

Presidential Tweets

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Presidential Tweets

Obtaining Recent Obama Tweets

Firstly, we need a few R 'packages' designed specifically for playing with Tweets.

```
library(rtweet)
library(lubridate)
```

```
##
## Attaching package: 'lubridate'
```

```
## The following objects are masked from 'package:base':
##
##     date, intersect, setdiff, union
```

```
library(wordcloud)
```

```
## Loading required package: RColorBrewer
```

```
library(tidytext)
library(dplyr)
```

```
##
## Attaching package: 'dplyr'
```

```
## The following objects are masked from 'package:stats':
##
##     filter, lag
```

```
## The following objects are masked from 'package:base':
##
##     intersect, setdiff, setequal, union
```

```
library(ggplot2)
library(tidyr)
library(syuzhet)

## 
## Attaching package: 'syuzhet'

## The following object is masked from 'package:rtweet':
## 
##     get_tokens

library(quantmod)

## Loading required package: xts

## Loading required package: zoo

## 
## Attaching package: 'zoo'

## The following objects are masked from 'package:base':
## 
##     as.Date, as.Date.numeric

## 
## Attaching package: 'xts'

## The following objects are masked from 'package:dplyr':
## 
##     first, last

## Loading required package: TTR

## Registered S3 method overwritten by 'quantmod':
##   method      from
##   as.zoo.data.frame zoo
```

For this class assignment we were given the data of the tweets posted by Obama and trump in recent times. The Obama tweets are through 2pm EST, 1.16.23

Loading the files

```
load("~/Downloads/Obama.Rdata")
load("~/Downloads/Trump.Rdata")
```

Exploratory Analysis of Obama's Tweet

How many tweets are there?

```
dim(Obamatweets)
```

```
## [1] 2000    43
```

What are the names of the column?

```
names(Obamatweets)
```

```
## [1] "created_at"                  "id"
## [3] "id_str"                     "text"
## [5] "full_text"                   "truncated"
## [7] "entities"                    "source"
## [9] "in_reply_to_status_id"        "in_reply_to_status_id_str"
## [11] "in_reply_to_user_id"          "in_reply_to_user_id_str"
## [13] "in_reply_to_screen_name"     "geo"
## [15] "coordinates"                 "place"
## [17] "contributors"                "is_quote_status"
## [19] "retweet_count"               "favorite_count"
## [21] "favorited"                  "favorited_by"
## [23] "retweeted"                  "scopes"
## [25] "lang"                       "possibly_sensitive"
## [27] "display_text_width"          "display_text_range"
## [29] "retweeted_status"            "quoted_status"
## [31] "quoted_status_id"             "quoted_status_id_str"
## [33] "quoted_status_permalink"      "quote_count"
## [35] "timestamp_ms"                 "reply_count"
## [37] "filter_level"                 "metadata"
## [39] "query"                       "withheld_scope"
## [41] "withheld_copyright"           "withheld_in_countries"
## [43] "possibly_sensitive_appealable"
```

What is the start time of Obama tweets?

```
head(Obamatweets$created_at,1)
```

```
## [1] "2023-01-13 16:30:43 EST"
```

What is the end time of Obama tweets?

```
tail(Obamatweets$created_at, 1)
```

```
## [1] "2016-04-08 11:45:49 EDT"
```

```
Encoding(Obamatweets$text) <- "UTF-8"
```

Now we will create a dataframe including only some important variable for analysis and renaming the headers.

```
Obamatweets <- data.frame(id = Obamatweets$id,
                           text = Obamatweets$text,
                           date = with_tz(Obamatweets$created_at, "US/Pacific"),
                           source = Obamatweets$source,
                           is_quote = Obamatweets$is_quote_status,
                           is_retweet = Obamatweets$retweeted,
                           is_reply = !is.na(Obamatweets$in_reply_to_status_id),
                           favorite_count = Obamatweets$favorite_count,
                           retweet_count = Obamatweets$retweet_count,
                           stringsAsFactors = FALSE)
```

After not including some of the variables in the data frame we will again see the shape of the datafram

```
dim(Obamatweets)
```

```
## [1] 2000    9
```

Now, we want to see what is the source device of the tweets,

```
table(Obamatweets$source)
```

Source Device	Count
Twitter Web Client	664
Twitter for iPhone	740
Twitter Web App	449
Twitter Media Studio	146
Thunderclap	1

We see that it is a lot of messy data so we will now clean the data so that we can get only the device name.

Reference : <https://stackoverflow.com/questions/17227294/removing-html-tags-from-a-string-in-r>
<https://stackoverflow.com/questions/17227294/removing-html-tags-from-a-string-in-r>

```
cleanFun <- function(htmlString) {
  return(gsub("<.*?>", "", htmlString))
}
```

```
Obamatweets$source <- cleanFun(Obamatweets$source)
table(Obamatweets$source)
```

```
##
##          Thunderclap  Twitter for iPhone Twitter Media Studio
##                1                  740                  146
##      Twitter Web App  Twitter Web Client
##                449                  664
```

To clean things more we will remove the words 'Twitter' and 'for' from the source headings

```
Obamatweets$source <- gsub("Twitter |for", "", Obamatweets$source)
table(Obamatweets$source)
```

```
##
##      iPhone Media Studio  Thunderclap      Web App  Web Client
##                740          146            1        449      664
```

Findings : Highest Number of tweets were made from Iphone and after that from Web Client. The least tweets were made from ThunderClap.

Now let's look at the top 10 tweets from two devices

```
head(Obamatweets$text[Obamatweets$source == "Media Studio"], 10)
```

```
## [1] "15 years ago today, our campaign won the Iowa caucuses. I'll always be grateful to the people who organized across the state, and built the relationships that made it all possible.\n\nI recently sat down with six organizers to talk about that time and what they've been up to since. https://t.co/2fghTvMdLn"  

## [2] "The work the @ObamaFoundation did in 2022 makes me hopeful for the future.\n\nFrom supporting the next generation of leaders to strengthening democracy around the world, we've made a lot of progress this year.\n\nTake a look: https://t.co/gH86QX68cP"  

## [3] "Vote for @ReverendWarnock. \n\nVote today to build on the work of people like John Lewis and Ann Nixon Cooper who paved the way for us. \n\nVote to build a better future for the next generation. https://t.co/SRPhjFLzG  

A https://t.co/N0wLBhQ8XO"  

## [4] "Georgia, it's time to get out and vote to re-elect @ReverendWarnock. \n\nMake sure to get your family, friends, and neighbors out to vote, too. \n\nFind your polling location at https://t.co/SRPhjFuwEA. https://t.co/oDMv7pv6Gc"  

## [5] "Georgia – vote for @ReverendWarnock! \n\nMake a plan to vote today at https://t.co/SRPhjFLzGA. https://t.co/n1bIxQWC02"  

## [6] "Last month, I spoke with some of the incredible small business leaders working on the South and West sides of Chicago. \n\nAs we build the Obama Presidential Center, we'll work closely with these businesses and hope the Center helps boost economic growth across the city. https://t.co/QI15oS7Zut"  

## [7] "One of my favorite White House traditions was telling Thanksgiving jokes – which at least I thought were funny. \n\nHere's a look back at some of my favorites: https://t.co/t2azgScNau"  

## [8] "I'm inspired by the next generation of leaders—especially those who joined us last week at our @ObamaFoundation Democracy Forum.\n\nTheir ideas and insights will help strengthen democracy, and carry it into the future.\n\nTake a look back at our day together: https://t.co/vC9TfIIssH"  

## [9] "Our @ObamaFoundation Leaders are working hard to tackle some of our toughest challenges. It was great having some of them join @TrevorNoah and me on @TheDailyShow to share more about their work. https://t.co/8SS3eEODVh"  

## [10] "I'm in New York City for the @ObamaFoundation's #DemocracyForum with leaders from around the world to discuss how we can strengthen our democracy and support the next generation of leaders working on some of our most important challenges. Tune in: https://t.co/5FGI2dg2WD"
```

```
head(Obamatweets$text[Obamatweets$source == " iPhone"], 10)
```

```
## [1] "If you need to get covered, head over to https://t.co/DEjP7PTKgn. Open enrollment ends this Sunday, January 15."
## [2] "I'll always be proud to have my name associated with a program that's helping folks get the health care they need. https://t.co/mnOTx4jdOA"
## [3] "This week, Illinois joined states across the country in passing a historic gun violence prevention package. This would not have been possible without the work of grassroots organizers, survivors and their families, and lawmakers who channeled their anguish into bold action."
## [4] "RT @welcomeus: Through new humanitarian sponsorship programs, vulnerable newcomers can now find safety in the U.S. with the support of a sp..."
## [5] "RT @POTUS: Nearly 16 million people have signed up for coverage through the Affordable Care Act since the start of open enrollment. That's..."
## [6] "RT @MichelleObama: I was lucky to grow up surrounded by relatives—grandparents, aunties, uncles, and more—with stories to tell and a willin..."
## [7] "The entire world has a stake in the success of Brazil's democracy. Together, we must reject any effort to overturn or disrupt the will of the Brazilian people and affirm the peaceful transfer of power as a cornerstone of democracy."
## [8] "Happy New Year! \n\nIn 2022, people around the world helped change their communities for the better. Let's keep it up in 2023. We've still got a lot of work to do, but I'll be right there with you. \n\nHere's to a happy, healthy, and peaceful new year."
## [9] "Pelé was one of the greatest to ever play the beautiful game. And as one of the most recognizable athletes in the world, he understood the power of sports to bring people together. Our thoughts are with his family and everyone who loved and admired him. https://t.co/urGRDePaPv"
## [10] "Michelle and I send our best wishes to families celebrating Kwanzaa this holiday season. Today begins a week-long celebration of African-American heritage and culture. As folks gather to light the Kinara, we hope you have a happy Kwanzaa. https://t.co/zgsyugVPYE"
```

Trump's Tweet

Exploratory Analysis of Trump's Tweet

How many tweets are there?

```
dim(tweets)
```

```
## [1] 3086   90
```

What are the names of the column?

```
names(tweets)
```

```

## [1] "user_id"                      "status_id"
## [3] "created_at"                   "screen_name"
## [5] "text"                         "source"
## [7] "display_text_width"           "reply_to_status_id"
## [9] "reply_to_user_id"             "reply_to_screen_name"
## [11] "is_quote"                     "is_retweet"
## [13] "favorite_count"              "retweet_count"
## [15] "quote_count"                 "reply_count"
## [17] "hashtags"                    "symbols"
## [19] "urls_url"                   "urls_t.co"
## [21] "urls_expanded_url"          "media_url"
## [23] "media_t.co"                  "media_expanded_url"
## [25] "media_type"                 "ext_media_url"
## [27] "ext_media_t.co"              "ext_media_expanded_url"
## [29] "ext_media_type"              "mentions_user_id"
## [31] "mentions_screen_name"        "lang"
## [33] "quoted_status_id"            "quoted_text"
## [35] "quoted_created_at"           "quoted_source"
## [37] "quoted_favorite_count"       "quoted_retweet_count"
## [39] "quoted_user_id"              "quoted_screen_name"
## [41] "quoted_name"                 "quoted_followers_count"
## [43] "quoted_friends_count"        "quoted_statuses_count"
## [45] "quoted_location"              "quoted_description"
## [47] "quoted_verified"              "retweet_status_id"
## [49] "retweet_text"                 "retweet_created_at"
## [51] "retweet_source"               "retweet_favorite_count"
## [53] "retweet_retweet_count"        "retweet_user_id"
## [55] "retweet_screen_name"          "retweet_name"
## [57] "retweet_followers_count"      "retweet_friends_count"
## [59] "retweet_statuses_count"        "retweet_location"
## [61] "retweet_description"          "retweet_verified"
## [63] "place_url"                   "place_name"
## [65] "place_full_name"              "place_type"
## [67] "country"                     "country_code"
## [69] "geo_coords"                  "coords_coords"
## [71] "bbox_coords"                 "status_url"
## [73] "name"                        "location"
## [75] "description"                 "url"
## [77] "protected"                   "followers_count"
## [79] "friends_count"                "listed_count"
## [81] "statuses_count"               "favourites_count"
## [83] "account_created_at"           "verified"
## [85] "profile_url"                  "profile_expanded_url"
## [87] "account_lang"                 "profile_banner_url"
## [89] "profile_background_url"        "profile_image_url"

```

Now we will sort the tweets in the reverse order and get the recent 2000 tweets.

```
Trumptweets <- tweets[order(tweets$created_at, decreasing = TRUE), ][1:2000, ]
```

Now we will create a dataset with same variable as that of the Obama's tweets dataset.

```
Trumptweets <- data.frame(id = Trumptweets$user_id,
                           text = Trumptweets$text,
                           date = with_tz(Trumptweets$created_at, "US/Pacific"),
                           source = Trumptweets$source,
                           is_quote = Trumptweets$is_quote,
                           is_retweet = Trumptweets$is_retweet,
                           is_reply = !is.na(Trumptweets$reply_to_status_id),
                           favorite_count = Trumptweets$quoted_favorite_count,
                           retweet_count = Trumptweets$quoted_retweet_count,
                           stringsAsFactors = FALSE)
```

Removing any duplicates from the dataset

```
Trumptweets <- Trumptweets[!duplicated(Trumptweets), ]
```

Now we will recheck How many tweets are there after removing the duplicates?

```
dim(Trumptweets)
```

```
## [1] 1981    9
```

Findings : There were 19 duplicates which got removed from the dataset.

We will now examine the sources/devices from which the tweets were made.

```
table(Trumptweets$source)
```

```
## 
##   Twitter for iPhone Twitter Media Studio
##           1965             16
```

Removing twitter and for from the source heading

```
Trumptweets$source <- gsub("Twitter ", "", Trumptweets$source)
Trumptweets$source <- gsub("for ", "", Trumptweets$source)
```

We will now examine the sources/devices from which the tweets were made after data cleaning.

```
table(Trumptweets$source)
```

```
##  
##      iPhone Media Studio  
##      1965          16
```

A few tweets from each sources

```
head(Trumptweets$text[Trumptweets$source == "iPhone"])
```

```
## [1] "THANK YOU! #MAGA https://t.co/hqyNTNoVHi"  
## [2] "https://t.co/0q33fvaOS6"  
## [3] "New @CNBC poll in key electoral states....\n\n5,408 likely voters: AZ, FL, MI, NC, PA, WI.\n\n@realDonaldTrump leads @JoeBiden 48% to 46%\n\nTrump job approval: 50%\n\nTrump is +11% over Biden on the ECONOMY!"  
## [4] "....On Monday, the flags will be at half-staff in honor of the men and women in our Military who have made the Ultimate Sacrifice for our Nation."  
## [5] "I will be lowering the flags on all Federal Buildings and National Monuments to half-staff over the next three days in memory of the Americans we have lost to the CoronaVirus...."  
## [6] "Another $298M heading to @MTA, adding up to over $2B in federal funding from @USDOT so far, part of the $3.9B total from the CARES Act. This is critical to keeping essential personnel moving and aiding metro NYC in recovery. We are here for the people of New York!"
```

```
head(Trumptweets$text[Trumptweets$source == "Media Studio"])
```

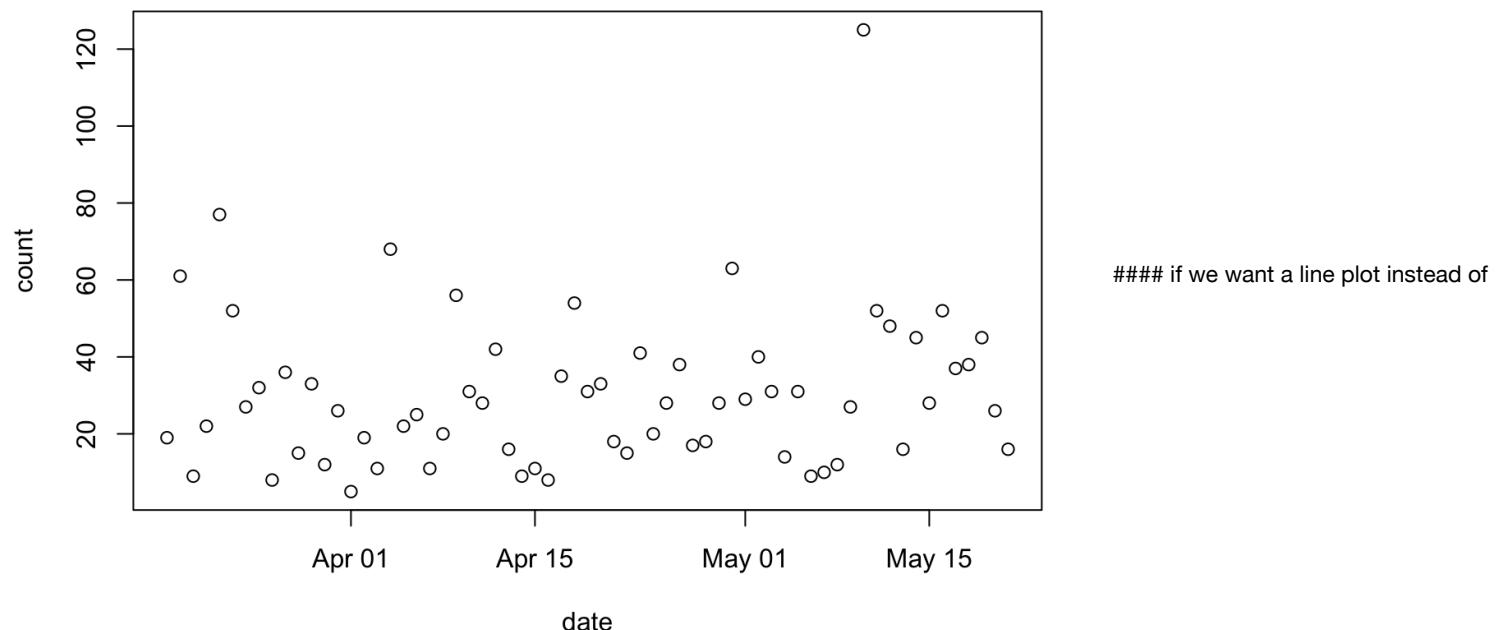
```
## [1] "https://t.co/LQvPt19b8V"           "https://t.co/Lwcyq5Pgpq"  
## [3] "https://t.co/5CHnYYVmB1"         "https://t.co/MxwXbIjDyS"  
## [5] "https://t.co/GNwQL5scL2"          "OBAMAGATE! https://t.co/pFbb6hgDhF"
```

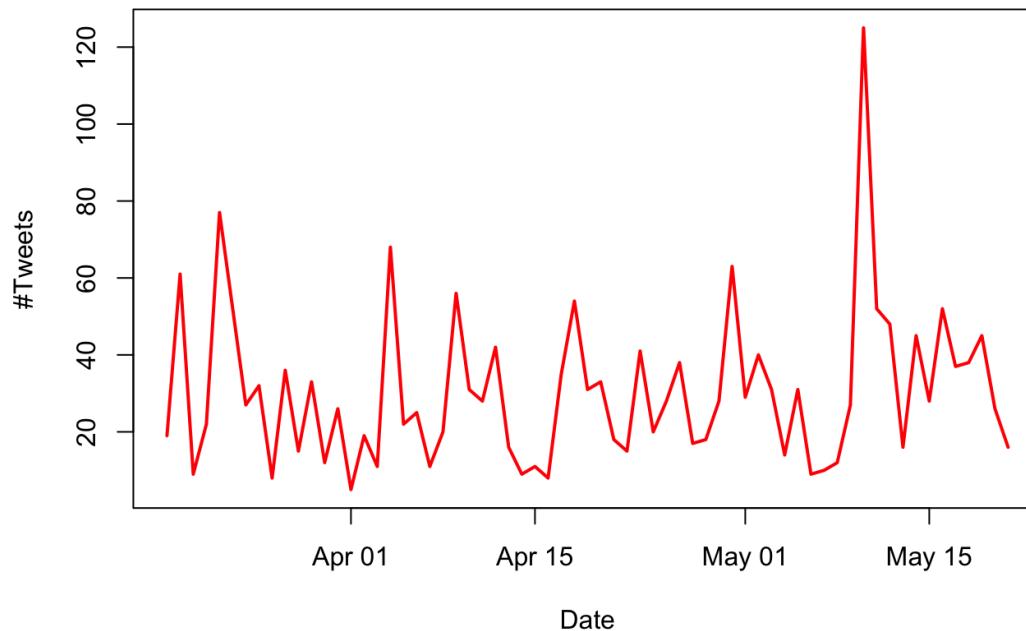
Data Analysis using Plots

For Trump, 1981 Tweets covers about 2020-03-18 to 2020-05-21

```
Trumptweets_by_date <- aggregate(Trumptweets$text ~ date(Trumptweets$date),  
                                FUN = length)
```

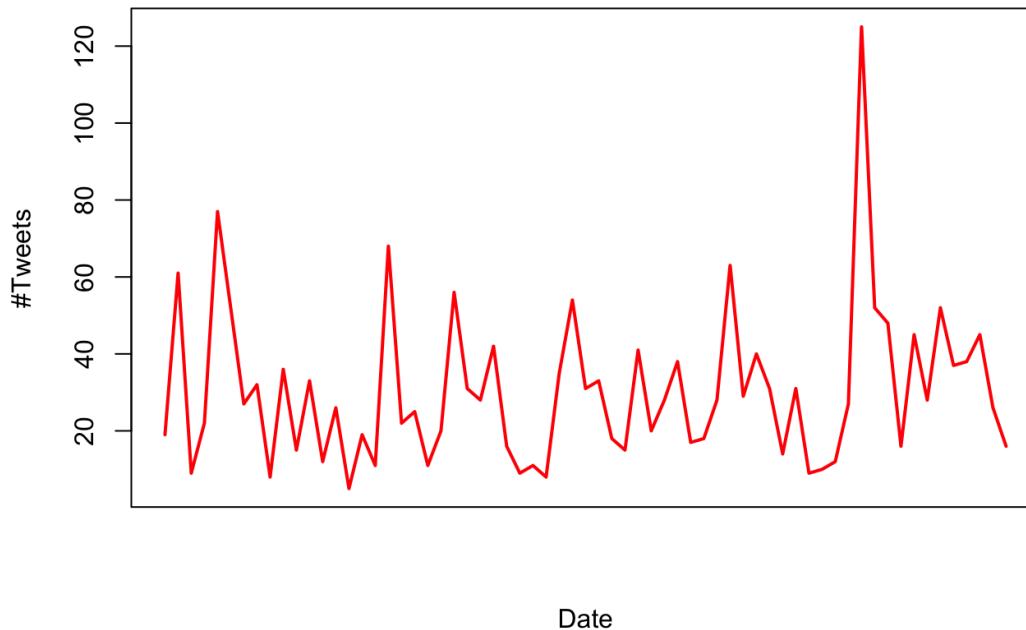
```
colnames(Trumptweets_by_date) <- c("date", "count")  
plot(count ~ date, data = Trumptweets_by_date )
```





To make the x labels finer

```
plot(count ~ date, data = Trumptweets_by_date, type = "l", lwd = 2, col = "red", xlab = "Date", ylab = "#Tweets",
xaxt = "n")
```



Now, we want to have a proper

date format on the xlabel

```
range(Trumptweets$date)

## [1] "2020-03-18 03:41:14 PDT" "2020-05-21 18:04:23 PDT"
```

