



PUCP



**BLACK
LIVES
MATTER**



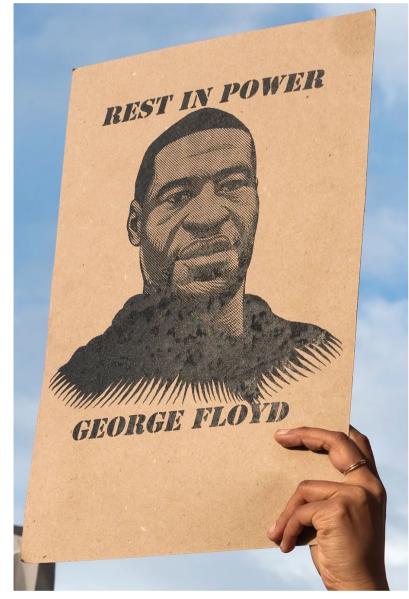
#BlackLivesMatter

Análisis de Sentimientos en Redes Sociales

David Fosca Gamarra



BLACK LIVES MATTER

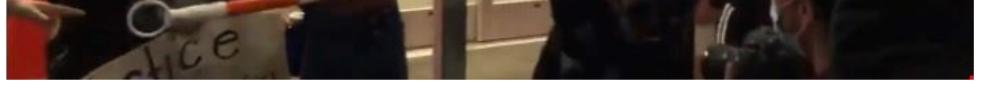




¿Qué tipo de **opiniones y emociones** resaltan en torno al movimiento “**Black Live Matters**” en Twitter?



¿Es un movimiento de procura llamar a la **reflexión y al cambio** mediante protestas y críticas constructivas? o ¿es un movimiento que invita a la **violencia e ira**?





#BlackLivesMatter ?

#ACAB

Metodología





Recolección de Tweets

A blue Twitter logo icon.

30 días

Desde 22/05 al 21/06

262,047 tweets

#BlackLivesMatter

110,631 tweets

#ACAB

Inglés

Idioma

GetOldTweets3

Librería

-14.26 %

Duplicados/Sin texto

-11.33 %

Duplicados/Sin texto

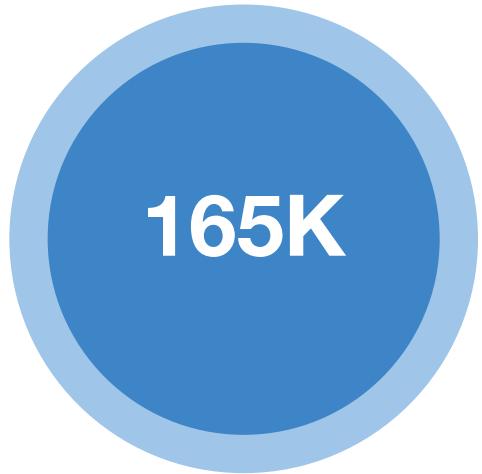
58,862 tokens

Volumen de Vocabulario

32,304 tokens

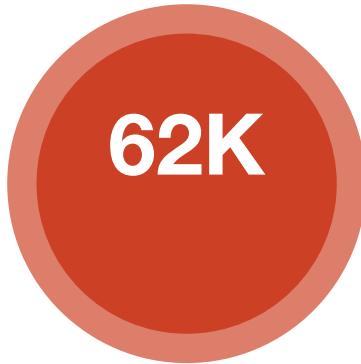
Volumen de
Vocabulario

Volumen de Usuarios



#BlackLivesMatter

Volumen de Usuarios



#ACAB

Volumen de Usuarios

Limpieza de textos



- # Reemplazamos direcciones de páginas web por espacio en blanco.
- # Reemplazamos direcciones de imágenes en twitter por espacio en blanco.
- # Eliminamos palabras de menos de 3 caracteres.
- # Eliminamos hashtags.
- # Eliminamos menciones.
- # Eliminamos stopwords y caracteres numéricos.
- # Reemplazamos contracciones.
- # Reemplazamos signos de puntuación y caracteres especiales por espacio en blanco.
- # Generamos tokens y los convertimos a letras minúsculas.
- # Aplicamos Lematización.
- # Aplicamos Streaming.



#HASHTAGS

Los más frecuentes en 30 días

#BlackLivesMatter

#RIPTacoBell

#AhmaudArbery

#JuneteenthDay

#RAISETHEDEGREE

#JusticeForGeorgeFloyd

#icantbreathe

#GeorgeFloydWasMurdered

#BlackOutTuesday

#DefundThePolice

#BreonnaTaylor

#COVID19'

#BlackTwitter

#Biden2020

#TheSoCalledRaceCard

#MatchAMillion

#protests2020

#coronagates

#BoycottStarbucks

#blackholocaust



PUCP

#HASHTAGS

Los más frecuentes en 30 días

#BlackLivesMatter

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#GeorgeFloydWasMurdered

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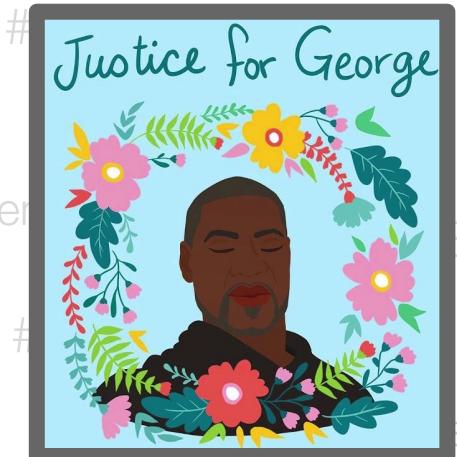
#AhmaudArbery

#JuneteenthDay

#RAISETHEDEGREE

#icantbreath

#DefundThePolice



#coronagates



PUCP

#HASHTAGS

Los más frecuentes en 30 días

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#BlackTwitter

#MatchAMillion

#BoycottStarbuck

#icantbreath

#DefundThePolice

CalledRaceCard

#coronagates

#blackholocaust

Offense	Mandatory sentencing
Third Degree Murder	Maximum of 25 years
Second Degree Murder	Maximum of 40 years
First Degree Murder	Life without parole or life with parole eligibility after 30 years

#HASHTAGS

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#BoycottStarbucks

#RIPTacoBell

#AhmaudArbery

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#BlackLivesMatter

#Biden2020

#pro



#blackholocaust



PUCP

#HASHTAGS

Los más frecuentes en 30 días

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#RIPTacoBell

#AhmaudArbery

#RAISETHEDEGREE

#icantbreathe

#DefundThePolice

#GeorgeFloydWasMurdered

#BreonnaTaylor

#BlackTwitter

#Matcha

#BoycottStarbuck



"EXERCISING WHILE BLACK SHOULD NOT BE A DEATH SENTENCE."

KAMALA HARRIS

@ohhappydani

#blacknoiscaust



PUCP

#HASHTAGS

Los más frecuentes en 30 días

#BlackLivesMatter

#JusticeForGeorgeFloyd

#GeorgeFloydWasMurdered

#BreonnaTaylor

#BlackTwitter

#MatchAMillion

#BoycottStarbucks

#Biden2020

#protests2

#bl

#RIPTacoBell

#AhmaudArbery

#JuneteenthDay

#RAISETHEDEGREE

#icantbreathe

#BlackOutTuesday

#DefundThePolice





PUCP

#HASHTAGS

Los más frecuentes en 30 días

#BlackLivesMatter

#RIPTacoBell

#AhmaudArbery

#JuneteenthDay

#JusticeForGeorgeFloyd

#GeorgeFloydWasMurdered

#BlackOutTuesday

#BreonnaTaylor

#COVID19'

#BlackTwitter

#Biden2020

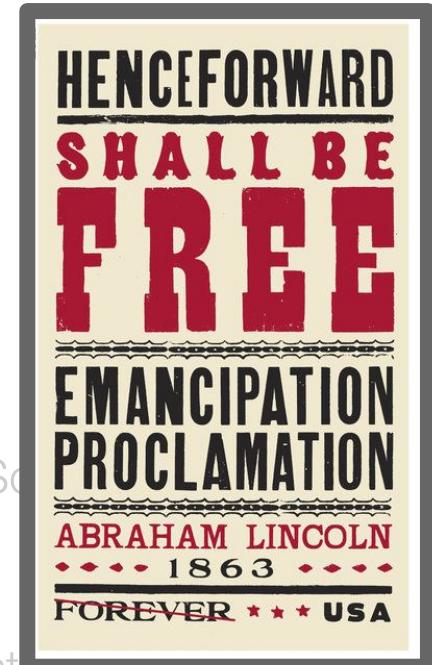
#TheSo

#MatchAMillion

#protests2020

#BoycottStarbucks

#blackholocaust



#HASHTAGS

Los más frecuentes en 30 días

#BlackLivesMatter

#JusticeForGeorgeFloyd

#GeorgeFloydWasMurdered



#RIPTacoBell



#BlackTV

#June

#Black

020

protests2020

#blackholocaust

#DefundThePolice

#COVID19'

#TheSoCalledRaceCard

#coronagates

#HASHTAGS

Los más frecuentes en 30 días

#BlackLivesMatter

#JusticeForGeorgeFloyd

#GeorgeFloydWasMurdered

#BreonnaTaylor

#BlackTwitter

#MatchAMillion

#BoycottStarbucks

#RIPTacoBell

#Juneteenth

#BlackOutTuesday

#DefundThePolice





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#HASHTAGS

Los más frecuentes en 30 días

#ACAB

#okkaren

#Karen

#allcopsarebastards

#JusticeForGeorgeFloyd

#DefundThePolice

#FTP

#chantalclaret

#BlackLivesMatter

#coronavirus

#BlackTwitter



PUCP

#HASHTAGS

Los más frecuentes en 30 días

#ACAB

#okkaren

#Karen

#allcopsarebastards

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#JusticeForGeorgeFloyd

#FTP

#chantalclaret

#BlackLivesMatter

#coronavirus

#BlackTwitter



PUCP

#HASHTAGS

Los más frecuentes en 30 días

#ACAB

#FTP

#coronavirus

#DefundThePolice

#BlackLivesMatter

#allcopsareba

#okkaren

Floyd

In the last few days, you might have seen [#DefundThePolice](#) trending on Twitter. Here's a breakdown:

What does it mean to defund the police?

Defunding the police means reducing police budgets (& power) on a local and state level and investing that money directly into poor communities of color through public services.

