

# Sentiment Analysis of Covid19 Tweets

SEPTEMBER , 2023

## 0.0.1 Sentiment Analysis of Covid 19

### TweetsTask

- Text Preprocessing
- Sentiment Analysis
- Keyword Extraction
- Entity Extraction
- etc

```
### EDA Pkgs
import pandas as pd
```

[1]:

```
[13]: # Data Viz Pkg
import matplotlib.pyplot as plt
import seaborn as sns
```

```
[3]: # Hide warnings
import warnings
warnings.filterwarnings('ignore')
```

```
[4]: # Load Dataset
df = pd.read_csv("data/covid19_tweets.csv")
```

```
[5]: # Preview
df.head()
```

```
[5] :      user_name      user_location \
0          astroworld
1    Tom Basile    New York, NY
2 Time4fisticuffs    Pewee Valley, KY
3    ethel mertz    Stuck in the Middle
4      DIPR-J&K    Jammu and Kashmir
```

		user_description	user_created	\
0	wednesday addams as a disney princess keepin i...		2017-05-26 05:46:42	
1	Husband, Father, Columnist & Commentator. Auth...		2009-04-16 20:06:23	
2	#Christian #Catholic #Conservative #Reagan #Re...		2009-02-28 18:57:41	
3	#Browns #Indians #ClevelandProud #[]_[] #Cavs ...		2019-03-07 01:45:06	
4	Official Twitter handle of Department of Inf...		2017-02-12 06:45:15	

	user_followers	user_friends	user_favourites	user_verified	\
0	624	950	18775	False	
1	2253	1677	24	True	
2	9275	9525	7254	False	
3	197	987	1488	False	
4	101009	168	101	False	

	date	text	\
0	2020-07-25 12:27:21	If I smelled the scent of hand sanitizers toda...	
1	2020-07-25 12:27:17	Hey @Yankees @YankeesPR and @MLB - wouldn't it...	
2	2020-07-25 12:27:14	@diane3443 @wdunlap @realDonaldTrump Trump nev...	
3	2020-07-25 12:27:10	@brookbanktv The one gift #COVID19 has give me...	
4	2020-07-25 12:27:08	25 July : Media Bulletin on Novel #CoronaVirus...	

	hashtags	source	is_retweet
0	NaN	Twitter for iPhone	False
1	NaN	Twitter for Android	False
2	['COVID19']	Twitter for Android	False
3	['COVID19']	Twitter for iPhone	False
4	['CoronaVirusUpdates', 'COVID19']	Twitter for Android	False

## Task

- Text
  - Text Preprocessing
  - Sentiment Analysis
  - Keyword Extraction
  - Entity Extraction

```
[6]: # Check Columns
df.columns
```

```
[6] : Index(['user_name', 'user_location', 'user_description', 'user_created',
          'user_followers', 'user_friends', 'user_favourites', 'user_verified',
          'date', 'text', 'hashtags', 'source', 'is_retweet'],
          dtype='object')
```

```
[7]: # Datatype
df.dtypes
```

```
[7] : user_name      object
      user_location  object
      user_description object
      user_created   object
      user_followers  int64
      user_friends    int64
      user_favourites int64
      user_verified   bool
      date            object
      text            object
      hashtags        object
      source          object
      is_retweet      bool
      dtype: object
```

```
[8]: # Source/ Value Count/Distribution of the Sources
      df['source'].unique()
```

```
[8] : array(['Twitter for iPhone', 'Twitter for Android', 'Twitter Web App',
            'Buffer', 'TweetDeck', 'Twitter for iPad', 'Africa Newsroom',
            'Blood Donors India', 'TweetCaster for Android',
            'Alexander Higgins', 'IFTTT', 'Hootsuite Inc.', 'Sprout Social',
            'Sprinklr', 'assarofficial', 'IAMBLOG2TWITTER', 'CrowdControlHQ',
            'COVID19-Updates', 'EveryoneSocial', 'Dynamic Signal', 'Instagram',
            'TweetCaster for iOS', 'GlobalPandemic.NET', 'Venrap Radio',
            'HeyOrca', 'Twitter for Advertisers', 'Paper.li',
            'Twitter Media Studio', 'Twitter for Mac', 'dlvr.it',
            'Cheap Bots, Done Quick!', 'Prof. Shanku', 'LaterMedia',
            'SEMrush Social Media Tool', 'Twitterrific for iOS',
            'Sebastian's Twitter Bot', 'Threader_client', 'COVID19FactoidBot',
            'PwC UK SMART', 'tweet pro stiff', 'UK COVID-19 Alerts',
            'Resistbot Open Letters', 'preprint-alert', 'ContentStudio.io',
            'Peeping Moon', 'TweetAutomaticos', 'Orlo', 'AgoraPulse Manager',
            'Meltwater Social', 'Blog2Social APP',
            'Social Genie by Brighter Vision', 'Social Media Publisher App ',
            'VoiceToData', 'Hearsay Social', 'Metricool', 'SocialPilot.co',
            'Loomly', ' wly', 'Facelift-Cloud', 'Khoros', 'Oktopost',
            'coronaData_Test', 'SocialOomph', 'SmarterQueue',
            'Salesforce - Social Studio', 'Twittimer', 'Dolar Değişti!',
            'COVID19 Update', 'LinkedIn', 'Socialbakers',
            'Bambu by Sprout Social', 'HubSpot', 'National Herald',
            'Twitter Ads', 'tweotlk', 'WordPress.com',
            'Twitter Media Studio - LiveCut', 'Covid-19 Bot',
            'Tweetbot for iOS', 'Zoho Social', 'Mobile Web (M2)',
            'Global Citizen Mobile App', 'whatSaoCarlos', 'Tweetbot for Mac',
            'FS Poster', 'rate_twitte', 'corona-recoveries',
            'The Social Jukebox', 'ContentCal Studio', 'OneUp App',
```

