



Social Computists | Cadag, Ng, Samson



FOOTBALL AND ITS TOXICITY FOR NEW ENTHUSIASTS

CSCI 161.03



SOCIAL COMPUTISTS



MIGGY CADAG

3 BS ITE



JAVI NG

3 BS CS



NHEO SAMSON

3 BS CS



PROJECT OUTLINE

#1 SIGNIFICANCE

#4 CORPUS

#2 OBJECTIVES

#5 METHODS

#3 CONTEXT

#6 ANALYSIS

#7 CONCLUSION





SIGNIFICANCE

The football community is known to be ***unsportsmanlike and aggressive*** at times.

Because of this, it could be a ***difficult environment*** for people to take part in, especially for people looking to join discussions regarding the sport.

This toxicity is especially prevalent in games with ***controversial calls*** from referees, which drastically change the outcome of the game.

As such, this study aims to find out more about the ***behavior of fans*** during such games compared to those without a controversial call.





OBJECTIVES

To curate a textual corpus that compares a selection of certain football matches during the 2023-2024 Premier League season, enabling a detailed textual analysis of fan responses and interactions

To conduct a comprehensive behavioral analysis of football enthusiasts' responses and attitudes in the aftermath of controversial referee decisions during select matches

To identify common themes and topics that emerge in fan discussions and comments when games feature controversial calls compared to those without such incidents





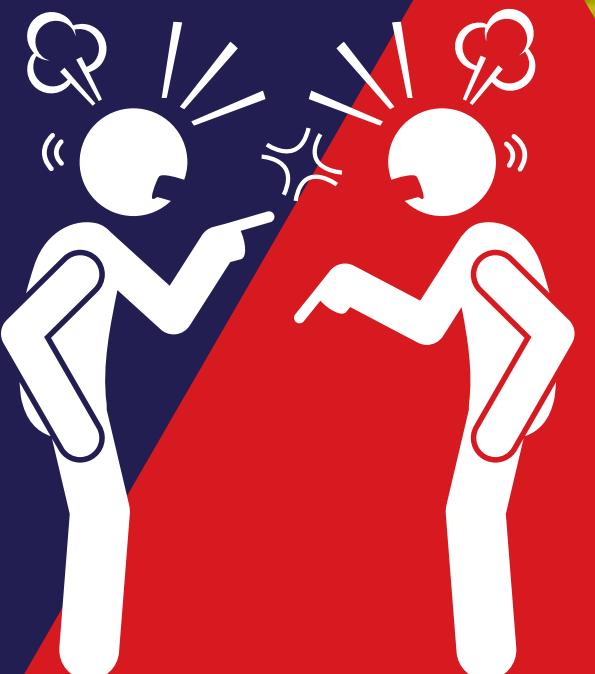
CONTEXT

This presentation explores the world of football, with a primary focus on the renowned **Premier League** and its top clubs, known as the "Big 6."

It acknowledges **football's global popularity**, while shedding light on the issue of **online abuse**.

The **role of referees and their decisions**, including red and yellow cards and the offside rule, is discussed. The impact of **Video Assistant Referees (VARs)** on the game is introduced.

Two contrasting football games, one with a controversial call and another without, offer insights into fan behavior.





Social Computists | Cadag, Ng, Samson



Facebook Comments



30,545 f
COMMENTS



4-3
1-2



45,528
COMMENTS

YouTube Comments



14,983
COMMENTS



2-0
1-0



TEXTUAL CORPUS



METHODS

Term-Frequency Based Analysis Topic Modeling Sentiment Analysis

The screenshot shows a Jupyter Notebook interface with the following details:

- Title:** Computational Analysis.ipynb
- Table of Contents:**
 - Term-frequency Analysis
 - Tottenham Non-Controversial Data
 - Wordcloud
 - Term-frequency analysis
 - Sentiment Analysis
 - Liverpool Data
 - All Liverpool Data
 - Wordcloud
 - Topic Modeling
 - Sentiment Analysis
 - Term-frequency based analysis
 - Naive Bayes Classifier
 - Liverpool Controversial Data
 - Liverpool Non-Controversial Data
 - Manchester Data
 - All Manchester Data
 - Wordcloud
 - Topic Modeling
 - Sentiment Analysis
 - Term-frequency based analysis
 - Naive Bayes Classifier
 - Manchester Controversial Data
 - Manchester Non-Controversial Data
- Code Cell:**

```
[ ] !pip install pyLDAvis
```

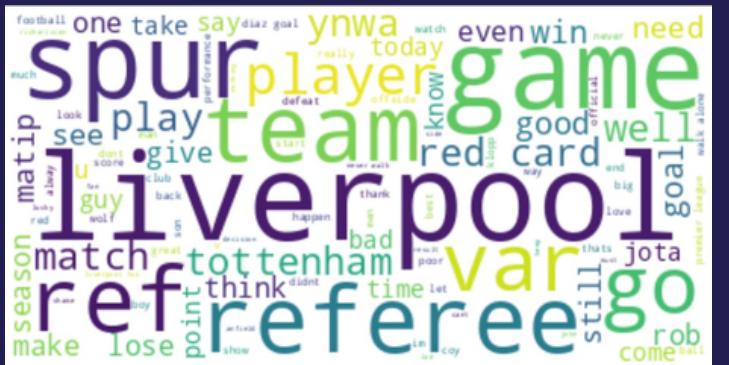
Requirement already satisfied: pyLDAvis in /usr/local/lib/python3.10/dist-packages (3.4.1)
Requirement already satisfied: numpy>=1.24.2 in /usr/local/lib/python3.10/dist-packages (from pyLDAvis) (1.26.1)
Requirement already satisfied: scipy in /usr/local/lib/python3.10/dist-packages (from pyLDAvis) (1.11.3)
Requirement already satisfied: pandas>=2.0.0 in /usr/local/lib/python3.10/dist-packages (from pyLDAvis) (2.1.2)
Requirement already satisfied: joblib>=1.2.0 in /usr/local/lib/python3.10/dist-packages (from pyLDAvis) (1.3.2)
Requirement already satisfied: jinja2 in /usr/local/lib/python3.10/dist-packages (from pyLDAvis) (3.1.2)
Requirement already satisfied: numexpr in /usr/local/lib/python3.10/dist-packages (from pyLDAvis) (2.8.7)
Requirement already satisfied: funcy in /usr/local/lib/python3.10/dist-packages (from pyLDAvis) (2.0)
Requirement already satisfied: scikit-learn>=1.0.0 in /usr/local/lib/python3.10/dist-packages (from pyLDAvis) (1.2.2)
Requirement already satisfied: gensim in /usr/local/lib/python3.10/dist-packages (from pyLDAvis) (4.3.2)
Requirement already satisfied: setuptools in /usr/local/lib/python3.10/dist-packages (from pyLDAvis) (67.7.2)
Requirement already satisfied: python-dateutil>=2.8.2 in /usr/local/lib/python3.10/dist-packages (from pandas>=2.0.0->pyLDAvis) (2.8.2)
Requirement already satisfied: pytz>=2020.1 in /usr/local/lib/python3.10/dist-packages (from pandas>=2.0.0->pyLDAvis) (2023.3.post1)
Requirement already satisfied: tzdata>=2022.1 in /usr/local/lib/python3.10/dist-packages (from pandas>=2.0.0->pyLDAvis) (2023.3)
Requirement already satisfied: threadpoolctl>=2.0.0 in /usr/local/lib/python3.10/dist-packages (from scikit-learn>=1.0.0->pyLDAvis) (3.2.0)
Requirement already satisfied: smart-open>=1.8.1 in /usr/local/lib/python3.10/dist-packages (from gensim>=pyLDAvis) (6.4.0)
Requirement already satisfied: MarkupSafe>=2.0 in /usr/local/lib/python3.10/dist-packages (from jinja2>=pyLDAvis) (2.1.3)
Requirement already satisfied: six>=1.5 in /usr/local/lib/python3.10/dist-packages (from python-dateutil>=2.8.2->pandas>=2.0.0->pyLDAvis) (1.16.0)

```
[ ] from sklearn.decomposition import LatentDirichletAllocation  
import pyLDAvis
```

```
( ) import pandas as pd  
import numpy as np  
import seaborn as sns  
from wordcloud import WordCloud  
import matplotlib.pyplot as plt  
import matplotlib.style as style  
from sklearn.feature_extraction.text import CountVectorizer  
import numpy as np  
import nltk  
import warnings  
nltk.download('stopwords')  
from nltk.corpus import stopwords  
stopwords = stopwords.words('english')
```



