

ViralWit

IST 707 Data Analytics Project, Fall2018

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ViralWit

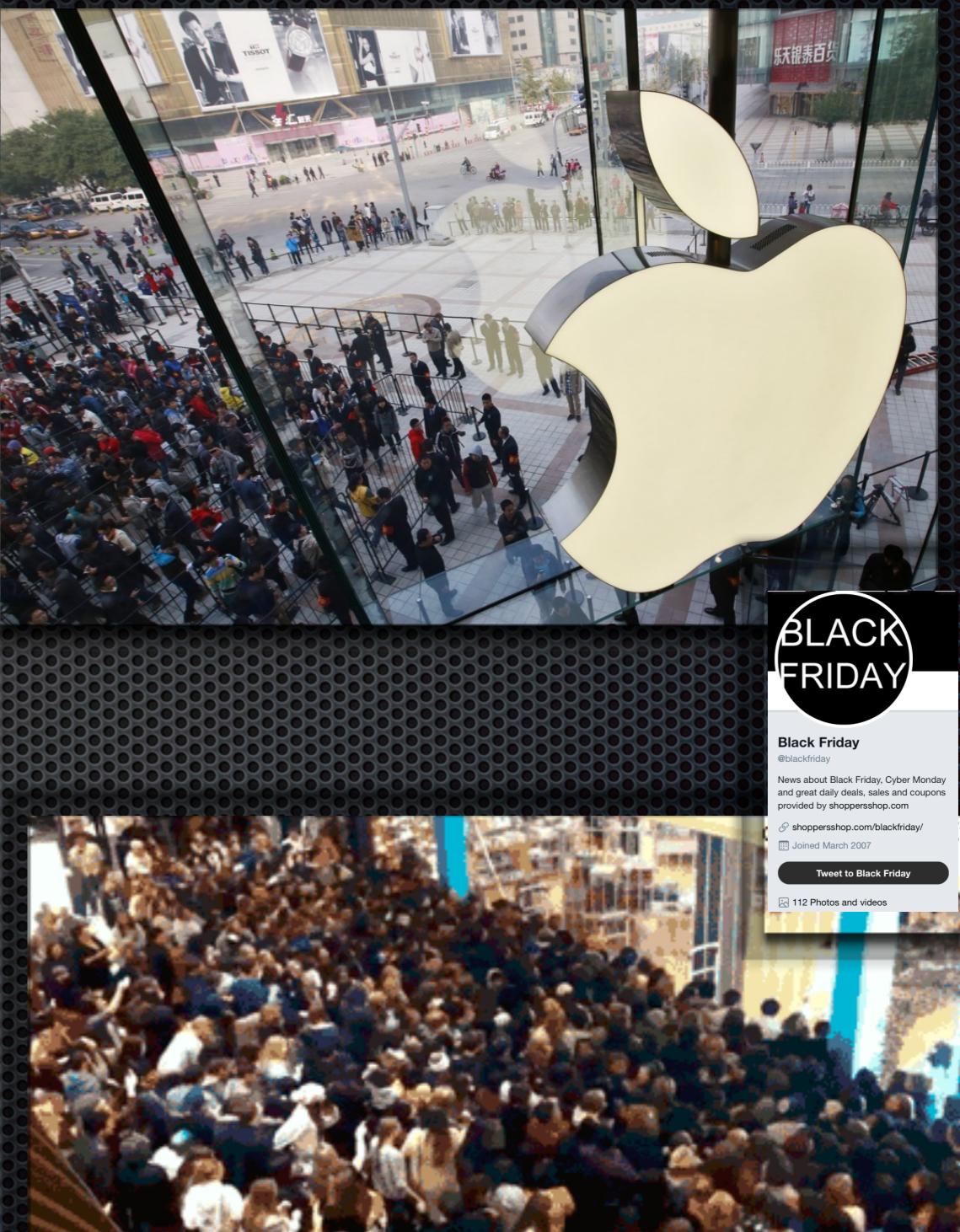
- A Twitter mining project/app
- Uses  APIs to understand phenomena, such as
 - Viral Events
 - Memes
 - Information diffusion and gatekeeping



Research Questions:

- ❖ What is a viral event?
- ❖ How viral events happen and how they shape the society?
- ❖ How to differentiate whether the event is viral or not?