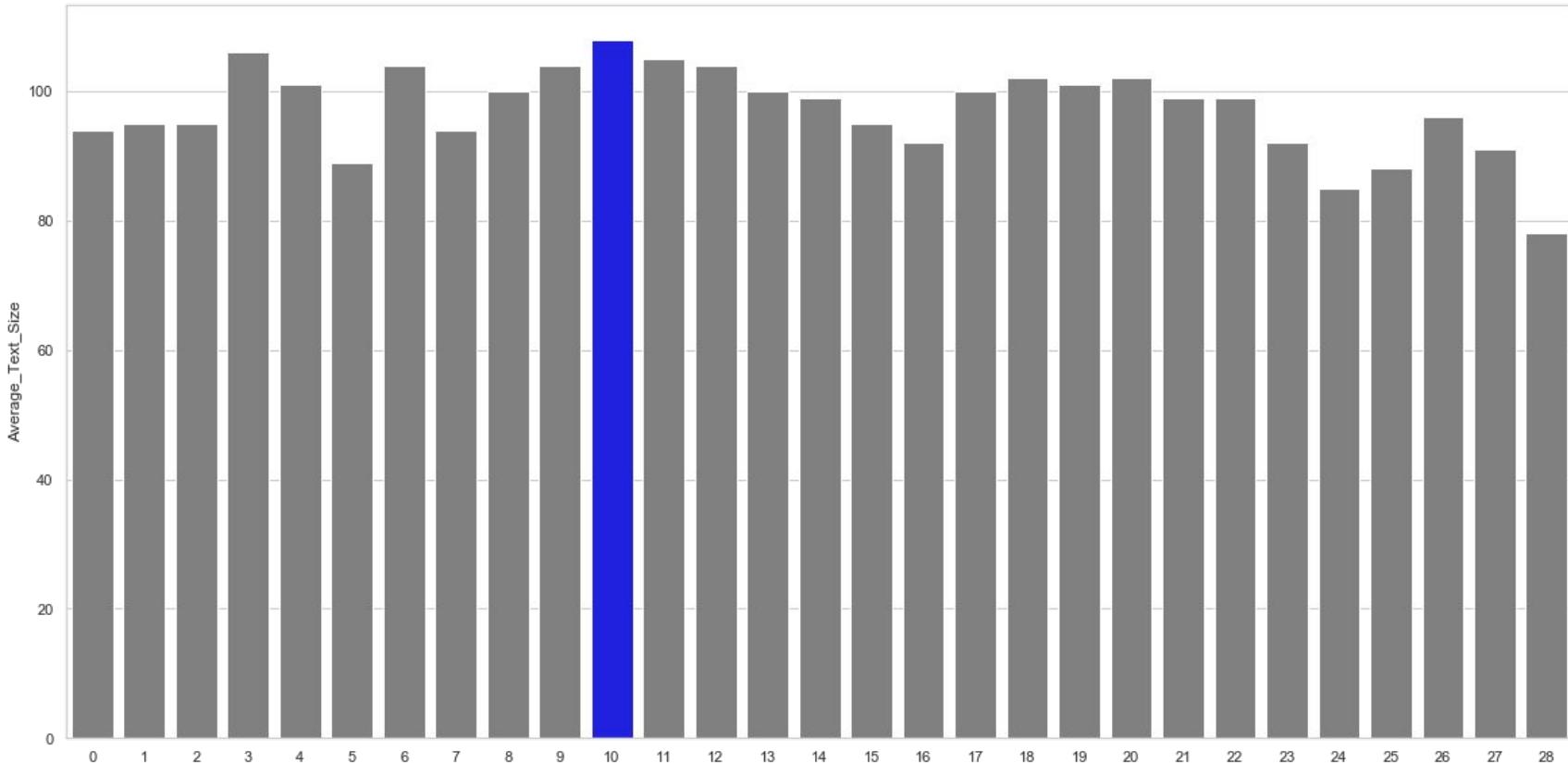
#BlackTwitter

Tamaño Promedio de Tweets por día

#BlackLivesMatter



PUCP

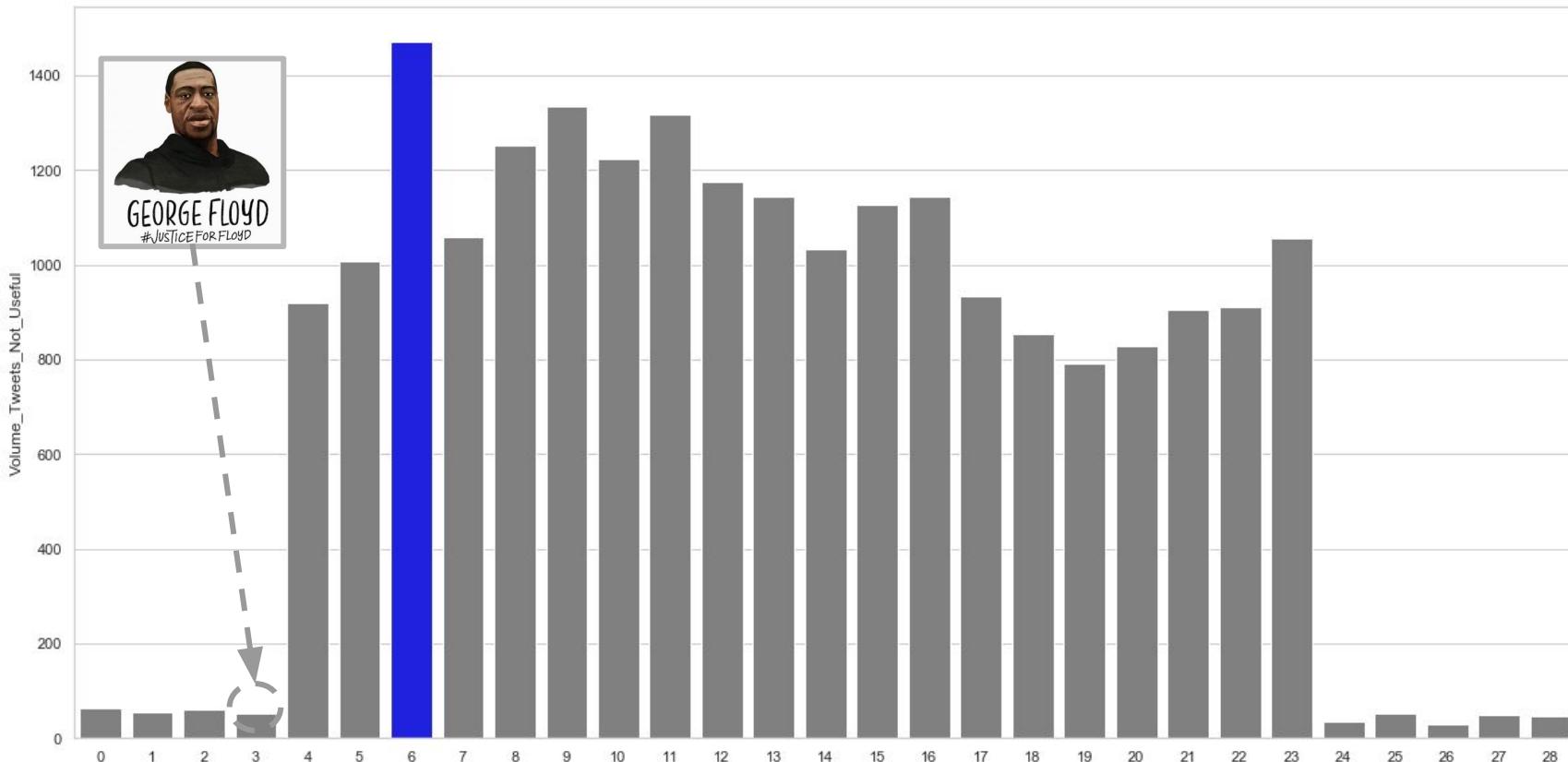


Volumen de Tweets - solo Hashtag por día

#BlackLivesMatter



PUCP



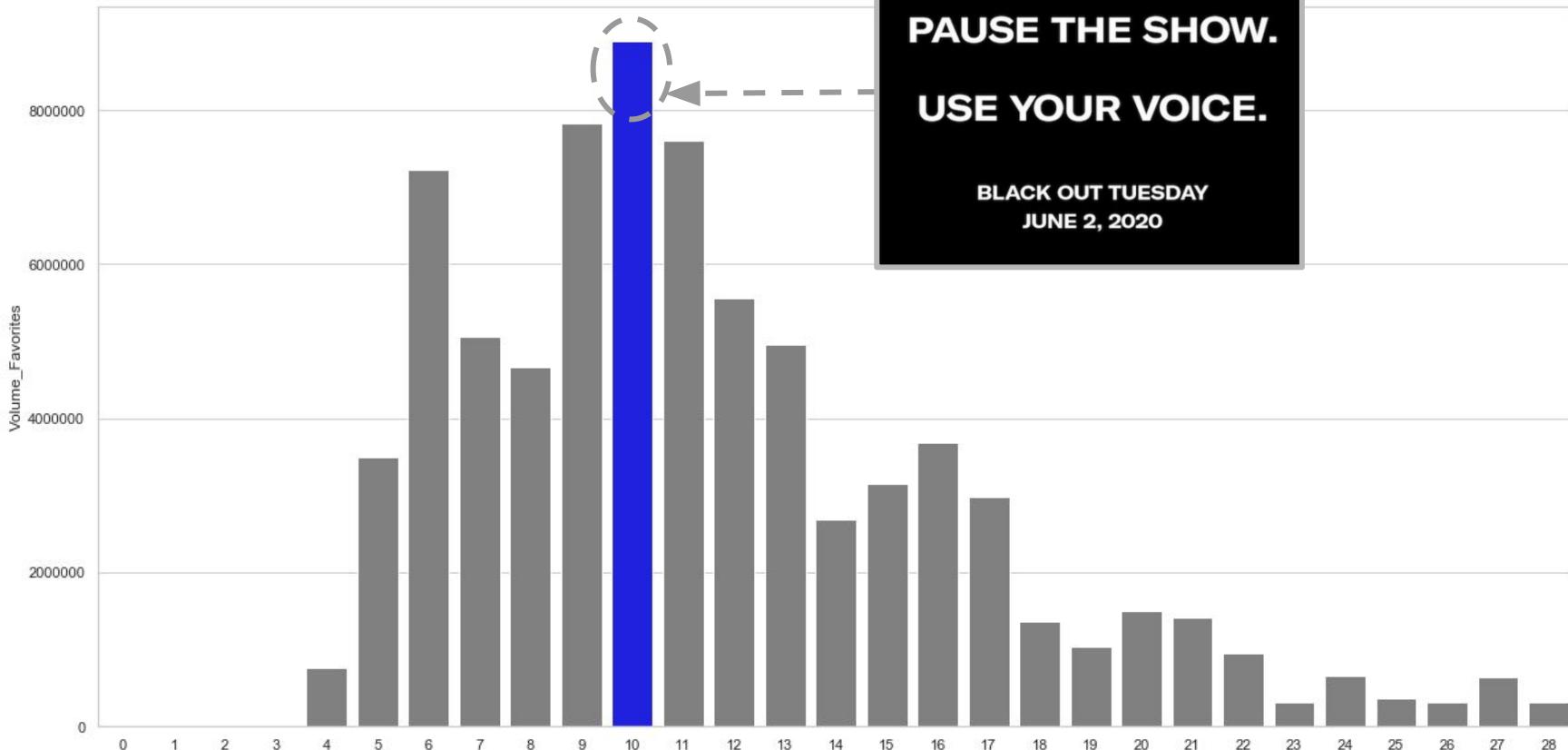
Volumen de Tweets Favoritos por día

#BlackLivesMatter



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PAUSE THE SHOW.
USE YOUR VOICE.
BLACK OUT TUESDAY
JUNE 2, 2020

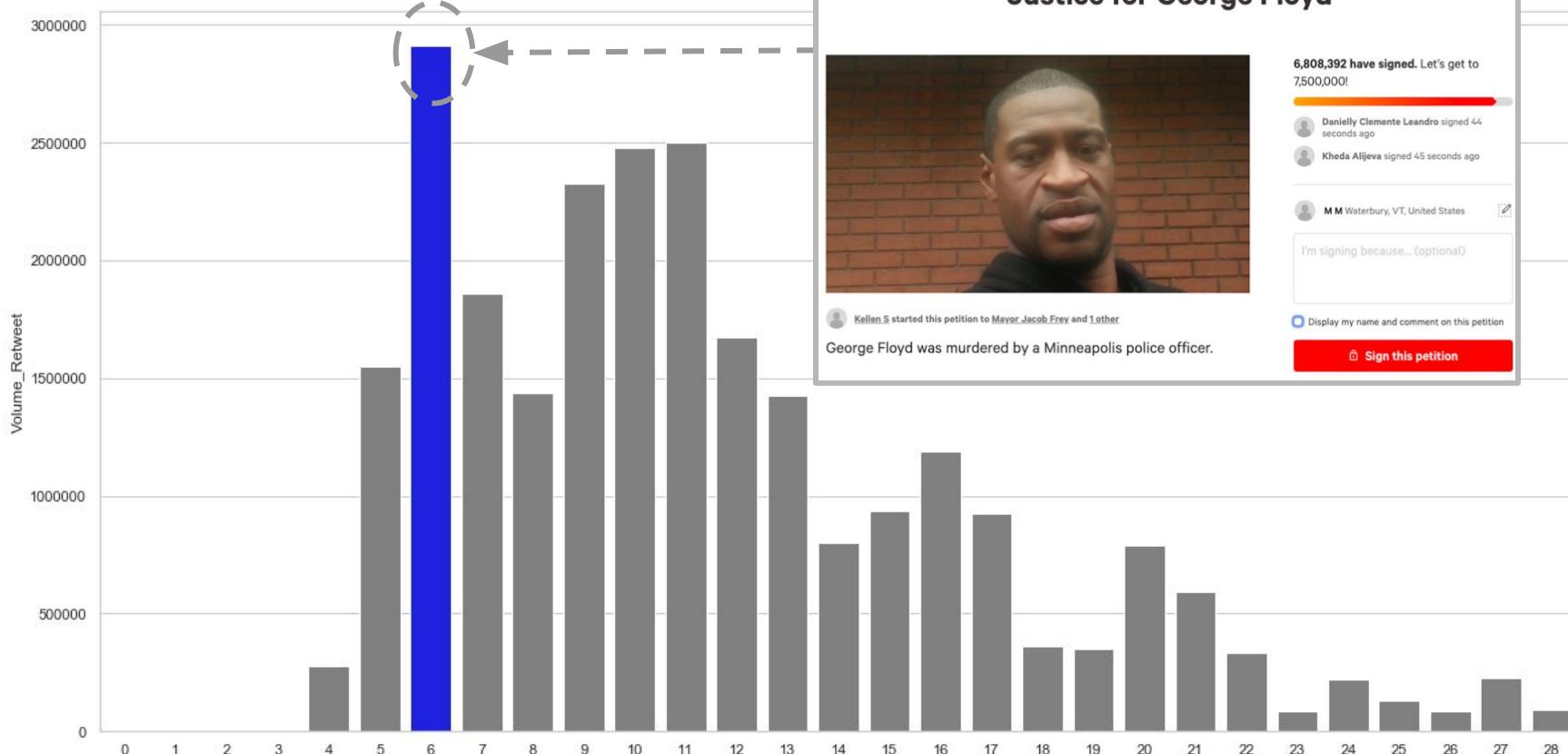


Volumen de Retweets por día

#BlackLivesMatter



PUCP



Justice for George Floyd