How many days are there between the range?

```
range(date(Trumptweets$date))[2] - range(date(Trumptweets$date))[1]

## Time difference of 64 days

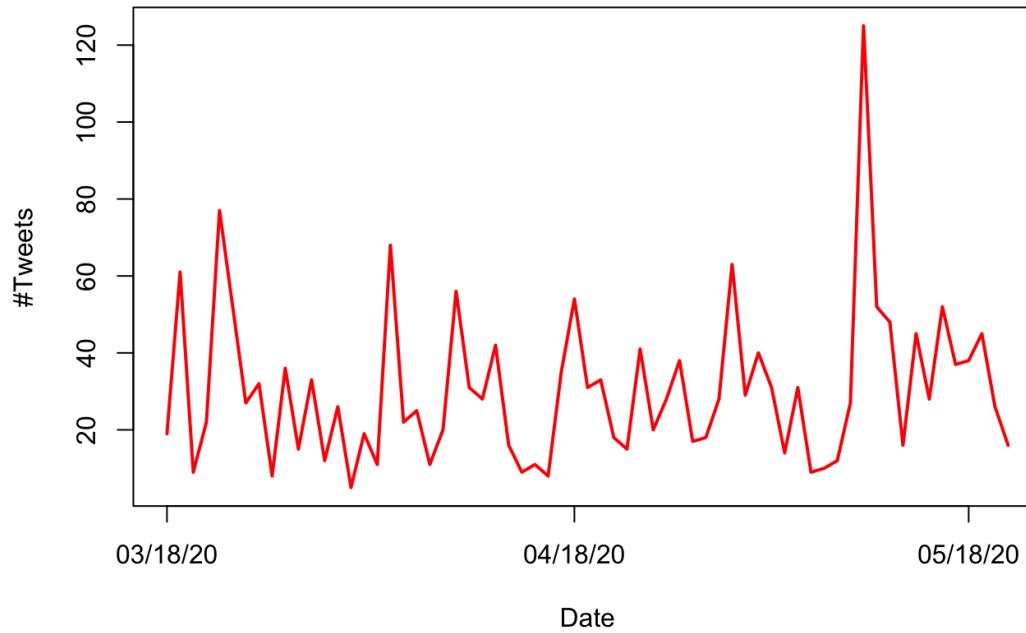
xdates <- seq(from = as.Date("2020-03-18"),
              to = as.Date("2020-05-21"), by = "months")

xdates

## [1] "2020-03-18" "2020-04-18" "2020-05-18"
```

Now, we want the date format to %m/%d/%y

```
plot(count ~ date, data = Trumptweets_by_date, type = "l", lwd = 2, col = "red", xlab = "Date", ylab = "#Tweets",
xaxt = "n")
axis(1, labels=format(xdates,"%m/%d/%y"), at = xdates)
```



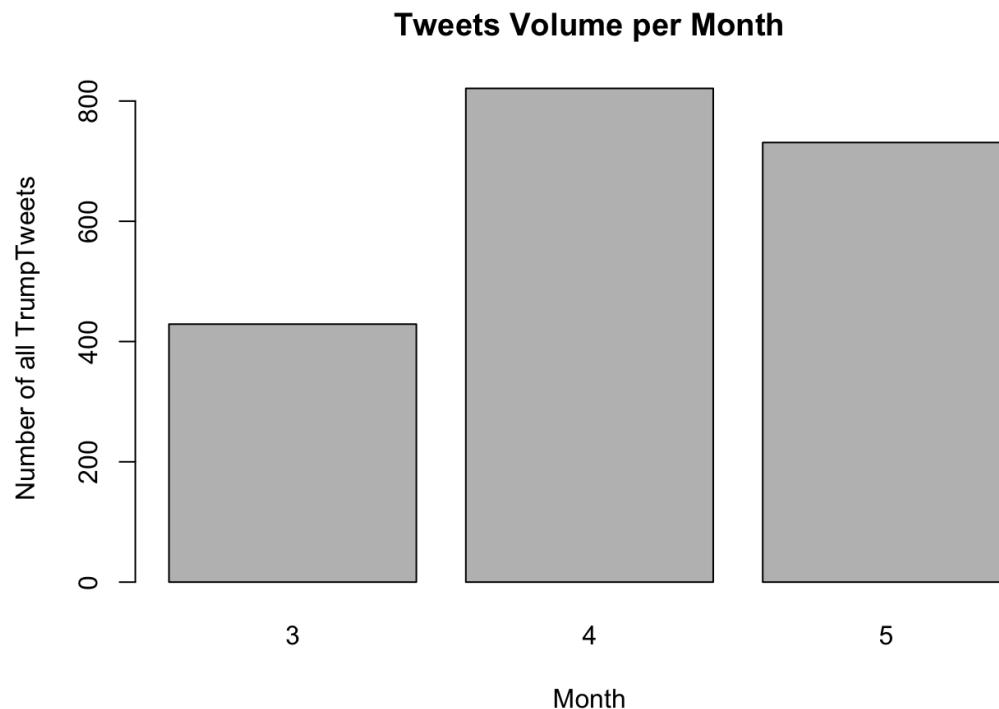
Findings : From the plot we can see

that the max number of tweets were made in the month of late April 2020.

Now we will see Tewwts Volume by Month

```
Trumptweets_by_month <- table(month(Trumptweets$date))
```

```
barplot(Trumptweets_by_month, xlab = "Month", ylab = "Number of all TrumpTweets", main = "Tweets Volume per Month")
```



Findings : From the barplot we can conclude that the highest volume of the tweets was the in the Month of April 2020.

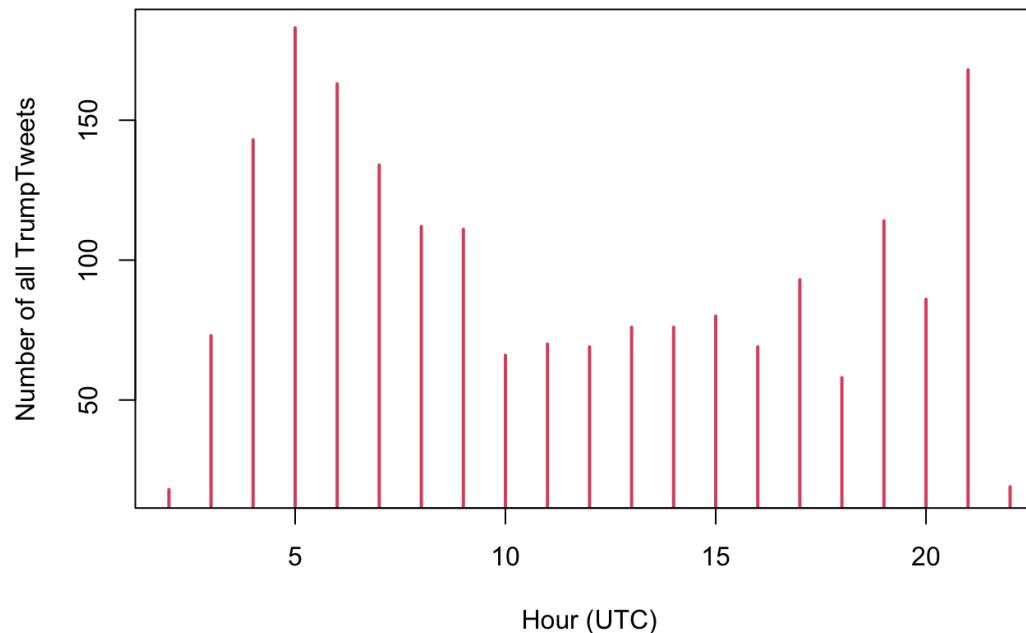
Trump Tweets by Hour

```
Trumptweets_by_hour <- table(hour(Trumptweets$date))
```

```
hrs <- as.numeric(names(Trumptweets_by_hour))
```

```
plot(as.numeric(Trumptweets_by_hour) ~ hrs, type = "h", lwd = 2, col = 2, xlab = "Hour (UTC)", ylab = "Number of all TrumpTweets", main = "Tweet Volume by Hour")
```

Tweet Volume by Hour



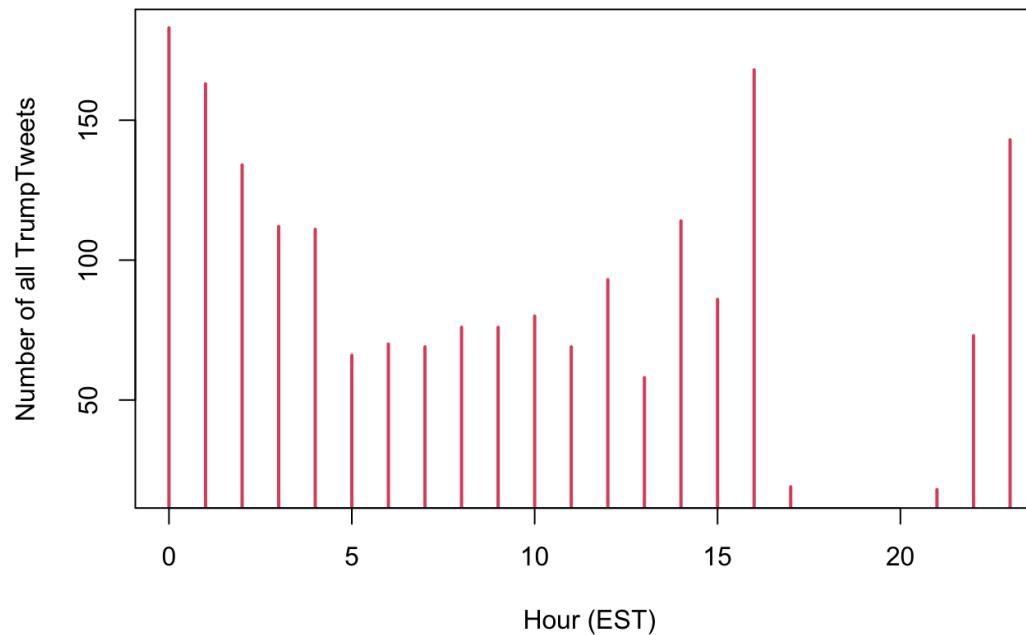
Converting the time zone from UTC to EST

```
EST_hrs <- hrs - 5
```

```
EST_hrs <- EST_hrs %% 24
```

```
plot(as.numeric(Trumptweets_by_hour) ~ EST_hrs, type = "h", lwd = 2, col = 2, xlab = "Hour (EST)", ylab = "Number of all TrumpTweets", main = "Tweet Volume by Hour")
```

Tweet Volume by Hour



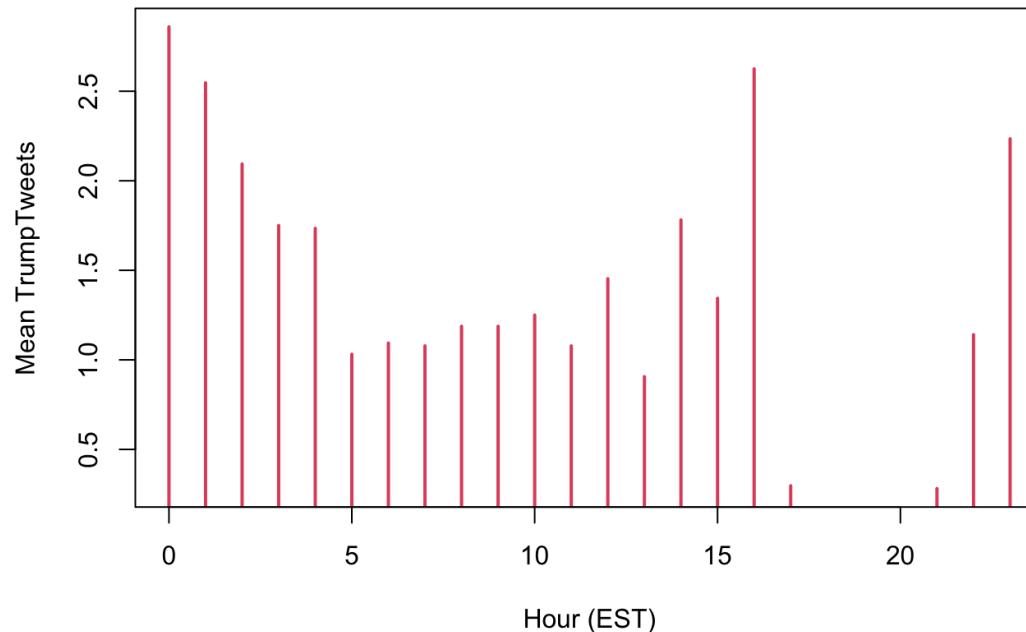
Now, Lets see what is teh daily average of the tweets tweeted by by Trump

```
tweetdays <- range(date(Trumptweets$date))[2] - range(date(Trumptweets$date))[1]

mean_Trumptweets_by_hour <- Trumptweets_by_hour/as.numeric(tweetdays)

plot(as.numeric(mean_Trumptweets_by_hour) ~ EST_hrs, type = "h", lwd = 2, col = 2, xlab = "Hour (EST)", ylab = "Mean TrumpTweets", main = "Mean Tweet Volume by Hour")
```

Mean Tweet Volume by Hour



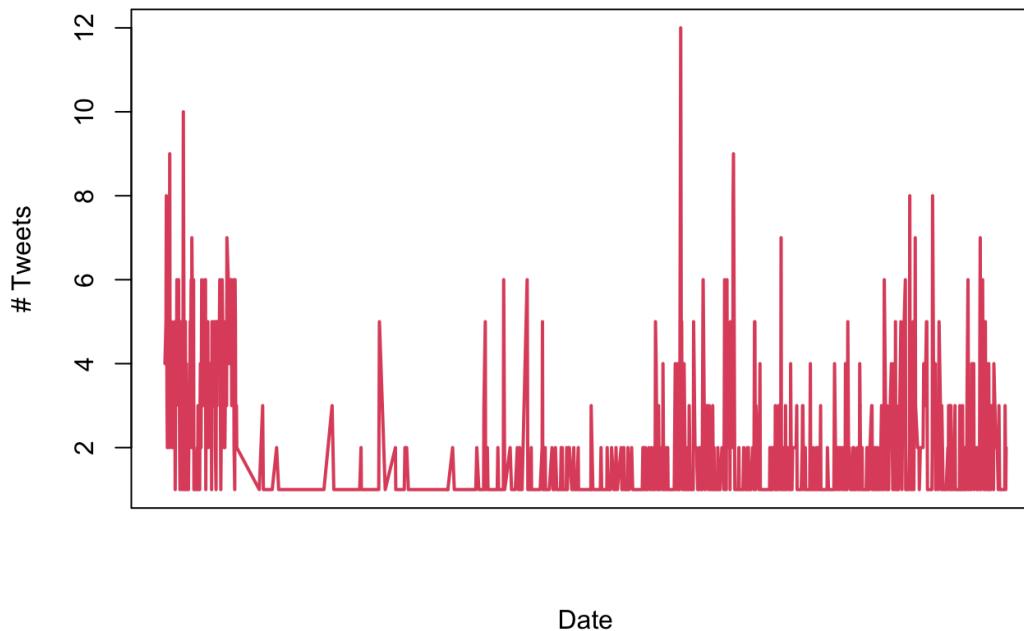
What is the mean tweets per day?

```
round(nrow(Trumptweets)/as.numeric(tweetdays),1)  
  
## [1] 31
```

Now, Lets look at the Obama's Tweets

Obama's Tweets by day

```
Obamatweets_by_date <- aggregate(Obamatweets$text ~ date(Obamatweets$date),  
                                 FUN = length)  
colnames(Obamatweets_by_date) <- c("date", "count")  
  
plot(count ~ date, data = Obamatweets_by_date,  
      type = "l", lwd = 2, col = 2, xlab = "Date",  
      ylab = "# Tweets", xaxt="n")
```



What is the range of the Obama's Tweets

```
range(Obamatweets$date)
```

```
## [1] "2016-04-08 08:45:49 PDT" "2023-01-13 13:30:43 PST"
```

Let's look at the years of the Obama's Twwets

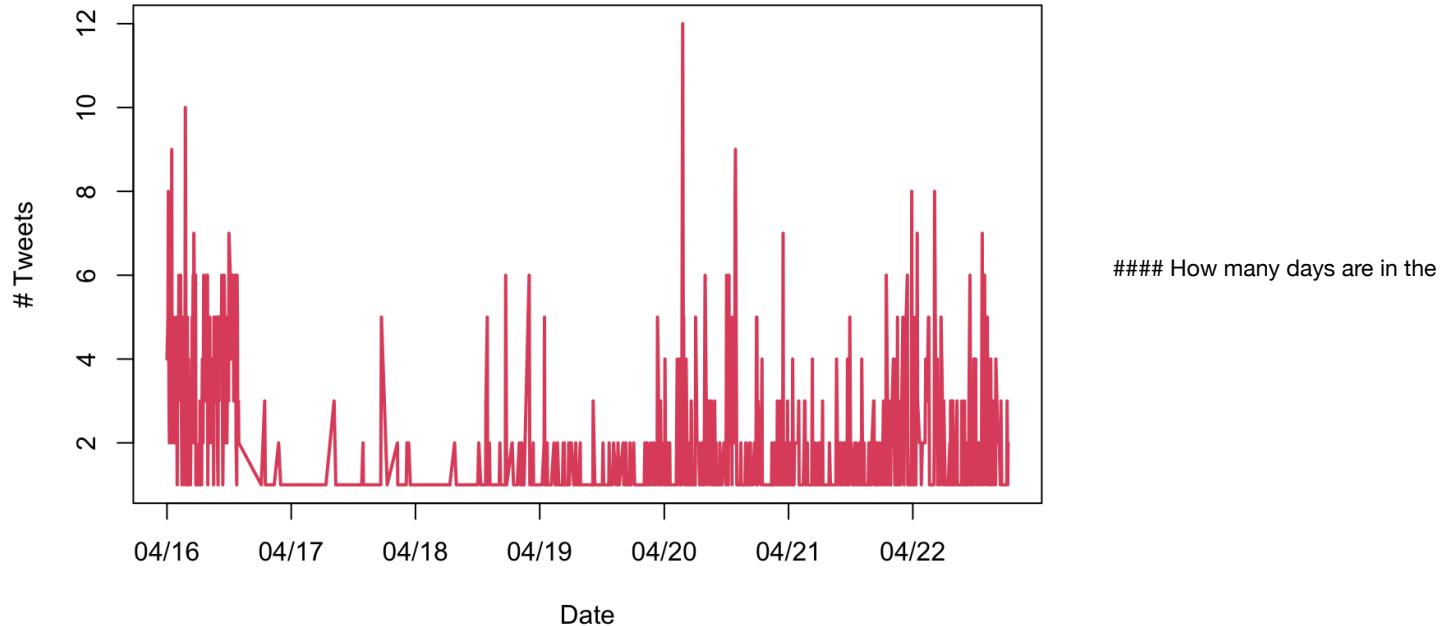
```
xdates <- seq(from = as.Date("2016-04-08"),
              to = as.Date("2023-01-13"), by = "years")
```

```
xdates
```

```
## [1] "2016-04-08" "2017-04-08" "2018-04-08" "2019-04-08" "2020-04-08"
## [6] "2021-04-08" "2022-04-08"
```

Let's make a plot with the years as the xaxis and see the count per year on the y axis

```
plot(count ~ date, data = Obamatweets_by_date, type = "l", lwd = 2, col = 2, xlab = "Date",
      ylab = "# Tweets", xaxt="n")
axis(1, labels = format(xdates, "%m/%y"), at = xdates )
```



```
Obamatweetdays <- range(date(Obamatweets$date))[2] - range(date(Obamatweets$date))[1]
```

```
Obamatweetdays
```

```
## Time difference of 2471 days
```

Lets see on average how many tweets are made per day

```
round(nrow(Obamatweets)/as.numeric(Obamatweetdays),3)
```

```
## [1] 0.809
```

Trumps' Tweet Popularity

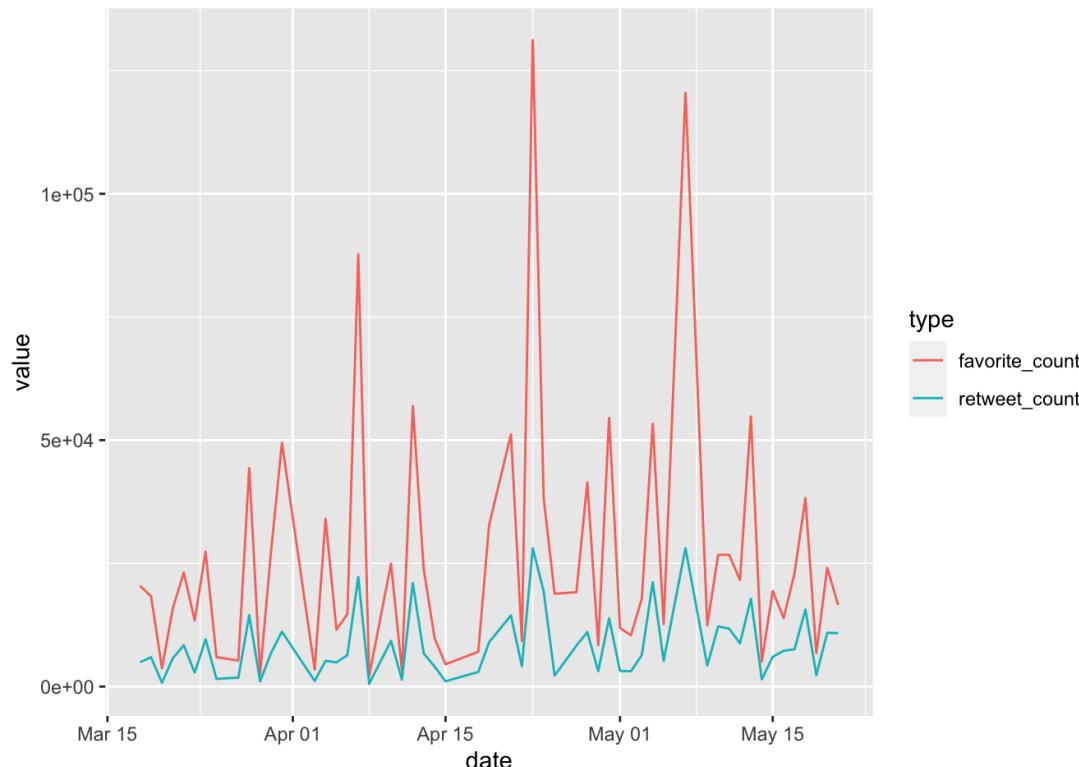
```
pop_by_day <- aggregate(cbind(favorite_count, retweet_count) ~ as.Date(date), data = Trumptweets, FUN = median)
head(pop_by_day)
```

```
##   as.Date(date) favorite_count retweet_count
## 1 2020-03-18      20423.5       4948.5
## 2 2020-03-19      18304.0       5941.0
## 3 2020-03-20      3711.0        768.0
## 4 2020-03-21     15899.0       5764.0
## 5 2020-03-22     23129.0       8367.5
## 6 2020-03-23     13412.0       2831.0
```

```
colnames(pop_by_day)[1] <- "date"

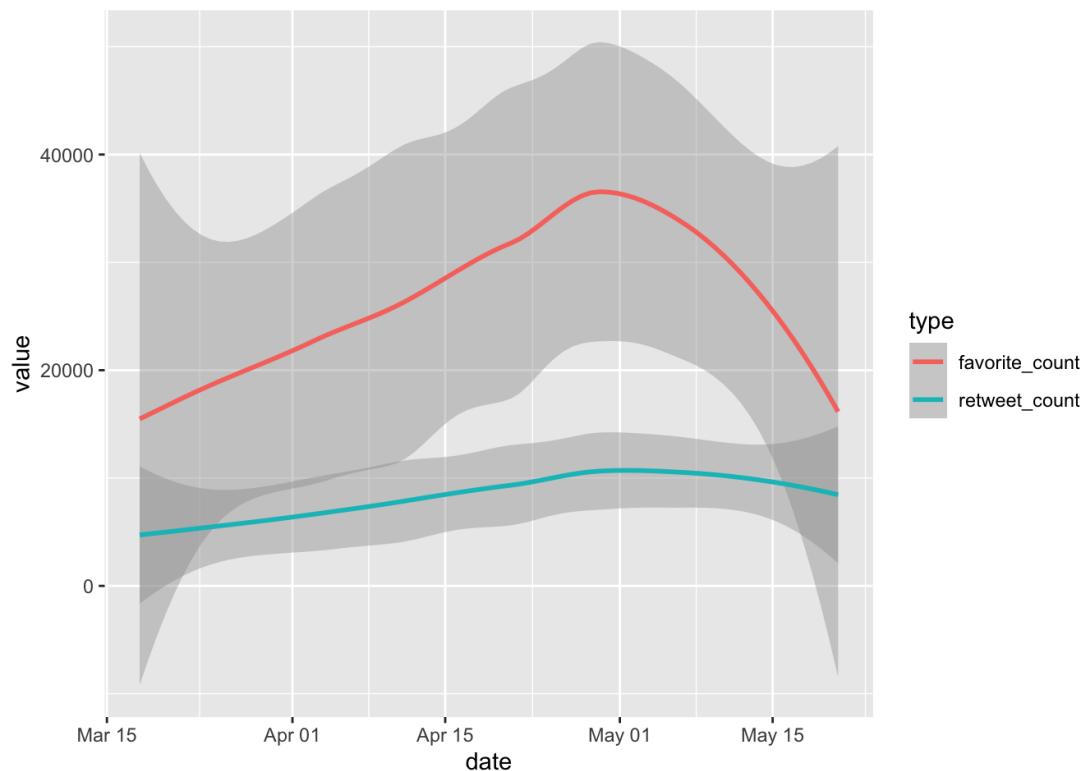
pop_by_day <- pop_by_day %>% gather(type, value, -date)

ggplot(pop_by_day) + geom_line(aes(x = date, y=value, col=type))
```



```
ggplot(pop_by_day)+ geom_smooth(aes(x = date, y=value, col=type))
```

```
## `geom_smooth()` using method = 'loess' and formula 'y ~ x'
```