BLACK
FRIDAY

Black Friday
@blackfriday

News about Black Friday, Cyber Monday and great daily deals, sales and coupons provided by shoppersshop.com

[shoppersshop.com/blackfriday/](#)
[Joined March 2007](#)

[Tweet to Black Friday](#)

112 Photos and videos



Occupy Wall Street

@OccupyWallStNYC

Occupying Wall Street since Sep 17, 2011. Standing with global #Occupy.
About our team: bit.ly/tweetship #RESIST
#OccupyICEnyc #AbolishICE
#CountMeIn

Wall Street, NYC

occupywallst.nyc

Joined July 2011

[Tweet to](#)

[Message](#)

Data: Tweets....

- Need to set up a twitter developer account
- Get an access to use API: application programming interface
- R library (twitteR)
- Keyword: **#movies, #YellowVests**
 - n=1000
- Cleaning and preparing
- TEXT Mining Applications
- Publishing the results in a reproducible way as an open data access on my website
 - <http://hagprojects.com>

Search Results 



Code demonstrations:

[httr::oauth1_twitter](#) Using twitter api with OAuth 1.0 [\(Run demo in console\)](#)

Help pages:

qdapRegex::rm_hash	Remove/Replace/Extract Hash Tags
qdapRegex::rm_tag	Remove/Replace/Extract Person Tags
qdapRegex::rm_title_name	Remove/Replace/Extract Title + Person Name
qdapRegex::rm_url	Remove/Replace/Extract URLs
stats::HoltWinters	Holt-Winters Filtering
stats::plot.HoltWinters	Plot function for HoltWinters objects
stats::predict.HoltWinters	Prediction Function for Fitted Holt-Winters Models
twitteR::directMessage-class	Class "directMessage": A class to represent Twitter Direct Messages
twitteR::dmGet	Functions to manipulate Twitter direct messages
twitteR::getTrends	Functions to view Twitter trends
twitteR::getUser	Functions to manage Twitter users
twitteR::import_statuses	Functions to import twitteR objects from various sources
twitteR::load_tweets_db	Functions to persist/load twitteR data to a database
twitteR::registerTwitterOAuth	Register OAuth credentials to twitter R session
twitteR::register_db_backend	Functions to setup a database backend for twitteR
twitteR::searchTwitter	Search twitter
twitteR::search_twitter_and_store	A function to store searched tweets to a database
twitteR::setup_twitter_oauth	Sets up the OAuth credentials for a twitteR session
twitteR::status-class	Class to contain a Twitter status
twitteR::taskStatus	A function to send a Twitter DM after completion of a task
twitteR::userTimeline	Functions to view Twitter timelines
twitteR::twListToDF	A function to convert twitteR lists to data.frames
twitteR::updateStatus	Functions to manipulate Twitter status
twitteR::use_oauth_token	Sets up the OAuth credentials for a twitteR session from an existing Token object
twitteR::userFactory	A container object to model Twitter users



Emeric Fohlen/NurPhoto via Getty Images

France's “gilets jaunes,” Yellow Vest Protests
The "yellow vest" movement opposed fuel tax rises.

Yellow Vest Protests

- Thousands of "yellow vest" protesters rallying against President Emmanuel Macron and his government
 - Nearly 90,000 officers were deployed countrywide, including 8,000 in Paris
 - 118 people injured
 - More than 500 people have been taken into custody
 - An estimated 125,000 demonstrators gathered across the country during the day, with 10,000 of them in the capital
- How is the movement spread?
 - Social media, and in particular Twitter and Facebook, are at the core of the demonstrations.



```
> dim(TweetDF)
[1] 1000 13637
```