6,808,392 have signed. Let's get to 7,500,000!

Daniely Clemente Leandro signed 44 seconds ago

Kheda Alijeva signed 45 seconds ago

M M Waterbury, VT, United States

I'm signing because... (optional)

Display my name and comment on this petition

[Sign this petition](#)

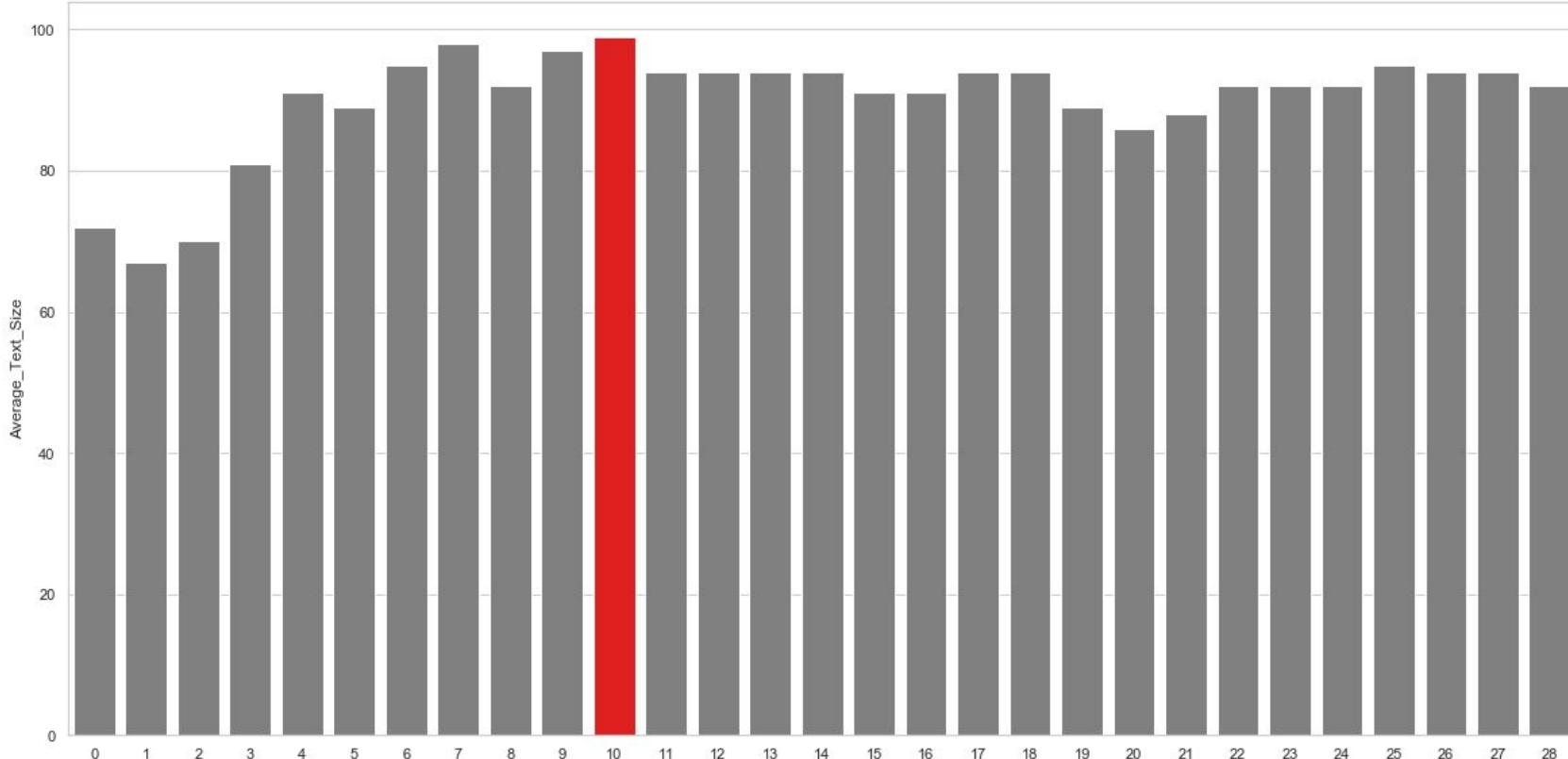
George Floyd was murdered by a Minneapolis police officer.

Tamaño Promedio de Tweets por día

#ACAB



PUCP

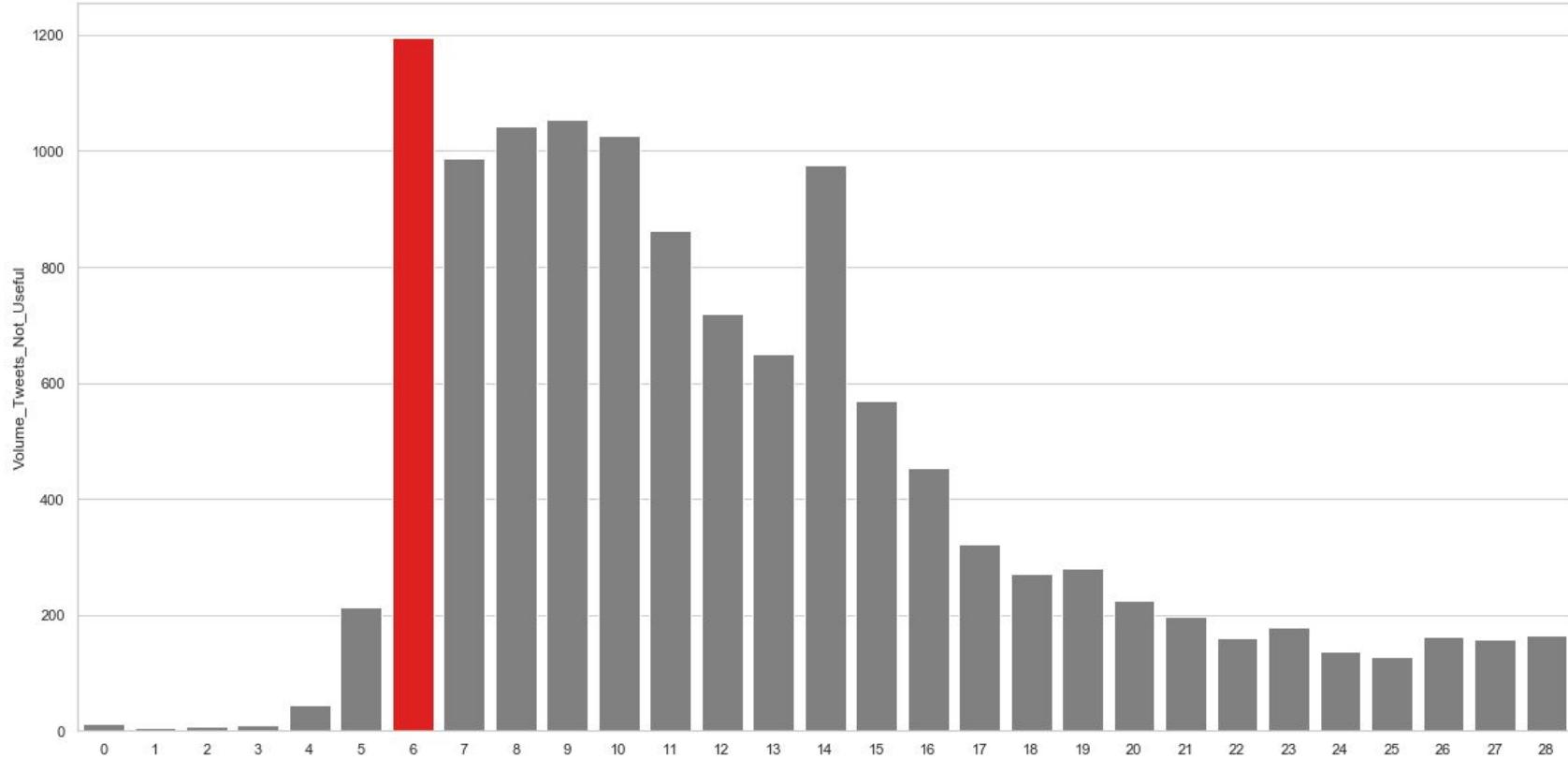


Volumen de Tweets - solo Hashtag por día

#ACAB



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Volumen de Tweets Favoritos por día