'Promo.com', 'TopHashtags', 'autotweet scheduler', 'NepalCorona',  
 'Khoros Marketing', 'Hocalwire Social Share', 'DataScienceInfo',  
 'crystalwind.ca', 'SNAP-Homeless Times',  
 'COVID-19 Information Bot', 'eMartmarket', 'trackingbot2020',  
 'MeetEdgar', 'Twidere for Android', 'econ b2b post', 'Aleph ',  
 'SocialBee.io v2', 'Spreaker', 'ExanteData Robots', 'Mention\xa0',  
 'Sked Social', 'Periscope', 'CoronaVirus Bot by Sloth',  
 'dailyindia', 'Tweet Suite', 'SurveyCircle Team', 'PTI\_Tweets',  
 'Swat.io', 'Restream.io', 'Powered by Sprinklr', 'GT\_Backend',  
 'HN\_Comments', '@thedextazlab', 'China Xinhua News', 'ArmeniaITN',  
 'Crowdfire App', 'Microsoft Power Platform', 'Bitly', 'Echofon',  
 'Ripl App', 'WPwamnwebsitescript', 'corona\_stats',  
 'CoronaTrackerMY', 'The Tweeted Times', 'Qureet Leads',  
 'Threat Intel Hub', 'My Khel', 'Falcon Social Media Management ',  
 'Zapier.com', 'Echobox', 'Scoop.it', 'SocialRabbit Plugin',  
 'covid19\_tracker', 'Cubi.so', 'SocialChamp IO ', 'twittbot.net',  
 'pixiv: Post to Twitter', 'drumup.io', 'mpsontwitter.co.uk',  
 'Covid19daily', 'SocialFlow', 'Vattel Tracker Dev',  
 'Radio.co now playing', 'POST.it - Edit,Share,Rediscover',  
 'SocialNewsDesk', nan, 'Phone2Action', 'tweeter\_biases',  
 'Heropost', 'rhega.net', 'Nuzzel', 'DR Data', 'Seket Aanru LVLII',  
 'Grabbyo', 'sphere\_ja\_bot', 'Wildmoka', 'TrackerCV',  
 "iContact's Social Tools", 'Igorotage', 'HWD', 'Mailchimp',  
 'Sprinklr Publishing', 'Integromat', 'Fabrik.fm',  
 'Clearview Social, Inc.', 'Friends Me', 'Stuffed Productions',  
 'Revive Social App', 'Flamingo for Android',  
 'Microsoft Azure Logic Apps', 'MavSocial App', 'Smarp.',  
 'UberSocial for Android', 'Missingletr', 'Canva', 'Talon Android',  
 'Konnnect Social', 'Siargao Guide', 'PinkVilla', 'Pennname',  
 'Kashmir Life', "Monty's Twitter Reposter", 'SnapStream TV Search',  
 'WatchDog Uganda', 'True Anthem', 'MarketingSuite', 'Corona-Stats',  
 'Twitter for iPhone', 'Social Head', 'BookClubProTweet',  
 'covid19\_counter', 'PromoRepublic', 'PolitiHUB.us', 'Raven Tools',  
 'COVID19-Tweet', 'Cancer Health Auto Tweet', 'remote.io',  
 'Arena.im', 'Isrg', 'Constant Contact', 'Google', 'VegaLms',  
 'DTR Auto Post', 'CoSchedule', 'COVID19 Daily Stats', 'CovidDay',  
 'COVID-19MX', 'SmartNews | ', 'Spire FM', 'eClincher',  
 'Typepad', 'Publer ', 'Botbird tweets', 'shankar\_live\_bot',  
 'Shauntv', "Bob's Python tweetbot", 'Sprinklr Publisher',  
 'Commun.it Intelligence', 'Nintendo Switch Share',  
 "Stalin's Twitter Reposter", 'WeVideo', 'recurpost.com',  
 'El Cañonazo de las 9', 'Tweetings for Android', 'JoinDiaspora',  
 'Post Planner Inc.', 'DopeyUncle2', 'COVIDRecoveredBot',  
 'Qnary.io', 'Canada Covid-19 Stats', 'Twitter Test App P',  
 'Nelio Content', 'PlayStation®Network', 'Covid19\_MV',  
 'Postcron App', 'TtwTimes Top News', 'Chicken Nugget',  
 'Plume\xa0for\xa0Android', 'Fenix 2', 'ETRetail.com',