	text
6	RT @akihheikkinen: #Putin's #tourists participating to #YellowVests #GiletsJeunes today? https://t.co/IKEBwdhJtA
7	RT @enough14: 19:28 #Livestream from #Toulouse, where clashes continue. #GiletsJaunes #8Decembre #YellowVests #YellowJacket...
8	RT @Fnews_english: #French protesters in central #Paris: "#Macron leave" . #France #FranceProtest #ParisProtest #ParisRiots #Yellow...
9	RT @worldnewsevery: Paris anti-Macron movements. #GiletsJaunes #YellowVests https://t.co/HWCxV8YPQL
10	Policías de paisano infiltrados entre los manifestantes practican detenciones, una práctica habitual también en las... https://t.co/4b...
11	RT @NBbreaking: Peaceful yellow vest protester with arms in the air gets shot in the stomach with a Flash Ball by a Police officer. Prot...
12	RT @Myasiryaman: This is france! This is democratic europe ! #YellowVests #GiletsJaunes #MacronDemission #Ancona #8... صباحات_الهلال ...
13	RT @EpochTimes: HAPPENING NOW: Riot police in #Paris move towards #YellowVests protesters at Saint Lazare Train Station. As nigh...
14	RT @doc_hal: Most Wanted in FRANCE & 🇫🇷 #giletsjaunes #YellowVests # Yellow jackets https://t.co/wtCv7JO2h6
15	RT @realSi_jeff: Check the flag out on this armoured Veichle which is in #France to scare and threaten protesters. This is how it start...
16	RT @peterk88: discover END PLAY WINNING BLACKJACK ... it's go time today #ArmyvsNavy #bbcfootball #BETBreaks #bettingtwitter ...
17	RT @PrisonPlanet: Looting clothing stores has nothing to do with standing up against the EU or carbon taxes. Usual suspects have infi...
18	RT @realSi_jeff: Check the flag out on this armoured Veichle which is in #France to scare and threaten protesters. This is how it start...
19	RT @MarkSleboda1: So it's OK for Western govts, media & commentariat to openly support fringe political opposition protests i...
20	RT @PorteTonAme: 🇫🇷 #France : Bon bah #Toulouse est en train de brûler. #8Decembre #YellowVests #GiletsJaunes https://t.co/B...
21	RT @enough14: 19:36 Burning barrivades in the Avenue de Grande-Bretagne in #Toulouse. #8Decembre #Act4 #GiletsJaunes #Yello...
22	RT @Umut_Sendikasi: #MacronDefol! Adalet ve eşitlik istiyoruz! #SefaletEkenÖfkeBiçer #SarıYelekliler #GiletsJaunes #8Decembre #Yel...
23	#YellowVests protests: protests continue on the streets of #Toulouse https://t.co/7pV4n3U7Y4
24	RT @rs_sputnik: IZ MINUTA U MINUT Broj povređenih u protestima u Parizu povećan na 55 #FranceProtest #France #YellowVests http...

Showing 5 to 25 of 1,000 entries

Console ~/Desktop/Fall 18/IST 707 Data Analytics/IST 707/ ↗

•#YellowVests?

“Give us the tools, and we will finish the job.” — 1941
—Winston Churchill

Transaction sets and summary

```
[85] "like"
[86] "look"
[87] "work"
[88] "presid"
[89] "social"
[90] "target"
[91] "conflictsw"
[92] "video"
[93] "show"
[94] "arrest"
[95] "stop"
[96] "use"
[97] "gas"
[98] "tear"
[99] "break"
[100] "call"
[101] "dialogu"
[102] "fresh"
[103] "pm"
[104] "right"
[105] "fire"
[106] "forc"
[107] "dessus"
[108] "drapeau"
[109] "d..."
[110] "fait"
[111] "françai"
[112] "genoux"
[113] "les"
[114] "littéral"
[115] "marcher"
[116] "par"
```

```
> df <- data.frame(term=names(term.freq), freq=term.freq)
> str(df)
'data.frame': 250 obs. of 2 variables:
 $ term: Factor w/ 250 levels "...","\\U0001f4a5now\\U0001f4a5",...: 24 27 34 67 68 107 108
139 155 179 ...
 $ freq: num 40 32 53 42 31 48 31 31 86 280 ...
```

```
> summary(df)
```