#ACAB

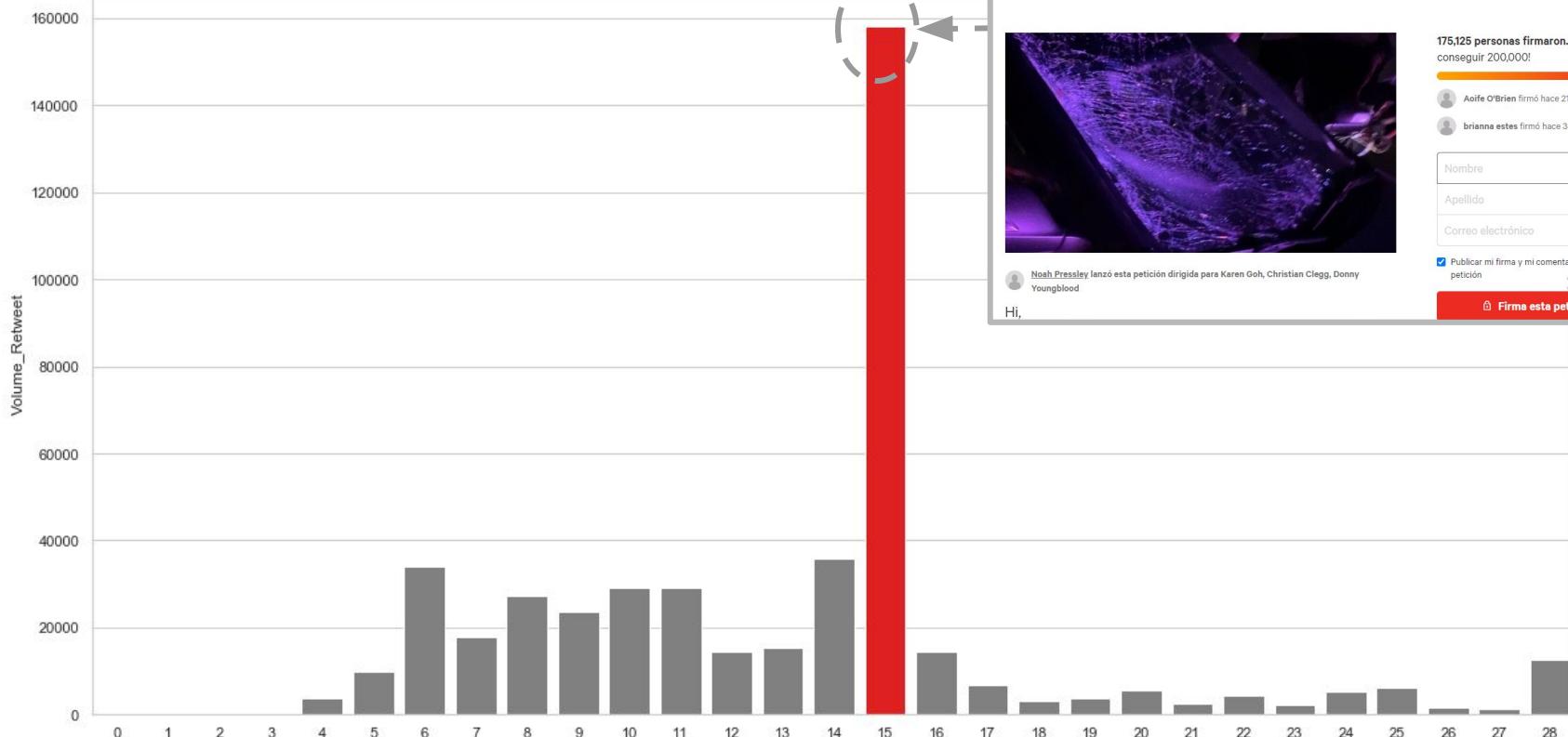


PUCP



Volumen de Retweets por día

#ACAB



Robert Forbes killer be charged!



175,125 personas firmaron. ¡Ayuda a conseguir 200,000!

Aoife O'Brien firmó hace 21 minutos

brianna estes firmó hace 34 minutos

Nombre

Apellido

Correo electrónico

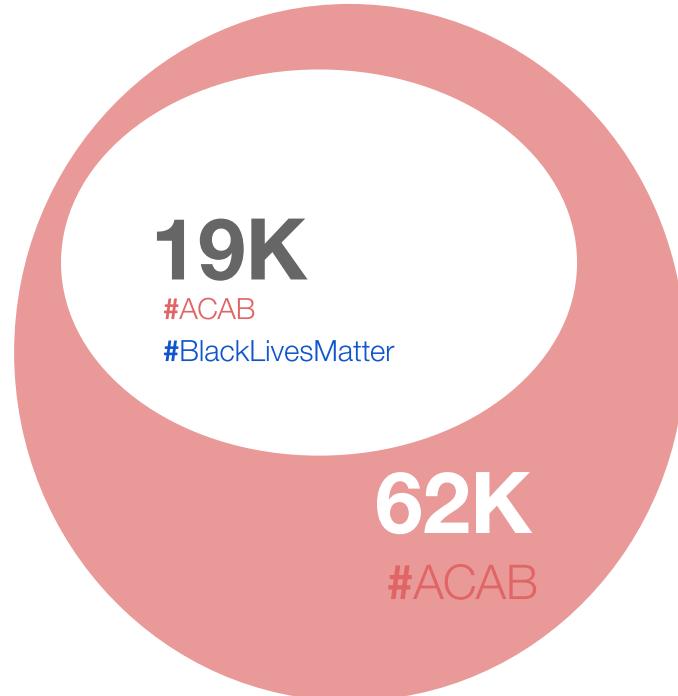
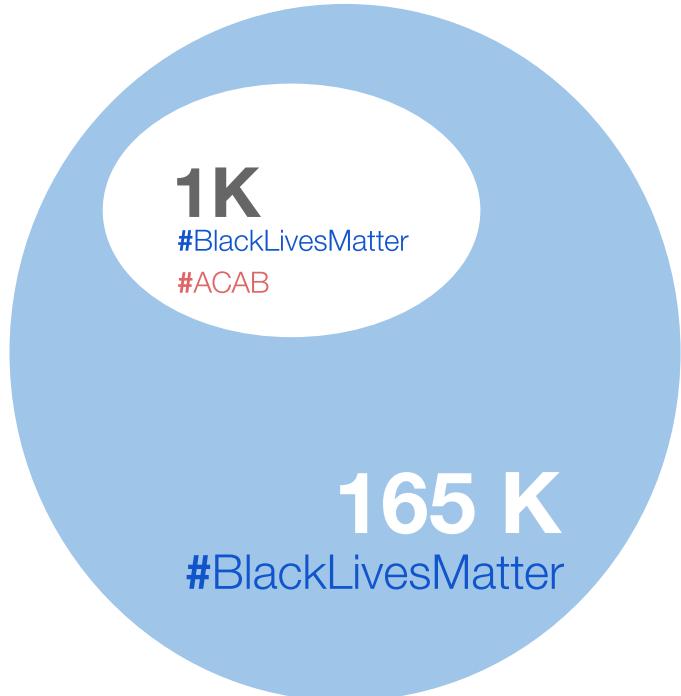
Publicar mi firma y mi comentario sobre esta petición Activar Windo

Firma esta petición

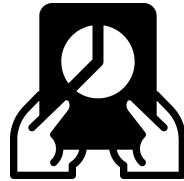
Comparación de usuarios entre ambos datasets



PUCP



Análisis y Resultados



Análisis de
Sentimientos
VADER



Topic
Modeling
LDA



Clasificación
de Tweets



100000

80000

60000

40000

20000

0

2020-05-22

2020-05-27

2020-06-01

2020-06-06

2020-06-11

2020-06-16

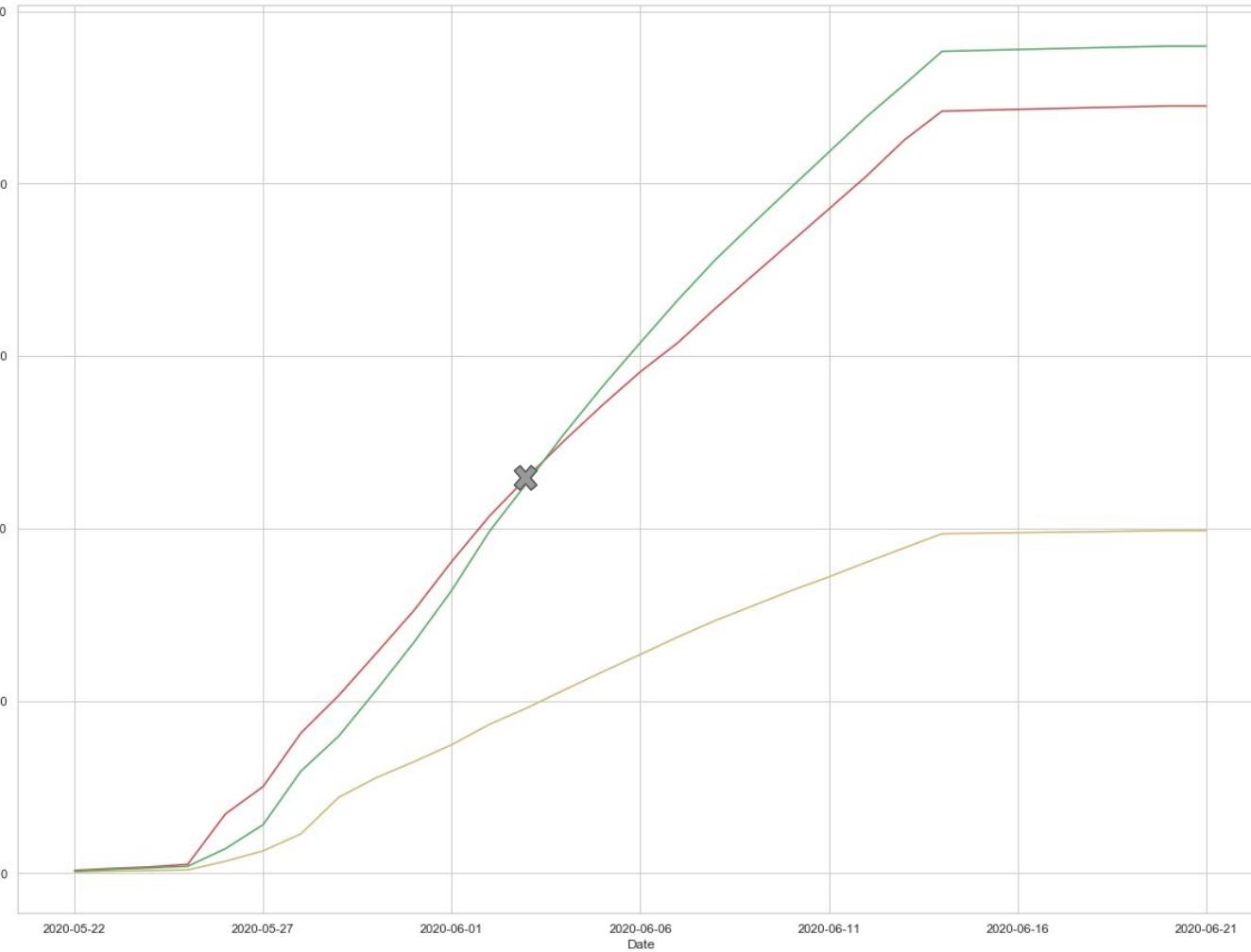
2020-06-21

Date

**PUCP**

Análisis de Sentimientos VADER

#BlackLivesMatter





PUCP



Análisis de Sentimientos VADER

#BlackLivesMatter



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it takes 10 seconds to sign petitions. don't let this go unheard.

#BlackLivesMatter #JusticeForGeorgeFloyd'

sign the petitions, speak up, and donate. do not stay silent

#BlackLivesMatter #JusticeForFloyd -

people aren't doing unfollow sprees for clout they are doing them to get rid of people who aren't speaking up about #BlackLivesMatter"

This only confirms that we have a bigger pandemic in America.

#JusticeForGeorgeFlyod #BlackLivesMatter



PUCP

We proudly support those working to make our world better.
We've partnered with @BotBroker to raise money for the
#blacklivesmatter cause. Let's make a difference together.