'Campaign Share', 'Postfity.com', 'newsgovhk', 'Sociality.io',  
 'Echofon Android', 'Rumpet's Twitter Poster', 'PostBeyond',  
 'dnh twitter publisher', 'news\_by\_gatfil', 'Pardot',  
 'App for IconicHipster.com', 'CovidUpdatesBot', 'KhuramKTS',  
 'NIAAuto', 'fofle', 'Imminent News', 'PublishBestNews',  
 'LFALSNAPAP', 'HW news english', 'StreamElements',  
 'Mediaproxy LogJam', 'dancehallaudio',  
 'Liberal Forum Political Chat', 'NippyTweet',  
 'That Best Home Automation', 'Dear\_Assistant', 'Bot Libre!',  
 'NCoV-19 Tracker', 'przechlewski.app', 'DataBlogger',  
 'POZ Auto Tweet', 'SocialDog for Twitter', 'AtlantaTechBlogs',  
 'ReadyForSocial App', 'Traject Social', 'abrbuzz',  
 'Auto-Post (IMW)', 'ME Construction News', 'NetNaija Twiit',  
 'TrafficChiefNG', 'EUobserver', 'Flote.app', 'aa.com.tr',  
 'Twitterrific for Mac', 'Bizcommunity.com', 'Covid Robot',  
 'VoxPop Sync', 'stocktitan', 'StockTwits Web', 'Dr. Kill Pain',  
 'SociabbleApp', 'Post to Social by SHIFT1', 'PRNewswire',  
 'Hep Auto Tweet', 'Chorus publishing platform',  
 'masterdebater.net', 'A Touch of Snark', 'Login CricketCountry',  
 "Let's Talk Singapore", 'RiteKit', 'Etsy', 'Zlappo.com',  
 'DirectorsTalk Auto Posting', 'GlobalVillageSpace',  
 'TeamSight Publisher', 'naalikeram', 'Amplifr', 'News Medical',  
 'Agenparl', 'Hacker Noon', 'Salsa Social Publishing', 'feedspora2',  
 'Tech\_Tee\_Shop', 'CensoredTodayPoster', 'Tumblr', 'Weebly App',  
 'science faction twitter bot', 'SocialHub by maloon', 'PNSposter',  
 'Social Reputation', 'RSS Masher - Dev', 'Planable', 'Trump OwO',  
 "Bongani's Auto Poster", 'TTYtter', 'BAPSCCharities',  
 'thefivedaily', 'RegulatorWatch.com', 'BrentStafford.com',  
 'Phil Ammann', 'flapol', 'Squarespace', 'VoiceFeed',  
 'Libsyn On-Publish', 'Sharpspring', 'Twitseq', 'Social Press Kit',  
 'Lightful', 'Gain Platform', 'OregonCovidApp',  
 'Dynamics 365 for Marketing', 'yorkshire-times', 'Contento App',  
 'XHNorthAmerica', 'ContentMX', 'opendorse', 'Greenfly',  
 'Freshdesk', 'Triberr', 'EdgeTheory', 'Emma Social Connector',  
 'POZ Global Auto Tweets', 'likefollowretweet', 'Healio Twitter',  
 'Partnermarketing.com', 'EnrichrBot', 'Statusbrew',  
 'Zift Platform', 'Constant Contact - Social Posts', 'Tweepsmap',  
 'WayScript', 'SoCast Digital', 'allAfrica.com', 'paulcrypto',  
 'nwindianabusiness.com', 'tc\_covid\_bot', 'Newry.ie',  
 'SPTK: DVOrangeCounty', 'cmsoc', 'VoterVoice Tweet', 'Rallio',  
 'FalconPro3', 'Cloud Campaign', 'RelojosESP', 'Socialchief',  
 'SpaceRefTweet', 'PLAYLOADED.COM', 'TD Wealth Social Centre',  
 'covid19oceanupdate', 'Janetter Pro for Android',  
 'Fortinet Partner Social', 'Emphatic', 'BLOX CMS',  
 'Onollo Software', 'GCCHD', 'floridapolitics.com', 'Web lider',  
 'SOCi - Simplifying Social Media', 'Contentpilot', 'ayasetenchi',  
 'Chimpify', "K's posts", 'Downtime Monkey', 'COVID19TwitterKenya',

'Quotes as image', 'Lead Accel', 'Streamlabs Twitter',  
 'Dynamic Tweets', 'LatelyAI', 'Foursquare', 'Maat\_Interface',  
 'coronaBot-Purvesh', 'OneCMS Social Connect', 'BTCNbot',  
 'InterfaceCDM', 'QuickTake by Bloomberg', 'Fan Page Robot',  
 'Hypefury', 'VotepledgeBot', 'covidestimates',  
 'Phone2Action Advocacy', 'Enthusiast97', 'NewsAutocorrect',  
 'Ohhtweet', 'TheLancsTimes', 'TW Blue', 'Apphi',  
 'Canada COVID-19 Bot', 'standard3d', 'chirr.app',  
 'GearGuide Twitter', 'SlackSocial', 'Pressenza IPA eng',  
 'SiteAssist Social Posting', 'ZenRud', 'ThreadReaderApp',  
 'Cognitive Website', 'UNIAN.info', 'UNIAN Info',  
 'Tech Nation News updates', 'Fenix for Android', 'Percolate',  
 'GroupTweet', 'Social Aider', 'CyberSecDN v.2',  
 'Inclusibot\_Revenge', 'Nolwa-Digital', 'OS X', 'Janindu's Bot',  
 'Influitive', 'Tweecha Lite', 'SocialShare PRD',  
 'Woofy Social Media Scheduler', 'ISN Autotweet',  
 'App for TonysTShirts', 'Market Beam', 'PLANOLY', 'COVIDTweetBot',  
 'eupdater', 'Newswise Expert Pitch', 'Bigram Poetry',  
 'Imbibe Website Publishing', 'PixelTweeter', 'Coosto', 'Nonli',  
 'Blackbird Video Platform/Amplify', 'ALCOVID19',  
 'Hub Central APP Agencies', 'Marketing Agency', '4strat-foresight',  
 'audioBoom', 'Grapevine6', 'GaggleAMP', 'StockBot0001',  
 'SocialPost App', 'Right Relevance', 'Social5',  
 'COVID Articles on SP Journals', 'coronalivebot',  
 'Ontario\_Covid19', 'Zymplify', 'Whitley2020', 'ChimpReports\_',  
 'OnlyPultCom', 'Washington Square Parkerz', 'WashSquarePrkrz',  
 'VA COVID-19 Updates', 'twmode', 'www.diolch.wales',  
 'COVID-19 Alerts', 'TMZ iPhone Social Application',  
 'Elgato Stream Deck', 'Bloglovin', 'Coronavirus tracker bot',  
 'Joe's Politics', 'TwitPane for Android', 'EastMojo',  
 'Co-Kinetic ', 'Moa Bridge', 'UhmazingPressRelease',  
 'Ozclubbers Posts', '15 Minute Fun', 'plague-bot', 'Ryzely',  
 'LegendLakeComApp', 'STL.News', 'Tweetlogix', 'WoopSocial',  
 'Vaccines and Homeopathy News', 'Lately Social', 'SocialGest',  
 'BS-SMAP', 'PressPage Manager', 'Snaps1', 'App Political Hispanic',  
 '24liveblog', 'Choqok', 'GovernmentCyberWeb', 'PublishToTwitter',  
 'xh\_scitech', 'WP to Twitter EPR', 'Ground News',  
 'Twitter Web Client', 'uwf.london', 'Posting Platform',  
 'WP to Twitter IAR', 'Total Travel TAG', '\_stranger\_twitterbot\_',  
 'Paiger', 'CGS Tech Tweeter', 'Xinhua Sports', 'TanPaulus27',  
 'Mastodon-Twitter Crossposter', 'TS Auto Tweet', 'RH Auto Tweet',  
 'Twibble.io', 'Portal de CNMG', 'Revive Old NatCorn Posts',  
 'The Recycler', 'Kontentino', 'PostPickr', 'HealthBuzz Tweets',  
 'CIO Tech Asia Twitter', 'PolitiTweet Alerts', 'Africa News Hub',  
 'Dram Scotland', 'oneindia entertainment', 'gifincric',  
 'The Shirt List', 'Hail — Create Curate Communicate',  
 'Hamish's Twitter Reposter', 'Sane Auto Tweet', 'forafriendbot',

```
'Boma Marketing', 'Fox XRIO 2 News ', 'trumpDigest', 'CivilDialog',
'Do It Later', 'ActivewearShopping', 'peetm', 'covid19statusbot',
'Academia Meme Stack', 'The Unshackled',
'Unshackled Content Poster', 'The Tweeted Times Mobile',
'BT Production Site', 'Freebie-Depot', 'CareerIndia_Tweet_Counts',
'LOOKBOOK.nu', 'FPTraffic', 'William Travis Hardman',
'SPTK: PutnamDV', 'Daily Voice Suffolk County', 'Boost Old Posts',
'TheWhiteHouse', 'Twitter VIT App for iOS', 'CletusDroo',
'iHeartMedia Publishing', 'Metigy', 'WIZS 1450 AM',
'Clarabridge Engage', 'NewsFromDonbass', 'Plurk',
'feather for iOS ', 'Partisan Issues?', 'POZ Army Auto Tweets',
'InfoBlaze Southeast Asia', 'Conservative Daily News',
'MomoRScrape', 'Sendible', 'News Users', 'twidered',
' autopo.st - @Radio_Lichfield', 'apherald', 'InfoBlaze India',
'JustVent.LIVE', 'CyberSecDN v.7', 'SameraVinson', 'Hiplay',
'doctroidbot', 'Poshmark', 'rtweet_token_sc', 'Paradym Social',
'covid-19data', 'Covid19MT', 'Cawbird', 'Auto tweets',
'Blaq for BlackBerry® 10', 'CoronaWatchUSA', 'oysttyer',
'Radiology: AI app'], dtype=object)
```

```
[9]: # Source/ Value Count/Distribution of the Sources
df['source'].value_counts()
```

```
[9] : Twitter Web App          56891
      Twitter for Android     40179
      Twitter for iPhone      35472
      TweetDeck               8543
      Hootsuite Inc.          7321
      ...
      Emphatic                1
      JustVent.LIVE           1
      Unshackled Content Poster 1
      DopeyUncle2             1
      The Shirt List          1
      Name: source, Length: 610, dtype: int64
```

```
[10]: # Plot the top value_counts
df['source'].value_counts().nlargest(30)
```

```
[10] : Twitter Web App          56891
      Twitter for Android     40179
      Twitter for iPhone      35472
      TweetDeck               8543
      Hootsuite Inc.          7321
      Twitter for iPad        4336
      Buffer                  2728
      Sprout Social           1833
```