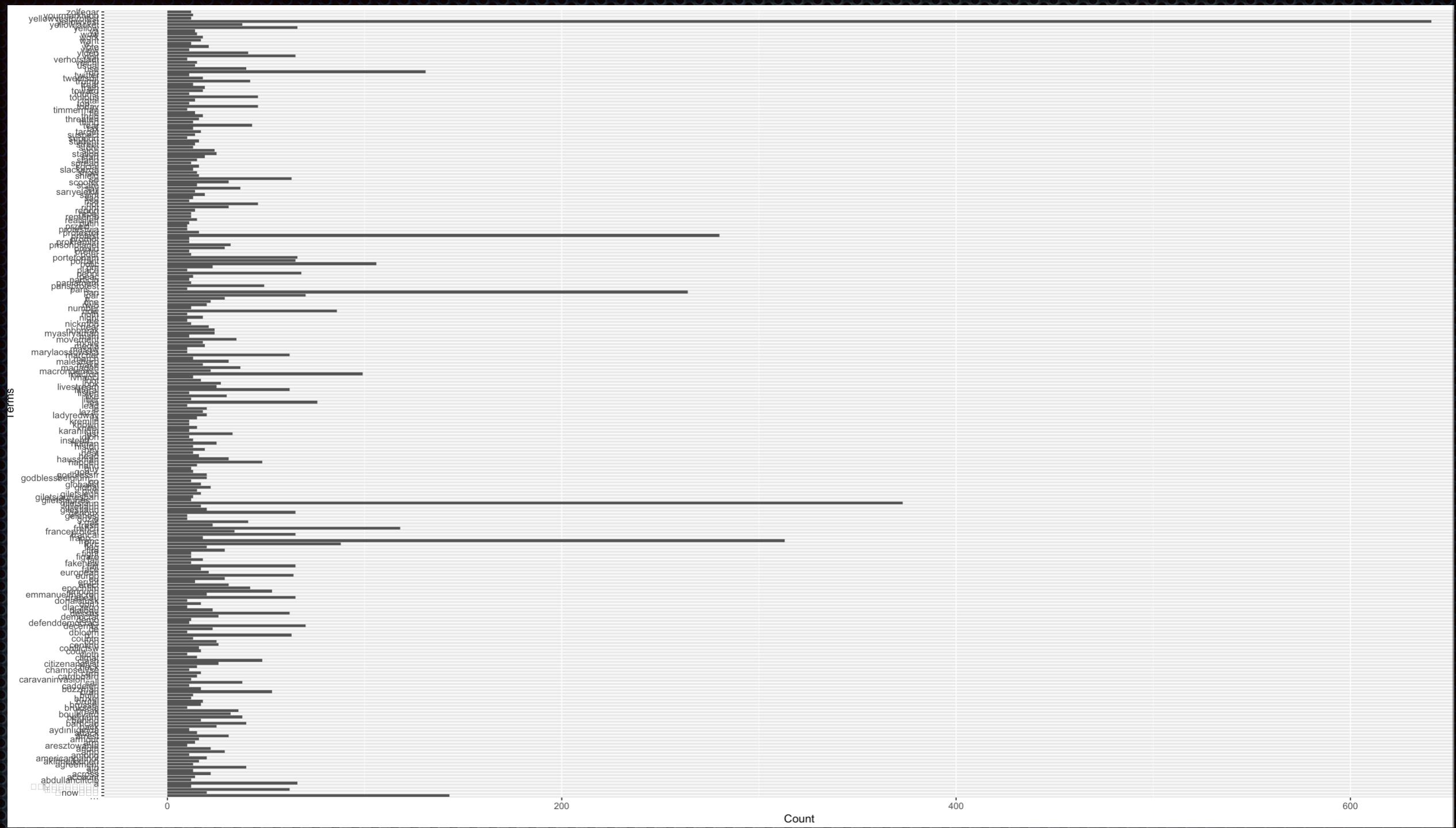
	term	freq
...	: 1	Min. : 10.00
\\U0001f4a5now\\U0001f4a5	: 1	1st Qu.: 12.25
\\U0001f534\\U0001f4f9\\U0001f1eb\\U0001f1f7	: 1	Median : 17.00
\\U0001f645\\U0001f3fb♀ \\U0001f1eb\\U0001f1f7:	: 1	Mean : 32.61
à	: 1	3rd Qu.: 31.00
abdullahciftcib	: 1	Max. : 641.00
(Other)	: 244	

```
writing ... Error in arules::apriori(TweetTrans, parameter = list(support = 0.01, :
not enough memory. Increase minimum support!
In addition: Warning message:
In arules::apriori(TweetTrans, parameter = list(support = 0.01, :
Mining stopped (time limit reached). Only patterns up to a length of 4 returned!
```