Let's see some of the Trump's Favorite Tweets

```
Trumptweets[order(Trumptweets$favorite_count, decreasing = T), ][1:5, c("favorite_count", "text")]
```

```

##      favorite_count
## 980          408569
## 865          333090
## 983          247811
## 779          240548
## 665          208729
##
text
## 980                               Fully signed and ready to go! http
s://t.co/MdpgII3kuq
## 865                               So true! http
s://t.co/fyJgDBuKzM
## 983      Please study this closely. We saved many lives with our fast action on CoronaVirus! http
s://t.co/IKtkciXEEO
## 779                               Great! http
s://t.co/Q4AOdpuBva
## 665 The Fake News doesn't show real polls. Lamestream Media is totally CORRUPT, the Enemy of the People! http
s://t.co/Agwb3u5QFd

```

Let's see some of the Trump's Retweets Tweets

```
Trumptweets[order(Trumptweets$retweet_count, decreasing = T), ][1:5, c("retweet_count", "text")]
```

```

##      retweet_count
## 606          96508
## 983          93572
## 980          92089
## 779          73011
## 658          67258
##
## t
## 606      Remember this? Happy #CincoDeMayo! https://t.co/1jDZHNTHH
j
## 983 Please study this closely. We saved many lives with our fast action on CoronaVirus! https://t.co/IKtkciXEE
o
## 980      Fully signed and ready to go! https://t.co/MdpgII3ku
q
## 779      Great! https://t.co/Q4AOdpuBv
a
## 658      Thank you! https://t.co/GAFelAdZp
t

```

Now lets see Obama's Tweet Popularity

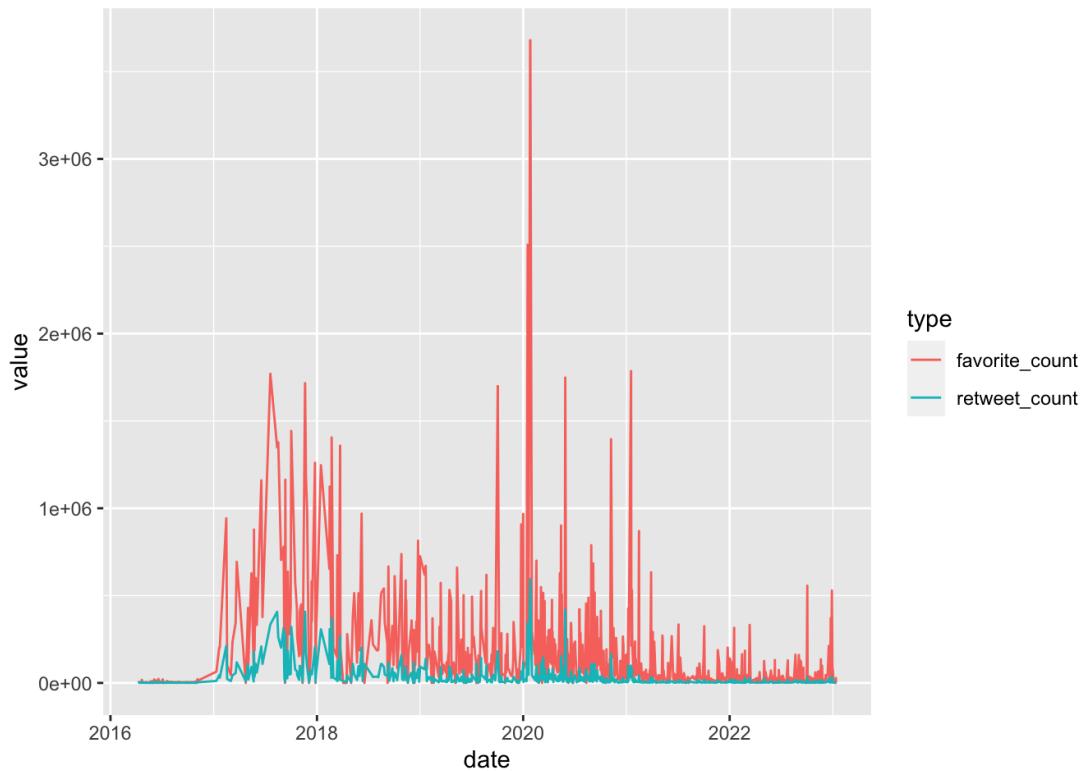
```
pop_by_day <- aggregate(cbind(favorite_count, retweet_count) ~ as.Date(date), data = Obamatweets, FUN = median)
head(pop_by_day)
```

```
##  as.Date(date) favorite_count retweet_count
## 1 2016-04-08      3764.5    1247.0
## 2 2016-04-11      6015.0    2376.0
## 3 2016-04-12      2158.0    982.5
## 4 2016-04-13      1126.0    684.0
## 5 2016-04-14      2393.0    856.0
## 6 2016-04-15      3509.5    911.0
```

```
colnames(pop_by_day)[1] <- "date"

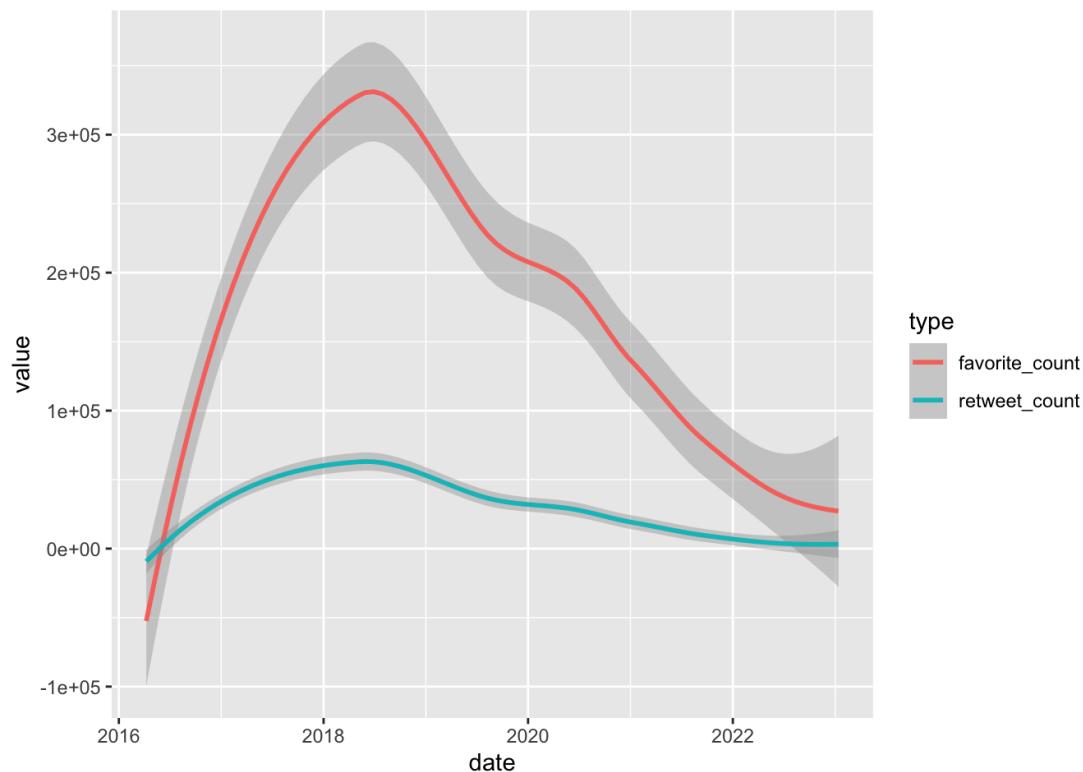
pop_by_day <- pop_by_day %>% gather(type, value, -date)

ggplot(pop_by_day) + geom_line(aes(x = date, y=value, col=type))
```



```
ggplot(pop_by_day)+ geom_smooth(aes(x = date, y=value, col=type))
```

```
## `geom_smooth()` using method = 'loess' and formula 'y ~ x'
```



```
#### Popular tweets
#####Favorites
Obamatweets[order(Obamatweets$favorite_count, decreasing = T), ][1:5, c("favorite_count", "text")]
```

```

## favorite_count
## 1341      4010967
## 1044      3680212
## 676       2622309
## 1046      2508920
## 679       1785337
##
text
## 1341
"No one is born hating another person because of the color of his skin or his background or his religion..." http
s://t.co/InZ58zkoAm
## 1044 Kobe was a legend on the court and just getting started in what would have been just as meaningful a seco
nd act. To lose Gianna is even more heartbreaking to us as parents. Michelle and I send love and prayers to Vanes
sa and the entire Bryant family on an unthinkable day.
## 676
Congratulations to my friend, President @JoeBiden! This is your time. https://t.co/LXzxGnBAfz
## 1046
In every scene, you are my star, @MichelleObama! Happy birthday, baby! https://t.co/hgMBhHasBj
## 679
Happy birthday to my love, my partner, and my best friend. Every moment with you is a blessing. Love you, Miche.
https://t.co/BrtH0vwKk4

```

#####Retweets

```
Obamatweets[order(Obamatweets$retweet_count, decreasing = T), ][1:5, c("retweet_count", "text")]
```

```

## retweet_count
## 1341      1435375
## 1044      593742
## 949       418105
## 1312      407486
## 1340      407154
##
text
## 1341
"No one is born hating another person because of the color of his skin or his background or his religion..." http
s://t.co/InZ58zkoAm
## 1044 Kobe was a legend on the court and just getting started in what would have been just as meaningful a seco
nd act. To lose Gianna is even more heartbreaking to us as parents. Michelle and I send love and prayers to Vanes
sa and the entire Bryant family on an unthinkable day.
## 949
My statement on the death of George Floyd: https://t.co/Hg1k9JHT6R
## 1312
ME: Joe, about halfway through the speech, I'm gonna wish you a
happy birth--\nBIDEN: IT'S MY BIRTHDAY!\nME: Joe.\n\nHappy birthday to @JoeBiden, my brother and the best vice
president anybody could have. https://t.co/sKbXjNiEjh
## 1340
"People must learn to hate, and if they can learn to hate, they can be taught to love..."
```

```
Obamatweets[c(680,768,868),]
```

```
##           id
## 680 1.347608e+18
## 768 1.320841e+18
## 868 1.294285e+18
##
text
## 680
And here's a look back at the response to last summer's Black Lives Matter protests.\n\nhttps://t.co/IYTfawbWe5
## 768 Republicans love to say right before an election that they'll protect preexisting conditions. Well, Joe and I actually did it – and he'll keep protecting your health care as president. We've got eight days left. Vote. h
https://t.co/ncGJ471bx8
## 868
I talked to @davidplouffe about these attempts to undermine the election, what's at stake right now, and why we have to do everything we can to elect @JoeBiden and @KamalaHarris. h
https://t.co/9bqgWVUncE
##          date      source is_quote is_retweet is_reply
## 680 2021-01-08 10:17:01    Web App    FALSE     FALSE    TRUE
## 768 2020-10-26 14:35:20 Media Studio    FALSE     FALSE    FALSE
## 868 2020-08-14 07:48:43    Web App    FALSE     FALSE    TRUE
##
favorite_count retweet_count
## 680        69822        11865
## 768        103995       14257
## 868        75812        13342
```