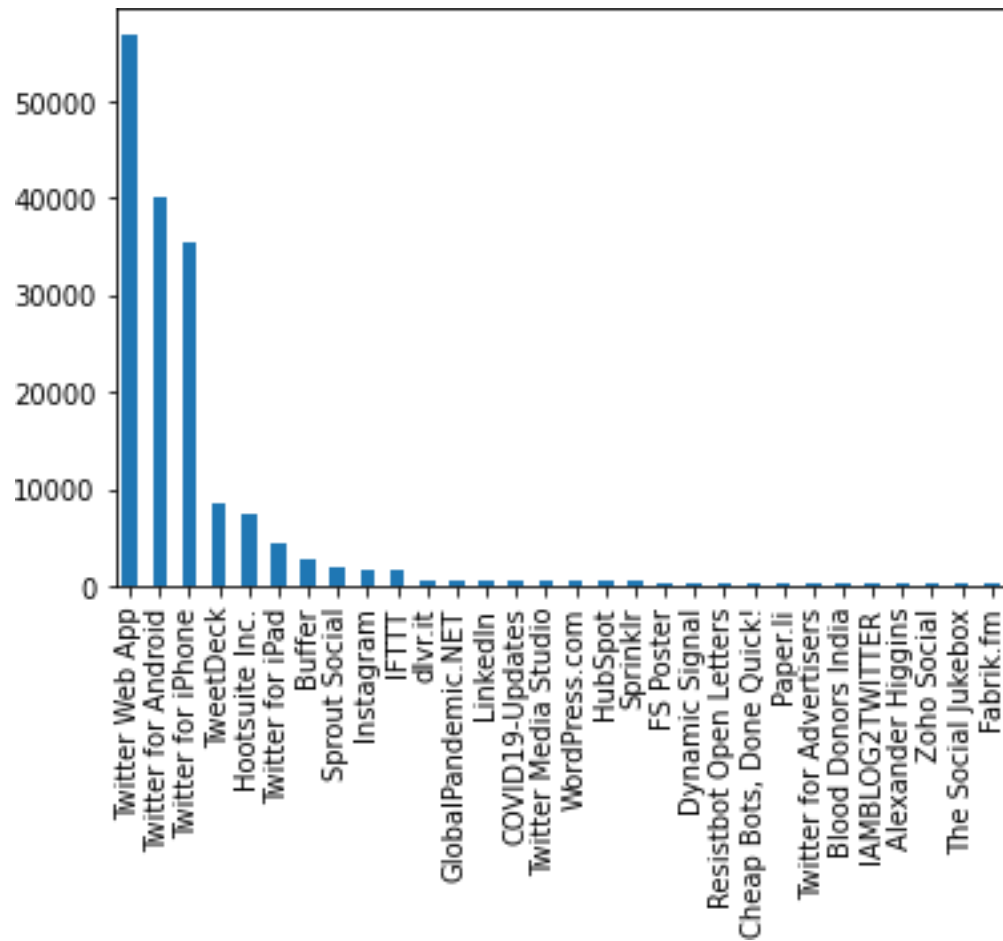
Instagram	1759
IFTTT	1545
dlvr.it	681
GlobalPandemic.NET	679
LinkedIn	628
COVID19-Updates	625
Twitter Media Studio	596
WordPress.com	537
HubSpot	513
Sprinklr	497
FS Poster	414
Dynamic Signal	391
Resistbot Open Letters	390
Cheap Bots, Done Quick!	335
Paper.li	322
Twitter for Advertisers	317
Blood Donors India	281
IAMBLOG2TWITTER	266
Alexander Higgins	225
Zoho Social	224
The Social Jukebox	216
Fabrik.fm	209