	V2	V3	V4	V5	V6	V7	V8	V9	V10	V11
1	c(rt	epochtimes	happening	now	yellowvests	protesters	burn	scooter	erecting	
2		umut_sendikasi	kapitalizme	ve	faşizme	karşı	direnен	paris	halkının	
3		citizenanalyst	scene	champs	élysées	stunning	guy	just	ran	
4		ruptly	yellow	vest	movement	protesters	continue	fourth	week	
5		ladyredwave	voted	trump	americanpatriots	say	nwo	amp	now	
6		akihheikkinen	putin's	tourists	participating	yellowvests	giletsjeunes	today		
7					livestream	toulouse	clashes	continue	giletsjaunes	
8		fnews_english	french	protesters	central	paris	macron	leave	france	
9		worldnewsevery	paris	anti	macron	movements	giletsjaunes	yellowvests		
10	policías	de	paisano	infiltrados	entre	los	manifestantes	practican	detenciones	
11		nbbreaking	peaceful	yellow	vest	protester	arms	air	gets	
12		myasiryaman	france	democratic	europe	yellowvests	giletsjaunes	macrondemission	ancona	
13		epochtimes	happening	now	riot	police	paris	move	towards	
14		doc_hal	wanted	france	giletsjaunes	yellowvests	yellow	jackets		
15		realsi_jeff	check	flag	armoured	veichle	france	scare	threaten	
16			discover	end	play	winning	blackjack	it's	go	
17		prisonplanet	looting	clothing	stores	nothing	standing	eu	carbon	
18		realsi_jeff	check	flag	armoured	veichle	france	scare	threaten	
19			ok	western	govts	media	amp	commentariat	openly	
--		-	-	-	-	-	-	-	-	-

Showing 1 to 20 of 20 entries

Cleaned Data



Cleaned Data, *word counts*

Frequency words and association

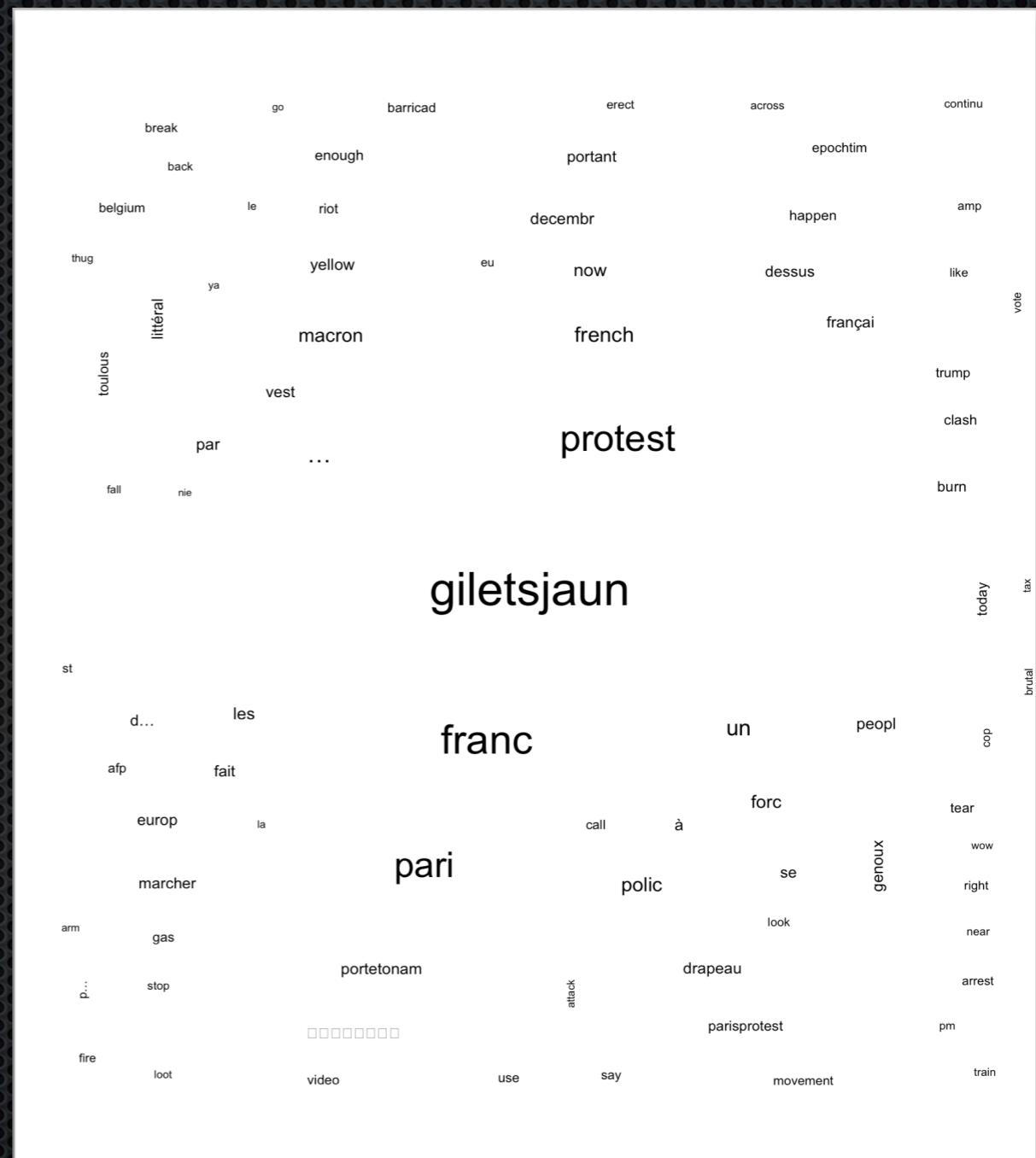
```
> ## which words are associated with 'yellowvest'  
> findAssocs(tdm, "yellowvest", corlimit = 0.20)  
$yellowvest  
alexandrosm      bruxell       demo     brussel    belgium   gelehe...  
      0.25          0.24        0.24      0.23      0.22  
belgiqu      giletjaun  
      0.21          0.21
```