Who did Trump Tweet at?

```
trumptweets_at <- regmatches(Trumptweets$text, gregexec("@[^[:space:]]+", Trumptweets$text))
trumptweets_at <- unlist(trumptweets_at)
trumptweets_at
```

```
## [1] "@CNBC"
## [2] "@realDonaldTrump"
## [3] "@JoeBiden"
## [4] "@MTA,"
## [5] "@USDOT"
## [6] "@realDonaldTrump"
## [7] "@Ford's"
## [8] "@BreitbartNews"
## [9] "@FoxNews"
## [10] "@WhiteHouse"
## [11] "@realDonaldTrump"
## [12] "@KayleighMcEnany:"
## [13] "@realDonaldTrump's"
## [14] "@amyklobuchar"
## [15] "@USDOT"
## [16] "@GovStitt"
## [17] "@FEMA"
## [18] "@GregAbbott_TX"
## [19] "@dartmedia"
## [20] "@RussVought45"
## [21] "@USTreasury"
## [22] "@FoxNews"
## [23] "@LouDobbs.."
## [24] "@FoxBusiness."
## [25] "@WSJopinion:"
## [26] "@bakeassociates"
## [27] "@NRO"
## [28] "@FoxNews"
## [29] "@FoxNewsOpinion"
## [30] "@realDonaldTrump"
## [31] "@myfoxboston"
## [32] "@foxandfriends"
## [33] "@realDonaldTrump"
## [34] "@SenateGOP!"
## [35] "@realDonaldTrump"
## [36] "@USDA"
## [37] "@ZippyDuvall,"
## [38] "@FarmBureau."
## [39] "@realDonaldTrump"
## [40] "@RichLowry"
## [41] "@SoundTransit"
## [42] "@USDOT"
## [43] "@trimet"
## [44] "@flySFO"
## [45] "@sfmta_muni"
## [46] "@SFBart."
## [47] "@WMATA"
## [48] "@MayorBowser"
```

```
## [49] "@foxandfriends"
## [50] "@FoxNews"
## [51] "@realDonaldTrump."
## [52] "@PeteHegseth"
## [53] "@SeanHannity"
## [54] "@foxandfriends"
## [55] "@realDonaldTrump"
## [56] "@NorahODonnell"
## [57] "@60Minutes"
## [58] "@washingtonpost"
## [59] "@SenSusanCollins"
## [60] "@60Minutes"
## [61] "@SecAzar,"
## [62] "@60Minutes"
## [63] "@NorahODonnell,"
## [64] "@marklevinshow"
## [65] "@FoxNews."
## [66] "@realDonaldTrump"
## [67] "@HouseGOP"
## [68] "@JOEBIDEN?"
## [69] "@PressSec"
## [70] "@MariaBartiromo"
## [71] "@FoxNews."
## [72] "@ffweekend"
## [73] "@MariaBartiromo"
## [74] "@FoxNews."
## [75] "@LindseyGrahamSC"
## [76] "@Lawrence"
## [77] "@narendramodi"
## [78] "@TomFitton"
## [79] "@realDonaldTrump.\\""
## [80] "@LisaMarieBoothe"
## [81] "@ffweekend"
## [82] "@britihume"
## [83] "@britihume"
## [84] "@DevinNunes...then"
## [85] "@RepAdamSchiff"
## [86] "@cnn"
## [87] "@CNNPolitics"
## [88] "@MSNBC"
## [89] "@maddow"
## [90] "@ABC"
## [91] "@CBSNews"
## [92] "@nytimes"
## [93] "@realDonaldTrump"
## [94] "@seanhannity"
## [95] "@TuckerCarlson"
## [96] "@IngrahamAngle"
```

```
## [ 97] "@brithume"
## [ 98] "@brithume"
## [ 99] "@BrentBozell"
## [100] "@DevinNunes"
## [101] "@SaraCarterDC"
## [102] "@mschlapp:"
## [103] "@SaraCarterDC"
## [104] "@foxandfriends"
## [105] "@CNN"
## [106] "@realDonaldTrump"
## [107] "@David_Bossie"
## [108] "@realDonaldTrump"
## [109] "@AmericaFirstPAC"
## [110] "@SpaceForceDoD"
## [111] "@realDonaldTrump"
## [112] "@realDonaldTrump"
## [113] "@realDonaldTrump"
## [114] "@SpaceForceDoD"
## [115] "@WhiteHouse!"
## [116] "@realDonaldTrump"
## [117] "@narendramodi"
## [118] "@SpaceForceDoD"
## [119] "@WhiteHouse!"
## [120] "@CTA"
## [121] "@NJTransit"
## [122] "@nytimes"
## [123] "@washingtonpost"
## [124] "@foxandfriends"
## [125] "@CNN"
## [126] "@davidharsanyi"
## [127] "@SaraCarterDC"
## [128] "@JoeBiden"
## [129] "@DanHenninger"
## [130] "@WSJ"
## [131] "@politico"
## [132] "@Owens_Minor!"
## [133] "@POTUS"
## [134] "@realDonaldTrump"
## [135] "@realdonaldtrump"
## [136] "@FEMA"
## [137] "@realDonaldTrump"
## [138] "@realDonaldTrump"
## [139] "@realDonaldTrump:"
## [140] "@NYGovCuomo"
## [141] "@NYCMayor"
## [142] "@LindseyGrahamSC,"
## [143] "@politico"
## [144] "@BritHume"
```

```
## [145] "@realDonaldTrump's"
## [146] "@Techno_Fog"
## [147] "@GenFlynn"
## [148] "@BritHume"
## [149] "@realDonaldTrump's"
## [150] "@PulitzerPrizes"
## [151] "@GreggJarrett"
## [152] "@realDonaldTrump"
## [153] "@WhiteHouse"
## [154] "@POTUS"
## [155] "@WhiteHouse"
## [156] "@fema"
## [157] "@realDonaldTrump"
## [158] "@elonmusk"
## [159] "@DailyCaller"
## [160] "@HHS_ASH"
## [161] "@FEMA"
## [162] "@realDonaldTrump"
## [163] "@GovWhitmer"
## [164] "@MayorMikeDuggan"
## [165] "@MikeGarcia2020"
## [166] "@ChristyforCA25"
## [167] "@TomTiffanyWI)"
## [168] "@realDonaldTrump"
## [169] "@SupportFortNE)"
## [170] "@DonJBacon"
## [171] "@JustTheNews"
## [172] "@AjitPaiFCC"
## [173] "@ChuckTodd"
## [174] "@NBCNews"
## [175] "@FoxNews"
## [176] "@SiriusXMPatriot"
## [177] "@thehill"
## [178] "@WashTimes"
## [179] "@FCC"
## [180] "@NBC"
## [181] "@greg_price11"
## [182] "@chucktodd"
## [183] "@greg_price11"
## [184] "@chucktodd"
## [185] "@chucktodd"
## [186] "@greg_price11"
## [187] "@JohnParshon"
## [188] "@chucktodd"
## [189] "@CBS_Herridge"
## [190] "@CBSNews"
## [191] "@capitalsntg"
## [192] "@nicklaroberts"
```

```
## [193] "@chucktodd"
## [194] "@AjitPaiFCC"
## [195] "@FCC"
## [196] "@TomTiffanyWI."
## [197] "@realDonaldTrump's"
## [198] "@TeamTrump"
## [199] "@realDonaldTrump"
## [200] "@AjitPaiFCC"
## [201] "@FCC"
## [202] "@POTUS"
## [203] "@FLOTUS"
## [204] "@realDonaldTrump"
## [205] "@realDonaldTrump"
## [206] "@CBS"
## [207] "@60Minutes"
## [208] "@LVNancy"
## [209] "@pinkk9lover"
## [210] "@RealBasedMAGA"
## [211] "@ROCKONOHIO"
## [212] "@ATX_PATRIOT"
## [213] "@oUSA_JEDIo"
## [214] "@MazurikL"
## [215] "@megdogwuff"
## [216] "@VFL2013"
## [217] "@CB618444"
## [218] "@realDonaldTrump"
## [219] "@BarackObama"
## [220] "@realDonaldTrump"
## [221] "@realDonaldTrump."
## [222] "@CBS"
## [223] "@60Minutes,"
## [224] "@brianstelter"
## [225] "@kayleighmcenany"
## [226] "@GenFlynn"
## [227] "@AndrewMcCarthy"
## [228] "@Besafe72492224"
## [229] "@AndrewMcCarthy"
## [230] "@realDonaldTrump"
## [231] "@RichLowry"
## [232] "@AndrewMcCarthy"
## [233] "@rickjkdakota"
## [234] "@AndrewMcCarthy"
## [235] "@realDonaldTrump"
## [236] "@RichLowry"
## [237] "@POTUS"
## [238] "@AndrewMcCarthy"
## [239] "@RichLowry"
## [240] "@AndrewMcCarthy"
```

```
## [241] "@RichLowry"
## [242] "@Jim_Jordan:"
## [243] "@TGowdySC"
## [244] "@GenFlynn"
## [245] "@FBI"
## [246] "@gatewaypundit"
## [247] "@foxandfriends"
## [248] "@nypost"
## [249] "@RichLowry"
## [250] "@AdamSchiff"
## [251] "@NRO"
## [252] "@GenFlynn"
## [253] "@Comey:"
## [254] "@NRO"
## [255] "@Heminator"
## [256] "@DevinNunes"
## [257] "@RichardGrenell"
## [258] "@nypost"
## [259] "@realDonaldTrump"
## [260] "@realDonaldTrump"
## [261] "@EsperDoD,"
## [262] "@SecPompeo,"
## [263] "@GavinNewsom"
## [264] "@MikeGarcia2020,"
## [265] "@SecretarySonny"
## [266] "@ZippyDuvall"
## [267] "@MikeGarcia2020."
## [268] "@GavinNewsom"
## [269] "@ChristyforCA25"
## [270] "@POTUS"
## [271] "@MikeGarcia2020"
## [272] "@ChristyforCA25"
## [273] "@TomTiffanyWI)"
## [274] "@foxandfriends"
## [275] "@realDonaldTrump:"
## [276] "@FLOTUS"
## [277] "@GovChristie"
## [278] "@IAGovernor"
## [279] "@realDonaldTrump"
## [280] "@Honeywell!"
## [281] "@realDonaldTrump:"
## [282] "@Honeywell!"
## [283] "@DavidMuir"
## [284] "@ABCWorldNews"
## [285] "@FoxNews"
## [286] "@RepRatcliffe"
## [287] "@realDonaldTrump"
## [288] "@realDonaldTrump"
```

```
## [289] "@honeywell"
## [290] "@realDonaldTrump"
## [291] "@realDonaldTrump:"
## [292] "@realDonaldTrump:"
## [293] "@realDonaldTrump"
## [294] "@PressSec"
## [295] "@realDonaldTrump"
## [296] "@realDonaldTrump"
## [297] "@realDonaldTrump?"
## [298] "@realDonaldTrump"
## [299] "@realDonaldTrump"
## [300] "@DanCrenshawTX,"
## [301] "@NBCNews)"
## [302] "@CNN"
## [303] "@PeteHegseth"
## [304] "@foxandfriends"
## [305] "@BlueAngels"
## [306] "@AFThunderbirds!"
## [307] "@RepMattGaetz,"
## [308] "@LisaMarieBoothe,"
## [309] "@SaraCarterDC"
## [310] "@FoxNews!"
## [311] "@LisaMarieBoothe"
## [312] "@FoxNews!"
## [313] "@SebGorka,"
## [314] "@STEPHMHAMILL"
## [315] "@ABC7News"
## [316] "@SpeakerPelosi?"
## [317] "@GenFlynn"
## [318] "@KellyannePolls:"
## [319] "@jennfranconews"
## [320] "@OANN"
## [321] "@fema"
## [322] "@OANN"
## [323] "@GenFlynn."
## [324] "@JackPosobiec"
## [325] "@GenFlynn"
## [326] "@thejtlevius"
## [327] "@realDonaldTrump"
## [328] "@realDonaldTrump"
## [329] "@realDonaldTrump"
## [330] "@realDonaldTrump"
## [331] "@realDonaldTrump"
## [332] "@MarkMeadows"
## [333] "@KimStrassel"
## [334] "@KimStrassel"
## [335] "@WSJ"
## [336] "@TGHcares"
```

```
## [337] "@realDonaldTrump"
## [338] "@FEMA"
## [339] "@realDonaldTrump"
## [340] "@CapitolforWV)"
## [341] "@NBCNews)"
## [342] "@CNN"
## [343] "@realDonaldTrump:"
## [344] "@realDonaldTrump's"
## [345] "@GM"
## [346] "@MyVOCSN"
## [347] "@realDonaldTrump"
## [348] "@realDonaldTrump"
## [349] "@realDonaldTrump's"
## [350] "@EliLake"
## [351] "@AndrewMcCarthy"
## [352] "@FreeBeacon"
## [353] "@thehill"
## [354] "@TheHillOpinion"
## [355] "@BarackObama"
## [356] "@FBI's"
## [357] "@GenFlynn"
## [358] "@Jim_Jordan"
## [359] "@MikeGarcia2020"
## [360] "@ChristyforCA25"
## [361] "@TomTiffanyWI)"
## [362] "@realDonaldTrump"
## [363] "@GovMurphy"
## [364] "@realDonaldTrump:"
## [365] "@CBSNews"
## [366] "@GavinNewsom"
## [367] "@marthamaccallum"
## [368] "@realDonaldTrump"
## [369] "@GOPLeader"
## [370] "@USDOT"
## [371] "@FedEx"
## [372] "@AlaskaAir"
## [373] "@HHSGov"
## [374] "@realDonaldTrump"
## [375] "@CNN"
## [376] "@CNN"
## [377] "@CNN"
## [378] "@BreitbartNews"
## [379] "@gatewayspundit"
## [380] "@gatewayspundit"
## [381] "@gatewayspundit"
## [382] "@realDonaldTrump"
## [383] "@CNN"
## [384] "@CNN"
```

```
## [385] "@CNN"
## [386] "@CNN"
## [387] "@JimRyun!"
## [388] "@realDonaldTrump"
## [389] "@realDonaldTrump"
## [390] "@VP"
## [391] "@realDonaldTrump"
## [392] "@MeatInstitute"
## [393] "@MarkLevinShow!"
## [394] "@nytimes"
## [395] "@washingtonpost"
## [396] "@TeamTrump"
## [397] "@LaraLeaTrump"
## [398] "@kevinomccarthy"
## [399] "@realDonaldTrump's"
## [400] "@LaraLeaTrump"
## [401] "@KevinMcCarthy!"
## [402] "@mercedesschlapp"
## [403] "@bittyandbeaus"
## [404] "@realDonaldTrump,"
## [405] "@WhiteHouse"
## [406] "@TheJusticeDept"
## [407] "@DHSgov"
## [408] "@USDOL"
## [409] "@NIH)"
## [410] "@BlueAngels"
## [411] "@AFThunderbirds!"
## [412] "@GenFlynn"
## [413] "@realDonaldTrump"
## [414] "@JudicialWatch"
## [415] "@realDonaldTrump"
## [416] "@GregAbbott_TX"
## [417] "@realDonaldTrump's"
## [418] "@realDonaldTrump"
## [419] "@DevinNunes"
## [420] "@GenFlynn"
## [421] "@realDonaldTrump"
## [422] "@SidneyPowell1"
## [423] "@KerriKupecDOJ"
## [424] "@JosephJFlynn1"
## [425] "@TomFitton"
## [426] "@realDonaldTrump"
## [427] "@JennPellegrino"
## [428] "@AOC"
## [429] "@FLOTUS."
## [430] "@GenFlynn"
## [431] "@MorningsMaria"
## [432] "@FoxBusiness"
```

```
## [433] "@FoxNews"
## [434] "@SundayFutures"
## [435] "@CLewandowski_,"
## [436] "@MattGaetz,"
## [437] "@EliseStefanik!"
## [438] "@realDonaldTrump?"
## [439] "@realDonaldTrump's"
## [440] "@realDonaldTrump"
## [441] "@AlexAzar"
## [442] "@donnabrazile"
## [443] "@FoxNews,"
## [444] "@FoxNews."
## [445] "@FoxNews"
## [446] "@CNN"
## [447] "@FoxNews"
## [448] "@nytimes"
## [449] "@CardinalDolan"
## [450] "@StPatsNYC!"
## [451] "@CardinalDolan"
## [452] "@StPatsNYC)"
## [453] "@Surgeon_General"
## [454] "@VP"
## [455] "@US_FDA's"
## [456] "@SenCoryGardner"
## [457] "@TripleH"
## [458] "@TuckerCarlson"
## [459] "@FoxNews"
## [460] "@RealDonaldTrump"
## [461] "@realdonaldtrump"
## [462] "@CNN,"
## [463] "@VP)"
## [464] "@VP"
## [465] "@realDonaldTrump"
## [466] "@realDonaldTrump"
## [467] "@realDonaldTrump"
## [468] "@realDonaldTrump"
## [469] "@GEHealthcare"
## [470] "@realDonaldTrump's"
## [471] "@realDonaldTrump"
## [472] "@realDonaldTrump"
## [473] "@realDonaldTrump"
## [474] "@JimJusticeWV"
## [475] "@SteveStivers"
## [476] "@MikeTurnerOH"
## [477] "@Troy_Balderson"
## [478] "@DaveJoyceOH14"
## [479] "@BradWenstrup"
## [480] "@SeanReyesUT)"
```

```
## [481] "@CurtisUT"
## [482] "@StewartforUtah)"
## [483] "@Vote_Davidson)"
## [484] "@JohnsonLeads)"
## [485] "@realDonaldTrump"
## [486] "@realDonaldTrump"
## [487] "@BlueAngels"
## [488] "@AFThunderbirds"
## [489] "@realDonaldTrump"
## [490] "@realDonaldTrump"
## [491] "@realDonaldTrump"
## [492] "@foxandfriends"
## [493] "@realDonaldTrump"
## [494] "@realDonaldTrump"
## [495] "@POTUS"
## [496] "@CNN"
## [497] "@foxandfriends"
## [498] "@WhiteHouseCEA"
## [499] "@TomPhilipson45....https://t.co/C7ML7Ezm3o"
## [500] "@realDonaldTrump"
## [501] "@WhiteHouse"
## [502] "@RepDanCrenshaw"
## [503] "@realDonaldTrump"
## [504] "@realDonaldTrump"
## [505] "@nytimes)"
## [506] "@MikeGarcia2020"
## [507] "@TomTiffanyWI)"
## [508] "@realDonaldTrump's"
## [509] "@realDonaldTrump"
## [510] "@MikeGarcia2020"
## [511] "@TomTiffanyWI)"
## [512] "@GovTimWalz"
## [513] "@RepDanCrenshaw"
## [514] "@BretBaier"
## [515] "@SenatorTimScott!"
## [516] "@FoxNews"
## [517] "@RichardGrenell"
## [518] "@AmbassadorRice"
## [519] "@RepAdamSchiff"
## [520] "@TheDemocrats"
## [521] "@realDonaldTrump,"
## [522] "@realDonaldTrump"
## [523] "@SpeakerPelosi"
## [524] "@realDonaldTrump's"
## [525] "@RepLeeZeldin"
## [526] "@jreicheit"
## [527] "@ericgarcetti"
## [528] "@FoxNews"
```

```
## [529] "@realDonaldTrump"
## [530] "@PressSec"
## [531] "@FEMA"
## [532] "@realKTMcFarland,"
## [533] "@AF_Academy!"
## [534] "@Honeywell,"
## [535] "@realKTMcFarland,"
## [536] "@jackngraham"
## [537] "@Prestonwood"
## [538] "@Honeywell,"
## [539] "@SenateDems"
## [540] "@SenSchumer"
## [541] "@SpeakerPelosi"
## [542] "@GOPLeader:"
## [543] "@SenateDems"
## [544] "@SenateGOP"
## [545] "@SenateGOP"
## [546] "@SBAgov"
## [547] "@ETI_Marketing"
## [548] "@SpeakerPelosi"
## [549] "@SenSchumer"
## [550] "@SenSchumer"
## [551] "@SenSchumer"
## [552] "@SpeakerPelosi"
## [553] "@realDonaldTrump"
## [554] "@fema"
## [555] "@realDonaldTrump:"
## [556] "@realDonaldTrump"
## [557] "@realDonaldTrump"
## [558] "@realDonaldTrump:"
## [559] "@realDonaldTrump:"
## [560] "@OANN"
## [561] "@realDonaldTrump"
## [562] "@FoxNews"
## [563] "@seanhannity"
## [564] "@OANN"
## [565] "@SenThomTillis,"
## [566] "@GM"
## [567] "@Yankees"
## [568] "@UPS!"
## [569] "@SenatorTimScott"
## [570] "@realDonaldTrump"
## [571] "@realDonaldTrump"
## [572] "@nytimes"
## [573] "@SecAzar"
## [574] "@realDonaldTrump"
## [575] "@HillaryClinton"
## [576] "@JoeBiden"
```

```
## [577] "@realDonaldTrump"
## [578] "@realDonaldTrump"
## [579] "@Lrihendry"
## [580] "@NatalieJHarp"
## [581] "@PlaysTrumpCard"
## [582] "@ROHLL5"
## [583] "@bfraser747"
## [584] "@oUSA_JEDIO"
## [585] "@polishprincessh"
## [586] "@flightcrew"
## [587] "@IamAllOutOfGum"
## [588] "@TheMorningSpew2"
## [589] "@CarmineSabia"
## [590] "@carrieksada"
## [591] "@ouchinagirl"
## [592] "@CRRJA5"
## [593] "@GaetaSusan"
## [594] "@petluvers4Trump"
## [595] "@OANN"
## [596] "@SenRonJohnson"
## [597] "@WHO"
## [598] "@FoxNews."
## [599] "@FoxNews."
## [600] "@dcexaminer"
## [601] "@robertjeffress"
## [602] "@AmericanAir"
## [603] "@iflymia"
## [604] "@JudgeJeanine"
## [605] "@FoxNews!"
## [606] "@nytimes"
## [607] "@GavinNewsom"
## [608] "@firstdallas."
## [609] "@realDonaldTrump"
## [610] "@POTUS"
## [611] "@realDonaldTrump!"
## [612] "@FoxNews"
## [613] "@OANN."
## [614] "@SenRonJohnson!"
## [615] "@robertjeffress"
## [616] "@nytimes"
## [617] "@washingtonpost"
## [618] "@LelandVittert"
## [619] "@FoxNews"
## [620] "@RealDonaldTrump"
## [621] "@nypost"
## [622] "@Max_Fisher"
## [623] "@SidneyPowell11"
## [624] "@realDailyWire"
```

```
## [625] "@EM_KA_17"
## [626] "@senatemajldr"
## [627] "@realDailyWire"
## [628] "@WSJ"
## [629] "@KimStrassel"
## [630] "@WSJ"
## [631] "@WSJ"
## [632] "@IngrahamAngle"
## [633] "@ErinMPerrine"
## [634] "@LizRNC:"
## [635] "@IvankaTrump"
## [636] "@davidwebbshow"
## [637] "@mikepompeo"
## [638] "@TeamTrump"
## [639] "@realDonaldTrump!"
## [640] "@TimMurtaugh"
## [641] "@realDonaldTrump"
## [642] "@senatemajldr"
## [643] "@CNN"
## [644] "@nytimes"
## [645] "@POTUS,"
## [646] "@VP,"
## [647] "@SecondLady"
## [648] "@realDonaldTrump"
## [649] "@nytimes)"
## [650] "@FEMA"
## [651] "@UPS"
## [652] "@FEMA"
## [653] "@norfolkdistrict"
## [654] "@fema."
## [655] "@USNationalGuard"
## [656] "@GovMurphy"
## [657] "@DuPont_News"
## [658] "@FedEx"
## [659] "@SecretarySonny"
## [660] "@nytimes)"
## [661] "@OANN"
## [662] "@DuPont_News"
## [663] "@FedEx"
## [664] "@NarendraModi"
## [665] "@foxandfriends"
## [666] "@ainsleyearhardt"
## [667] "@foxandfriends"
## [668] "@FoxNews!"
## [669] "@realDonaldTrump"
## [670] "@TeamTrump"
## [671] "@realDonaldTrump"
## [672] "@realDonaldTrump"
```

```
## [673] "@gayletrotter"
## [674] "@FoxNews"
## [675] "@gayletrotter"
## [676] "@gayletrotter"
## [677] "@greglaurie"
## [678] "@harvestorg"
## [679] "@PearsonSharp"
## [680] "@realDonaldTrump"
## [681] "@realDonaldTrump"
## [682] "@realDonaldTrump"
## [683] "@realDonaldTrump's"
## [684] "@realDonaldTrump"
## [685] "@USATODAY:"
## [686] "@realDonaldTrump"
## [687] "@greglaurie"
## [688] "@harvestorg"
## [689] "@littleleagueceo"
## [690] "@LittleLeague"
## [691] "@JohnBoozman"
## [692] "@CNN"
## [693] "@JeromeAdamsMD"
## [694] "@Jim_Jordan"
## [695] "@realDonaldTrump's"
## [696] "@SpeakerPelosi"
## [697] "@thehill."
## [698] "@BankofAmerica"
## [699] "@SBAgov"
## [700] "@USTreasury"
## [701] "@IvankaTrump"
## [702] "@realDonaldTrump"
## [703] "@IvankaTrump"
## [704] "@FitnessGov"
## [705] "@MarianoRivera"
## [706] "@IvankaTrump"
## [707] "@WhiteHouse's"
## [708] "@Benioff"
## [709] "@SBAgov"
## [710] "@USTreasury"
## [711] "@SBAgov"
## [712] "@SBAgov"
## [713] "@SBAJovita,"
## [714] "@stevenmnuchin1,the"
## [715] "@WhiteHouse"
## [716] "@SBAgov"
## [717] "@USTreasury"
## [718] "@BankofAmerica"
## [719] "@DeptOfDefense,"
## [720] "@USACEHQ,"
```

```
## [721] "@USNationalGuard,"  
## [722] "@FEMA,"  
## [723] "@CDCgov!"  
## [724] "@USNationalGuard,"  
## [725] "@SBAJovita:"  
## [726] "@MariaBartiromo"  
## [727] "@stevenmmuchin1"  
## [728] "@larry_kudlow"  
## [729] "@realDonaldTrump"  
## [730] "@realDonaldTrump"  
## [731] "@realDonaldTrump"  
## [732] "@AtlasAirWW,"  
## [733] "@realDonaldTrump."  
## [734] "@realDonaldTrump"  
## [735] "@MarkMeadows."  
## [736] "@Ford"  
## [737] "@GEHealthcare"  
## [738] "@foxandfriends"  
## [739] "@realDonaldTrump:"  
## [740] "@realDonaldTrump's"  
## [741] "@foxandfriends"  
## [742] "@MikeDeWine."  
## [743] "@foxandfriends"  
## [744] "@Battelle"  
## [745] "@US_FDA"  
## [746] "@realDonaldTrump"  
## [747] "@SteveFDA!"  
## [748] "@US_FDA"  
## [749] "@Battelle"  
## [750] "@USACEHQ,"  
## [751] "@FEMA,"  
## [752] "@TeamCavuto."  
## [753] "@NYTimes"  
## [754] "@nytimes,"  
## [755] "@realDonaldTrump"  
## [756] "@realDonaldTrump"  
## [757] "@realDonaldTrump"  
## [758] "@realDonaldTrump"  
## [759] "@MikeDeWine,"  
## [760] "@Battelle,"  
## [761] "@larry_kudlow"  
## [762] "@MariaBartiromo"  
## [763] "@Battelle"  
## [764] "@WOSU"  
## [765] "@MikeDeWine"  
## [766] "@FDA"  
## [767] "@freep"  
## [768] "@POTUS"
```

```
## [ 769] "@realDonaldTrump"
## [ 770] "@POTUS"
## [ 771] "@CDCgov"
## [ 772] "@POTUS"
## [ 773] "@realDonaldTrump"
## [ 774] "@realDonaldTrump"
## [ 775] "@realDonaldTrump"
## [ 776] "@realDonaldTrump"
## [ 777] "@realDonaldTrump"
## [ 778] "@realDonaldTrump's"
## [ 779] "@realDonaldTrump"
## [ 780] "@realDonaldTrump"
## [ 781] "@realDonaldTrump"
## [ 782] "@realDonaldTrump"
## [ 783] "@RichforGA"
## [ 784] "@nytimes,"
## [ 785] "@washingtonpost,"
## [ 786] "@CNN"
## [ 787] "@trish_regan"
## [ 788] "@realdonaldtrump"
## [ 789] "@WhiteHouse"
## [ 790] "@Maddow"
## [ 791] "@PortofLA"
## [ 792] "@Apple!"
## [ 793] "@CDCgov"
## [ 794] "@fema,"
## [ 795] "@GeneralMotors"
## [ 796] "@Ford"
## [ 797] "@washingtonpost,"
## [ 798] "@RepThomasMassie"
## [ 799] "@RepThomasMassie,"
## [ 800] "@WhiteHouse"
## [ 801] "@realDonaldTrump's"
## [ 802] "@realDonaldTrump"
## [ 803] "@LouDobbs"
## [ 804] "@FoxBusiness"
## [ 805] "@FoxNews"
## [ 806] "@TheDemocrats,"
## [ 807] "@kirstiealley"
## [ 808] "@realDonaldTrump"
## [ 809] "@POTUS"
## [ 810] "@OANN"
## [ 811] "@NYCMayor"
## [ 812] "@realDonaldTrump"
## [ 813] "@realDonaldTrump"
## [ 814] "@realDonaldTrump"
## [ 815] "@DrJeffColyer"
## [ 816] "@bdomenech"
```

```
## [817] "@nytimes"
## [818] "@SpeakerPelosi?"
## [819] "@SenSchumer"
## [820] "@SpeakerPelosi"
## [821] "@POTUS"
## [822] "@WalmartInc"
## [823] "@realDonaldTrump's"
## [824] "@CDCgov's"
## [825] "@realDonaldTrump"
## [826] "@realDonaldTrump"
## [827] "@realDonaldTrump"
## [828] "@Lrihendry"
## [829] "@realDonaldTrump"
## [830] "@realDonaldTrump"
## [831] "@realDonaldTrump"
## [832] "@realDonaldTrump"
## [833] "@nytimes,"
## [834] "@washingtonpost,"
## [835] "@RandPaul,"
## [836] "@realDonaldTrump"
## [837] "@FEMA_Pete:"
## [838] "@realDonaldTrump's"
## [839] "@realDonaldTrump:"
## [840] "@POTUS"
## [841] "@realDonaldTrump"
## [842] "@UPS"
## [843] "@JBPritzker,"
## [844] "@CNN"
## [845] "@FedEx"
## [846] "@fema"
## [847] "@RepMarkMeadows"
## [848] "@GOPLeader"
## [849] "@senatemajldr"
## [850] "@POTUS"
## [851] "@SundayFutures"
## [852] "@FoxNews"
## [853] "@WhiteHouse"
## [854] "@marcorubio"
## [855] "@WarRoom2020"
## [856] "@JNJNews"
## [857] "@DHS_Wolf"
## [858] "@USTreasury"
## [859] "@stevenmnuchin1"
## [860] "@MorningsMaria"
## [861] "@FoxBusiness"
## [862] "@MorningsMaria"
## [863] "@FoxBusiness"
## [864] "@realDonaldTrump's"
```

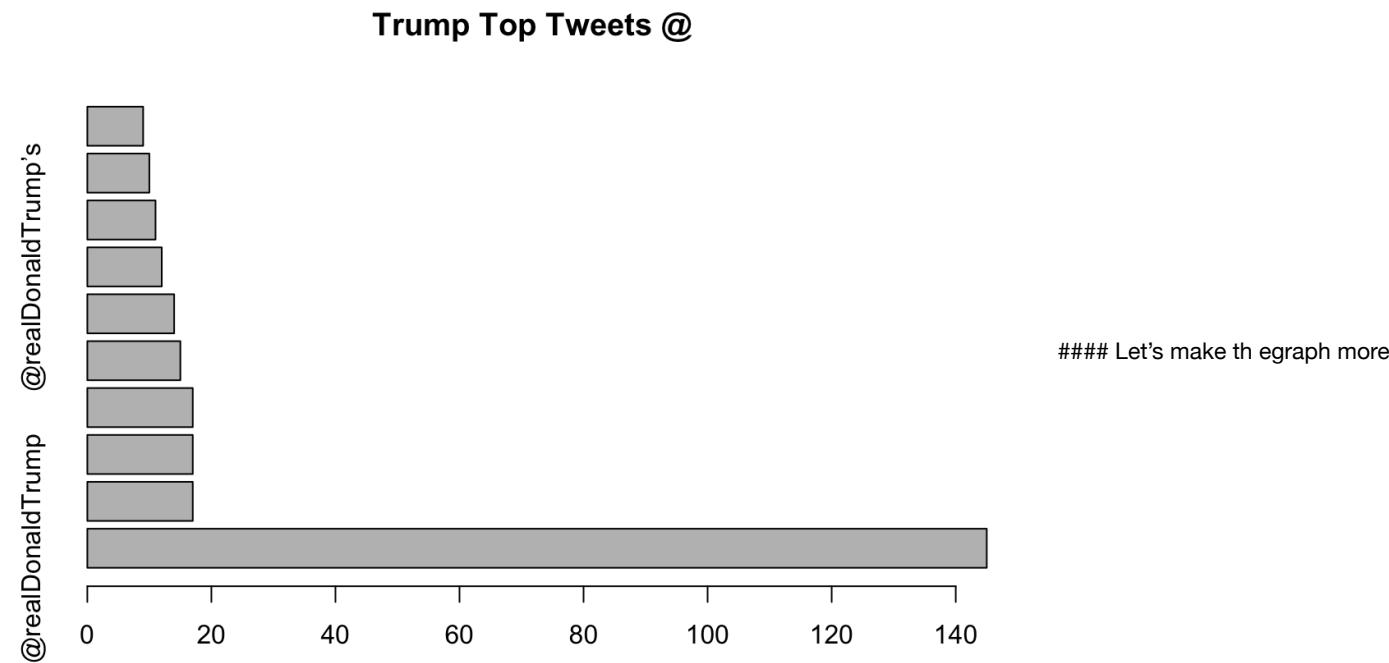
```
## [865] "@marcorubio"
## [866] "@SenatorCollins"
## [867] "@senatemajldr"
## [868] "@stevenmnuchin1"
## [869] "@realDonaldTrump"
## [870] "@realDonaldTrump:"
## [871] "@realDonaldTrump's"
## [872] "@realDonaldTrump"
## [873] "@realDonaldTrump"
## [874] "@realDonaldTrump"
## [875] "@David_Bossie"
## [876] "@realDonaldTrump:"
## [877] "@TeamCavuto"
## [878] "@ltgrusselhonore"
## [879] "@realDonaldTrump"
## [880] "@TeamCavuto"
## [881] "@ltgrusselhonore"
## [882] "@TheDemocrats"
## [883] "@SenJohnBarrasso"
## [884] "@SenJohnKennedy"
## [885] "@cvpayne:"
## [886] "@SundayFutures"
## [887] "@FoxNews"
## [888] "@marcorubio"
## [889] "@WhiteHouse"
## [890] "@JNJNews"
## [891] "@DHS_Wolf"
## [892] "@WarRoom2020"
## [893] "@SundayFutures"
## [894] "@FoxNews"
## [895] "@MorningsMaria"
## [896] "@FoxBusiness"
## [897] "@RepRiggleman"
## [898] "@StateDept"
## [899] "@SecPompeo."
## [900] "@SBAgov"
## [901] "@JennPellegrino"
## [902] "@OANN"
## [903] "@SenJohnBarrasso:"
## [904] "@ChuckGrassley "👉"
## [905] "@WhiteHouse,"
## [906] "@CDCgov,"
## [907] "@healthyoklahoma,"
## [908] "@govstitt"
## [909] "@US_FDA"
## [910] "@SteveFDA"
## [911] "@CDCgov"
## [912] "@DHSGov"
```

```
## [913] "@POTUS"
## [914] "@JennPellegrino"
## [915] "@OANN"
## [916] "@realDonaldTrump"
## [917] "@Hanes"
## [918] "@MotherCristina"
## [919] "@cvsparmacy"
## [920] "@realDonaldTrump"
## [921] "@realDonaldTrump"
## [922] "@US_FDA"
## [923] "@SteveFDA"
## [924] "@CDCgov"
## [925] "@DHSgov"
## [926] "@SBAgov"
## [927] "@SecPompeo"
## [928] "@realDonaldTrump's"
## [929] "@SteveDaines!"
## [930] "@ShannonBream"
## [931] "@CDCgov"
## [932] "@realdonaldtrump"
## [933] "@UMMCtelehealth"
## [934] "@CMSGov"
## [935] "@SenateGOP"
## [936] "@StevenMnuchin1."
## [937] "@SenJohnBarrasso:"
## [938] "@SenToddYoung"
## [939] "@SmallBizCmte"
## [940] "@SenCapito"
## [941] "@VP"
## [942] "@USATODAY"
## [943] "@SteveDaines!"
## [944] "@POTUS"
## [945] "@ChuckGrassley"
## [946] "@realDonaldTrump's"
## [947] "@SenJoniErnst's"
## [948] "@POTUS"
## [949] "@realDonaldTrump"
## [950] "@VP"
## [951] "@Mike_Pence"
## [952] "@USTreasury"
## [953] "@stevenmnuchin1."
## [954] "@SenJoniErnst"
## [955] "@realDonaldTrump"
## [956] "@realDonaldTrump"
## [957] "@FEMA"
## [958] "@AABB"
## [959] "@AmericasBlood"
## [960] "@RedCross"
```

```
## [961] "@MilitaryBlood."
## [962] "@realDonaldTrump"
## [963] "@HerschelWalker!"
```