Name: source, dtype: int64

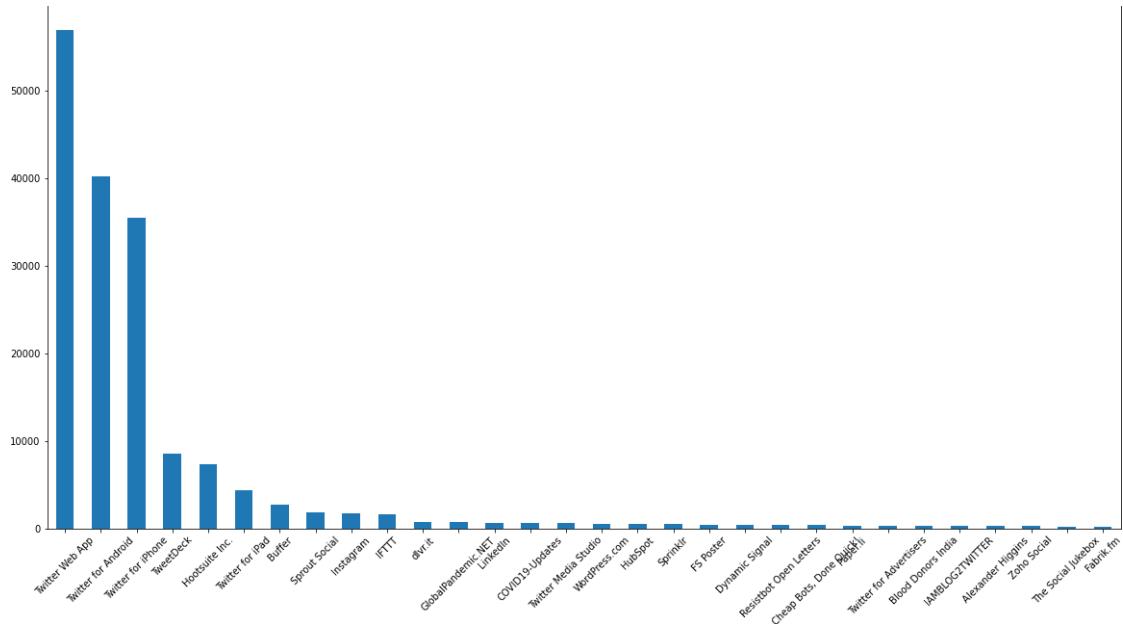
```
[11]: # Plot the top value_counts
      df['source'].value_counts().nlargest(30).plot(kind='bar')
```

```
[11] : <AxesSubplot:>
```





```
[14]: # Plot the top value_counts
plt.figure(figsize=(20,10))
df['source'].value_counts().nlargest(30).plot(kind='bar')
plt.xticks(rotation=45)
plt.show()
```



### Text Analysis of tweet

```
[15]: #!/pip install neattext
```

```
[16]: # Load Text Cleaning Package  
import neattext.functions as nfx
```

```
[17]: # Methods/Attrib  
dir(nfx)
```

```
[17]: ['BTC_ADDRESS_REGEX',  
      'CURRENCY_REGEX',  
      'CURRENCY_SYMB_REGEX',  
      'Counter',  
      'DATE_REGEX',  
      'EMAIL_REGEX',  
      'EMOJI_REGEX',  
      'HASTAG_REGEX',  
      'MASTERCARD_REGEX',  
      'MD5_SHA_REGEX',  
      'MOST_COMMON_PUNCT_REGEX',  
      'NUMBERS_REGEX',  
      'PHONE_REGEX',  
      'POBOX_REGEX',  
      'SPECIAL_CHARACTERS_REGEX',  
      'STOPWORDS',  
      'STOPWORDS_de',
```

'STOPWORDS\_en',  
'STOPWORDS\_es',  
'STOPWORDS\_fr',  
'STOPWORDS\_ru',  
'STOPWORDS\_yo',  
'STREET\_ADDRESS\_REGEX',  
'TextFrame',  
'URL\_PATTERN',  
'USER\_HANDLES\_REGEX',  
'VISACard\_REGEX',  
'\_\_builtins\_\_',  
'\_\_cached\_\_',  
'\_\_doc\_\_',  
'\_\_file\_\_',  
'\_generate\_text',  
'\_loader\_\_',  
'\_name\_\_',  
'\_numbers\_dict',  
'\_package\_\_',  
'\_spec\_\_',  
'\_lex\_richness\_herdan',  
'\_lex\_richness\_maas\_ttr',  
'clean\_text', 'defaultdict',  
'digit2words',  
'extract\_btc\_address',  
'extract\_currencies',  
'extract\_currency\_symbols',  
'extract\_dates',  
'extract\_emails',  
'extract\_emojis',  
'extract\_hashtags',  
'extract\_html\_tags',  
'extract\_mastercard\_addr',  
'extract\_md5sha',  
'extract\_numbers',  
'extract\_pattern',  
'extract\_phone\_numbers',  
'extract\_postoffice\_box',  
'extract\_shortwords',  
'extract\_special\_characters',  
'extract\_stopwords',  
'extract\_street\_address',  
'extract\_urls',  
'extract\_userhandles',  
'extract\_visacard\_addr',  
'fix\_contractions',