Protesting & COVID-19 Prevention: A Holistic Guide for Safe Activism During a Pandemic // A resource toolkit for protecting yourself and your community while protesting. Stay safe and stay healthy! #protest #peaceful #blacklivesmatter

those of you attending protests please watch and protect yourself and others! #BlackLivesMatter

I want to give her a giant hug #BlackLivesMatter



PUCP

Now that they did it y'all uglies who sell their s*** out in seconds have NO EXCUSE LET ME SEE YALL FLOOD THEM FUNDS #BlackLivesMatter

The fact that the Episcopal Church is being mentioned in this debacle makes me physically ill. #protests2020 #BlackLivesMatter

If you don't support #BlackLivesMatter then go f*** yourself, and I mean that in the most disrespectful way

the fact that we even have to make petitions for this is crazy, we live in a world where people are killing others for nothing other than their colour? #GeorgeFloydWasMurdered #JusticeForGeorgeFloyd #BlackLivesMatter '



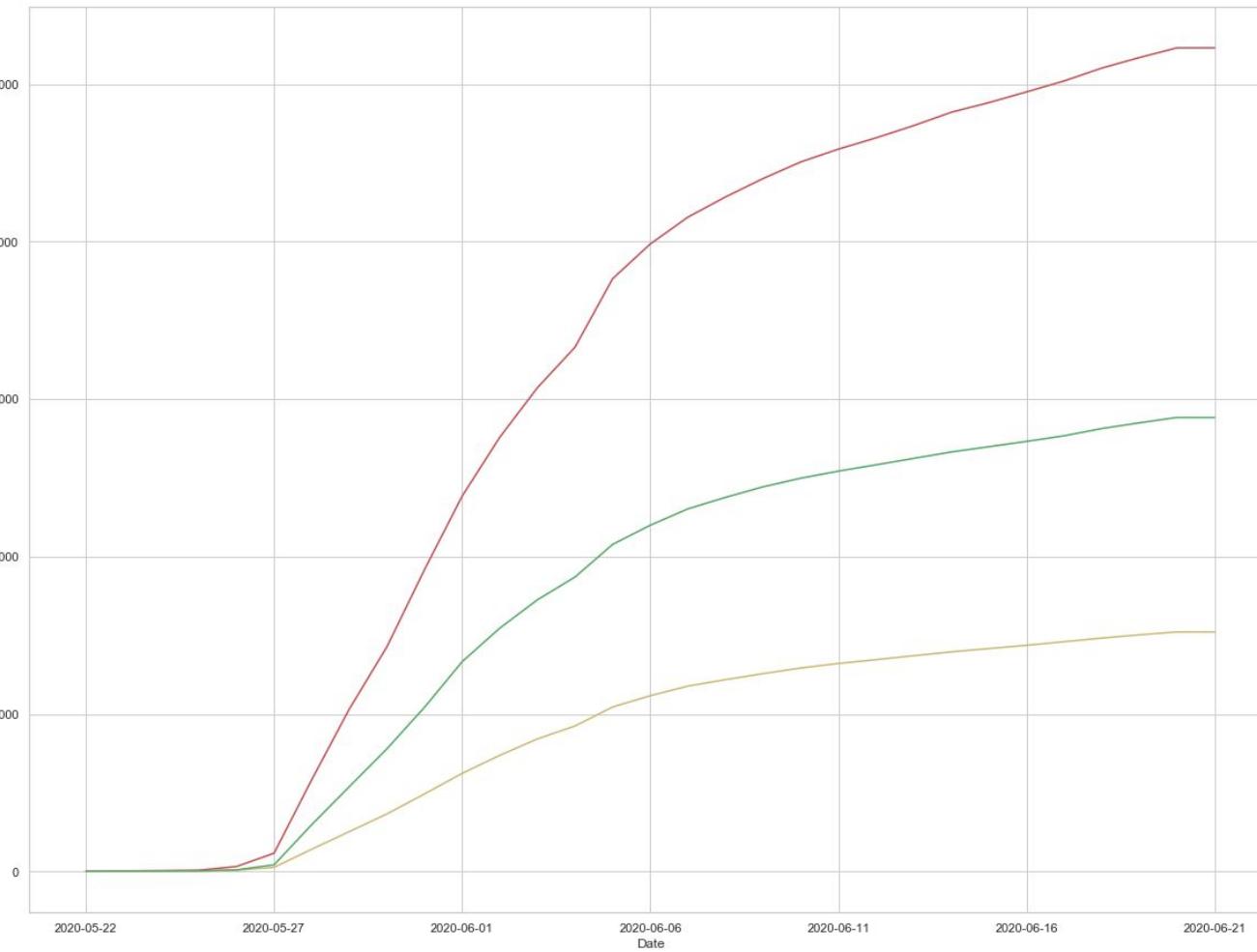
PUCP



Análisis de Sentimientos

VADER

#ACAB





PUCP



Análisis de Sentimientos

VADER

#ACAB



PUCP

Saw this on Facebook, stay safe out there folks and make to piss in any cop car you might find yourself in #BLM #ACAB

how the f**** can you put property above millions of people's lives. at this point its not even just one race dealing with this f****, its the human race vs heartless cowardice racists. keep protesting, keep fighting, keep rioting;change the f***** world. #blacklivesmatter #acob '

So much shit has been going on lately, do not forget that this f**** is nonstop. #ACAB

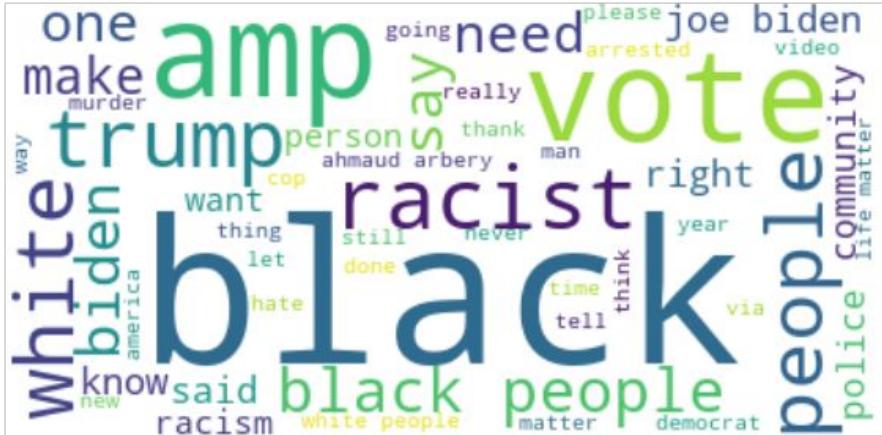
Literally all they have to do is hold themselves accountable for murdering people, and they won't do it. So, yeah, f**** the police. #acob #Riots2020 #FTP #BLM #burnitalldown'