Plot of Trump's top 10 tweets at

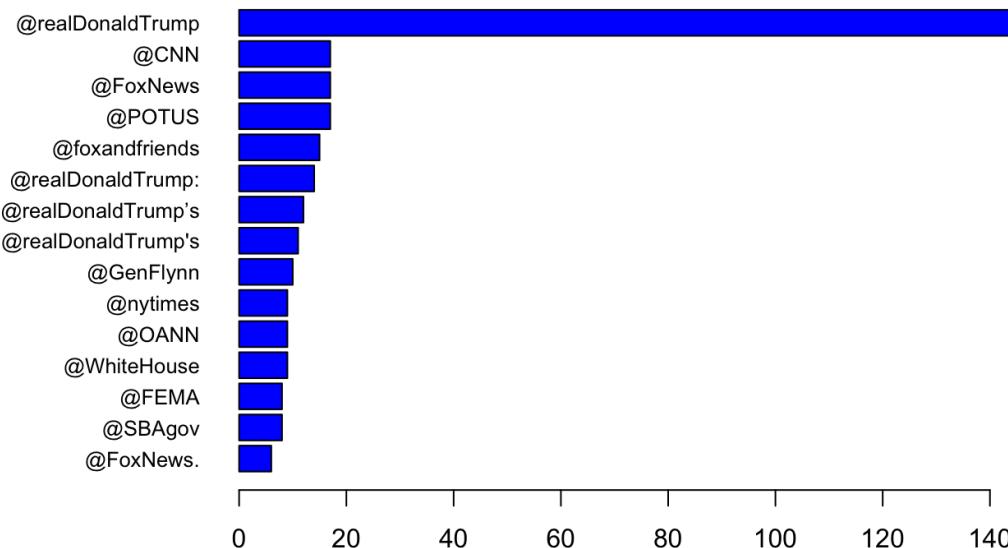
```
Trumptweets_at_tab <- sort(table(trumptweets_at), decreasing = T)
barplot(Trumptweets_at_tab[1:10], horiz = TRUE, main = "Trump Top Tweets @")
```



readable

```
par(las = 1, mar = c(5.1,8,4.1,2.1))
barplot(Trumptweets_at_tab[15:1], horiz = TRUE, col = "blue", las = 1, cex.names = .8, main = "Trump Top Tweets @")
```

Trump Top Tweets @

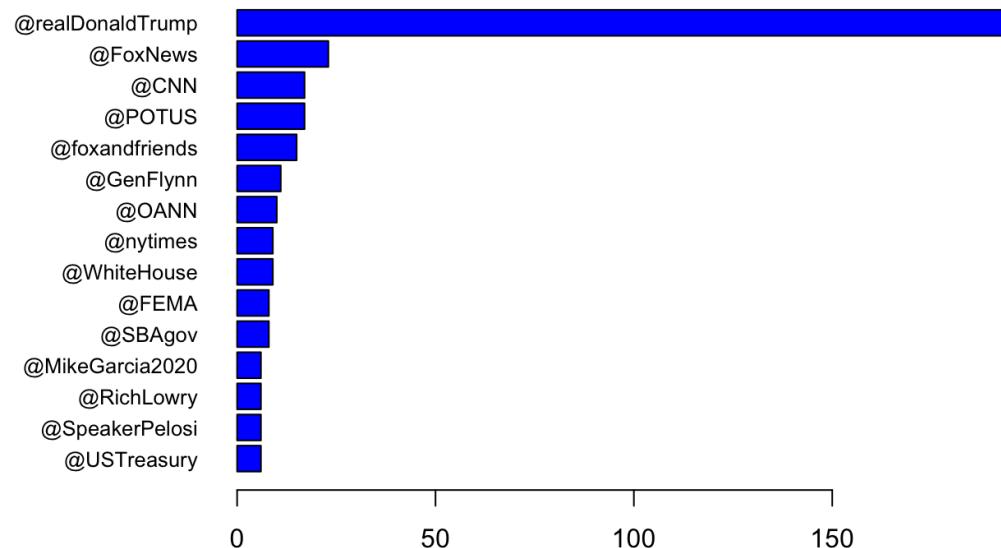


let's do some more data cleaning and processing to remove unwanted characters from the @ names

```
trumptweets_at2 <- gsub("Trump*.", "Trump", trumptweets_at)
trumptweets_at2 <- gsub("Trump*.", "Trump", trumptweets_at2)
trumptweets_at2 <- gsub("[.]", "", trumptweets_at2)
trumptweets_at2 <- gsub("[:]", "", trumptweets_at2)
```

```
trumptweets_at2_tab2 <- sort(table(trumptweets_at2), decreasing = T)
par(las = 1, mar = c(5.1,8,4.1,2.1))
barplot(trumptweets_at2_tab2[15:1], horiz = TRUE,col = "blue", las = 1, cex.names = .8, main = "Trump Top Tweets
@")
```

Trump Top Tweets @



Who did Obama Tweet at?

```
regmatches(Obamatweets$text, gregexpr("@[^[:space:]]+", Obamatweets$text))
```

```
## [[1]]
## character(0)
##
## [[2]]
## character(0)
##
## [[3]]
## character(0)
##
## [[4]]
## [1] "@welcomeus:"
##
## [[5]]
## [1] "@POTUS:"
##
## [[6]]
## [1] "@Netflix."
##
## [[7]]
## [1] "@HGMedia"
##
## [[8]]
## [1] "@MichelleObama:"
##
## [[9]]
## character(0)
##
## [[10]]
## character(0)
##
## [[11]]
## character(0)
##
## [[12]]
## [1] "@ObamaFoundation"
##
## [[13]]
## character(0)
##
## [[14]]
## character(0)
##
## [[15]]
## character(0)
##
## [[16]]
## character(0)
##
```

```
## [[17]]
## character(0)
##
## [[18]]
## character(0)
##
## [[19]]
## character(0)
##
## [[20]]
## character(0)
##
## [[21]]
## character(0)
##
## [[22]]
## character(0)
##
## [[23]]
## character(0)
##
## [[24]]
## character(0)
##
## [[25]]
## character(0)
##
## [[26]]
## character(0)
##
## [[27]]
## [1] "@POTUS"
##
## [[28]]
## [1] "@ObamaFoundation:" "@BarackObama"      "@SandyHook"
##
## [[29]]
## [1] "@ReverendWarnock!"
##
## [[30]]
## [1] "@ReverendWarnock."
##
## [[31]]
## [1] "@ReverendWarnock."
##
## [[32]]
## [1] "@ReverendWarnock!"
```

```
## [[33]]
## character(0)
##
## [[34]]
## character(0)
##
## [[35]]
## [1] "@ReverendWarnock"
##
## [[36]]
## [1] "@ReverendWarnock."
##
## [[37]]
## [1] "@ReverendWarnock."
##
## [[38]]
## [1] "@ReverendWarnock"
##
## [[39]]
## [1] "@ObamaFoundation"
##
## [[40]]
## character(0)
##
## [[41]]
## character(0)
##
## [[42]]
## character(0)
##
## [[43]]
## character(0)
##
## [[44]]
## character(0)
##
## [[45]]
## [1] "@DemRedistrict,"
##
## [[46]]
## character(0)
##
## [[47]]
## [1] "@ObamaFoundation"
##
## [[48]]
## [1] "@ObamaFoundation:"
##
```

```
## [[49]]
## [1] "@USMNT"
##
## [[50]]
## [1] "@JoeBiden!"
##
## [[51]]
## [1] "@BChesky"
##
## [[52]]
## [1] "@ObamaFoundation"   "@TrevorNoah"      "@TheDailyShow"
##
## [[53]]
## character(0)
##
## [[54]]
## [1] "@ObamaFoundation"
##
## [[55]]
## [1] "@ObamaFoundation's"
##
## [[56]]
## character(0)
##
## [[57]]
## character(0)
##
## [[58]]
## character(0)
##
## [[59]]
## character(0)
##
## [[60]]
## [1] "@MichelleObama's"
##
## [[61]]
## character(0)
##
## [[62]]
## character(0)
##
## [[63]]
## character(0)
##
## [[64]]
## character(0)
##
```

```
## [[65]]
## [1] "@Adrian_Fontes"
##
## [[66]]
## [1] "@JocelynBenson"
##
## [[67]]
## [1] "@CiscoForNevada,"
##
## [[68]]
## character(0)
##
## [[69]]
## character(0)
##
## [[70]]
## [1] "@ObamaFoundation:"  "@NHannahJones,"      "@LeniRobredo,"
## [4] "@noUpside,"          "@jelani9"
##
## [[71]]
## [1] "@ObamaFoundation"
##
## [[72]]
## character(0)
##
## [[73]]
## [1] "@TheDemocrats:"
##
## [[74]]
## character(0)
##
## [[75]]
## character(0)
##
## [[76]]
## [1] "@JoeBiden"
##
## [[77]]
## character(0)
##
## [[78]]
## [1] "@JoeBiden"
##
## [[79]]
## [1] "@JohnFetterman for"
##
## [[80]]
## [1] "@JoeBiden"
```

```
##  
## [[81]]  
## [1] "@JoshShapiroPA"  "@SummerForPA"    "@ChrisForPA"      "@JohnFetterman"  
##  
## [[82]]  
## character(0)  
##  
## [[83]]  
## character(0)  
##  
## [[84]]  
## [1] "@MBK_Alliance"     "@ObamaFoundation."  
##  
## [[85]]  
## character(0)  
##  
## [[86]]  
## [1] "@KrisMayes,"       "@Adrian_Fontes,"  "@KatieHobbs,"    "@CaptMarkKelly"  
##  
## [[87]]  
## character(0)  
##  
## [[88]]  
## [1] "@POTUS:"  
##  
## [[89]]  
## character(0)  
##  
## [[90]]  
## character(0)  
##  
## [[91]]  
## [1] "@StevenHorsford,"  "@DinaTitus,"      "@SusieLeeNV,"     "@CiscoForNevada,"  
## [5] "@AaronDFordNV,"     "@SteveSisolak,"   "@CortezMasto"  
##  
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## character(0)  
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## [[96]]
```

```
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## [5] "@Tony4WI"
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## character(0)
##
## [[100]]
## character(0)
##
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## [1] "@RashidaTlaib"     "@DanaNessel"       "@JocelynBenson"    "@Garlin"
## [5] "@GretchenWhitmer"
##
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## character(0)
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## [1] "@StaceyAbrams,"   "@SanfordBishop,"   "@BeeForGeorgia,"   "@ReverendWarnock"
##
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##
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## [[110]]
## [1] "@staceyabrams:"   "@BarackObama,"    "@ReverendWarnock,"
##
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```
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## [1] "@MichelleObama" "@GirlsAlliance"  
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## [[116]]  
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## [1] "@HGMedia"  
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##  
## [[122]]  
## [1] "@POTUS,"  
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## [[124]]  
## [1] "@AyoDos_11,"  
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## [1] "@PodSaveAmerica"  
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## [1] "@JHUAPL"  
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## character(0)  
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## character(0)  
##  
## [[133]]  
## [1] "@ObamaFoundation"  
##  
## [[134]]  
## [1] "@ObamaFoundation's"  
##  
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##  
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## [1] "@ObamaFoundation"  
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##  
## [[138]]  
## [1] "@CodyKeenan's"  
##  
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## [1] "@CarterCenter"  
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## [[141]]  
## [1] "@MichelleObama:"  
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## [[143]]  
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```
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## [1] "@ObamaFoundation:"  
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## character(0)  
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##  
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## [1] "@LVAcEs"          "@BeckyHammon and"  
##  
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## [[158]]  
## [1] "@POTUS"  "@VP"  
##  
## [[159]]  
## [1] "@BChesky"
```

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## [1] "@ObamaFoundation"  
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## [1] "@EricHolder"      "@DemRedistrict,"  "@JohnLegend,"      "@iamwill,"  
## [5] "@JayPharoah."  
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```
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## [1] "@danpfeiffer's"  
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## character(0)  
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## [1] "@MichelleObama"
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## [1] "@ObamaFoundation"
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## [1] "@NASAWebb_Space"
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##
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## [1] "@WelcomeUS"
##
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## character(0)
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## character(0)
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## [[218]]
## [1] "@NMAAHC"
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## [1] "@PPFA,"      "@USOWomen,"
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```
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## [1] "@ESPN's"
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## [1] "@ObamaFoundation's"
##
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## [[227]]
## [1] "@WelcomeUS:"
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## character(0)
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## character(0)
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## character(0)
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## [1] "@Warriors"
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## [1] "@USMonastirBB"
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## [1] "@ObamaFoundation."
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## [1] "@DemRedistrict"
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## character(0)
##
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## [1] "@ObamaFoundation"
##
## [[239]]
```

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## character(0)
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## [[243]]
## character(0)
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## [[244]]
## character(0)
##
## [[245]]
## character(0)
##
## [[246]]
## [1] "@ObamaFoundation: " "@BarackObama"
##
## [[247]]
## character(0)
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## [[248]]
## character(0)
##
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## [1] "@WNBA"          "@ChicagoSky! I"
##
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## [1] "@BChesky"
##
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## [1] "@ObamaFoundation:"
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## character(0)
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```
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## [1] "@MBK_Alliance"
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##
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## [1] "@cspan:"          "@ChrisMurphyCT) :"
##
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## [1] "@warriors:"
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## character(0)
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## [[265]]
## character(0)
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## [[266]]
## character(0)
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## [[267]]
## character(0)
##
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## [1] "@ObamaFoundation:"
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## character(0)
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## character(0)
##
## [[271]]
```

```
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## [1] "@bchesky."
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## [1] "@HawaiiMensVB,"
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## [[276]]
## [1] "@MichelleObama,"
##
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## [1] "@ObamaFoundation:"
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## character(0)
##
## [[284]]
## [1] "@ObamaFoundation"
##
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##
## [[286]]
## [1] "@Stanford"          "@ObamaFoundation"
##
## [[287]]
```

```
## character(0)
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## character(0)
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## character(0)
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## [[293]]
## character(0)
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## character(0)
##
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## [1] "@ObamaFoundation: " "@BarackObama"
##
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## character(0)
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## [[297]]
## character(0)
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## [[298]]
## character(0)
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## [[299]]
## [1] "@ObamaFoundation,"
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## character(0)
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## [1] "@ObamaFoundation"
##
## [[303]]
```

```
## character(0)
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## character(0)
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## character(0)
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## [[306]]
## [1] "@PeteSouza"
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## [1] "@ObamaFoundation."
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## [1] "@BGCA_Clubs." "@TheWCS"
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## [1] "@Netflix," "@HGMedia"
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## [[313]]
## [1] "@ObamaFoundation"
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## character(0)
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## character(0)
##
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## character(0)
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## [[317]]
## character(0)
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## [[318]]
## character(0)
##
## [[319]]
```

```
## [1] "@ChicagoBulls"    "@MBK_Alliance"    "@GirlsAlliance."
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## [1] "@ObamaFoundation:" "@BarackObama"
##
## [[322]]
## [1] "@UChicago"
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## [1] "@POTUS."
##
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## [1] "@POTUS"  "@VP"
##
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## [1] "@POTUS"
##
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## character(0)
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## [1] "@POTUS"  "@VP"
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## [1] "@KUHoops"
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## [1] "@GamecockWBB"  "@DawnStaley"
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## [1] "@MBK_Alliance"    "@MarchMadnessMBB."
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```

```
## [1] "@POTUS"      "@WelcomeUS"  
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## [1] "@ProtectOurCare"  
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## [1] "@POTUS:"      "@BarackObama"  
##  
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## [1] "@POTUS's"  
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## [1] "@MBK_Alliance"  
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## [[347]]  
## [1] "@ObamaFoundation"  
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## [1] "@Airbnb"  
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## [1] "@ChefJoseAndres'"  "@WCKitchen,"  
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## [[350]]  
## [1] "@ZarlaشتH"      "@RefugeeTraumaUK"  
##  
## [[351]]
```

```
## character(0)
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## [1] "@ChiPubLib"
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## [1] "@POTUS"
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## character(0)
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## [[358]]
## character(0)
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## [[359]]
## character(0)
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## [1] "@AllOnTheLine"
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## [[361]]
## [1] "@AllOnTheLine"
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## character(0)
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## [[363]]
## [1] "@AllOnTheLine"
##
## [[364]]
## [1] "@EricHolder"      "@AllOnTheLine,"
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## character(0)
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```
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## [1] "@ObamaFoundation"
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## [[378]]
## [1] "@EricHolder's"
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## character(0)
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## character(0)
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## [1] "@POTUS"
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```

```
## [1] "@DemRedistrict"
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## [[384]]
## [1] "@MichelleObama:"
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## character(0)
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## character(0)
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## [1] "@POTUS"
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## [1] "@POTUS" " @VP"
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## [[392]]
## [1] "@ObamaFoundation,"
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## [1] "@ObamaFoundation"
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```
## character(0)
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## [1] "@MichelleObama:"
##
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## [1] "@EricHolder"      "@DemRedistrict"
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## [1] "@MBK_Alliance"
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## [[420]]
## [1] "@ObamaFoundation"
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```
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## [1] "@ComerChildrens"
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## [1] "@ChicagoSky"    "@ChicagoBulls"
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## [1] "@ItsMadeToSave"
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## [1] "@ObamaFoundation"
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## [1] "@TheSilverRoom"
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## [1] "@POTUS!"
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## [1] "@100Kin10"
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```
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## [1] "@JackHarries"      "@ObamaFoundation"
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## [1] "@LadderUpHousing,"
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## [1] "@SpeakerPelosi"
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## [1] "@JohnDoerr's"
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## [[457]]
## character(0)
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```
## character(0)
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## [1] "@PhilMurphyNJ"
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## [1] "@TerryMcAuliffe"
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## [1] "@DLCC"
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## [1] "@MBK_Alliance"
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## [1] "@ChicagoSky!"
##
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## character(0)
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## [1] "@WhiteSox"
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## [1] "@ChicagoSky"      "@Candace_Parker,"
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```
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## [1] "@ObamaFoundation: " "@RobinRoberts"      "@GMA, "
## [4] "@BarackObama"
##
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## [1] "@ObamaFoundation" "@UChicago."
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## [[491]]
## [1] "@MichelleObama"
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```

```
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## [1] "@POTUS:"
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## [1] "@ObamaFoundation"
##
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## [1] "@Netflix"
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## [1] "@MichelleObama:"
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## [1] "@Springsteen"
##
```

```
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## [1] "@POTUS"
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## [1] "@JoeBiden:"
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## [1] "@MichelleObama:"
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##
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## [1] "@ossoff:"
##
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##
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##
```

```
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## [1] "@YouTube:"
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## [1] "@ObamaFoundation"
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## [1] "@ObamaFoundation:" " @BarackObama"        "@MBK_Alliance"
## [4] "@CapehartJ"
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## [1] "@KingJames" "@MavCarter"  
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## [1] "@JoeBiden"  
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```
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## [1] "@TheDemocrats:"  "@B..."  
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## [1] "@JacklGoldsmith's"  
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## [1] "@MBK_Alliance's"  
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## [1] "@EricHolder"    "@allontheline."  
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## [1] "@DemConvention:"  "@BarackObama"    "@JoeBiden"  
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## [1] "@FactsOnClimate:"
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## [[1692]]
## character(0)
##
## [[1693]]
## character(0)
##
## [[1694]]
```

```
## character(0)
##
## [[1695]]
## character(0)
##
## [[1696]]
## [1] "@SenWarren"
##
## [[1697]]
## character(0)
##
## [[1698]]
## character(0)
##
## [[1699]]
## character(0)
##
## [[1700]]
## character(0)
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## [[1701]]
## character(0)
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## [[1702]]
## character(0)
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## [[1703]]
## character(0)
##
## [[1704]]
## [1] "@WhiteHouse:" "@POTUS"
##
## [[1705]]
## character(0)
##
## [[1706]]
## character(0)
##
## [[1707]]
## character(0)
##
## [[1708]]
## character(0)
##
## [[1709]]
## [1] "@WSJ"
##
## [[1710]]
```

```
## character(0)
##
## [[1711]]
## character(0)
##
## [[1712]]
## [1] "@ABC:"
##
## [[1713]]
## [1] "@OFA"
##
## [[1714]]
## [1] "@VP"
##
## [[1715]]
## character(0)
##
## [[1716]]
## character(0)
##
## [[1717]]
## character(0)
##
## [[1718]]
## [1] "@WhiteHouse: " "@POTUS"
##
## [[1719]]
## [1] "@WhiteHouse: " "@POTUS"
##
## [[1720]]
## character(0)
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## [[1721]]
## character(0)
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## [[1722]]
## character(0)
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## [[1723]]
## character(0)
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## [[1724]]
## character(0)
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## [[1725]]
## character(0)
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## [[1726]]
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## character(0)
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## [[1727]]
## character(0)
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## character(0)
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## [[1739]]
## character(0)
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## [[1740]]
## character(0)
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## [[1741]]
## character(0)
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## [[1742]]
```