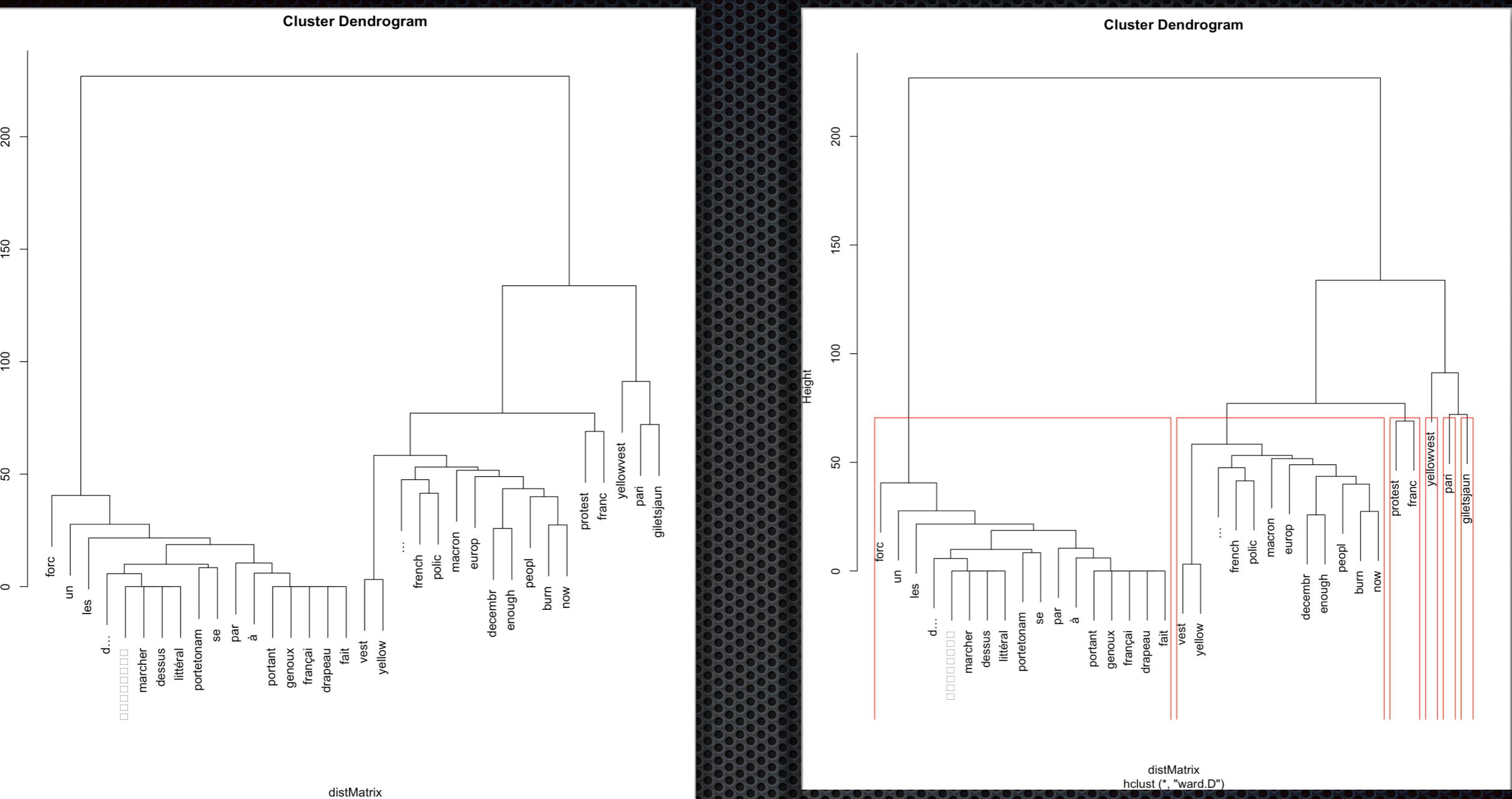
```
> findAssocs(tdm, "macron", corlimit = 0.15)  
$macron  
prefer      one    tweetsdjt      presid      trump  
      0.60      0.47      0.46      0.40      0.34  
social      w...    among defenddemocraci known  
      0.32      0.30      0.28      0.28      0.28  
kremlin    prokremlin promot top...    twitter  
      0.28      0.28      0.28      0.28      0.28  
view       cake     eat    thank account  
      0.28      0.26      0.26      0.26      0.25  
target     violenc dbloom act... legitim  
      0.24      0.24      0.24      0.23      0.23  
result      s       media attempt globalist  
      0.23      0.23      0.20      0.19      0.19  
want       listen  armor  champelysé markvallen  
      0.17      0.17      0.17      0.17      0.17  
yourmarklubb m...  
      0.15      0.15
```