DÍA 1

22/05



PUCP



#BlackLivesMatter

#AhmaudArbery

19% 61%

#coronavirus
45% 32%



#ACAB

#FTP

33% 66%

#coronavirus
0% 100%

DÍA 2

23/05



PUCP

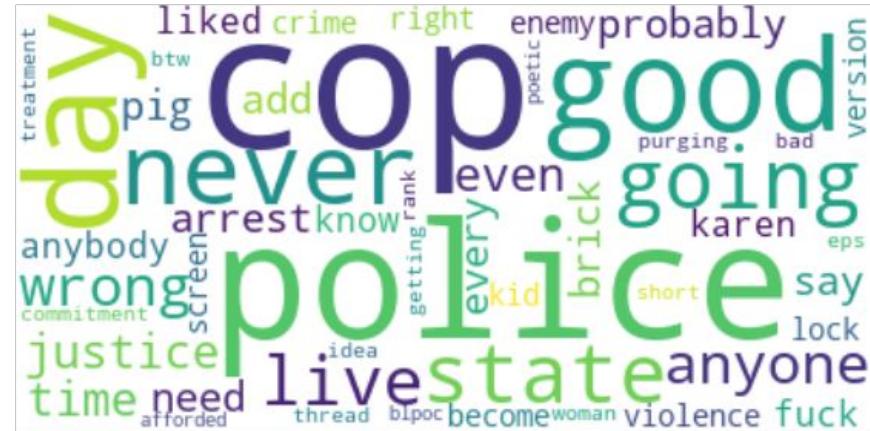


#BlackLivesMatter

#Biden2020

35% 39%

#coronavirus
41% 41%



#ACAB

#FTP

33% 66%

#BlackLivesMatter

50% 50%

DÍA 3

24/05



PUCP



#BlackLivesMatter

#BlackTwitter

35% 48%

#AhmaudArbery 19% 71%



#ACAB

#BlackTwitter

50% 50%

#FTP

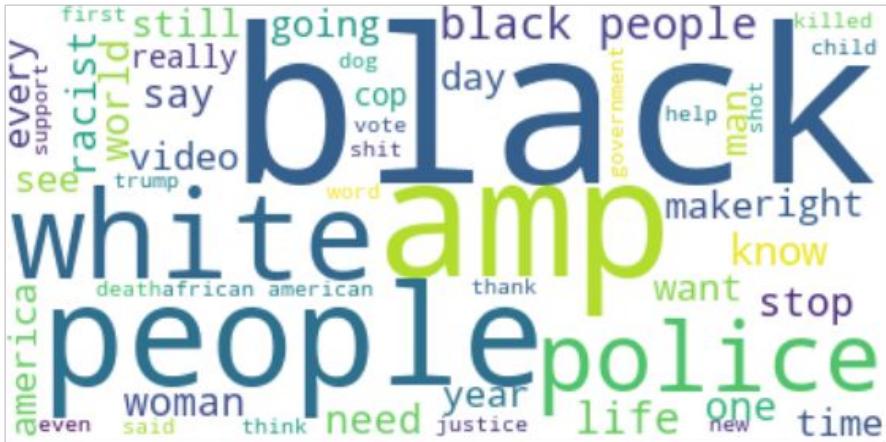
33% 66%

DÍA 4

25/05



PUCP



#BlackLivesMatter

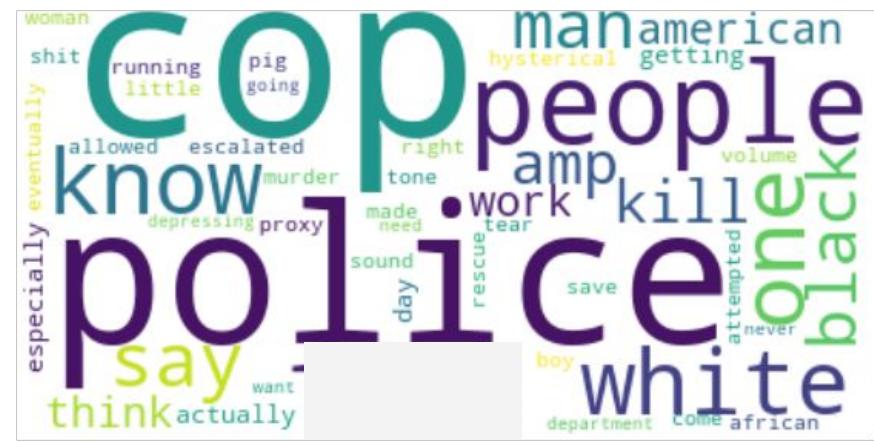
#blackholocaust

31% 61%

#BlackTwitter
46% 28%

#coronagates

35% 64%



#ACAB

#Karen
50% 50%

#chantalclaret
0% 100%

DÍA 5

26/05



PUCP



#BlackLivesMatter

#GeorgeFloyd
20% 69%

#icantbreathe
21% 66%

#JusticeForGeorgeFloyd
18% 73%



#ACAB

#GeorgeFloyd
16% 76%

#FTP
25% 75%

DÍA 6

27/05



PUCP



#BlackLivesMatter

#GeorgeFloyd

32% 53%

#JusticeForGeorgeFloyd

41% 46%

#icantbreathe
30% 54%



#ACAB

#GeorgeFloyd

23% 65%

#JusticeForGeorgeFloyd

#BlackLivesMatter

25% 65%

25% 67%

DÍA 7

28/05



PUCP



#BlackLivesMatter

#JusticeForGeorgeFloyd

#GeorgeFloydWasMurdered

41% 44%

31% 53%



#ACAB

#GeorgeFloyd

32% 55%

34% 51%
#JusticeForGeorgeFloyd

#BlackLivesMatter

33% 53%

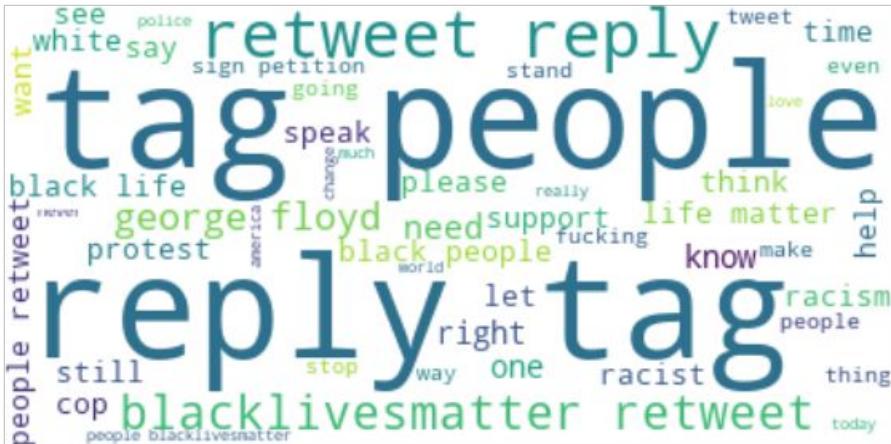
34% 51%
#JusticeForGeorgeFloyd

DÍA 8

29/05



PUCP



#BlackLivesMatter

#RAISETHEDEGREE



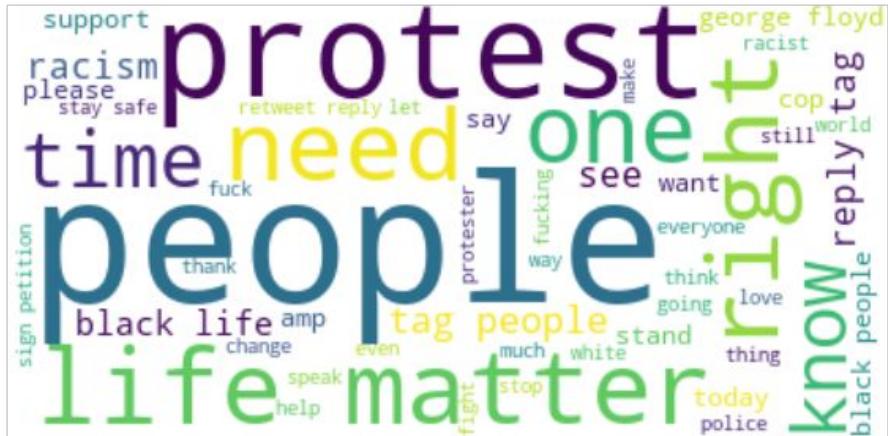
#ACAB

DÍA 9

30/05



PUCP



#BlackLivesMatter

#RAISETHEDEGREE

#GeorgeFloyd 33% 50%

26% 59%

43% 42%

#JusticeForGeorgeFloyd



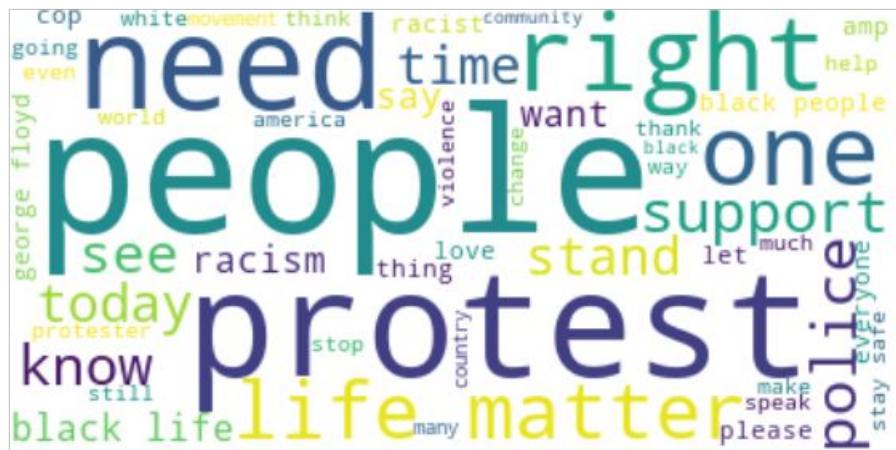
#ACAB

DÍA 10

31/05



PUCP



#BlackLivesMatter

#protests2020

#GeorgeFloyd

34% 51%

39% 43%

46% 37%



#ACAB

#JusticeForGeorgeFloyd

DÍA 11

01/06



PUCP



#BlackLivesMatter

#JusticeForGeorgeFloyd

#GeorgeFloyd 39% 43%



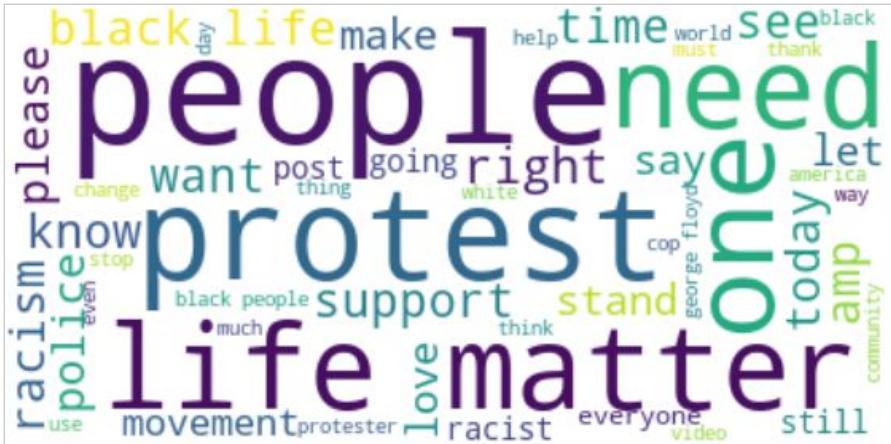
#ACAB

DÍA 12

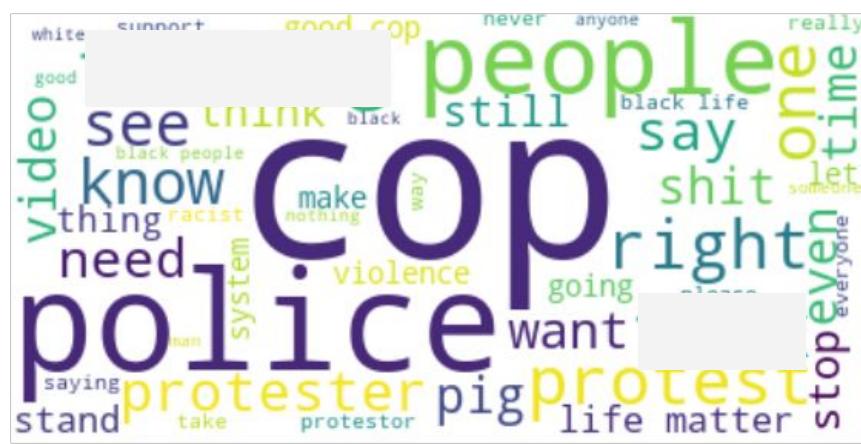
02/06



PUCP



#BlackLivesMatter



#ACAB

#GeorgeFloyd

36% 49%

#BlackOutTuesday

47% 32%

DÍA 13

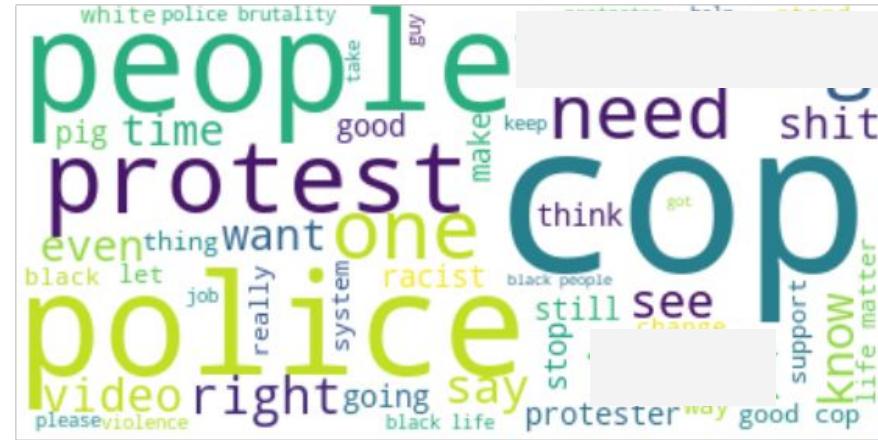
03/06



PUCP



#BlackLivesMatter



#ACAB

#JusticeForGeorgeFloyd

#GeorgeFloyd

37% 45%

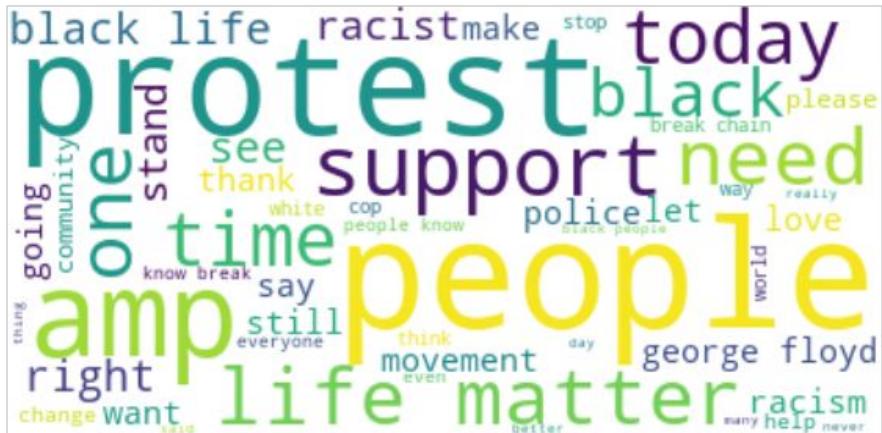
42% 39%

DÍA 14

04/06



PUCP



#BlackLivesMatter



#ACAB

#GeorgeFloyd

36% 31%

DÍA 15

05/06



PUCP



#BlackLivesMatter

#GeorgeFloyd
41% 30%

#BreonnaTaylor
51% 16%



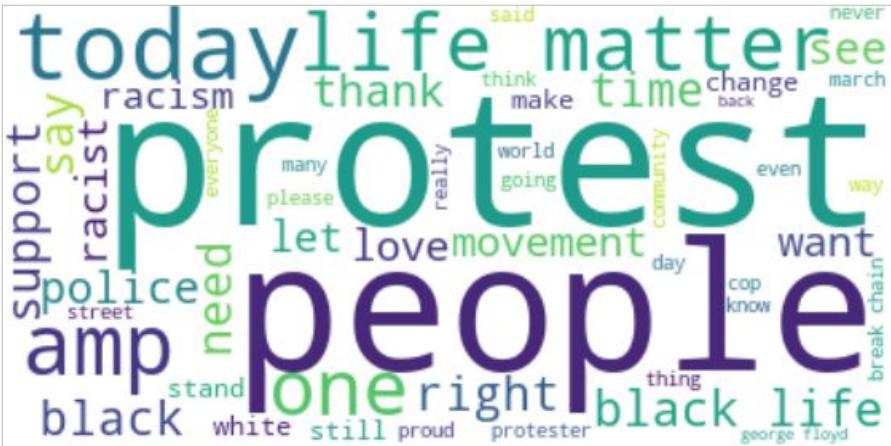
#ACAB

DÍA 16

06/06



PUCP



#BlackLivesMatter



#ACAB

#GeorgeFloyd

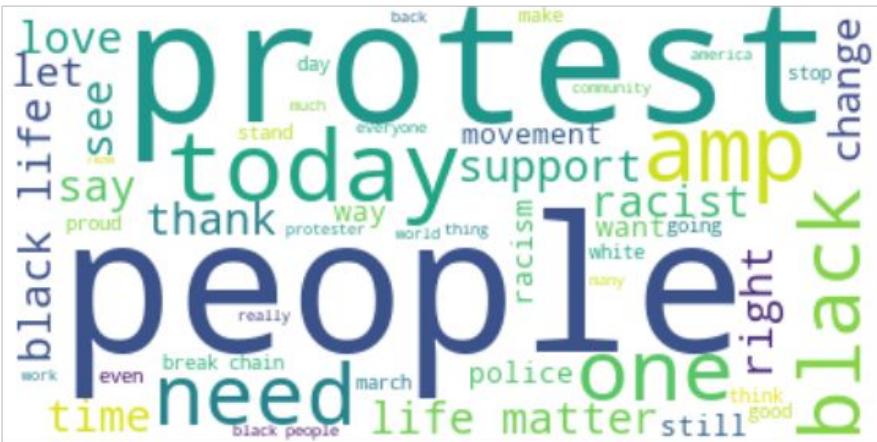
43% 40%

DÍA 17

07/06

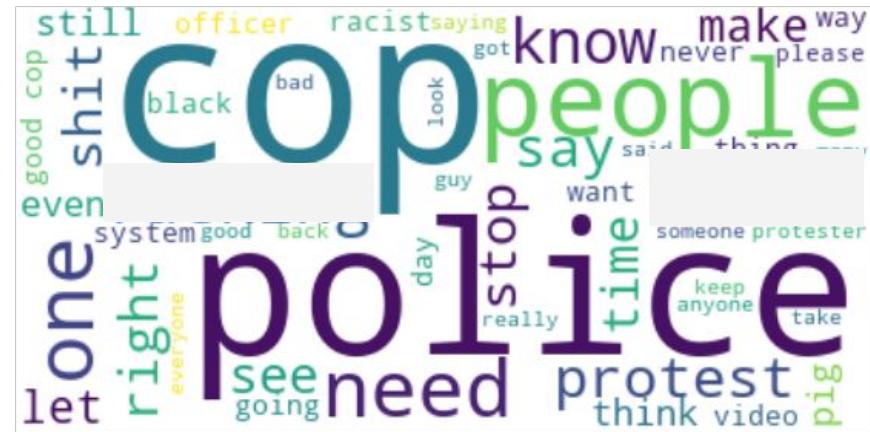
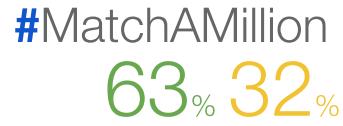