Term-Frequency Based Analysis (Word Cloud)



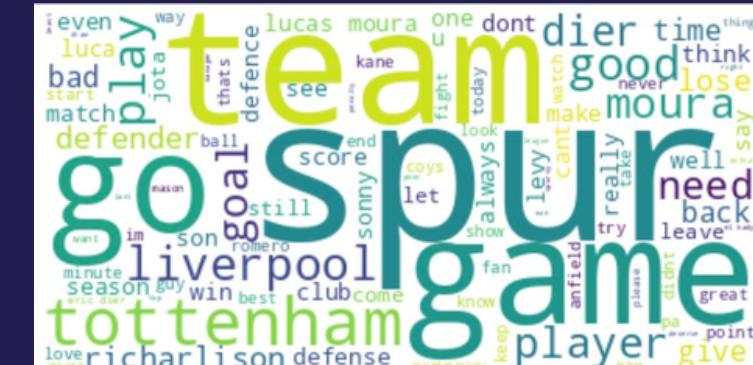
Entire Corpus Data



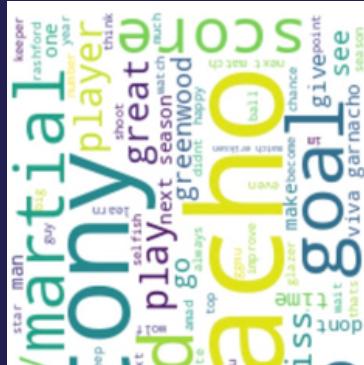
All Tottenham Data



Tottenham Controversial Data



Tottenham Non-Controversial Data



Manchester United Non-Controversial Data



All Liverpool Data



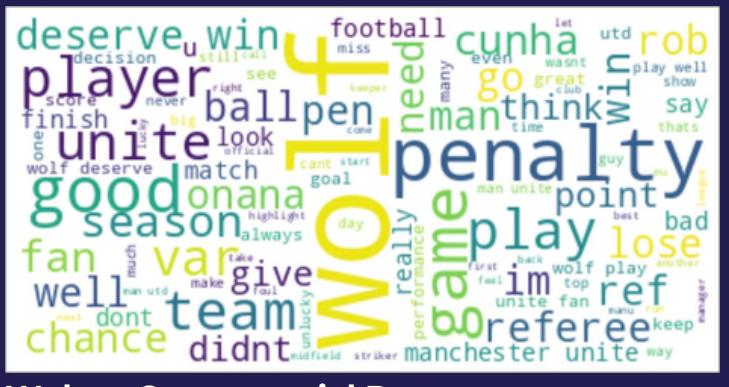
Liverpool Controversial Data



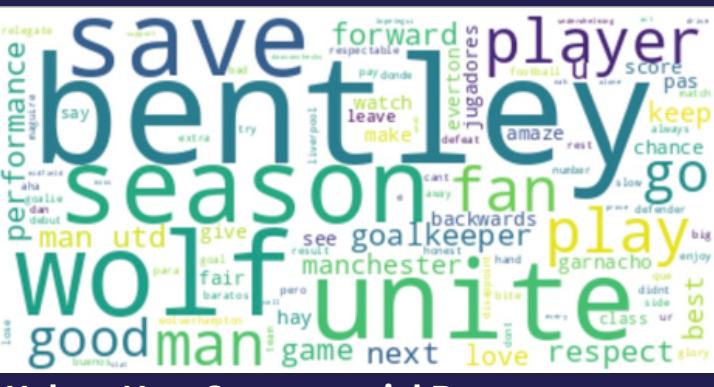
Liverpool Non-Controversial Data



All Wolves Data



Wolves Controversial Data



Wolves Non-Controversial Data



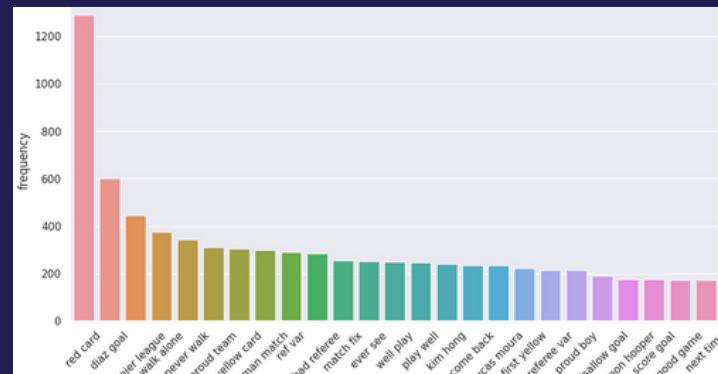