Word Cloud

```
> ## which words are associated with 'yellowvest'  
> findAssocs(tdm, "yellowvest", corlimit = 0.20)  
$yellowvest  
alexandrosm    bruxell      demo     brussel   belgium  gelehe...  
0.25          0.24        0.24     0.23       0.22      0.22  
belgiqui     giletjaun  
0.21          0.21
```

```
> dim(TweetDF)  
[1] 1000 13637
```





Clustering

Clustering

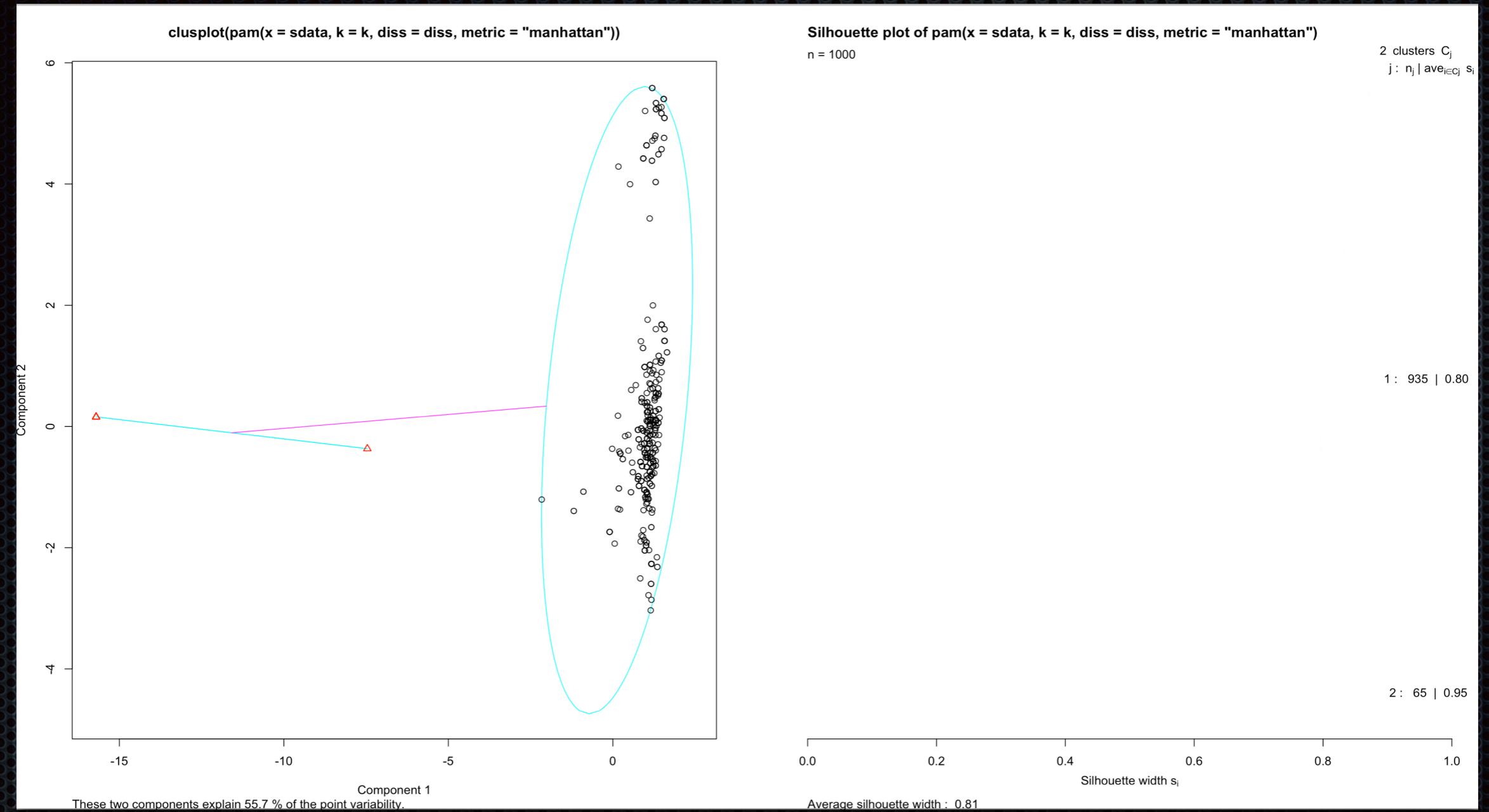
- partitioning around medoids with estimation of number of clusters

```
> round(kmeansResult$centers, digits = 3) ## cluster centers
   burn now protest yellowvest pari giletsjaun vest
1 0.000 0.000 0.000 0.000 0.000 1.000 0
2 0.162 0.251 1.068 0.806 0.298 0.126 0
3 0.021 0.062 0.000 0.611 0.277 0.379 0
4 0.000 0.024 0.780 0.902 0.439 0.000 0
5 0.083 0.000 0.017 0.917 0.217 0.983 0
6 0.077 0.015 0.662 0.646 0.246 0.092 1

   yellow europ decembr enough ... franc french macron
1 0.000 0.000 0.000 0.000 0.000 1.000 0.000 0.000
2 0.000 0.010 0.000 0.063 0.209 0.277 0.136 0.105
3 0.002 0.092 0.016 0.017 0.059 0.254 0.062 0.125
