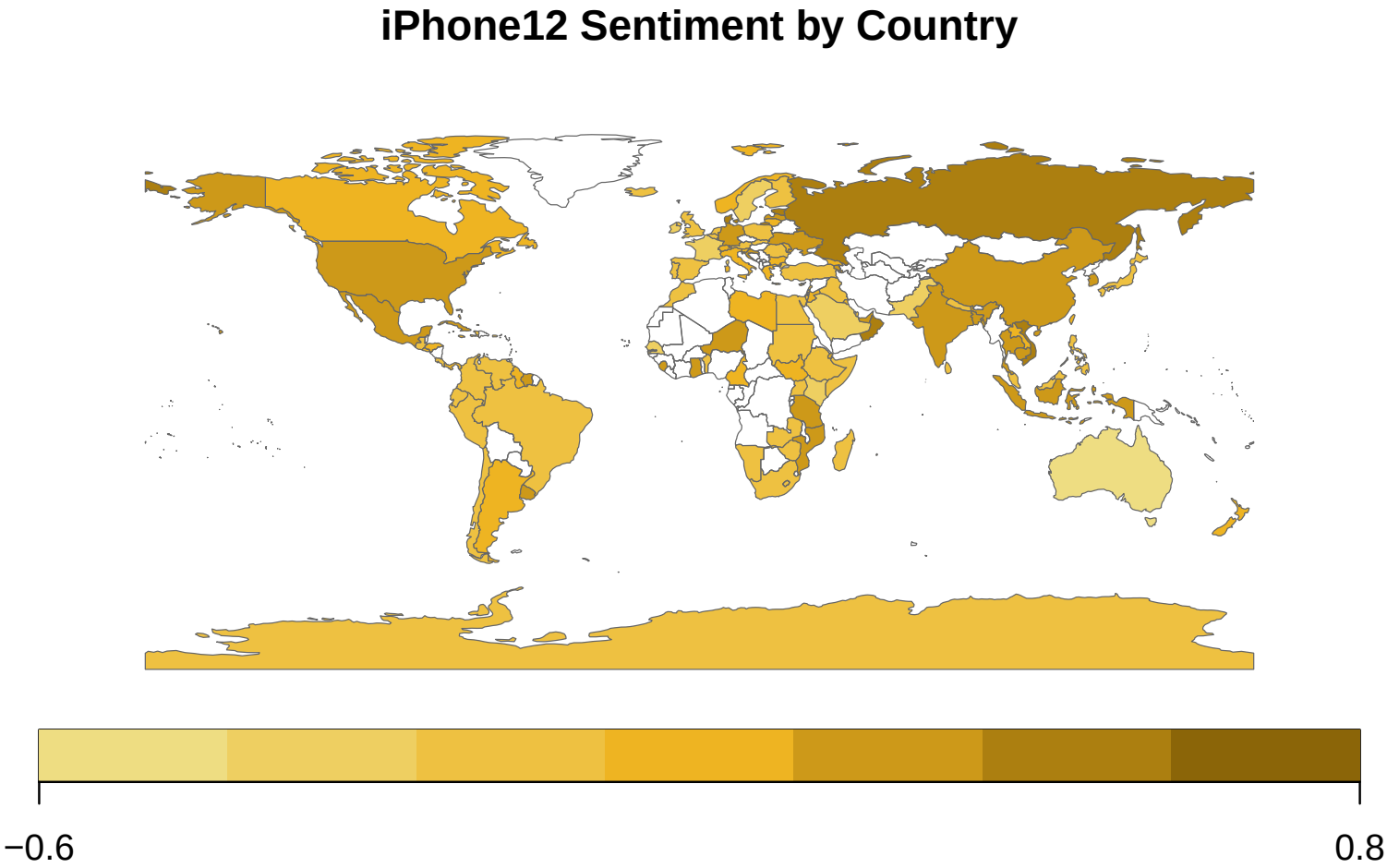


Results - Sentiment Analysis - Features



Results - Sentiment Globally

!!!!!! NEED TO PLOT 3 GRAPHS ON ONE SLIDE



Improvements & Further Study

Improvements

Google Maps API to have region filter

Look at mentions of apple in samsung and vice versa

Issues and overcoming them

- Extraction by date
- Duplication
- Time limits
- Foreign languages
-

Conclusions

- Twitter data provides up to date information for companies to analyse for customer feedback
- Data can provide useful information to guide product teams when analysed correctly

!!!! WILL TO LOOK AT REDUCING FONT SIZE

References

- Ahmed, Wasim (2019) *Using Twitter as a data source: an overview of social media research tools* Available at: https://blogs.lse.ac.uk/impactofsocialsciences/2019/06/18/using-twitter-as-a-data-source-an-overview-of-social-media-research-tools-2019/ (Accessed: 07 December 2020)
- Dalla Valle, Luciana (2020) *MATH513 Lecture and Tutorial Code* Available at: https://dle.plymouth.ac.uk/course/view.php?id=49628 (Accessed: 2020)
- Fuchs, Matti (2018) *Doing your first sentiment analysis in R with Sentimentr* Available at: https://towardsdatascience.com/doing-your-first-sentiment-analysis-in-r-with-sentimentr-167855445132 (Accessed: 06 December 2020)
- Rinker, Tyler (2020) *R Documentation - sentiment_by* Available at: https://www.rdocumentation.org/packages/sentimentr/versions/2.7.1/topics/sentiment_by (Accessed: 06 December 2020)
- RStudio (2020) *R Markdown Cheat Sheet* Available at: https://www.rstudio.com/wp-content/uploads/2015/02/rmarkdown-

References

- Twitter (2020) *API Documentation* Available at: https://developer.twitter.com/en/docs/twitter-api (Accessed: 10 October 2020)
- Young, Michelle (2017) *Twitter Data Mining: A Guide to Big Data Analytics Using Python* Available at: https://chatbotslife.com/twitter-data-mining-a-guide-to-big-data-analytics-using-python-4efc8ccfa219 (Accessed: 07 December 2020)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