All Manchester United Data



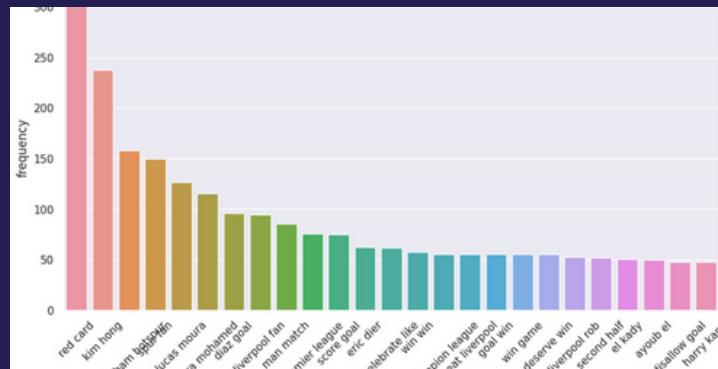
Manchester United Controversial Data



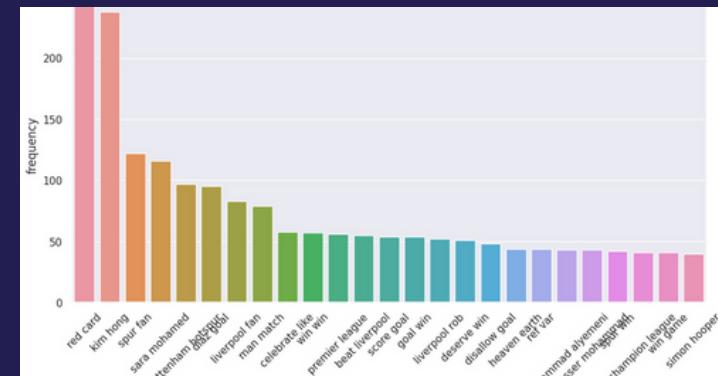
Term-Frequency Based Analysis



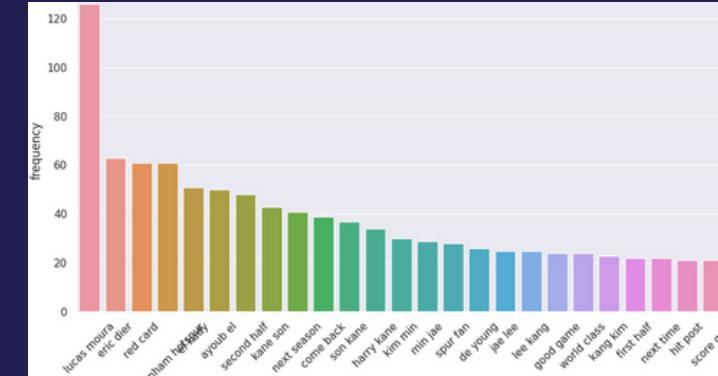
Entire Corpus Data



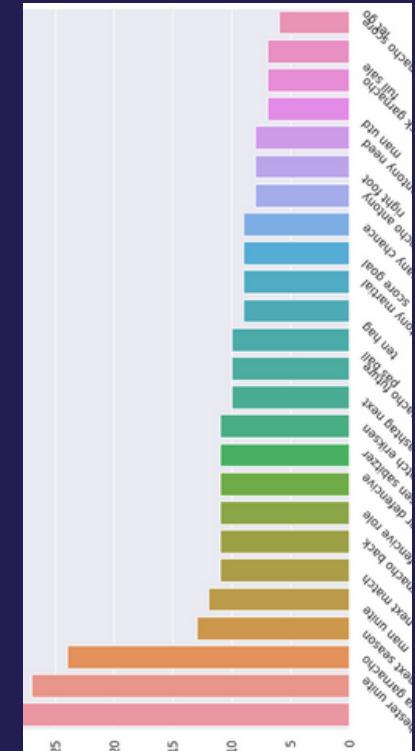
All Tottenham Data



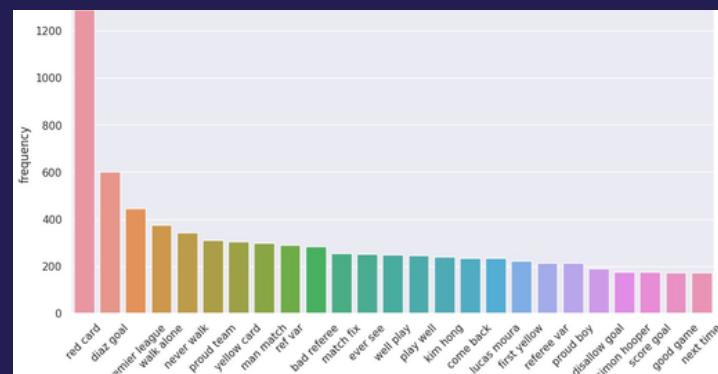
Tottenham Controversial Data



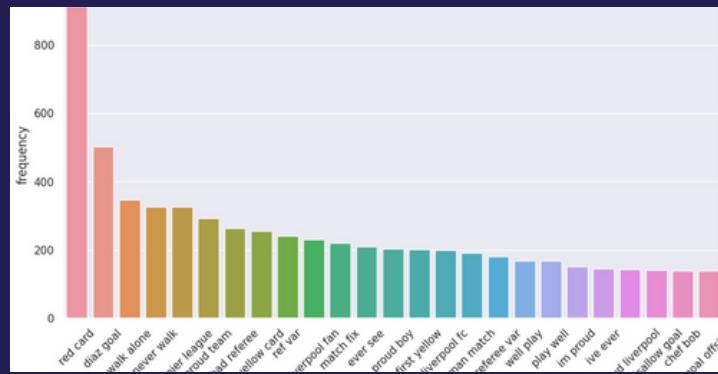
Tottenham Non-Controversial Data



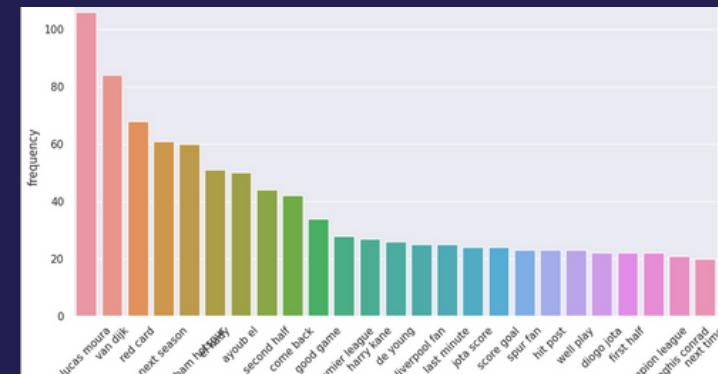
Manchester United Non-Controversial Data