4 0.000 0.000 0.000 0.000 0.463 0.049 1.122 0.049
5 0.000 0.000 1.017 0.517 0.417 0.183 0.000 0.083
6 1.000 0.138 0.000 0.000 0.385 0.538 0.154 0.000

   polic portetonam peopl forc dessus drapeau d... fait
1 0.000 0.954 0.000 1.000 0.954 1 0.954 1
2 0.209 0.000 0.079 0.005 0.000 0 0.000 0
3 0.029 0.005 0.083 0.036 0.000 0 0.002 0
4 0.976 0.000 0.024 0.024 0.000 0 0.000 0
5 0.017 0.017 0.000 0.000 0.000 0 0.000 0
6 0.123 0.000 0.062 0.000 0.000 0 0.000 0

   françai genoux les littéral marcher par portant
1 1 1 0.954 0.954 0.954 1.000 1
2 0 0 0.000 0.000 0.000 0.000 0
3 0 0 0.019 0.000 0.000 0.000 0
4 0 0 0.000 0.000 0.000 0.000 0
5 0 0 0.017 0.000 0.000 0.083 0
6 0 0 0.031 0.000 0.000 0.000 0
```



Clustering

Conclusion

- The Text mining is a powerful data science tool to analyze social media such as Twitter and Facebook.
- Text Mining can be classified into
 - text clustering, text categorization, association rule mining and trend analysis
 - text mining has progressed well on #YellowVests.

Thanks!

-Adil Gokturk