'generate\_sentence',  
'hamming\_distance',  
'inverse\_df',  
'lexical\_richness',  
'markov\_chain',  
'math',  
'nlargest',  
'normalize',  
'num2words',  
'random',  
're',  
'read\_txt',  
'remove\_bad\_quotes',  
'remove\_btc\_address',  
'remove\_currencies',  
'remove\_currency\_symbols',  
'remove\_custom\_pattern',  
'remove\_custom\_words',  
'remove\_dates',  
'remove\_emails',  
'remove\_emojis',  
'remove\_hashtags',  
'remove\_html\_tags',  
'remove\_mastercard\_addr',  
'remove\_md5sha',  
'remove\_multiple\_spaces',  
'remove\_non\_ascii',  
'remove\_numbers',  
'remove\_phone\_numbers',  
'remove\_postoffice\_box',  
'remove\_puncts',  
'remove\_punctuations',  
'remove\_shortwords',  
'remove\_special\_characters',  
'remove\_stopwords',  
'remove\_street\_address',  
'remove\_urls',  
'remove\_userhandles',  
'remove\_visacard\_addr',  
'replace\_bad\_quotes',  
'replace\_currencies',  
'replace\_currency\_symbols',  
'replace\_dates',  
'replace\_emails',  
'replace\_emojis',  
'replace\_numbers',  
'replace\_phone\_numbers',

```
'replace_special_characters',
'replace_term',
'replace_urls',
'string',
'term_freq',
'to_txt',
'word_freq',
'word_length_freq']
```

```
[20]: df['text'].iloc[2]
```

```
[20]: '@diane3443 @wdunlap @realDonaldTrump Trump never once claimed #COVID19 was a
hoax. We all claim that this effort to... https://t.co/Jkk8vHWHb3'
```

### 0.0.2 Noise

- remove mentions/userhandles
- remove hashtags
- urls
- emojis
- special char

```
[21]: df.head()
```

```
[21]:
```

	user_name	user_location \
0		astroworld
1	Tom Basile	New York, NY
2	Time4fisticuffs	Pewee Valley, KY
3	ethel mertz	Stuck in the Middle
4	DIPR-J&K	Jammu and Kashmir

	user_description	user_created \
0	wednesday addams as a disney princess keepin i...	2017-05-26 05:46:42
1	Husband, Father, Columnist & Commentator. Auth...	2009-04-16 20:06:23
2	#Christian #Catholic #Conservative #Reagan #Re...	2009-02-28 18:57:41
3	#Browns #Indians #ClevelandProud #[]_[] #Cavs ...	2019-03-07 01:45:06
4	Official Twitter handle of Department of Inf...	2017-02-12 06:45:15

	user_followers	user_friends	user_favourites	user_verified \
0	624	950	18775	False
1	2253	1677	24	True
2	9275	9525	7254	False
3	197	987	1488	False
4	101009	168	101	False

	date	text \
0	2020-07-25 12:27:21	If I smelled the scent of hand sanitizers toda...

```

1 2020-07-25 12:27:17 Hey @Yankees @YankeesPR and @MLB - wouldn't it...
2 2020-07-25 12:27:14 @diane3443 @wdunlap @realDonaldTrump Trump nev...
3 2020-07-25 12:27:10 @brookbanktv The one gift #COVID19 has give me...
4 2020-07-25 12:27:08 25 July : Media Bulletin on Novel #CoronaVirus...

```

	hashtags	source	is_retweet
0	NaN	Twitter for iPhone	False
1	NaN	Twitter for Android	False
2	['COVID19']	Twitter for Android	False
3	['COVID19']	Twitter for iPhone	False
4	['CoronaVirusUpdates', 'COVID19']	Twitter for Android	False

```
[22]: df['text'].apply(nfx.extract_hashtags)
```

```

[22]: 0      []
      1      []
      2      [#COVID19]
      3      [#COVID19]
      4  [#CoronaVirusUpdates, #COVID19]
      ...
179103      [#WearAMask]
179104      [#COVID19]
179105      []
179106      [#COVID19]
179107      []
Name: text, Length: 179108, dtype: object

```

```
[23]: df['extracted_hashtags'] = df['text'].apply(nfx.extract_hashtags)
```

```
[24]: df[['extracted_hashtags', 'hashtags']]
```

	extracted_hashtags	hashtags
0	NaN	NaN
1	NaN	NaN
2	['COVID19']	['COVID19']
3	['COVID19']	['COVID19']
4	['CoronaVirusUpdates', '#COVID19']	['CoronaVirusUpdates', 'COVID19']
...	...	...
179103	['WearAMask']	['WearAMask']
179104	['COVID19']	['COVID19']
179105	NaN	NaN
179106	['COVID19']	['COVID19']
179107	NaN	NaN

```
[179108 rows x 2 columns]
```

```
[25]: # Cleaning Text
df['clean_tweet'] = df['text'].apply(nfx.remove_hashtags)
```

```
[26]: df[['text', 'clean_tweet']]
```

```
[26]:
```

	text \	clean_tweet
0	If I smelled the scent of hand sanitizers toda...	If I smelled the scent of hand sanitizers toda...
1	Hey @Yankees @YankeesPR and @MLB - wouldn't it...	Hey @Yankees @YankeesPR and @MLB - wouldn't it...
2	@diane3443 @wdunlap @realDonaldTrump Trump nev...	@diane3443 @wdunlap @realDonaldTrump Trump nev...
3	@brookbanktv The one gift #COVID19 has give me...	@brookbanktv The one gift has give me is an ...
4	25 July : Media Bulletin on Novel #CoronaVirus...	25 July : Media Bulletin on Novel \n@kansa...
...	...	...
179103	Thanks @IamOhmai for nominating me for the @WH...	Thanks @IamOhmai for nominating me for the @WH...
179104	2020! The year of insanity! Lol! #COVID19 http...	2020! The year of insanity! Lol! https://t.c...
179105	@CTVNews A powerful painting by Juan Lucena. I...	@CTVNews A powerful painting by Juan Lucena. I...
179106	More than 1,200 students test positive for #CO...	More than 1,200 students test positive for a...
179107	I stop when I see a Stop\n\n@SABCNews\n@Izinda...	I stop when I see a Stop\n\n@SABCNews\n@Izinda...
[179108 rows x 2 columns]		

```
[27]: df['clean_tweet'] = df['clean_tweet'].apply(lambda x: nfx.remove_userhandles(x))
```

```
[28]: df[['text', 'clean_tweet']]
```

```
[28]:
```