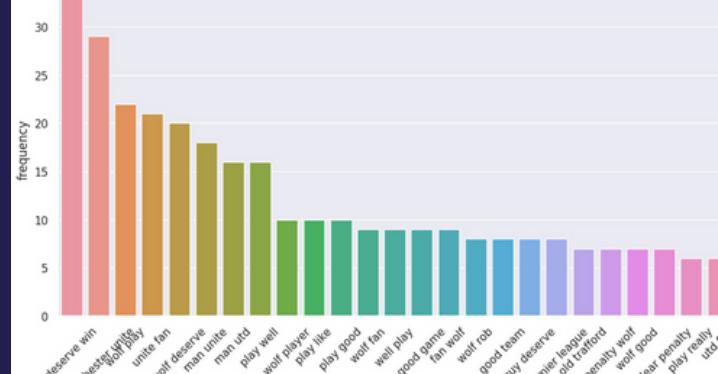
All Liverpool Data



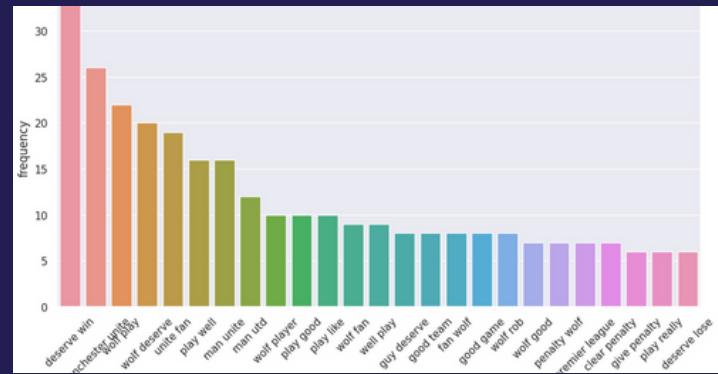
Liverpool Controversial Data



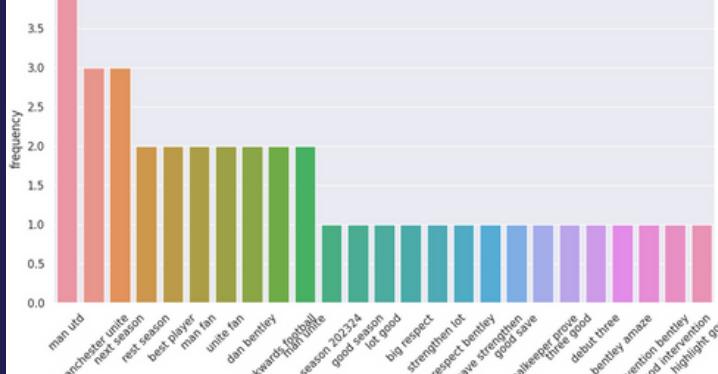
Liverpool Non-Controversial Data



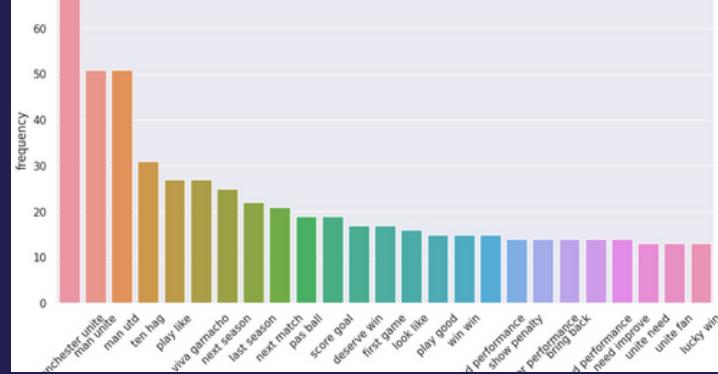
All Wolves Data



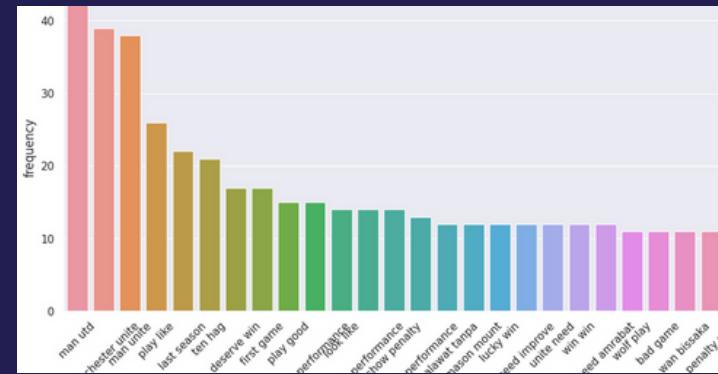
Wolves Controversial Data



Wolves Non-Controversial Data



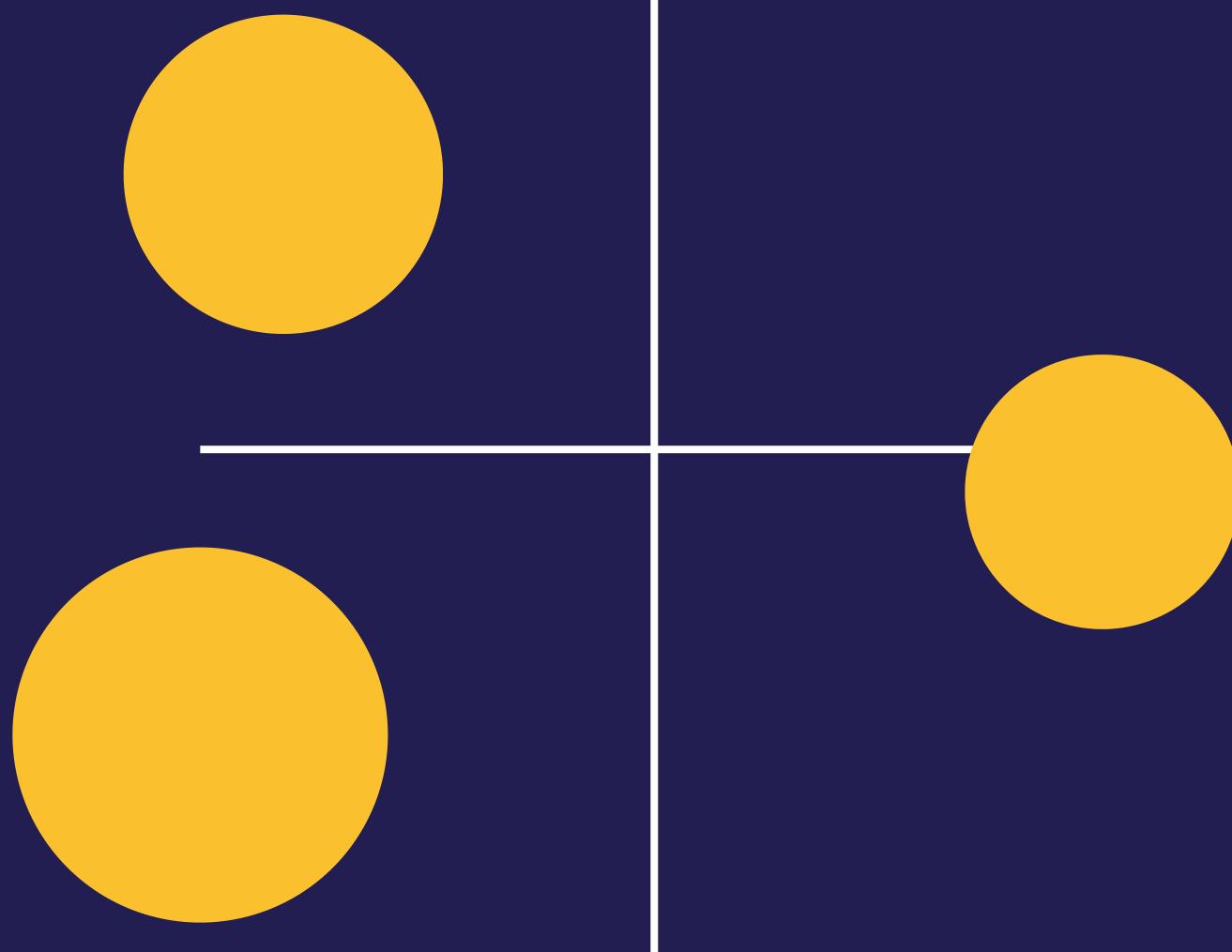
All Manchester United Data



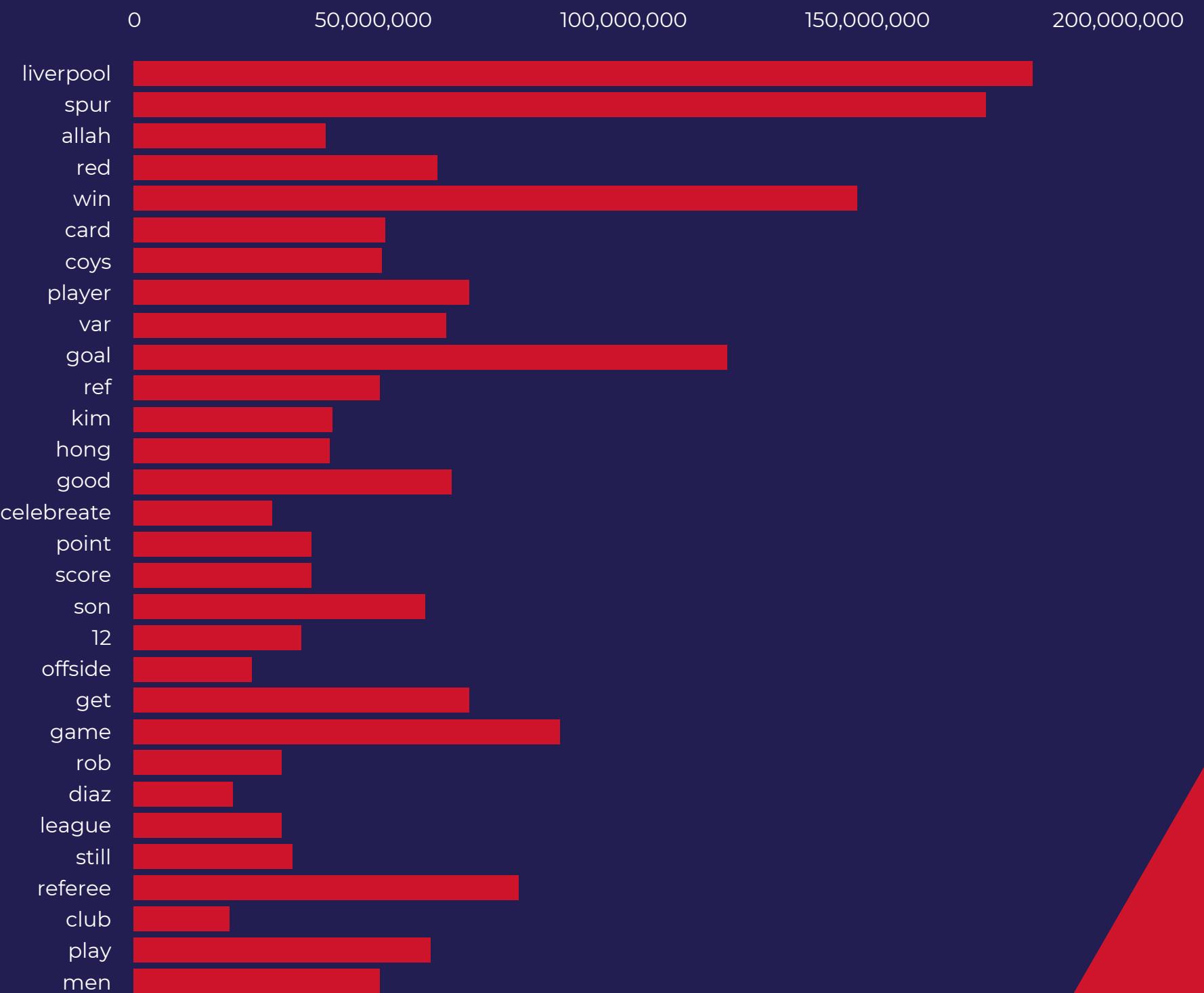
Manchester United Controversial Data



Topic Modeling



Top-30 Most Salient Terms





Sentiment Analysis

	Team	sentiment	count
0	Liverpool	neutral	21277
1	Liverpool	positive	4998
2	Liverpool	negative	3534
3	Manchester	neutral	2003
4	Manchester	positive	564
5	Manchester	negative	280
6	Tottenham	neutral	8790
7	Tottenham	positive	2208
8	Tottenham	negative	1205
9	Wolves	neutral	427
10	Wolves	positive	157
11	Wolves	negative	85

- Tracking of general sentiment by labeling comments by strongest sentiment



Social Computists | Cadag, Ng, Samson



RESULTS AND ANALYSIS

Tottenham Results

Liverpool Results

Manchester United Results

Wolves Results

Synthesis

Social Analysis



TOTTENHAM RESULTS

Observations:

- Most discussion was about the players and the game itself
- There was discussion of in-game moments
- Many comments are from fans expressing support

Tottenham May 1 (1-gram)						
#	Term	Count	#	Term	Count	
1	spur	472	6	get	338	
2	game	426	7	good	322	
3	team	356	8	goal	311	
4	tottenham	356	9	lucas	304	
5	moura	346	10	dier	303	

Tottenham May 1 (2-gram)						
#	Term	Count	#	Term	Count	
1	lucas moura	126	6	ayoub el	50	
2	eric dier	63	7	second half	48	
3	red card	61	8	kane son	43	
4	tottenham hotspur	61	9	next season	41	
5	el kady	51	10	come back	39	

TOTTEN
HOTSP



TOTTENHAM RESULTS

Observations:

- Much more hotly-contested
 - Liverpool is the highest 1-gram, when it wasn't even in the top 10 prior
 - Terms such as referee, VAR, red card
- Some celebration from Tottenham fans

Tottenham September 30 (1-gram)					
#	Term	Count	#	Term	Count
1	liverpool	1177	6	tottenham	548
2	spur	1118	7	team	542
3	win	1053	8	referee	540
4	goal	855	9	var	489
5	game	602	10	allah	435

Tottenham September 30 (2-gram)					
#	Term	Count	#	Term	Count
1	red card	246	6	diaz goal	95
2	kim hong	238	7	liverpool fan	83
3	spur fan	122	8	man match	79
4	sara mohamed	116	9	celebrate like	58
5	tottenham hotspur	97	10	win win	57