PUCP



#BlackLivesMatter

#GeorgeFloyd
36% 47%



#ACAB

DÍA 18

08/06



PUCP



#BlackLivesMatter



#ACAB

#GeorgeFloyd

35% 45%

#DefundThePolice

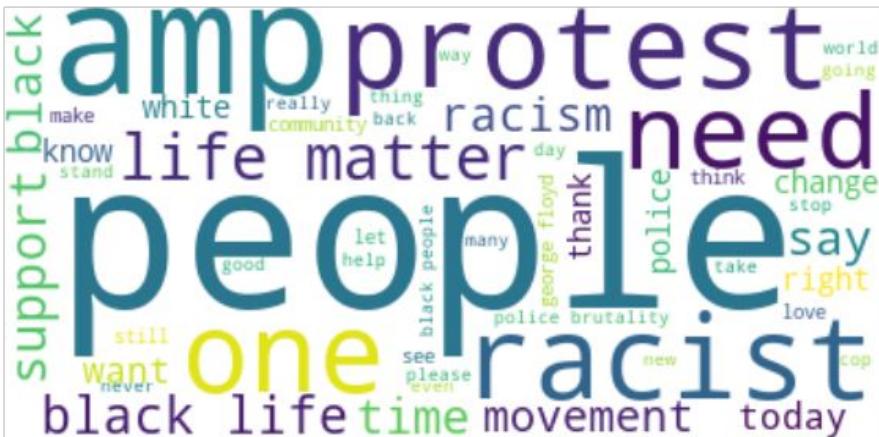
35% 45%

DÍA 19

09/06



PUCP



#BlackLivesMatter



#ACAB

#GeorgeFloyd

32% 51%

DÍA 20

10/06



PUCP



#BlackLivesMatter

#DefundThePolice

#GeorgeFloyd

32% 51%



#ACAB

DÍA 21

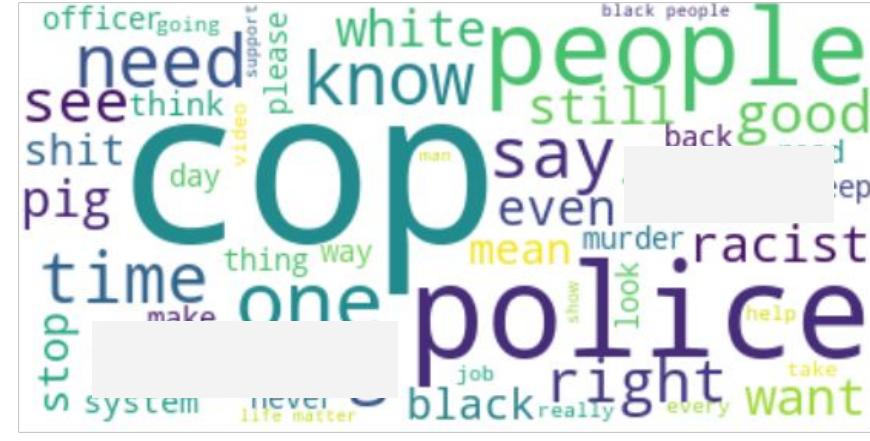
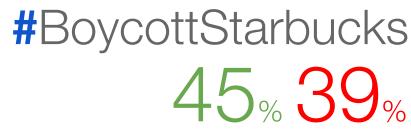
11/06