```
## [1] "@SecretaryJewell:"  
##  
## [[1743]]  
## character(0)  
##  
## [[1744]]  
## character(0)  
##  
## [[1745]]  
## character(0)  
##  
## [[1746]]  
## [1] "@PPact:"  
##  
## [[1747]]  
## character(0)  
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## character(0)  
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## character(0)  
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## [[1754]]  
## character(0)  
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## [[1755]]  
## character(0)  
##  
## [[1756]]  
## [1] "@VP"  
##  
## [[1757]]  
## character(0)  
##  
## [[1758]]
```

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## character(0)
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## [[1759]]
## character(0)
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## [[1760]]
## character(0)
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## [[1761]]
## character(0)
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## [[1762]]
## character(0)
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## [[1763]]
## character(0)
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## [[1764]]
## character(0)
##
## [[1765]]
## [1] "@WhiteHouse: " "@POTUS"
##
## [[1766]]
## character(0)
##
## [[1767]]
## character(0)
##
## [[1768]]
## [1] "@VP:"
##
## [[1769]]
## [1] "@repjohnlewis:"
##
## [[1770]]
## character(0)
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## [[1771]]
## character(0)
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## [[1772]]
## character(0)
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## [[1773]]
## character(0)
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## [[1774]]
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## character(0)
##
## [[1775]]
## character(0)
##
## [[1776]]
## [1] "@POTUS:"
##
## [[1777]]
## [1] "@OFA"
##
## [[1778]]
## [1] "@vj44"
##
## [[1779]]
## [1] "@NatGeo"
##
## [[1780]]
## character(0)
##
## [[1781]]
## character(0)
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## [[1782]]
## character(0)
##
## [[1783]]
## [1] "@WhiteHouse:" "@POTUS"
##
## [[1784]]
## character(0)
##
## [[1785]]
## character(0)
##
## [[1786]]
## [1] "@VP:"
##
## [[1787]]
## [1] "@WhiteHouse:" "@POTUS"      "@VP"
##
## [[1788]]
## character(0)
##
## [[1789]]
## [1] "@WhiteHouse:" "@POTUS"
##
## [[1790]]
```

```
## [1] "@WhiteHouse:" "@POTUS"
##
## [[1791]]
## character(0)
##
## [[1792]]
## character(0)
##
## [[1793]]
## character(0)
##
## [[1794]]
## [1] "@FallonTonight:" "@POTUS"           "@jimmyfallon"
##
## [[1795]]
## [1] "@FallonTonight"
##
## [[1796]]
## character(0)
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## [[1797]]
## character(0)
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## [[1798]]
## character(0)
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## [[1799]]
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## character(0)
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## [[1801]]
## character(0)
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## [[1802]]
## character(0)
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## [[1803]]
## character(0)
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## [[1804]]
## [1] "@GovRichardson:"
##
## [[1805]]
## [1] "@PLOTUS:"
##
## [[1806]]
```

```
## character(0)
##
## [[1807]]
## character(0)
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## [[1808]]
## character(0)
##
## [[1809]]
## [1] "@OFA"
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## [[1810]]
## character(0)
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## character(0)
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## [[1816]]
## character(0)
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## [[1817]]
## [1] "@POTUS:"
##
## [[1818]]
## character(0)
##
## [[1819]]
## [1] "@Everytown:"
##
## [[1820]]
## character(0)
##
## [[1821]]
## character(0)
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## [[1822]]
```

```
## [1] "@WhiteHouse:"  "@POTUS"
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## [[1823]]
## character(0)
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## [[1824]]
## character(0)
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## character(0)
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## [[1826]]
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## character(0)
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## [[1833]]
## character(0)
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## [[1834]]
## [1] "@SCOTUSnom:"
##
## [[1835]]
## character(0)
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## [[1836]]
## [1] "@OFA"
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## [[1837]]
## character(0)
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## [[1838]]
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## character(0)
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## character(0)
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## character(0)
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## [[1864]]
## character(0)
##
## [[1865]]
## [1] "@WhiteHouse:"
##
## [[1866]]
## character(0)
##
## [[1867]]
## [1] "@VP"           "@jenisicecreams"
##
## [[1868]]
## character(0)
##
## [[1869]]
## character(0)
##
## [[1870]]
```

```
## [1] "@WhiteHouse:"  "@POTUS"
##
## [[1871]]
## character(0)
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## [[1872]]
## character(0)
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## [[1873]]
## character(0)
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## [[1874]]
## character(0)
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## [[1875]]
## character(0)
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## [[1876]]
## character(0)
##
## [[1877]]
## [1] "@BuzzFeed"
##
## [[1878]]
## [1] "@BuzzFeed:"      "@chrisgeidner"
##
## [[1879]]
## character(0)
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## [[1880]]
## character(0)
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## character(0)
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## character(0)
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## [[1892]]
## character(0)
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## [[1893]]
## character(0)
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## [[1894]]
## [1] "@SCOTUSnom:"
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## [[1895]]
## character(0)
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## [[1896]]
## character(0)
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## [[1897]]
## character(0)
##
## [[1898]]
## character(0)
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## [[1899]]
## [1] "@OFA"
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## [[1900]]
## character(0)
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## [[1901]]
## character(0)
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## [[1902]]
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```
## [1] "@WhiteHouse:" "@POTUS"
##
## [[1903]]
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## [[1904]]
## character(0)
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## [[1905]]
## character(0)
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## [[1906]]
## character(0)
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## [[1907]]
## character(0)
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## [[1908]]
## [1] "@OFA"
##
## [[1909]]
## [1] "@WhiteHouse:" "@POTUS"
##
## [[1910]]
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## [[1911]]
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## [[1918]]
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## [1] "@VP"
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```
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## [1] "@VancityReynolds:"
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## [[1953]]
## [1] "@Interior:"
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## [[1954]]
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##
## [[1955]]
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## [1] "@WhiteHouse:" "@POTUS"
##
## [[1957]]
## character(0)
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## [[1958]]
## [1] "@OFA:"
##
## [[1959]]
## character(0)
##
## [[1960]]
## character(0)
##
## [[1961]]
## [1] "@WhiteHouse:" "@VP"          "@SCOTUSnom"
##
## [[1962]]
## character(0)
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## [[1963]]
## character(0)
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## character(0)
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## [[1965]]
## character(0)
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## [[1966]]
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## [[1976]]
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## [[1977]]
## character(0)
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## [1] "@WhiteHouse: " "@POTUS"
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## [[1980]]
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## [[1981]]
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## [[1988]]
## character(0)
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## [[1989]]
## character(0)
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## [[1990]]
## character(0)
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## [[1991]]
## [1] "@WhiteHouse: " "@POTUS"
##
## [[1992]]
## character(0)
##
## [[1993]]
## [1] "@SCOTUSnom: " "@POTUS"
##
## [[1994]]
## character(0)
##
## [[1995]]
## character(0)
##
## [[1996]]
## character(0)
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## [[1997]]
## character(0)
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## [[1998]]
```

```
## character(0)
##
## [[1999]]
## character(0)
##
## [[2000]]
## character(0)
```

```
Obamatweets_at <- regmatches(Obamatweets$text, gregexpr("@[^[:space:]]+", Obamatweets$text))

Obamatweets_at <- unlist(Obamatweets_at)
Obamatweets_at
```

```

## [1] "@welcomeus:"
## [3] "@Netflix."
## [5] "@MichelleObama:"
## [7] "@POTUS"
## [9] "@BarackObama"
## [11] "@ReverendWarnock!"
## [13] "@ReverendWarnock."
## [15] "@ReverendWarnock"
## [17] "@ReverendWarnock."
## [19] "@ObamaFoundation"
## [21] "@ObamaFoundation"
## [23] "@USMNT"
## [25] "@BChesky"
## [27] "@TrevorNoah"
## [29] "@ObamaFoundation"
## [31] "@MichelleObama's"
## [33] "@JocelynBenson"
## [35] "@ObamaFoundation:"
## [37] "@LeniRobredo,"
## [39] "@jelani9"
## [41] "@TheDemocrats:"
## [43] "@JoeBiden"
## [45] "@JoeBiden"
## [47] "@SummerForPA"
## [49] "@JohnFetterman"
## [51] "@ObamaFoundation."
## [53] "@Adrian_Fontes,"
## [55] "@CaptMarkKelly"
## [57] "@StevenHorsford,"
## [59] "@SusieLeeNV,"
## [61] "@AaronDFordNV,"
## [63] "@CortezMasto"
## [65] "@TheOtherMandela"
## [67] "@Sara4wi"
## [69] "@RashidaTlaib"
## [71] "@JocelynBenson"
## [73] "@GretchenWhitmer"
## [75] "@SanfordBishop,"
## [77] "@ReverendWarnock"
## [79] "@BarackObama,"
## [81] "@MichelleObama"
## [83] "@EliManning"
## [85] "@POTUS,"
## [87] "@PodSaveAmerica"
## [89] "@JHUAPL"
## [91] "@ObamaFoundation's"
## [93] "@CodyKeenan's"
## [95] "@MichelleObama:"
## [97] "@POTUS"
## [99] "@HGMedia"
## [101] "@ObamaFoundation"
## [103] "@ObamaFoundation:"
## [105] "@SandyHook"
## [107] "@ReverendWarnock."
## [109] "@ReverendWarnock!"
## [111] "@ReverendWarnock."
## [113] "@ReverendWarnock"
## [115] "@DemRedistrict,"
## [117] "@ObamaFoundation:"
## [119] "@JoeBiden!"
## [121] "@ObamaFoundation"
## [123] "@TheDailyShow"
## [125] "@ObamaFoundation's"
## [127] "@Adrian_Fontes"
## [129] "@CiscoForNevada,"
## [131] "@NHannahJones,"
## [133] "@noUpside,"
## [135] "@ObamaFoundation"
## [137] "@JoeBiden"
## [139] "@JohnFetterman for"
## [141] "@JoshShapiroPA"
## [143] "@ChrisForPA"
## [145] "@MBK_Alliance"
## [147] "@KrisMayes,"
## [149] "@KatieHobbs,"
## [151] "@POTUS"
## [153] "@DinaTitus,"
## [155] "@CiscoForNevada,"
## [157] "@SteveSisolak,"
## [159] "@Gwen4Congress"
## [161] "@JoshKaulwi"
## [163] "@Tony4WI"
## [165] "@DanaNessel"
## [167] "@Garlin"
## [169] "@StaceyAbrams,"
## [171] "@BeeForGeorgia,"
## [173] "@staceyabrams:"
## [175] "@ReverendWarnock,"
## [177] "@GirlsAlliance"
## [179] "@HGMedia"
## [181] "@AyoDos_11,"
## [183] "@UrbanAlliance"
## [185] "@ObamaFoundation"
## [187] "@ObamaFoundation"
## [189] "@CarterCenter"
## [191] "@MBK_Alliance"

```

```

## [ 97] "@ObamaFoundation"
## [ 99] "@LVAcEs"
## [101] "@POTUS"
## [103] "@BChesky"
## [105] "@ObamaFoundation"
## [107] "@DemRedistrict,"
## [109] "@iamwill,"
## [111] "@ObamaFoundation:"
## [113] "@AllOnTheLine"
## [115] "@danpfeiffer's"
## [117] "@HMcGhee"
## [119] "@ObamaFoundation"
## [121] "@WelcomeUS"
## [123] "@NMAAHC"
## [125] "@USOWomen,"
## [127] "@ObamaFoundation's"
## [129] "@Warriors"
## [131] "@ObamaFoundation."
## [133] "@ObamaFoundation"
## [135] "@BarackObama"
## [137] "@ChicagoSky! I"
## [139] "@ObamaFoundation:"
## [141] "@cspan:"
## [143] "@warriors:"
## [145] "@bchesky."
## [147] "@MichelleObama,"
## [149] "@ObamaFoundation"
## [151] "@ObamaFoundation"
## [153] "@BarackObama"
## [155] "@ObamaFoundation"
## [157] "@ObamaFoundation."
## [159] "@TheWCS"
## [161] "@Netflix,"
## [163] "@ObamaFoundation"
## [165] "@MBK_Alliance"
## [167] "@ObamaFoundation:"
## [169] "@UChicago"
## [171] "@POTUS"
## [173] "@POTUS"
## [175] "@VP"
## [177] "@GamecockWBB"
## [179] "@MBK_Alliance"
## [181] "@POTUS"
## [183] "@ProtectOurCare"
## [185] "@BarackObama"
## [187] "@MBK_Alliance"
## [189] "@Airbnb"
## [191] "@WCKitchen,"
## [193] "@WhiteHouse:"
## [195] "@EricHolder"
## [197] "@JohnLegend,"
## [199] "@JayPharoah."
## [201] "@POTUS,"
## [203] "@PowerThePolls"
## [205] "@HGMedia."
## [207] "@MichelleObama"
## [209] "@NASAWebb Space"
## [211] "@POTUS"
## [213] "@PPFA,"
## [215] "@ESPN's"
## [217] "@WelcomeUS:"
## [219] "@USMonastirBB"
## [221] "@DemRedistrict"
## [223] "@ObamaFoundation:"
## [225] "@WNBA"
## [227] "@BChesky"
## [229] "@MBK_Alliance"
## [231] "@ChrisMurphyCT):"
## [233] "@ObamaFoundation:"
## [235] "@Stanford"
## [237] "@ObamaFoundation:"
## [239] "@ObamaFoundation,"
## [241] "@PeteSouza"
## [243] "@BGCA_Clubs."
## [245] "@TheWCS,"
## [247] "@HGMedia"
## [249] "@ChicagoBulls"
## [251] "@GirlsAlliance."
## [253] "@BarackObama"
## [255] "@POTUS."
## [257] "@VP"
## [259] "@POTUS"
## [261] "@KUHoops"
## [263] "@DawnStaley"
## [265] "@MarchMadnessMBB."
## [267] "@WelcomeUS"
## [269] "@POTUS:"
## [271] "@POTUS's"
## [273] "@ObamaFoundation"
## [275] "@ChefJoseAndres."
## [277] "@Zarlashth"

```

```

## [193] "@RefugeeTraumaUK"
## [195] "@POTUS"
## [197] "@AllOnTheLine"
## [199] "@EricHolder"
## [201] "@JoeBiden"
## [203] "@EricHolder's"
## [205] "@DemRedistrict"
## [207] "@POTUS"
## [209] "@VP"
## [211] "@ObamaFoundation"
## [213] "@MichelleObama:"
## [215] "@DemRedistrict"
## [217] "@MBK_Alliance"
## [219] "@POTUS"
## [221] "@ChicagoSky"
## [223] "@ItsMadeToSave"
## [225] "@TheSilverRoom"
## [227] "@100Kin10"
## [229] "@JackHarries"
## [231] "@LadderUpHousing,"
## [233] "@JohnDoerr's"
## [235] "@TerryMcAuliffe"
## [237] "@MBK_Alliance"
## [239] "@WhiteSox"
## [241] "@Candace_Parker,"
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## [245] "@GMA,"
## [247] "@ObamaFoundation"
## [249] "@MichelleObama"
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## [253] "@POTUS"
## [255] "@UChicago"
## [257] "@Paralympics"
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## [261] "@ObamaFoundation:"
## [263] "@TeamUSA"
## [265] "@ObamaFoundation"
## [267] "@KidsPress"
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## [273] "@EricHolder"
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## [277] "@POTUS,"
## [279] "@Netflix"
## [281] "@MarcusRashford"
## [283] "@MBK_Alliance"
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## [195] "@AllOnTheLine"
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## [213] "@EricHolder"
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## [219] "@ComerChildrens"
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## [223] "@ObamaFoundation"
## [225] "@POTUS!"
## [227] "@ObamaFoundation"
## [229] "@ObamaFoundation"
## [231] "@SpeakerPelosi"
## [233] "@PhilMurphyNJ"
## [235] "@DLCC"
## [237] "@ChicagoSky!"
## [239] "@ChicagoSky"
## [241] "@DemRedistrict"
## [243] "@RobinRoberts"
## [245] "@BarackObama"
## [247] "@UChicago."
## [249] "@JustinTrudeau"
## [251] "@Surgeon_General"
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## [265] "@POTUS"
## [267] "@Netflix"
## [269] "@SmithsonianSec"
## [271] "@PeabodyAwards!"
## [273] "@EricHolder"
## [275] "@POTUS"
## [277] "@ObamaFoundation"
## [279] "@brhodes"
## [281] "@MBK_Alliance"
## [283] "@ChiPubSchools"
## [285] "@POTUS"
## [287] "@JoeBiden's"

```

```

## [289] "@AllOnTheLine:"
## [291] "@POTUS:"
## [293] "@VP"
## [295] "@MichelleObama:"
## [297] "@Springsteen"
## [299] "@MLB"
## [301] "@BNBuzz."
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## [305] "@Springsteen"
## [307] "@POTUS"
## [309] "@JimLeBrecht,"
## [311] "@ChiPubSchools"
## [313] "@POTUS"
## [315] "@BillGates"
## [317] "@BarackObama"
## [319] "@Spotify: https://t.co/pUY5kGQnZ"
## [321] "@WellReadBlkGirl"
## [323] "@Springsteen"
## [325] "@MarsPersevere"
## [327] "@MahoganyBooks"
## [329] "@BarackObama"
## [331] "@TheAmandaGorman"
## [333] "@JoeBiden!"
## [335] "@ReverendWarnock"
## [337] "@ossoff:"
## [339] "@ReverendWarnock"
## [341] "@JoeBiden"
## [343] "@ReverendWarnock"
## [345] "@allontheline"
## [347] "@YouTube:"
## [349] "@Ossoff:"
## [351] "@Ossoff,"
## [353] "@NikemaWilliams."
## [355] "@ReverendWarnock"
## [357] "@ObamaFoundation:"
## [359] "@MBK_Alliance"
## [361] "@JoeBiden"
## [363] "@JoeBiden"
## [365] "@JoeBiden:"
## [367] "@KamalaHarris."
## [369] "@ReverendWarnock."
## [371] "@JoeBiden:"
## [373] "@JoeBiden"
## [375] "@KingJames"
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## [379] "@KamalaHarris."
## [381] "@JoeBiden"
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## [385] "@ObamaFoundation"
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## [401] "@ProtectOurCare"
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## [405] "@CripCampFilm"
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## [413] "@Springsteen."
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## [417] "@TigerWoods"
## [419] "@NASAJPL"
## [421] "@TheTellingRoom's"
## [423] "@ObamaFoundation:"
## [425] "@EkpeUdo-I"
## [427] "@JoeBiden:"
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## [433] "@ReverendWarnock:"
## [435] "@Ossoff"
## [437] "@KamalaHarris"
## [439] "@Ossoff"
## [441] "@MLB"
## [443] "@ReverendWarnock"
## [445] "@ReverendWarnock"
## [447] "@StaceyAbrams"
## [449] "@ObamaFoundation"
## [451] "@Ossoff-who"
## [453] "@BarackObama"
## [455] "@CapehartJ"
## [457] "@KamalaHarris"
## [459] "@KamalaHarris."
## [461] "@JoeBiden"
## [463] "@Ossoff"
## [465] "@JoeBiden:"
## [467] "@StevieWonder"
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## [471] "@MavCarter"
## [473] "@JoeBiden"
## [475] "@JoeBiden:"
## [477] "@KingJames"
## [479] "@JoeBiden"

```

```

## [385] "@WeTheAction"
## [387] "@KamalaHarris."
## [389] "@BarackObama"
## [391] "@KamalaHarris."
## [393] "@BarackO..."
## [395] "@B..."
## [397] "@PeteSouza"
## [399] "@CatherineForNV"
## [401] "@JoeBiden"
## [403] "@JohnBrennan is"
## [405] "@KingJames"
## [407] "@Seattlestorm"
## [409] "@allontheline."
## [411] "@BarackObama"
## [413] "@ChicagoCred."
## [415] "@KensingtonRoyal's"
## [417] "@JoeBiden"
## [419] "@KamalaHarris"
## [421] "@JoeBiden."
## [423] "@JoeBiden. https://t.co/XdZz4dh82T" " @NBA"
## [425] "@MoreThanAVote" " @KamalaHarris"
## [427] "@morethanavote." " @attn"
## [429] "@KamalaHarris." " @JoeBiden."
## [431] "@JoeBiden:" " @JoeBiden"
## [433] "@ObamaFoundation" " @Bucks"
## [435] "@DocRivers," " @NBA"
## [437] "@WNBA" " @JoeBiden"
## [439] "@JoeBiden" " @DemConvention:"
## [441] "@BarackObama" " @JoeBiden"
## [443] "@JoeBiden" " @KamalaHarris."
## [445] "@DemConvention." " @DemConvention:"
## [447] "@MichelleObama" " @davidplouffe"
## [449] "@JoeBiden" " @KamalaHarris."
## [451] "@KamalaHarris:" " @JoeBiden-I'm"
## [453] "@KamalaHarris" " @AstroBehnken"
## [455] "@Astro_Doug!" " @JoeBiden"
## [457] "@Craig_A_Spencer" " @JoeBiden:"
## [459] "@CripCampFilm" " @JoeBiden"
## [461] "@allontheline" " @JoeBiden"
## [463] "@MichelleObama:" " @ObamaFoundation:"
## [465] "@BarackObama" " @UniNoticias:"
## [467] "@BarackObama" " @JoeBiden"
## [469] "@JoeBiden" " @JoeBiden:"
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## [473] "@MBK_Alliance" " @MBK_Alliance"
## [475] "@MBK_Alliance" " @MBK_Alliance"
## [477] "@ObamaFoundation." " @ObamaFoundation:"
## [479] "@BarackObama." " @chipublib."