TOTTEN
HOTSP



TOTTENHAM RESULTS

Game	Sentiment	Count
Tottenham vs. Liverpool May 1	neutral	3408
	positive	615
	negative	455
Tottenham vs. Liverpool September 30	neutral	5382
	positive	1593
	negative	750

Observations:

- Mostly neutral, then positive, then negative
- September 30 - influx of positive comments could be due to victory of Tottenham, while negative comments could come from Liverpool fans

TOTTEN
HOTSPUR



TOTTENHAM RESULTS

Observations:

- May 1 (non-controversial, loss)
 - Generally normal discussion despite loss
 - Talking about the game itself and the players
- September 30 (controversial, win)
 - Negative reactions despite Tottenham winning
 - Liverpool fans' point of view
 - Some celebration from Tottenham fans

Tottenham May 1 Topics		
Terms	Likely Topic	Count
play, team, spur, good, go, player, need, son, like, get	General positive reactions to the game	1666
game, moura, lucas, goal, spur, score, match, bad, <u>richarlison</u> , first	Specific events of the game on the Spurs' side (players, goals)	1554
tottenham, dier, red, iota, get, eric, liverpool, de, card, hotspur	Specific events of game generally (players from both teams)	1258
Tottenham September 30 Topics		
Terms	Likely Topic	Count
liverpool, spur, win, goal, player, red, get, good, son, 12, rob	General negative reactions to the result of the game	3888
win, goal, var, ref, game, liverpool, spur, referee, celebrate, league	Specific events of the game from Liverpool's side (i.e. goal, var, offside)	3084
allah, tottenham, hotspur, earth, great, one, would, come, world, lord	General positive reaction to the result of the game	753

TOTTEN
HOTSP



LIVERPOOL RESULTS

Observations:

- Back to normal discussion
 - Both Tottenham and Liverpool players are mentioned, especially those who scored/blocked goals
- In-game moments
- Congratulations from fans

Liverpool May 1 (1-gram)						
#	Term	Count	#	Term	Count	
1	game	660	6	get	369	
2	liverpool	628	7	team	331	
3	jota	414	8	good	328	
4	spur	404	9	tottenham	307	
5	goal	389	10	go	307	

Liverpool May 1 (2-gram)						
#	Term	Count	#	Term	Count	
1	lucas moura	106	6	el kady	51	
2	van dijk	84	7	ayoub el	50	
3	red card	68	8	second half	44	
4	next season	61	9	come back	42	
5	tottenham hotspur	60	10	good game	34	





LIVERPOOL RESULTS

Observations:

- Very many mentions of referees (bad referee, VAR, ref)
 - Once again, most discussion goes around the contested decision (Diaz goal, red card)
- Lots of support for Liverpool given “unfair” loss
 - YNWA (“you never walk alone”)

Liverpool September 30 (1-gram)					
#	Term	Count	#	Term	Count
1	liverpool	3746	6	goal	2141
2	referee	2841	7	red	1858
3	game	2443	8	team	1807
4	var	2252	9	ynwa	1799
5	ref	2224	10	match	1539

Liverpool September 30 (2-gram)					
#	Term	Count	#	Term	Count
1	red card	915	6	proud team	293
2	diaz goal	502	7	bad referee	263
3	walk alone	346	8	yellow card	256
4	never walk	326	9	ref var	240
5	premier league	326	10	liverpool fan	230





LIVERPOOL RESULTS

Game	Sentiment	Count
Tottenham vs. Liverpool May 1	neutral	4339
	positive	1018
	negative	456
Tottenham vs. Liverpool September 30	neutral	16938
	positive	3980
	negative	3078

Observations:

- Much like previous data, neutral, then positive, then negative
- May 1 - Liverpool winning could lead to more positive comments
- September 30 - Possibly Tottenham fans, inconclusive (see limitations)





LIVERPOOL RESULTS

Observations:

- May 1 (non-controversial, win)
 - About the game itself
 - Reaction to the events that happened in the game for both teams
- September 30 (controversial, loss)
 - More on reaction towards the referee, the VAR team and the decisions they made
 - More on Liverpool's side of the game as well as giving the Liverpool team praise

Liverpool May 1 Topics		
Terms	Likely Topic	Count
liverpool, game, moura, play, lucas, team, good, tottenham, spur, time	General reactions to the results	2189
goal, <u>richarlison</u> , van, spur, score, liverpool, bad, still, fan, need	Specific events in the game (Tottenham side)	1900
game, jota, get, red, season, go, back, one, let, fight	Specific events in the game (Liverpool side)	1724
Liverpool September 30 Topics		
Terms	Likely Topic	Count
liverpool, referee, game, match, var, bad, ref, see, league, fan	Reactions to referee calls made during the game against Liverpool	10572
red, <u>vnwa</u> , goal, proud, <u>matip</u> , card, well, ref, team, play	Specific events in the game (Liverpool side)	9645
rob, walk, never, alone, de, liverpool, var, el, ref, la	Praise for the Liverpool team	3779





MANCHESTER UNITED RESULTS

Observations:

- Once again, fairly normal discussion
 - Discussion about Manchester United players (especially Garnacho)
 - Discussion about game strategies and player performances (Defencive role)

Manchester United May 14 (1-gram)						
#	Term	Count	#	Term	Count	
1	garnacho	285	6	need	67	
2	antony	175	7	sancho	66	
3	unite	97	8	next	59	
4	goal	81	9	score	57	
5	back	71	10	martial	56	

Manchester United May 14 (2-gram)						
#	Term	Count	#	Term	Count	
1	manchester unite	29	6	garnacho back	11	
2	viva garnacho	27	7	defencive role	11	
3	next season	24	8	sabitzer defencive	11	
4	man <u>unite</u>	13	9	eriksen sabitzer	11	
5	next match	12	10	match eriksen	11	





MANCHESTER UNITED RESULTS

Observations:

- Despite win, discussion is centered around the controversy
 - “deserve win” likely about how Wolves deserved to win
- Praise for the team from fans

Manchester United August 15 (1-gram)					
#	Term	Count	#	Term	Count
1	unite	224	6	wolf	178
2	win	207	7	game	168
3	play	207	8	team	157
4	need	201	9	get	139
5	onana	179	10	man	136

Manchester United August 15 (2-gram)					
#	Term	Count	#	Term	Count
1	man utd	43	6	ten hag	21
2	manchester unite	39	7	deserve win	17
3	man <u>unite</u>	38	8	first game	17
4	play like	26	9	play good	15
5	last season	22	10	bad performance	15





MANCHESTER UNITED RESULTS

Game	Sentiment	Count
Manchester United vs. Wolves May 14	neutral	1198
	positive	383
	negative	237
Manchester United vs. Wolves August 15	neutral	805
	positive	181
	negative	43



Observations:

- Again neutral, then positive, then negative
- Makes sense that both games have higher positive, given team won both



MANCHESTER UNITED RESULTS

Observations:

- May 14 (non-controversial, win)
 - Discussed the details of the match, and the reaction to the performance of the players, and the results
- August 15 (controversial, win)
 - Despite winning on both occasions, this win was treated differently
 - Discussed how they won with words like penalty, and lucky

Manchester United May 14 Topics		
Terms	Likely Topic	Count
garnacho, antony, sancho, anthony, viva, ole, bruno, give, goal, player	Reactions to Manchester United players and their performances	402
antony, unite, martial, next, goal, great, score, manchester, season, match	Specific events during the game (Manchester United side)	326
back, garnacho, game, man, unite, need, come, go, ball, <u>ggmu</u>	Reactions to the result of the match	301

Manchester United August 15 Topics		
Terms	Likely Topic	Count
win, unite, wolf, man, penalty, play, uta, good, team, lucky	Reactions to Manchester United's victory and how they won	717
need, game, mount, play, performance, season, bad, player, see, rashford	Discussion regarding Manchester United players' performance as a team	636
<u>onana</u> , varane, team, mu, like, play, get, season, player, save	Discussion regarding individual Manchester United players	465





WOLVES RESULTS

Observations:

- For their non controversial loss on May 14:
 - it mainly talks about praise for the team, with words like Bentley and save being there
 - talks on the match itself with team names garnering a lot of counts

Wolverhampton Wanderers May 14 (1-gram)						
#	Term	Count	#	Term	Count	
1	bentley	15	6	season	8	
2	man	10	7	get	6	
3	wolf	9	8	player	6	
4	save	8	9	play	6	
5	unite	8	10	fan	6	

Wolverhampton Wanderers May 14 (2-gram)						
#	Term	Count	#	Term	Count	
1	man utd	4	6	man fan	2	
2	manchester unite	3	7	unite fan	2	
3	next season	3	8	dan bentley	2	
4	rest season	2	9	backwards football	2	
5	best player	2	10	man <u>unite</u>	2	



WOLVES RESULTS

Observations:

- For their controversial loss on August 15:
 - words like penalty were used in reference to the controversial call of penalty not being given
 - talks about how Wolves deserved the win and played well which means the controversial call greatly affected the match outcome

Wolverhampton Wanderers August 15 (1-gram)					
#	Term	Count	#	Term	Count
1	wolf	267	6	good	78
2	penalty	115	7	deserve	64
3	unite	113	8	win	62
4	play	93	9	fan	57
5	game	78	10	team	57

Wolverhampton Wanderers August 15 (2-gram)					
#	Term	Count	#	Term	Count
1	deserve win	33	6	play well	16
2	manchester unite	26	7	man <u>unite</u>	16
3	wolf play	22	8	man utd	12
4	wolf deserve	20	9	wolf player	10
5	unite fan	19	10	play good	10



WOLVES RESULTS

Game	Sentiment	Count
Manchester United vs. Wolves May 14	neutral	397
	positive	141
	negative	79
Manchester United vs. Wolves August 15	neutral	30
	positive	16
	negative	6

Observations:

- Again neutral, then positive, then negative



WOLVES RESULTS

Observations:

- May 14 (non-controversial, loss)
 - Praise for the Wolves team
 - Specific happenings from the game
 - Discussion on the opposing team
- August 15 (controversial, loss)
 - Performance of the Wolves team despite losing
 - Specific events, decisions by referees (words like robbery, penalty were used)

Wolverhampton Wanderers May 14 Topics		
Terms	Likely Topic	Count
bentley, season, save, good, play, game, respect, see, fair, give	Praise for the Wolves' team	25
wolf, bentley, player, unite, get, forward, best, manchester, goalkeeper, save	Specific events during the game	19
man, utd, pas, donde, bad, goalkeeper, fan, go, dont, play	Discussion about Manchester United	8

Wolverhampton Wanderers August 15 Topics		
Terms	Likely Topic	Count
wolf, unite, deserve, play, win, good, fan, well, team, cunha	Discussion about the Wolves' performance during the game	305
var, game, play, ref, unite, need, like, season, get, decision	Discussion about decisions from the referees and the VAR team	157
penalty, wolf, ball, player, <u>onana</u> , rob, give, pen, referee, get	Discussion of specific events during the game	155





SYNTHESIS

Tottenham:

- May 1 (non-controversial, loss)
 - Normal discussion about the game and the team despite losing
 - Some anger, but not the majority
- September 30 (controversial, win)
 - Negative reactions, possibly from Liverpool fans
 - Some celebration from Tottenham fans

Liverpool:

- May 1 (non-controversial, win)
 - Normal discussion about the game and the team
- September 30 (controversial, loss)
 - Most comments are about the controversial decision
 - Support for the team from fans





SYNTHESIS

Manchester United:

- May 14 (non-controversial, win)
 - Normal discussion about the game and the team
- August 15 (controversial, win)
 - Despite winning on both occasions, this win was treated differently
 - Discussed how they won with words like penalty, and lucky

Wolves:

- May 14 (non-controversial, loss)
 - Normal discussion about the game and the team despite losing
- August 15 (controversial, loss)
 - Discussion about the game itself
 - Discussion about “unfair” decision from referees and VAR team



SYNTHESIS

Non-controversial:

- When game is normal and considered “fair” (without controversial decisions,) fans express their corresponding feelings about the game without much vitriol
 - Even for the teams that lose, discussion revolves around players, team strategies, or relevant moments of the game

Controversial:

- However, when the game is considered “unfair”...
 - Discussion almost wholly revolves around the controversial decision, even for the teams that win
 - Winning teams express their happiness, but this is drowned out by angry comments
 - Most of these angry comments are directed towards referees and VARs, who are considered responsible for making the calls



Social Computists | Cadag, Ng, Samson

SOCIAL ANALYSIS



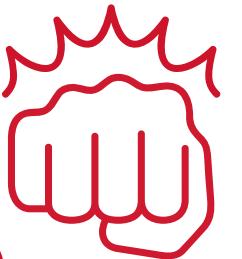
Frustration



anything that blocks us from
attaining a certain goal



Aggression



physical or verbal behavior
intended to cause harm



Social Computists | Cadag, Ng, Samson

SOCIAL ANALYSIS

Displaced Aggression

people harbor anger from prior provocation or that any type of minor offense can result in a domino effect of reactions that may exacerbate how comments and opinions are perceived



SOCIAL ANALYSIS

Group Influences

riots begin to arise, aggressive acts spread rapidly after a trigger which in this case is the first person to start a chain of hatred comments

“...can amplify aggressive reactions partly by diffusing responsibility (Myers, 2016).”