	text \	clean_tweet
0	If I smelled the scent of hand sanitizers toda...	If I smelled the scent of hand sanitizers toda...
1	Hey @Yankees @YankeesPR and @MLB - wouldn't it...	Hey @Yankees @YankeesPR and @MLB - wouldn't it...
2	@diane3443 @wdunlap @realDonaldTrump Trump nev...	@diane3443 @wdunlap @realDonaldTrump Trump nev...
3	@brookbanktv The one gift #COVID19 has give me...	@brookbanktv The one gift #COVID19 has give me...
4	25 July : Media Bulletin on Novel #CoronaVirus...	25 July : Media Bulletin on Novel #CoronaVirus...
...	...	...
179103	Thanks @IamOhmai for nominating me for the @WH...	Thanks @IamOhmai for nominating me for the @WH...
179104	2020! The year of insanity! Lol! #COVID19 http...	2020! The year of insanity! Lol! #COVID19 http...
179105	@CTVNews A powerful painting by Juan Lucena. I...	@CTVNews A powerful painting by Juan Lucena. I...

```
179106 More than 1,200 students test positive for #CO...
179107 I stop when I see a Stop\n\n@SABCNews\n@Izinda...
```

```

                                clean_tweet
0      If I smelled the scent of hand sanitizers toda...
1      Hey      and      - wouldn't it have made more sen...
2          Trump never once claimed      was a hoax. W...
3          The one gift      has give me is an appreciatio...
4      25 July : Media Bulletin on Novel      \n      ...
...
179103 Thanks      for nominating me for the      challen...
179104 2020! The year of insanity! Lol!      https://t.c...
179105      A powerful painting by Juan Lucena. It's a t...
179106 More than 1,200 students test positive for      a...
179107 I stop when I see a Stop\n\n \n \n \n \n \n \n...
```

```
[179108 rows x 2 columns]
```

```
[29]: df['clean_tweet'].iloc[10]
```

```
[29]: '49K+ Covid19 cases still no response from \n      cancel the compartment exa...
https://t.co/kV2ZKmum1'
```

```
[30]: # Cleaning Text: Multiple WhiteSpaces
df['clean_tweet'] = df['clean_tweet'].apply(nfx.remove_multiple_spaces)
```

```
[31]: df['clean_tweet'].iloc[10]
```

```
[31]: '49K+ Covid19 cases still no response from cancel the compartment exa...
https://t.co/kV2ZKmum1'
```

```
[32]: # Cleaning Text : Remove urls
df['clean_tweet'] = df['clean_tweet'].apply(nfx.remove_urls)
```

```
[33]: # Cleaning Text: Punctuations
df['clean_tweet'] = df['clean_tweet'].apply(nfx.remove_puncts)
```

```
[34]: df[['text', 'clean_tweet']]
```

```

                                text \
[34]:
0      If I smelled the scent of hand sanitizers toda...
1      Hey @Yankees @YankeesPR and @MLB - wouldn't it...
2      @diane3443 @wdunlap @realDonaldTrump Trump nev...
3      @brookbanktv The one gift #COVID19 has give me...
4      25 July : Media Bulletin on Novel #CoronaVirus...
...
179103 Thanks @IamOhmai for nominating me for the @WH...
```



```

179104 2020! The year of insanity! Lol! #COVID19 http...
179105 @CTVNews A powerful painting by Juan Lucena. I...
179106 More than 1,200 students test positive for #CO...
179107 I stop when I see a Stop\n\n@SABCNews\n@Izinda...

```

```

                                clean_tweet
0      If I smelled the scent of hand sanitizers toda...
1      Hey and  wouldnt it have made more sense to ha...
2      Trump never once claimed was a hoax We all cl...
3      The one gift has give me is an appreciation f...
4      25 July : Media Bulletin on Novel
...
179103 Thanks for nominating me for the challenge I n...
179104      2020 The year of insanity Lol
179105 A powerful painting by Juan Lucena Its a trib...
179106 More than 1200 students test positive for at m...
179107      I stop when I see a Stop

```

[179108 rows x 2 columns]

### 0.0.3 Sentiment Analysis

```
[35]: from textblob import TextBlob
```

```
[40]: def get_sentiment(text):
      blob = TextBlob(text)
      sentiment_polarity = blob.sentiment.polarity
      sentiment_subjectivity = blob.sentiment.subjectivity
      if sentiment_polarity > 0:
          sentiment_label = 'Positive'
      elif sentiment_polarity < 0:
          sentiment_label = 'Negative'
      else:
          sentiment_label = 'Neutral'
      result = {'polarity':sentiment_polarity,
                'subjectivity':sentiment_subjectivity,
                'sentiment':sentiment_label}
      return result