```

```

## [481] "@ChiPubSchools,"
## [483] "@ChiPubSchools"
## [485] "@JoeBiden"
## [487] "@HereAllAlong,"
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## [491] "@cripchick,"
## [493] "@rgay"
## [495] "@BSAllianceChi"
## [497] "@alexsmith1982"
## [499] "@CDCgov"
## [501] "@ObamaFoundation:"
## [503] "@ObamaFoundation:"
## [505] "@MichelleObama."
## [507] "@RepJohnLewis,"
## [509] "@GetUSCovered:"
## [511] "@ObamaFoundation"
## [513] "@ObamaFoundation"
## [515] "@GirlsAlliance"
## [517] "@ObamaFoundation"
## [519] "@Nationals"
## [521] "@BarackObama"
## [523] "@BarackObama"
## [525] "@MichelleObama."
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## [529] "@WashMystics"
## [531] "@GretaThunberg"
## [533] "@allontheline's"
## [535] "@ObamaFoundation:"
## [537] "@UrbanAlliance"
## [539] "@USWNT"
## [541] "@MichelleObama."
## [543] "@ObamaFoundation"
## [545] "@ObamaFoundation"
## [547] "@USWNT"
## [549] "@iamalsorg"
## [551] "@ObamaFoundation:"
## [553] "@ChiCityClerk..."
## [555] "@MichelleObama."
## [557] "@MichelleObama."
## [559] "@Alexandria2005"
## [561] "@israhirsi"
## [563] "@GretaThunberg,"
## [565] "@KingJames-and"
## [567] "@BradPaisley"
## [569] "@ValerieJarrett's"
## [571] "@NASA"
## [573] "@Commercial_Crew"
## [575] "@SeforaKodjo"
## [576] "@michelleobama."
## [577] "@fooddepository-and"
## [578] "@MBK_Alliance-structural"
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## [580] "@SenWarren"
## [581] "@sullydish"
## [582] "@SheaSerrano"
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## [585] "@allontheline"
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## [591] "@MichelleObama:"
## [592] "@MichelleObama:"
## [593] "@AyodejiOsowobi"
## [594] "@MichelleObama"
## [595] "@ObamaFoundation"
## [596] "@ObamaFoundation"
## [597] "@ObamaFoundation"
## [598] "@SamanthaJPower"
## [599] "@MichelleObama:"
## [600] "@AmbassadorRice's"
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## [602] "@Allontheline's"
## [603] "@MichelleObama:"
## [604] "@ObamaFoundation"
## [605] "@USWNT,"
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## [612] "@Morehouse"
## [613] "@ObamaFoundation,"
## [614] "@ObamaFoundation"
## [615] "@havenruthie"
## [616] "@luisamneubauer"
## [617] "@IPROMISESchool."
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## [619] "@Kimwilliamspais"
## [620] "@MichelleObama"
## [621] "@SpaceX"
## [622] "@ObamaFoundation"
## [623] "@BarbeAlice"

```

```

## [577] "@preethiherman"
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## [585] "@MarsRovers"
## [587] "@MichelleObama:"
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## [595] "@GetUSCovered:"
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## [633] "@PhilMurphyNJ"
## [635] "@ladygaga"
## [637] "@JoeBiden."
## [639] "@BarackObama"
## [641] "@ObamaFoundation"
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## [645] "@MichelleObama"
## [647] "@michelleobama!"
## [649] "@OFA:"
## [651] "@Cubs"
## [653] "@WhiteHouse:"
## [655] "@OFA:"
## [657] "@SecBurwell:"
## [659] "@OFA:"
## [661] "@Obamacare"
## [663] "@POTUS"
## [665] "@SecBurwell:"
## [667] "@FLOTUS"
## [669] "@POTUS"
## [671] "@POTUS"
## [673] "@allontheline"
## [675] "@MBK_Alliance"
## [677] "@BarackObama"
## [679] "@NASA"
## [681] "@RealBillRussell"
## [683] "@alicia..."
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## [687] "@MichelleObama."
## [689] "@ObamaFoundation:"
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## [693] "@ObamaFoundation"
## [695] "@MichelleObama's"
## [697] "@GirlsAlliance"
## [699] "@nowthisnews:"
## [701] "@MichelleObama:"
## [703] "@NHLBlackhawks"
## [705] "@MichelleObama:"
## [707] "@ObamaFoundation:"
## [709] "@BarackObama"
## [711] "@LoyolaChicago"
## [713] "@LoyolaChicago"
## [715] "@ObamaFoundation"
## [717] "@MichelleObama:"
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## [721] "@StephenCurry30"
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## [725] "@JoeBiden,"
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## [735] "@CSforAll,"
## [737] "@GeorgeHWBush:"
## [739] "@ObamaFoundation:"
## [741] "@ObamaFoundation:"
## [743] "@ObamaFoundation:"
## [745] "@POTUS:"
## [747] "@lacasablanca:"
## [749] "@FLOTUS:"
## [751] "@OFA"
## [753] "@HealthCareGov"
## [755] "@OFA"
## [757] "@WhiteHouse:"
## [759] "@OFA"
## [761] "@OFA"
## [763] "@WhiteHouse:"
## [765] "@WHLive:"
## [767] "@OFA"

```

```

## [673] "@WIRED:"
## [675] "@WhiteHouse:"
## [677] "@OFA"
## [679] "@TheEconomist"
## [681] "@NYTopinion"
## [683] "@POTUS"
## [685] "@WhiteHouse:"
## [687] "@OFA"
## [689] "@ErnestMoniz:"
## [691] "@OFA"
## [693] "@OFA"
## [695] "@OFA"
## [697] "@OFA:"
## [699] "@POTUS"
## [701] "@RepJohnLewis"
## [703] "@WhiteHouse:"
## [705] "@FactsOnClimate:"
## [707] "@VP"
## [709] "@WhiteHouse:"
## [711] "@POTUS"
## [713] "@WhiteHouse:"
## [715] "@SenateMajLdr."
## [717] "@NatlParkService."
## [719] "@NatlParkService"
## [721] "@WhiteHouse:"
## [723] "@OFA"
## [725] "@WhiteHouse:"
## [727] "@OFA."
## [729] "@POTUS"
## [731] "@WhiteHouse:"
## [733] "@OFA"
## [735] "@VP"
## [737] "@OFA"
## [739] "@SenWarren"
## [741] "@POTUS"
## [743] "@ABC:"
## [745] "@VP"
## [747] "@POTUS"
## [749] "@POTUS"
## [751] "@PPact:"
## [753] "@WhiteHouse:"
## [755] "@VP:"
## [757] "@POTUS:"
## [759] "@vj44"
## [761] "@WhiteHouse:"
## [763] "@VP:"
## [765] "@POTUS"
## [767] "@WhiteHouse:"
    "@POTUS"
    "@POTUS:"
    "@CFPB"
    "@WhiteHouse:"
    "@NatGeoChannel:"
    "@LeoDiCaprio"
    "@POTUS"
    "@OFA:"
    "@Slate:"
    "@OFA"
    "@CEAChair"
    "@CHCI."
    "@WhiteHouse:"
    "@cspan:"
    "@OFA"
    "@nytimes"
    "@VPLive:"
    "@OFA's"
    "@WhiteHouse:"
    "@OFA's"
    "@OFA"
    "@NatlParkService"
    "@SecretaryJewell:"
    "@OFA"
    "@POTUS:"
    "@NatlParkService."
    "@OFA"
    "@WhiteHouse:"
    "@FLOTUS"
    "@OFA"
    "@VP"
    "@OFA's"
    "@FactsOnClimate:"
    "@WhiteHouse:"
    "@WSJ"
    "@OFA"
    "@WhiteHouse:"
    "@WhiteHouse:"
    "@SecretaryJewell:"
    "@VP"
    "@POTUS"
    "@repjohnlewis:"
    "@OFA"
    "@NatGeo"
    "@POTUS"
    "@WhiteHouse:"
    "@VP"
    "@POTUS"

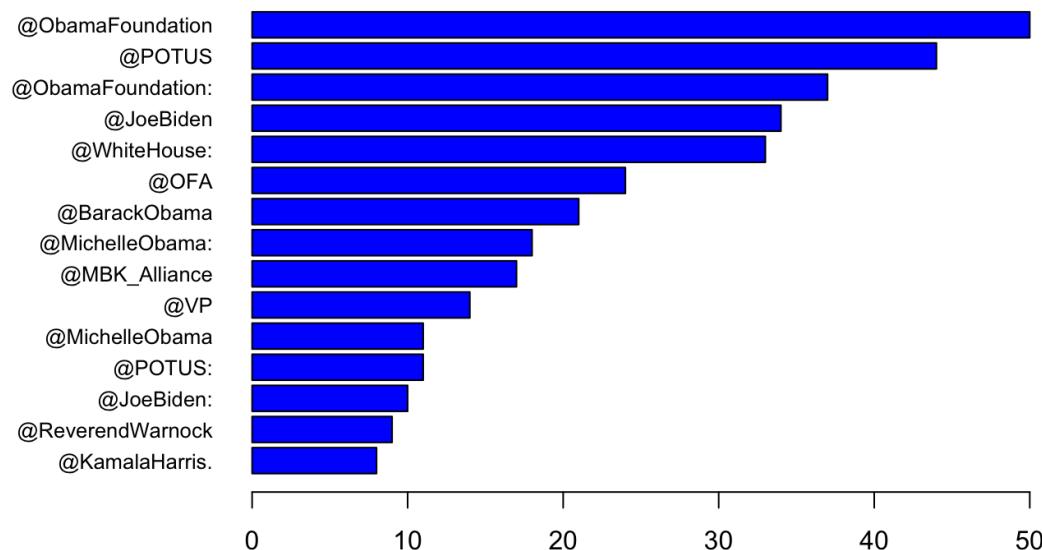
```

```
## [769] "@WhiteHouse:"          "@POTUS"
## [771] "@FallonTonight:"        "@POTUS"
## [773] "@jimmyfallon"           "@FallonTonight"
## [775] "@GovRichardson:"        "@FLOTUS:"
## [777] "@OFA"                   "@POTUS:"
## [779] "@Everytown:"              "@WhiteHouse:"
## [781] "@POTUS"                  "@SCOTUSnom:"
## [783] "@OFA"                   "@WhiteHouse:"
## [785] "@VP"                     "@jenisicecreams"
## [787] "@WhiteHouse:"             "@POTUS"
## [789] "@BuzzFeed"               "@BuzzFeed:"
## [791] "@chrisgeidner"            "@SCOTUSnom:"
## [793] "@OFA"                    "@WhiteHouse:"
## [795] "@POTUS"                  "@OFA"
## [797] "@WhiteHouse:"             "@POTUS"
## [799] "@VP"                     "@VancityReynolds:"
## [801] "@Interior:"              "@WhiteHouse:"
## [803] "@POTUS"                  "@OFA:"
## [805] "@WhiteHouse:"             "@VP"
## [807] "@SCOTUSnom"              "@WhiteHouse:"
## [809] "@POTUS"                  "@WhiteHouse:"
## [811] "@POTUS"                  "@SCOTUSnom:"
## [813] "@POTUS"                  "
```

```
Obamatweets_at_tab <- sort(table(Obamatweets_at), decreasing = TRUE)

par(las = 1, mar = c(5.1,8,4.1,2.1))
barplot(Obamatweets_at_tab[15:1], horiz = TRUE, col = 'blue', las = 1, cex.names = .8, main = "Obama Top Tweets
@")
```

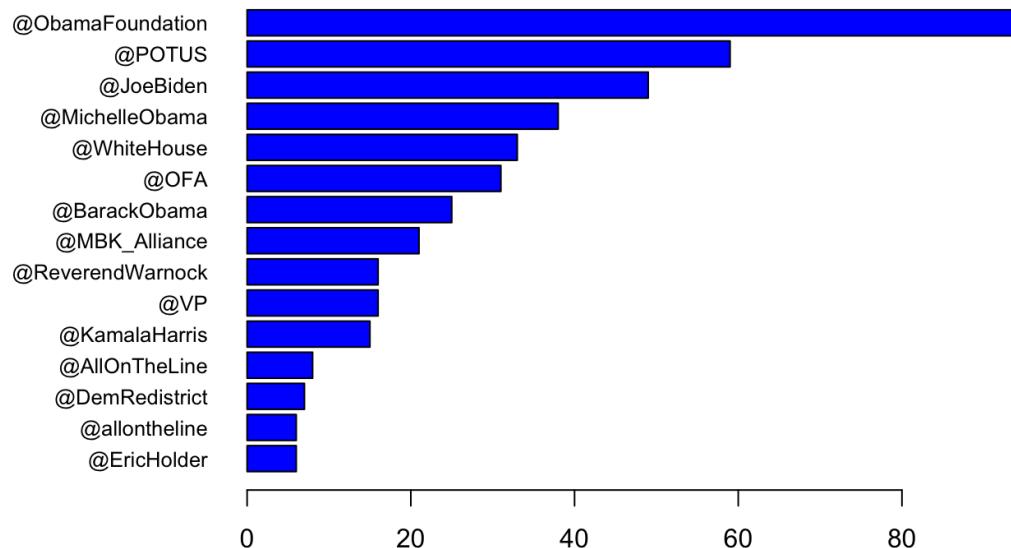
Obama Top Tweets @



```
#Again, remove : and . and ,
Obamatweets_at2 <- gsub("[. ]|[,]|[:]", "", Obamatweets_at)

Obamatweets_at_tab2 <- sort(table(Obamatweets_at2), decreasing = TRUE)
barplot(Obamatweets_at_tab2[15:1], horiz = TRUE, col = 'blue', las = 1, cex.names =.8, main = "Obama Top Tweets
@")
```

Obama Top Tweets @



Tweets To Words

Let's look at Trump's Tweets

First We will do some cleaning like removing links and ampersands

```

Trumptweets$text_clean <- trimws(gsub("@[[:space:]]+", "", Trumptweets$text))
Trumptweets$text_clean <- gsub("https://t.co/[A-Za-z0-9]+", "", Trumptweets$text_clean)
Trumptweets$text_clean <- gsub("&", "&", Trumptweets$text_clean, fixed = TRUE)
Trumptweets$text_clean <- gsub("â|ž", "", Trumptweets$text_clean)

tweet_words <- Trumptweets
tweet_words <- unnest_tokens(tweet_words, word, text_clean, strip_punct = TRUE)
tweet_words <- tweet_words[grep("[a-z]", tweet_words$word),]
tweet_words <- tweet_words[!(tweet_words$word %in% stop_words$word),]

```

which words?

```
head(sort(tweet_words$word), 100)
```

```
## [1] "00pme"          "1.4b"           "1.5bil"          "1.7m"           "100th"
## [6] "10am"           "10am"           "120m"           "12th"           "12th"
## [11] "12th"           "13m"            "13th"           "15th"           "166m"
## [16] "184m"           "19th"           "1m"             "1st"            "1st"
## [21] "206k"           "229m"           "22k"            "25b"            "25m"
## [26] "276k"           "28th"           "298m"           "2a"             "2a"
## [31] "2a"              "2a"              "2a"             "2b"             "2b"
## [36] "2day"            "2follow"        "2hear"          "2nd"            "2nd"
## [41] "2nd"             "2nd"            "2nd"           "2nd"           "2nd"
## [46] "2nd"             "2nd"            "2nd"           "2nd"           "2nd"
## [51] "2nd"             "2ndamendment"  "2protect"       "2restore"       "2use"
## [56] "3.7b"            "3.8b"           "3.8b"           "3.9b"           "3.9b"
## [61] "30am"            "30ame"          "310b"           "354k"           "3m"
## [66] "3rd"             "3rd"            "3rd"            "3rd"            "3rd"
## [71] "3rd"             "3rd"            "49m"            "500m"           "507k"
## [76] "523k"            "5g"              "5th"            "6t"             "6th"
## [81] "700m"            "75b"            "75b"            "75m"            "8.7m"
## [86] "817m"            "876m"           "9pm"            "9pm"            "a.m"
## [91] "a.m"             "a.m"            "a.m"            "a.m"            "a.m"
## [96] "a.m"             "a.m"            "a.m"           "abandoned"     "abbott"
```

```
tail(sort(tweet_words$word), 100)
```

```

## [1] "wrong"          "wrong"          "wrong"
## [4] "wrong"          "wrong"          "wrong"
## [7] "wrong"          "wrongdoing"      "wrongdoing"
## [10] "wrongdoing"     "wrote"          "wrote"
## [13] "wsj"            "wsj"            "wuhan"
## [16] "wuhan"          "wuhan"          "wuhan"
## [19] "wuhancoronavirus" "ww2"           "xenophobic"
## [22] "xenophobic"     "xenophobic"     "xi"
## [25] "xi"              "xl"             "y'all"
## [28] "y'all"          "ya"             "yahoo"
## [31] "yates"          "yates"          "yates"
## [34] "yates"          "yeah"           "year's"
## [37] "yesterday"       "yesterday"       "yesterday"
## [40] "yesterday"       "yesterday"       "yesterday"
## [43] "yesterday"       "yesterday"       "yesterday"
## [46] "yesterday"       "yesterday"       "yesterday"
## [49] "yesterday"       "yesterday"       "yesterday"
## [52] "yo"              "york"           "york"
## [55] "york"            "york"           "york"
## [58] "york"            "york"           "york"
## [61] "york"            "york"           "york"
## [64] "york"            "york"           "york"
## [67] "york"            "york"           "york"
## [70] "york"            "york"           "york"
## [73] "york"            "york"           "york"
## [76] "york"            "york"           "york"
## [79] "york"            "york"           "york"
## [82] "york"            "york"           "york's"
## [85] "workers"          "workers"         "you'll"
## [88] "you're"          "you're"          "you're"
## [91] "you're"          "you're"          "you're"
## [94] "you're"          "you're"          "you've"
## [97] "youth"           "yrs"            "zinc"
## [100] "zinc"

```

Comparing word frequency

```

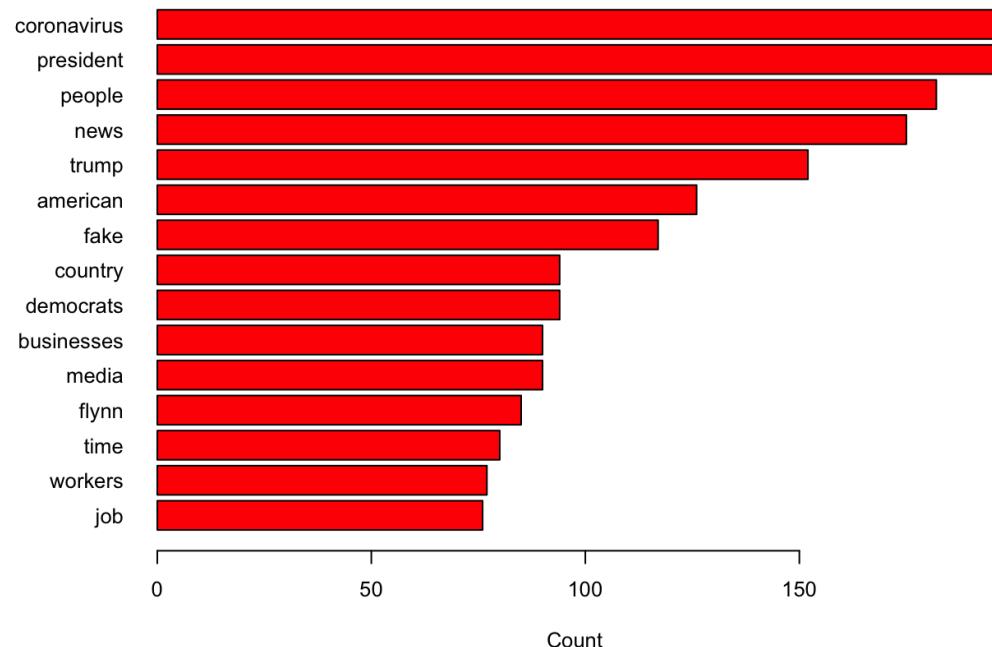
word_freq <- sort(table(tweet_words$word), decreasing = T)
word_freq[1:50]

```

```
##  
## coronavirus president people news trump american  
## 197 197 182 175 152 126  
## fake country democrats businesses media flynn  
## 117 94 94 90 90 85  
## time workers job china house covid19  
## 80 77 76 75 75 74  
## joe testing america biden fbi strong  
## 73 67 62 62 62 58  
## covid obama day live united million  
## 56 54 53 53 53 52  
## press white americans ventilators economy russia  
## 51 51 50 50 49 47  
## force relief support virus care don't  
## 46 46 46 46 45 44  
## history it's world business response act  
## 44 44 44 43 43 41  
## federal win  
## 41 41
```

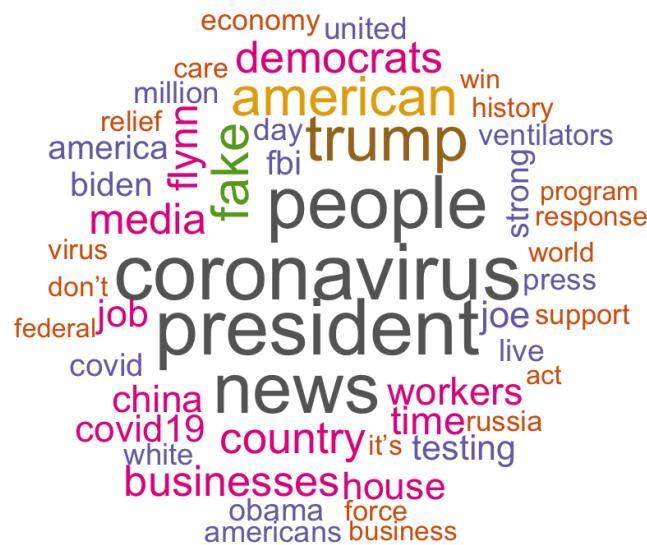
Let's make a plot of the word frequency

```
par(las =1)  
par(mar = c(5,8,4,2), cex = .8)  
  
barplot(word_freq[15:1], horiz = T, col = "red", main = "Top 15 Tweeted words", xlab = "Count")
```

Top 15 Tweeted words

Let's make a word cloud to present the tweeted words frequency

```
wordcloud(names(word_freq), word_freq, min.freq = 40, random.order = F, scale = c(3,0.5), colors = brewer.pal(8, "Dark2"))
```



Let's look at Obama's Tweets

First We will do some cleaning like removing links and ampersands

```
# remove links and clean ampersands
Obamatweets$text_clean <- trimws(gsub("@[[:space:]]+", "", Obamatweets$text))
Obamatweets$text_clean <- gsub("https://t.co/[A-Za-z0-9]+", "", Obamatweets$text_clean)
Obamatweets$text_clean <- gsub("&", "&", Obamatweets$text_clean, fixed = TRUE)
Obamatweets$text_clean <- gsub("â|ž", "", Obamatweets$text_clean)

tweet_words <- Obamatweets
tweet_words <- unnest_tokens(tweet_words, word, text_clean, strip_punct = TRUE)
tweet_words <- tweet_words[grep("[a-z]", tweet_words$word),]
tweet_words <- tweet_words[!(tweet_words$word %in% stop_words$word),]

# which words?
head(sort(tweet_words$word), 100)
```

```
## [1] "100th"      "100th"      "100th"      "100th"      "10th"
## [6] "10th"       "110th"      "11am"       "14th"       "15pm"
## [11] "15th"       "15th"       "17th"       "19th"       "1pm"
## [16] "1st"        "20m"        "21st"       "2pm"        "30pm"
## [21] "30th"       "35pm"       "3rd"        "44th"       "55th"
## [26] "55th"       "55th"       "55th"       "55th"       "6th"
## [31] "71st"       "75th"       "85th"       "8pm"        "8th"
## [36] "8th"        "8th"        "90th"       "91st"       "97th"
## [41] "98th"       "9am"        "a.m"        "aaron"      "aaron"
## [46] "aaron"      "abe"        "abe"        "abe"        "abided"
## [51] "ability"    "ability"    "ability"    "ability"    "ability"
## [56] "ability"    "ability"    "ability"    "ability"    "abortion"
## [61] "abortion"   "abortion"   "abortion"   "abrazo"     "abrazo"
## [66] "abre"        "abroad"     "abroad"     "abroad"     "absentee"
## [71] "absentee"   "absentee"   "absentee"   "absolutely" "absolutely"
## [76] "abstract"   "absurdly"   "aca"        "aca"        "aca"
## [81] "aca"         "aca"        "aca"        "aca"        "aca"
## [86] "aca"         "aca"        "aca"        "aca"        "aca"
## [91] "aca"         "academia"   "academics"  "academy"    "academy"
## [96] "academy"    "accept"     "accept"     "acceptance" "acceptance"
```

```
tail(sort(tweet_words$word), 100)
```

```
## [1] "york"        "york"        "york's"       "workers"     "yosemite"    "yosemite"
## [7] "you'd"       "you'll"      "you'll"       "you'll"      "you'll"      "you'll"
## [13] "you'll"      "you'll"      "you'll"       "you'll"      "you'll"      "you'll"
## [19] "you'll"      "you'll"      "you'll"       "you'll"      "you'll"      "you'll"
## [25] "you'll"      "you'll"      "you'll"       "you'll"      "you'll"      "you'll"
## [31] "you'll"      "you'll"      "you're"      "you're"      "you're"      "you're"
## [37] "you're"      "you're"      "you're"      "you're"      "you're"      "you're"
## [43] "you're"      "you're"      "you're"      "you're"      "you're"      "you're"
## [49] "you're"      "you're"      "you're"      "you're"      "you're"      "you're"
## [55] "you're"      "you're"      "you're"      "you're"      "you're"      "you're"
## [61] "you're"      "you're"      "you're"      "you're"      "you're"      "you're"
## [67] "you're"      "you've"      "you've"      "you've"      "you've"      "you've"
## [73] "you've"      "you've"      "you've"      "you've"      "you've"      "you've"
## [79] "you've"      "youth"       "youth"       "youth"       "youth"       "youth"
## [85] "youth"       "youth"       "youtube"     "yuliaia"    "zahrah's"   "zaila"
## [91] "zawahiri"   "zawahiri"   "zealand"    "zen"        "zimbabwe"   "zion"
## [97] "zion"        "zohaib"     "zones"       "zoom"
```