Social Computists | Cadag, Ng, Samson

SOCIAL LEARNING APPROACH

Modules on:

Proper sportsmanship

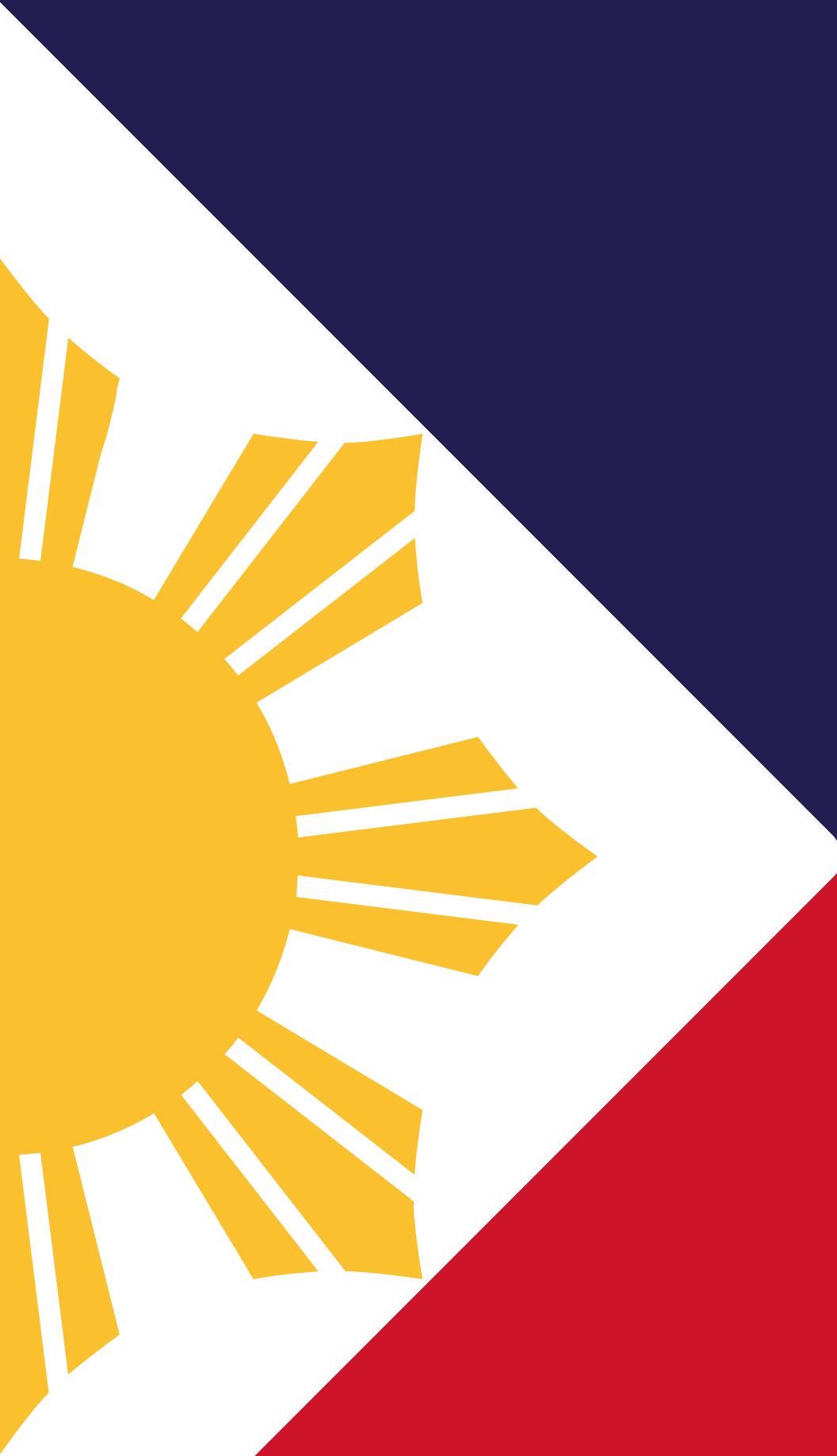
Football Rules/penalties/cards

Real Life Simulations

Better parenting

Better media consumption/screentime





Philippine Context

As third-year Atenean college students from the Philippines, we noticed a **lack of sportsmanship education** in our physical education system, resulting in **frequent conflicts**. Therefore, we chose **to study football, a global sport**, to gather data on aggression and behavior.

The country's national sport being basketball, it often leads to toxic behavior much like football. Our research aims to provide **insights for future studies focusing on Filipinos**, encompassing not only basketball but also e-sports like **League of Legends and Valorant**, given the country's significant social media presence.

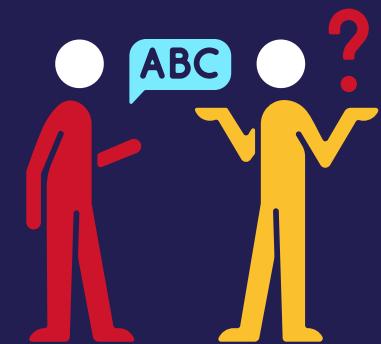


LIMITATIONS

Details of Accounts



Language Barrier



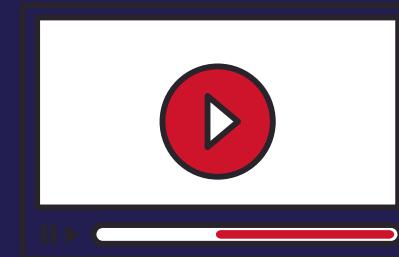
Selection Bias



Inconsistent Data Types



Social Media is not ALL data



Sentiment Analysis

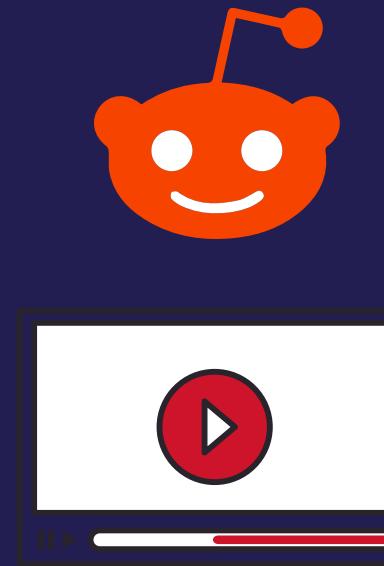




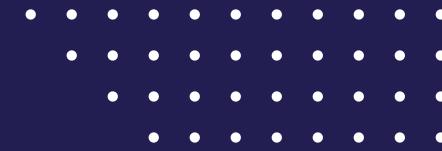
Social Computists | Cadag, Ng, Samson

RECOMMENDATIONS

Diversify Data



Conduct Surveys





CONCLUSION

In summary, this analysis underscores the widespread issue of **aggression**, particularly in online interactions among football fans. Drawing from **psychological theories**, it reveals how aggression can result from **blocked goals and prior provocation**. The study emphasizes the crucial role of education in teaching conflict resolution, emotion control, and sportsmanship.

Additionally, it highlights the impact of media and social media on shaping aggressive behavior. Addressing these issues is not only a global concern but is also vital in the unique cultural context of **physical education in the Philippines**, where social media plays a significant role, and values-based education can reduce aggression and promote a **better future** for the next generation.



Social Computists | Cadag, Ng, Samson

THANK YOU

End Of Presentation