PUCP



#BlackLivesMatter



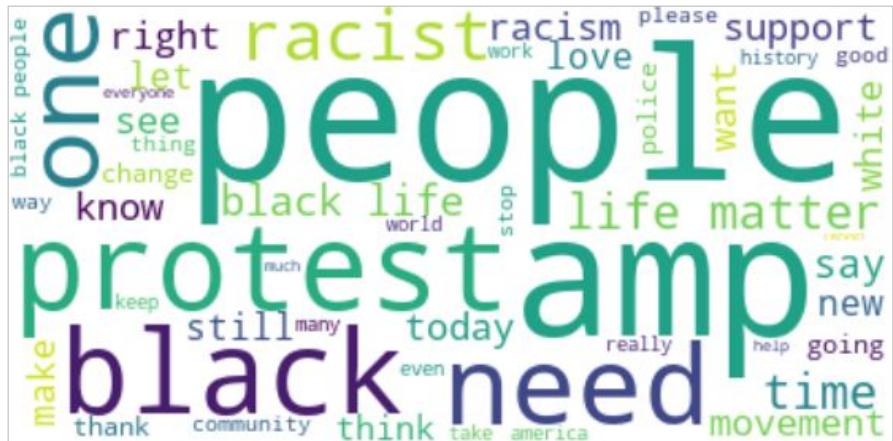
#ACAB

DÍA 22

12/06



PUCP



#BlackLivesMatter



#ACAB

#GeorgeFloyd

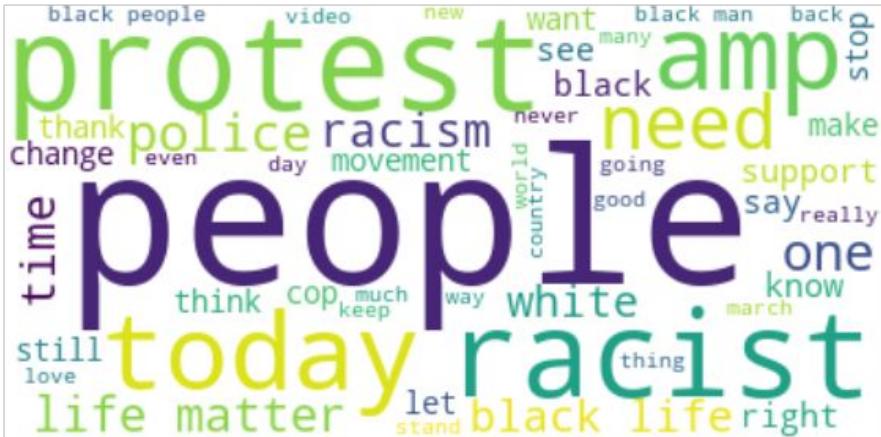
33% 50%

DÍA 23

13/06



PUCP



#BlackLivesMatter



#ACAB

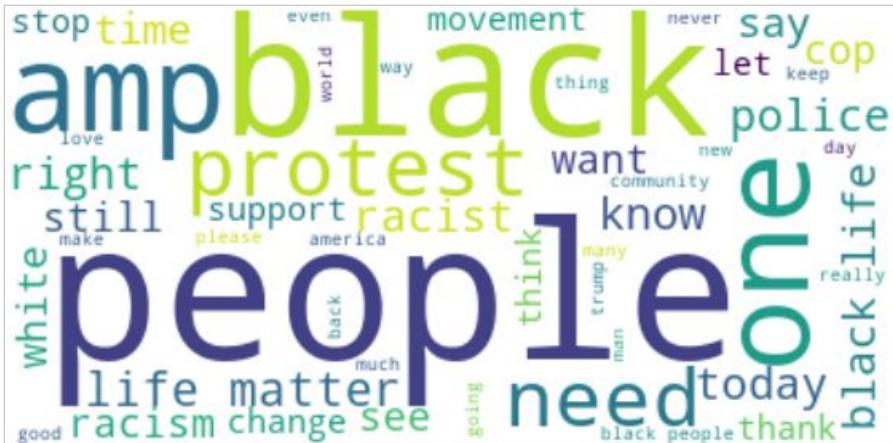
#RayshardBrooks 18% 69%

DÍA 24

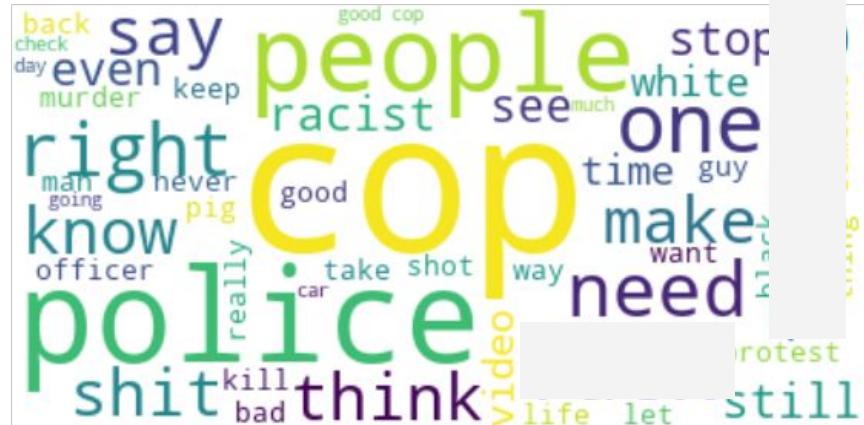
14/06



PUCP



#BlackLivesMatter



#ACAB

#GeorgeFloyd

33% 46%

DÍA 25

15/06



PUCP



#BlackLivesMatter



#ACAB

DÍA 26

16/06



PUCP



#BlackLivesMatter



#ACAB

DÍA 27

17/06



PUCP



#BlackLivesMatter

#TheSoCalledRaceCard

11% 88%



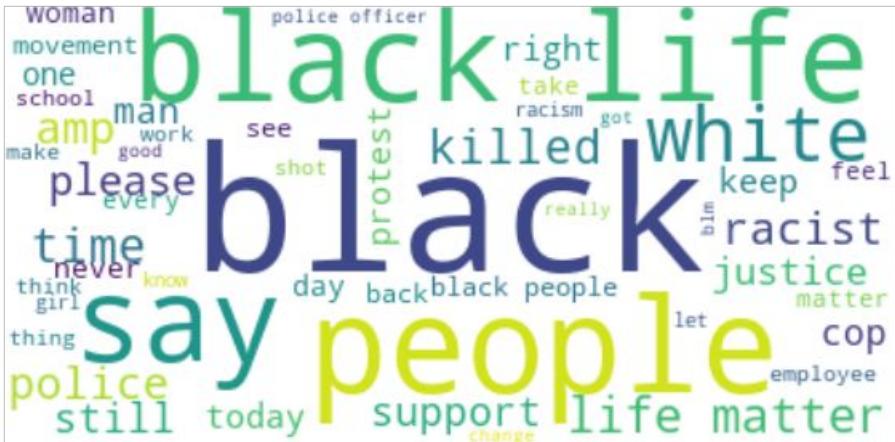
#ACAB

DÍA 28

18/06



PUCP



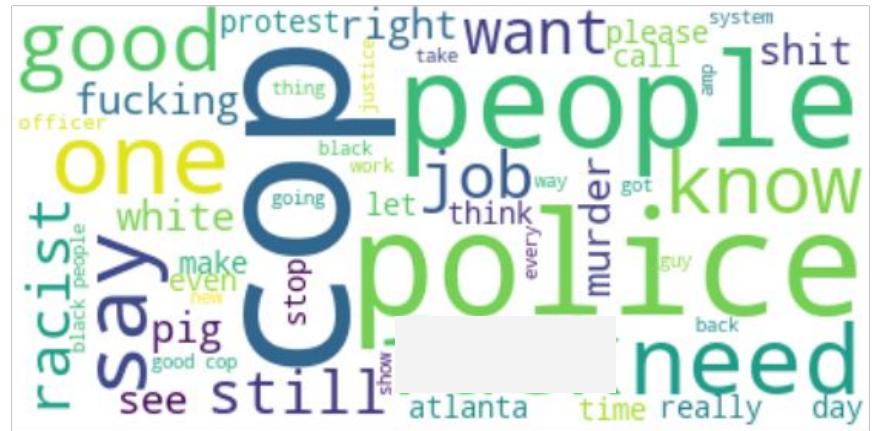
#BlackLivesMatter

#BREONNATAYLOR

25% 75%

#RIPTacoBell

16% 83%



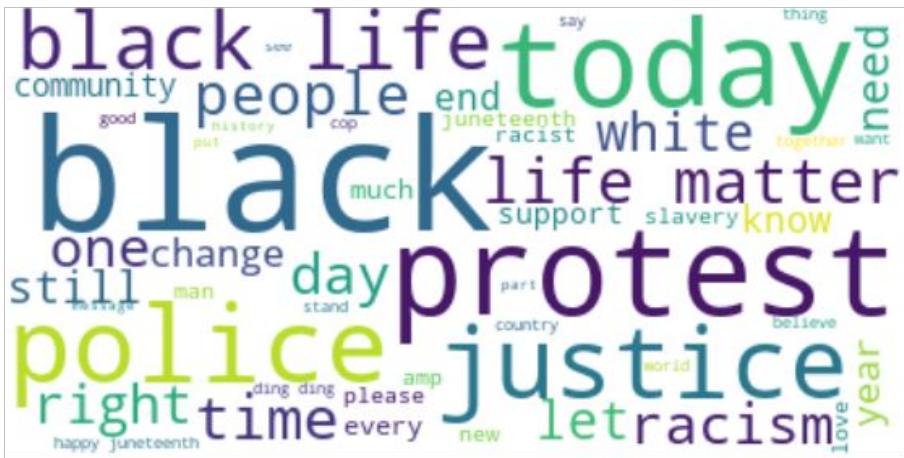
#ACAB

DÍA 29

19/06



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#BlackLivesMatter



#ACAB

#Juneteenth
42% 26%

58% 25%
42% 28%
#JUNETEENTH2020

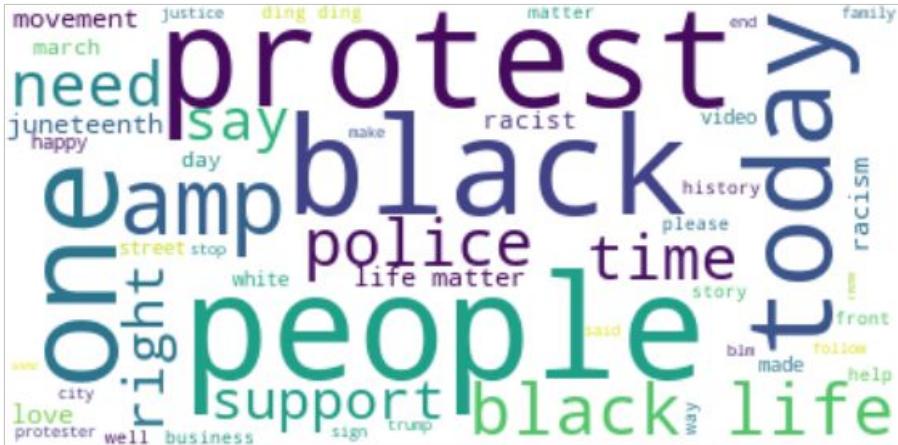
#JuneteenthDay

DÍA 30

20/06



PUCP



#BlackLivesMatter



#JUNETEENTH2020

66% 13%



#ACAB



PUCP

Sign Petition

Donate Money

black

community

racism

Police

Arrest

f****

people

disgusting

police

Police

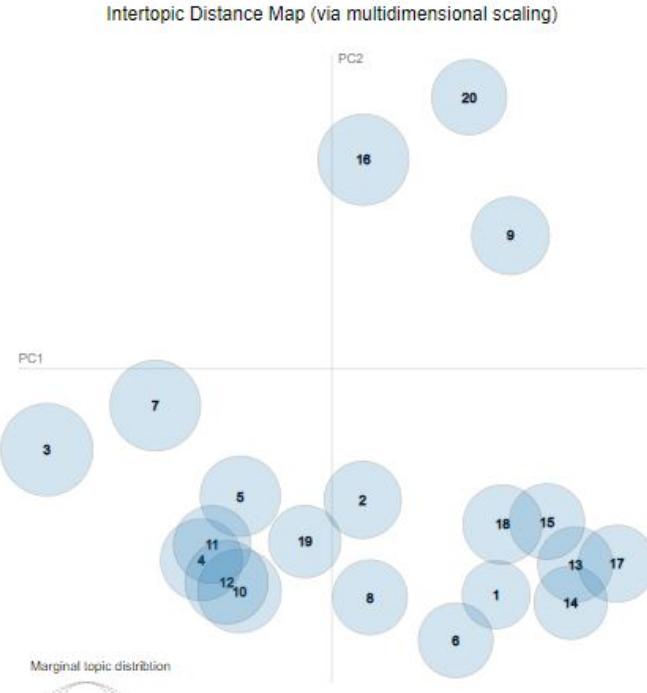


Topic
Modeling
LDA

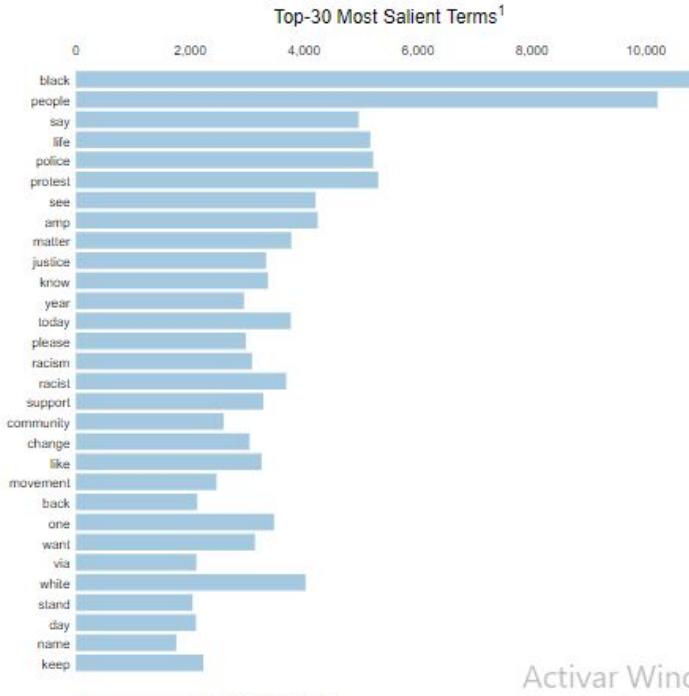
NUM_TOPICS = 15
NUM_PASSES = 15
ALPHA = 0.1

#BlackLivesMatter - BOW

Selected Topic: 0 | Previous Topic | Next Topic | Clear Topic



Slide to adjust relevance metric:(²)
 $\lambda = 1$

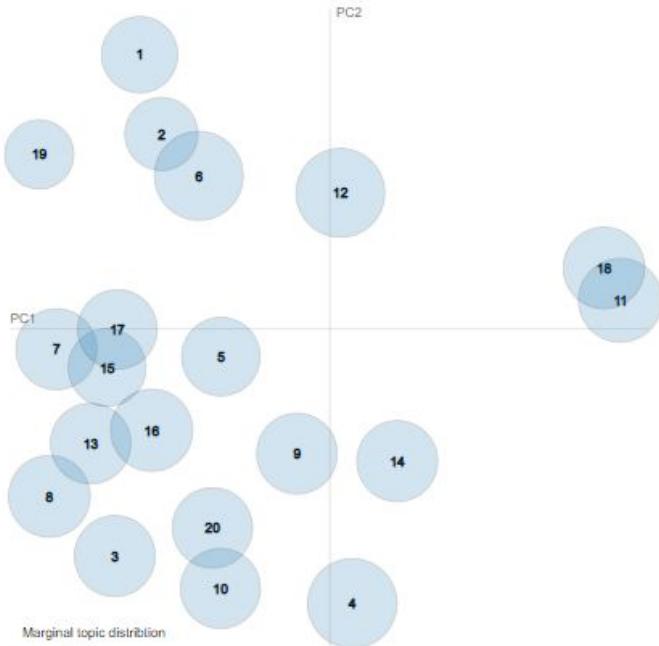


**Topic
Modeling**
LDA

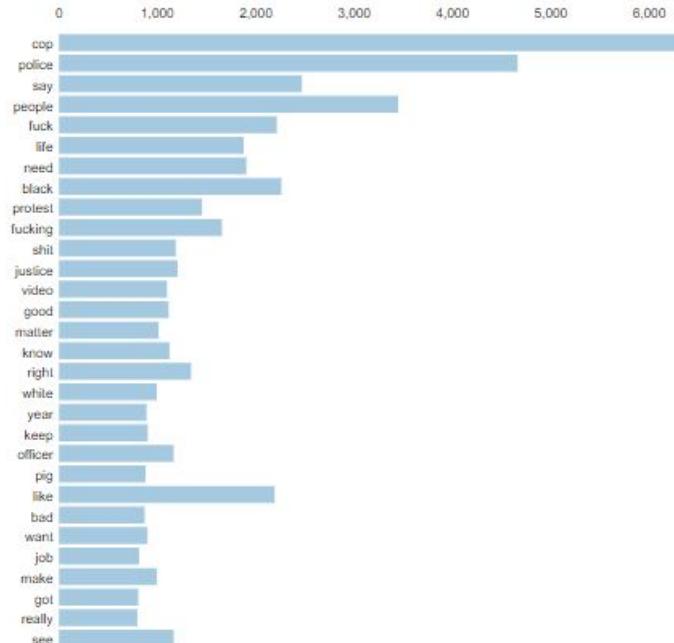
NUM_TOPICS = 15
NUM_PASSES = 15
ALPHA = 0.1

#ACAB - BOW

Intertopic Distance Map (via multidimensional scaling)



Top-30 Most Salient Terms¹



**Topic
Modeling
LDA**

NUM_TOPICS = 15
NUM_PASSES = 15
ALPHA = 0.1



Propuesta de Aplicación



"Detectar comentarios no constructivos o violentos que no sumen al esfuerzo del movimiento BLM y así poder tomar medidas para **desvincular del grupo a ese usuario o miembro** que podría generar problemas. Para ello, se propone utilizar el dataset de **#ACAB** y **#BlackLiveMatters** para **entrenar un algoritmo de ML que pueda clasificar como "Constructivo" o "No Constructivo" al texto de un tweet**. Tomando como referencia los comentarios de **#ACAB** como "No Constructivos" y los de **#BlackLiveMatters** como "Constructivos"."

1. CLASIFICACIÓN
2. EVOLUCIÓN DE SENTIMIENTOS EN EL TIEMPO

```
In [200]: rf = binary_model_svc(x_train, x_test, y_train, y_test)
```

```
Accuracy Score -> 49.24242424242424
F1 Score -> 65.98984771573603
```

Propuesta de Aplicación



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El principal problema es que el **vocabulario entre ambos hashtags es similar y los tópicos que tocan no son tan diferentes entre ellos**. Por ello, y en base a lo que hemos visto en cuanto a cómo evoluciona la polaridad para ambos hashtags en el tiempo (#BlackLivesMatter oscila entre positivo y negativo, mientras que #ACAB se mantiene en comentarios negativos). **Otra forma de clasificarlos puede ser en base a cómo evolucionan sus sentimientos a lo largo del tiempo**. Si el grupo X mantiene comentarios negativos durante un tiempo N se podría asociar a ser un tipo de comentario nocivo o "no constructivo". Caso contrario, si el grupo Y mantiene comentarios que varían entre positivos y negativos a lo largo de tiempo, se puede asociar a ser "constructivo" (o por lo menos más complejo).