Comparing word frequencies

```
word_freq <- sort(table(tweet_words$word), decreasing = TRUE)
word_freq[1:50]
```

```
##  
##      vote    people   leaders    change   president     rt  
##    249      237     186      180      177      165  
## country    obama   it's      day      senate    time  
##    162      162     156      148      132      132  
## world doyourjob climate americans    hope     care  
##    120      111     110      108      108      100  
## michelle  health election i'm      democracy family  
##    97       95      93       93       91       91  
## fight     happy   join      court    proud     act  
##    90       89      89       86       83       82  
## american  plan    progress supreme actionclimate judge  
##    82       80      79       79       78       77  
## support   protect communities future    life     garland  
##    76       75      72       68       64       61  
## team      love    fair      action   power    we're  
##    61       60      59       58       58       58  
## families voting  
##    57       57
```

Wordcloud

```
#decrease min.freq to increase included words  
wordcloud(names(word_freq), word_freq, min.freq = 30, random.order = FALSE,  
scale = c(3, 0.5), colors = brewer.pal(8, "Dark2"))
```



Sentiment Analysis

Let's get the sentiment of Trump's tweet

```
sent_df <- get_nrc_sentiment(Trumptweets$text_clean)
```

```
## Warning: `spread_()` was deprecated in tidyverse 1.2.0.  
## Please use `spread()` instead.
```

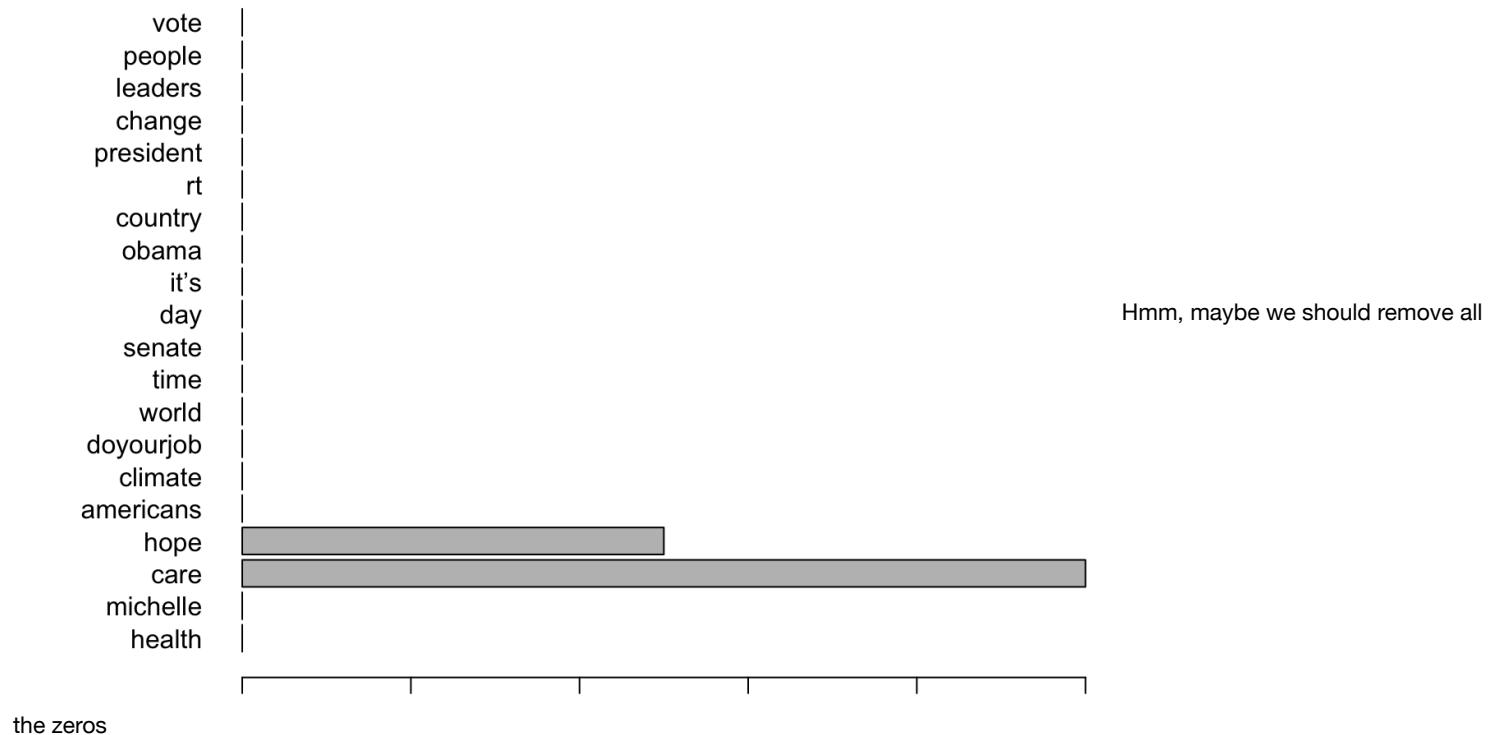
```
head(sent_df)
```

	anger	anticipation	disgust	fear	joy	sadness	surprise	trust	negative	positive
## 1	0	0	0	0	0	0	0	0	0	0
## 2	0	0	0	0	0	0	0	0	0	0
## 3	0	0	0	0	0	1	2	0	2	
## 4	0	1	0	1	0	1	0	2	0	1
## 5	0	0	0	0	1	0	0	2	0	
## 6	0	0	0	0	0	0	0	0	3	

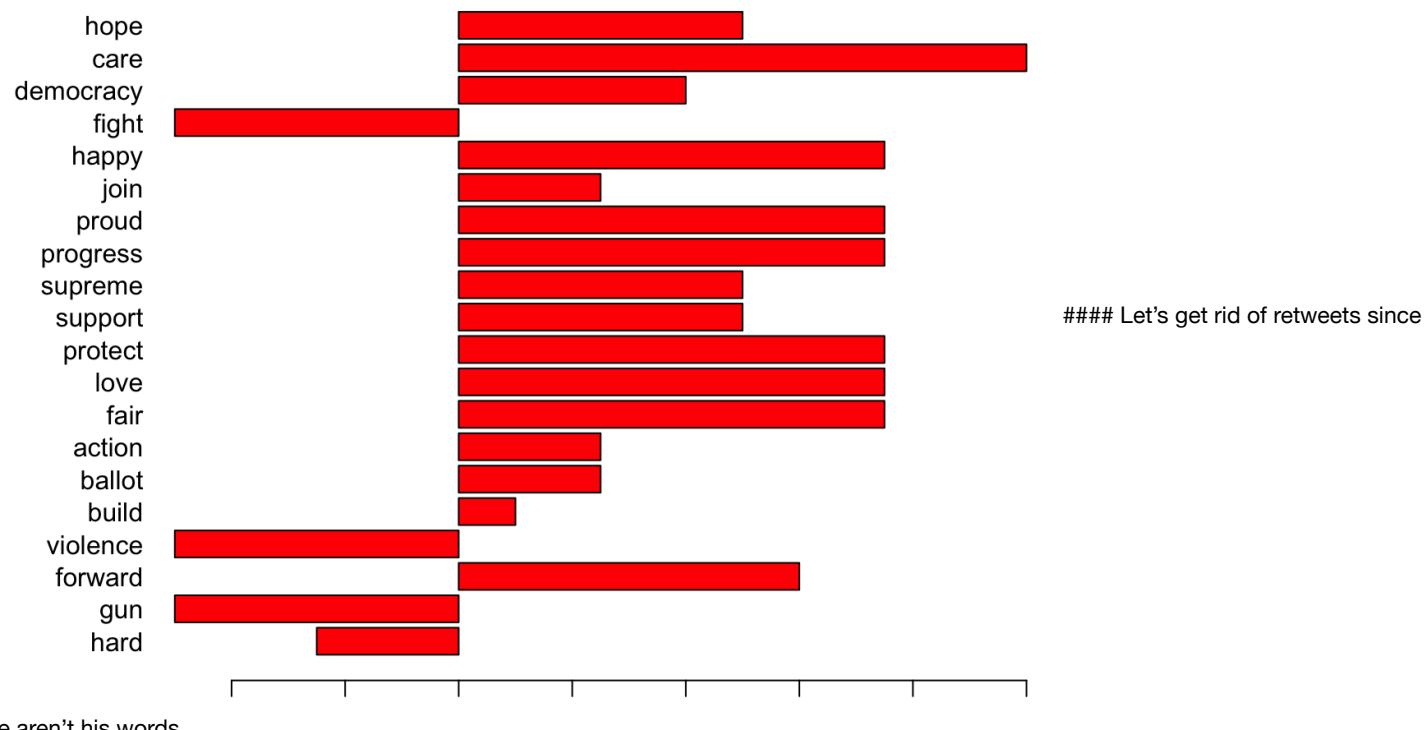
```
sent_value <- get_sentiment(Trumptweets$text_clean)
Trumptweets$sent <- sent_value
```

What's the sentiment score for his top 15 tweeted words?

```
sent_value <- get_sentiment(names(word_freq[20:1]))
names(sent_value) <- names(word_freq[20:1])
par(mar = c(1,7,2,1))
barplot(sent_value, horiz = TRUE, las = 1)
```



```
#maybe should get rid of zeros
sent_value <- get_sentiment(names(word_freq))
names(sent_value) <- names(word_freq)
sent_value <- sent_value[sent_value != 0]
par(mar = c(1, 7, 2, 1))
barplot(sent_value[20:1], horiz = TRUE, col = 'red', las = 1)
```



these aren't his words.

```
Trumptweets_words <- Trumptweets[Trumptweets$is_retweet == "FALSE", ]
```

Most negative tweets:

```
worst5 <- order(Trumptweets_words$sent)[1:5]
Trumptweets_words$text_clean[worst5]
```

```
## [1] "If the Fake News Opposition Party is pushing, with all their might, the fact that President Trump "ignored early warnings about the threat," then why did Media & Dems viciously criticize me when I instituted a Travel Ban on China? They said "early & not necessary." Corrupt Media!"  
## [2] "We are getting great marks for the handling of the CoronaVirus pandemic, especially the very early BAN of people from China, the infectious source, entering the USA. Compare that to the Obama/Sleepy Joe disaster known as H1N1 Swine Flu. Poor marks, bad polls - didn't have a clue!"  
## [3] "Spokesman speaks stupidly on behalf of China, trying desperately to deflect the pain and carnage that their country spread throughout the world. Its disinformation and propaganda attack on the United States and Europe is a disgrace...."  
## [4] "Nervous Nancy is an inherently "dumb" person. She wasted all of her time on the Impeachment Hoax. She will be overthrown, either by inside or out, just like her last time as "Speaker". Wallace & are on a bad path, watch! "  
## [5] "Biden/Obama were a disaster in handling the H1N1 Swine Flu. Polling at the time showed disastrous approval numbers. 17,000 people died unnecessarily and through incompetence! Also, don't forget their 5 Billion Dollar Obamacare website that should have cost close to nothing!"
```

Most positive tweets:

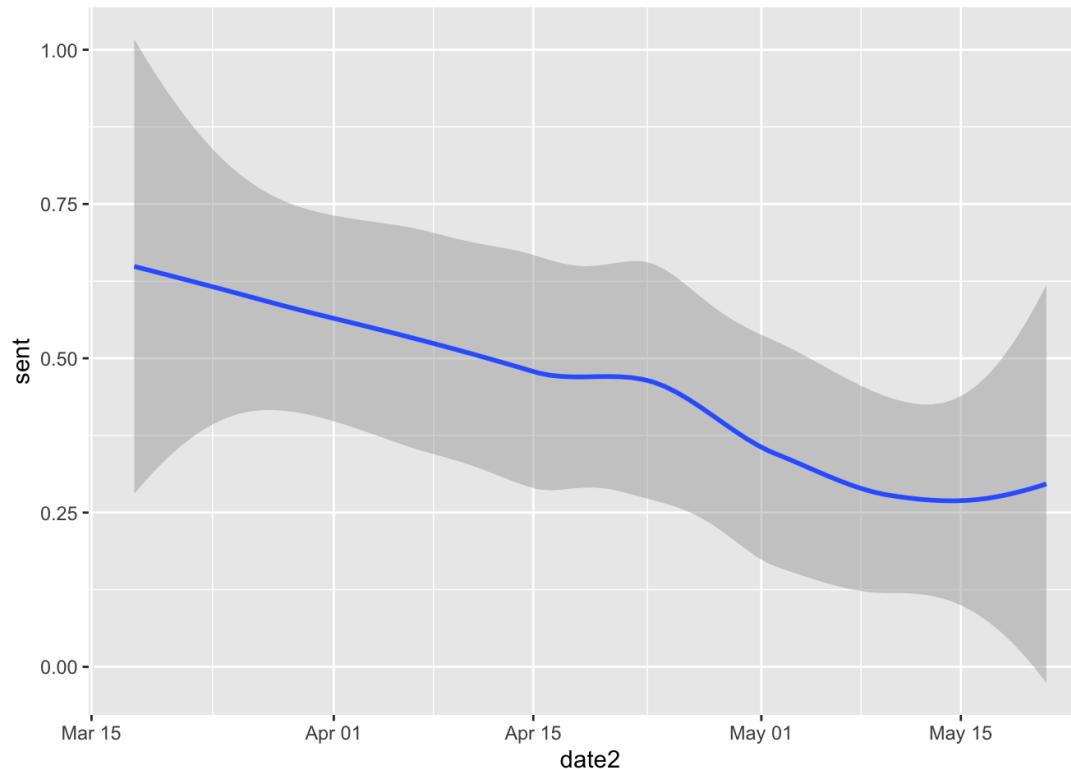
```
best5 <- order(Trumptweets_words$sent, decreasing = TRUE)[1:5]  
Trumptweets_words$text_clean[best5]
```

```
## [1] "Retired ICE Director Tom Homan knows more about the Border and Border Security than anyone. He's a tough guy, but a good guy - and as smart as they come. His new book, "Defend The Border and Save Lives: Solving Our Most Important Humanitarian and Security Crisis" is a...."  
## [2] "With the courage of our doctors and nurses, with the skill of our scientists and innovators, with the determination of the American People, and with the grace of God, WE WILL WIN THIS WAR. When we achieve this victory, we will emerge stronger and more united than ever before! "  
## [3] "Highly respected Justice Daniel Kelly is running for the Supreme Court in the Great State of Wisconsin. Justice Kelly has been doing a terrific job upholding the Rule of Law and defending your #2A. Tough on Crime, Love our Military and our Vets. He has my Complete Endorsement!"  
## [4] "Great news! American families will now be able to buy safer, more affordable, and environmentally friendly cars with our new SAFE VEHICLES RULE. Get rid of those old, unsafe clunkers. Build better and safer American cars and create American jobs. Buy American!"  
## [5] "Getting VERY good reviews of the job the Federal Government is doing on CoronaVirus. Ventilators, building hospitals, beds and yes, Testing, have been handled incredibly well. Testing is getting exponentially better every day. Love seeing our Country safely opening up!"
```

A quick look at sentiment over time:

```
Trumptweets_words$date2 <- date(Trumptweets_words$date)  
ggplot(Trumptweets_words) + geom_smooth(aes(x = date2, y = sent))
```

```
## `geom_smooth()` using method = 'loess' and formula 'y ~ x'
```



Now, Lets have a look at sentiment analysis of Obama's Tweets

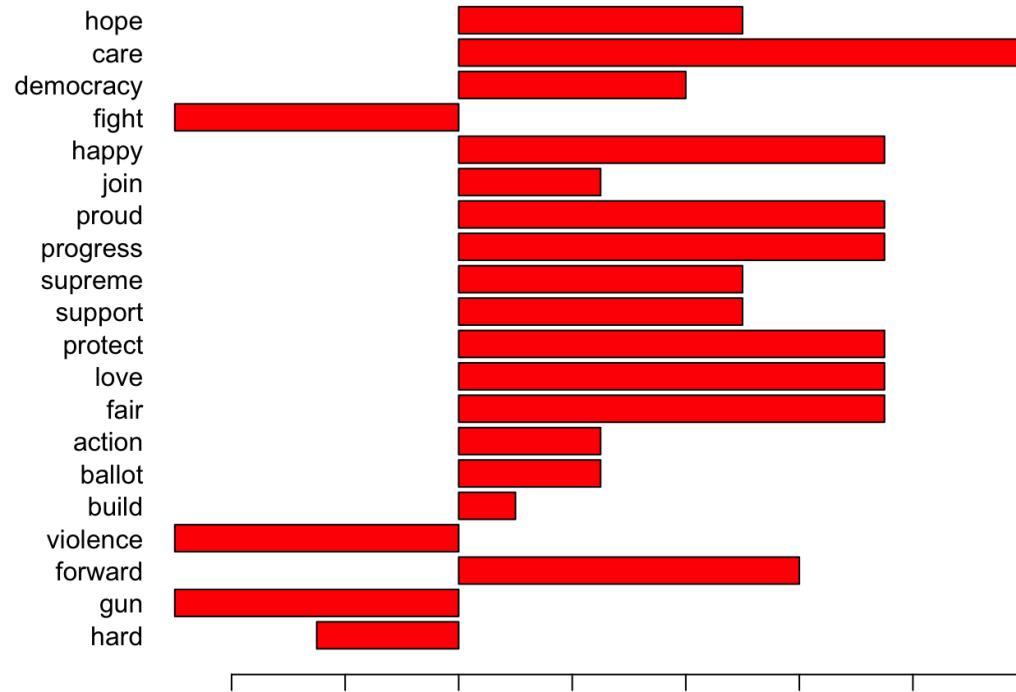
```
#Let's get the sentiments of current tweets - this takes a second to run
sent_df <- get_nrc_sentiment(Obamatweets$text_clean)
head(sent_df)
```

	anger	anticipation	disgust	fear	joy	sadness	surprise	trust	negative	positive
## 1	0	0	0	0	0	0	0	0	0	0
## 2	0	1	0	0	1	0	0	1	0	1
## 3	3	1	0	3	0	2	0	0	3	4
## 4	0	1	0	0	1	0	1	1	0	1
## 5	0	1	0	0	0	0	0	0	0	0
## 6	1	4	1	2	1	1	2	3	1	3

```
sent_value <- get_sentiment(Obamatweets$text_clean)
Obamatweets$sent <- sent_value
```

What's the sentiment score for his top 15 tweeted words without the zeros?

```
sent_value <- get_sentiment(names(word_freq))
names(sent_value) <- names(word_freq)
sent_value <- sent_value[sent_value != 0]
par(mar = c(1, 7, 2, 1))
barplot(sent_value[20:1], horiz = TRUE, col = 'red', las = 1)
```



Let's get rid of retweets since these aren't his words.

```
Obamatweets_words <- Obamatweets[Obamatweets$is_retweet == FALSE, ]
```

Most negative tweets:

```
worst5 <- order(Obamatweets_words$sent)[1:5]
Obamatweets_words$text_clean[worst5]
```

```
## [1] "Even as we've battled the pandemic, we've continued to neglect the longer-lasting epidemic of gun violence in America. Although the shooter's motive is not yet clear, the identity of the victims underscores an alarming rise in anti-Asian violence that must end."
## [2] "The epidemic of gun violence in America has gotten worse during the pandemic. This article points to the ways in which the proliferation of guns magnifies the consequences of bias in policing, and makes reform of police practices that much harder. "
## [3] "RT Nine years ago, we lost Hadiya Pendleton to the tragedy of gun violence. I know her loss is still devastating for so many..."
## [4] "Just as disturbing, within democracies, populist appeals grounded in fear, bigotry, and resentment have elevated leaders who, once they're in office, have sought to systematically undermine democratic institutions and entrench themselves in power."
## [5] "We've seen all too terribly the consequences of those who denied warnings of a pandemic. We can't afford any more consequences of climate denial. All of us, especially young people, have to demand better of our government at every level and vote this fall. "
```

Most positive tweets:

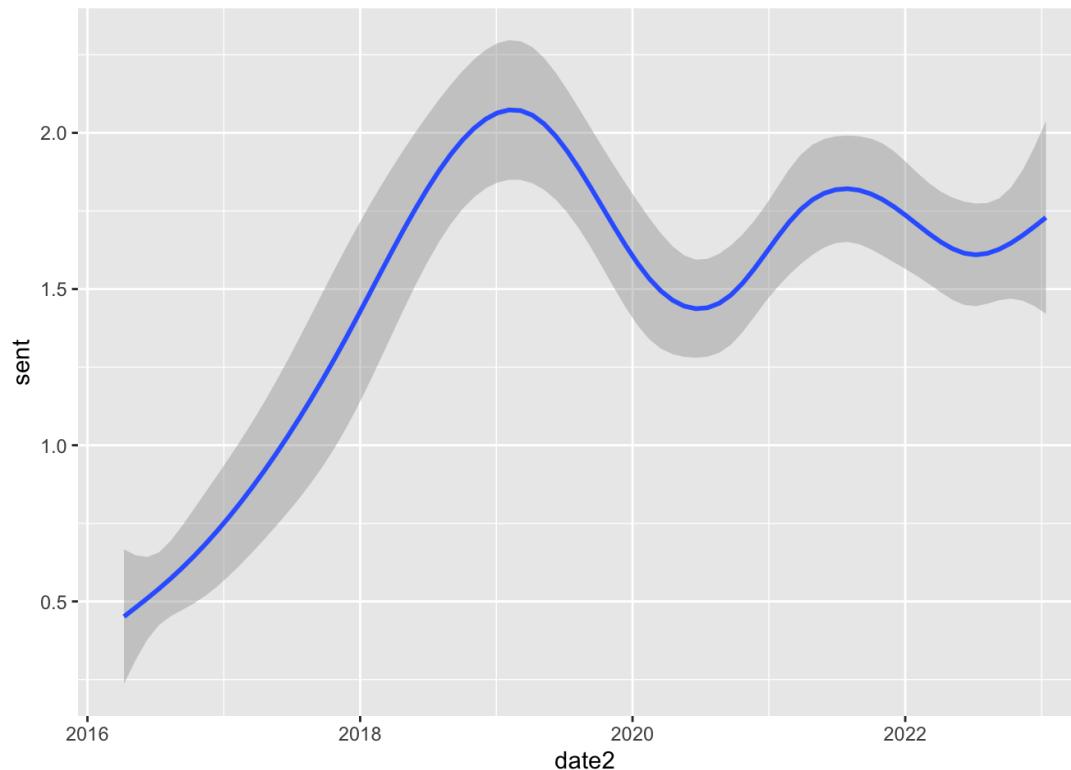
```
best5 <- order(Obamatweets_words$sent, decreasing = TRUE)[1:5]
Obamatweets_words$text_clean[best5]
```

```
## [1] "Another good story worth sharing: From one \"kid from Akron\" to a new generation of Akron kids, some remarkable early achievements at Great work, even better work by those students. Proud to be a witness to their success: "
## [2] "Proud to endorse an outstanding group of Virginia Democrats in Tuesday's election—candidates who'll not only advance the causes of equality, justice, and decency, but help ensure that the next decade of voting maps are drawn fairly. That's good policy—and good for our politics. "
## [3] "Happy Thanksgiving! Michelle and I send our warmest wishes to everyone celebrating today. We hope you have a wonderful and safe holiday with the people you love. "
## [4] "In 2015, when the Supreme Court recognized the Constitutional right to marriage equality, I said that progress often comes in small increments. Then there are days when slow, steady effort is rewarded with justice that arrives like a thunderbolt.\n\nToday is one of those days."
## [5] "Merry Christmas, everybody! This year, I got a little help spreading holiday cheer from Sunny. Wishing you all a peaceful and joyful holiday season with the ones you love. "
```

A quick look at sentiment over time:

```
Obamatweets_words$date2 <- date(Obamatweets_words$date)
ggplot(Obamatweets_words) + geom_smooth(aes(x = date2, y = sent))
```

```
## `geom_smooth()` using method = 'gam' and formula 'y ~ s(x, bs = "cs")'
```



The end!