```

```
[38]: # Text
      ex1 = df['clean_tweet'].iloc[0]
```

```
[41]: get_sentiment(ex1)
```

```
[41]: {'polarity': -0.25, 'subjectivity': 0.25, 'sentiment': 'Negative'}
```

```
[42]: df['sentiment_results'] = df['clean_tweet'].apply(get_sentiment)
```

```
[43]: df['sentiment_results']
```

```
[43]: 0      {'polarity': -0.25, 'subjectivity': 0.25, 'sen...
      1      {'polarity': 0.5, 'subjectivity': 0.5, 'sentim...
      2      {'polarity': 0.0, 'subjectivity': 0.0, 'sentim...
      3      {'polarity': 0.0, 'subjectivity': 0.3571428571...
      4      {'polarity': 0.0, 'subjectivity': 0.0, 'sentim...

      ...
      179103  {'polarity': 0.2, 'subjectivity': 0.2, 'sentim...
      179104  {'polarity': 0.8, 'subjectivity': 0.7, 'sentim...
      179105  {'polarity': 0.3, 'subjectivity': 1.0, 'sentim...
      179106  {'polarity': 0.26325757575757575, 'subjectivit...
      179107  {'polarity': 0.0, 'subjectivity': 0.0, 'sentim...
      Name: sentiment_results, Length: 179108, dtype: object
```

```
[44]: df['sentiment_results'].iloc[0]
```

```
[44]: {'polarity': -0.25, 'subjectivity': 0.25, 'sentiment': 'Negative'}
```

```
[45]: pd.json_normalize(df['sentiment_results'].iloc[0])
```

```
[45]:   polarity  subjectivity sentiment
0    -0.25         0.25   Negative
```

```
[47]: df = df.join(pd.json_normalize(df['sentiment_results']))
```

```
[48]: df.head()
```

```
[48]:   user_name      user_location \
0                astroworld
1    Tom Basile    New York, NY
2  Time4fisticuffs  Pewee Valley, KY
3    ethel mertz  Stuck in the Middle
4    DIPR-J&K    Jammu and Kashmir

                                user_description      user_created \
0  wednesday addams as a disney princess keepin i...  2017-05-26 05:46:42
1  Husband, Father, Columnist & Commentator. Auth...  2009-04-16 20:06:23
2  #Christian #Catholic #Conservative #Reagan #Re...  2009-02-28 18:57:41
3  #Browns #Indians #ClevelandProud #[ ]_[] #Cavs ...  2019-03-07 01:45:06
4  Official Twitter handle of Department of Inf...  2017-02-12 06:45:15

   user_followers  user_friends  user_favourites  user_verified \
0              624           950           18775           False
1             2253           1677              24             True
2             9275           9525           7254           False
3             197            987           1488           False
```

4	101009	168	101	False
---	--------	-----	-----	-------

	date	text \
0	2020-07-25 12:27:21	If I smelled the scent of hand sanitizers toda...
1	2020-07-25 12:27:17	Hey @Yankees @YankeesPR and @MLB - wouldn't it...
2	2020-07-25 12:27:14	@diane3443 @wdunlap @realDonaldTrump Trump nev...
3	2020-07-25 12:27:10	@brookbanktv The one gift #COVID19 has give me...
4	2020-07-25 12:27:08	25 July : Media Bulletin on Novel #CoronaVirus...

	hashtags	source	is_retweet \
0	NaN	Twitter for iPhone	False
1	NaN	Twitter for Android	False
2	['COVID19']	Twitter for Android	False
3	['COVID19']	Twitter for iPhone	False
4	['CoronaVirusUpdates', 'COVID19']	Twitter for Android	False

	extracted_hashtags \
0	[]
1	[]
2	['#COVID19']
3	['#COVID19']
4	['#CoronaVirusUpdates', '#COVID19']

	clean_tweet \
0	If I smelled the scent of hand sanitizers toda...
1	Hey and wouldnt it have made more sense to ha...
2	Trump never once claimed was a hoax We all cl...
3	The one gift has give me is an appreciation f...
4	25 July : Media Bulletin on Novel

	sentiment_results	polarity	subjectivity \
0	{'polarity': -0.25, 'subjectivity': 0.25, 'sentim...	-0.25	0.250000
1	{'polarity': 0.5, 'subjectivity': 0.5, 'sentim...	0.50	0.500000
2	{'polarity': 0.0, 'subjectivity': 0.0, 'sentim...	0.00	0.000000
3	{'polarity': 0.0, 'subjectivity': 0.3571428571...	0.00	0.357143
4	{'polarity': 0.0, 'subjectivity': 0.0, 'sentim...	0.00	0.000000

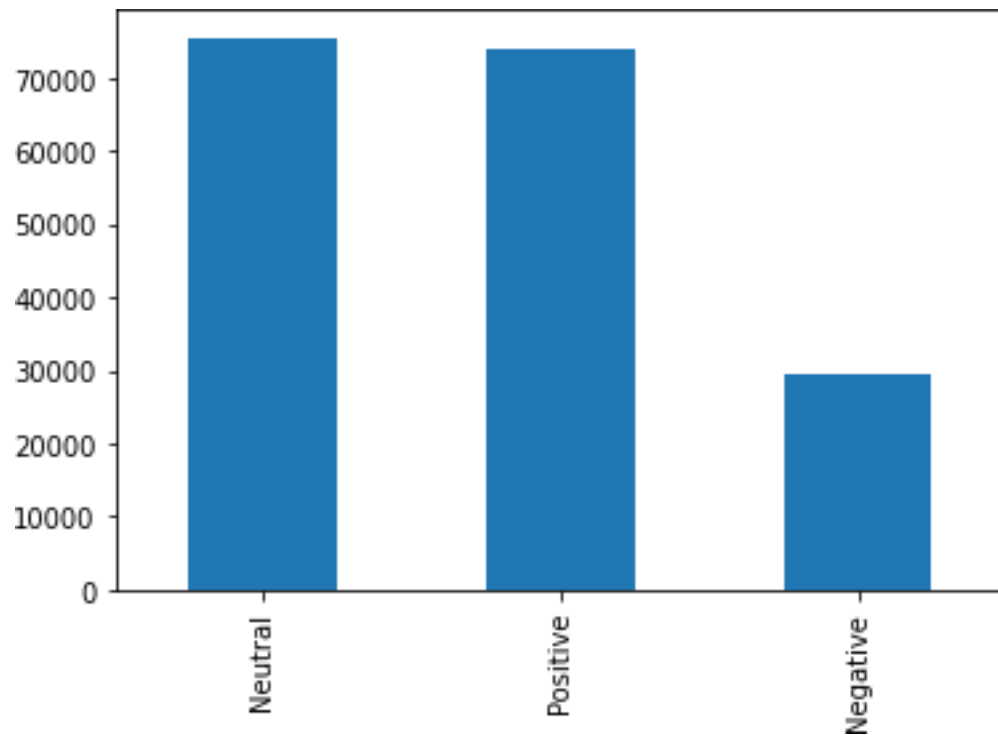
	sentiment
0	Negative
1	Positive
2	Neutral
3	Neutral
4	Neutral

```
[49]: df['sentiment'].value_counts()
```

```
[49]: Neutral    75490  
      Positive   74154  
      Negative   29464  
      Name: sentiment, dtype: int64
```

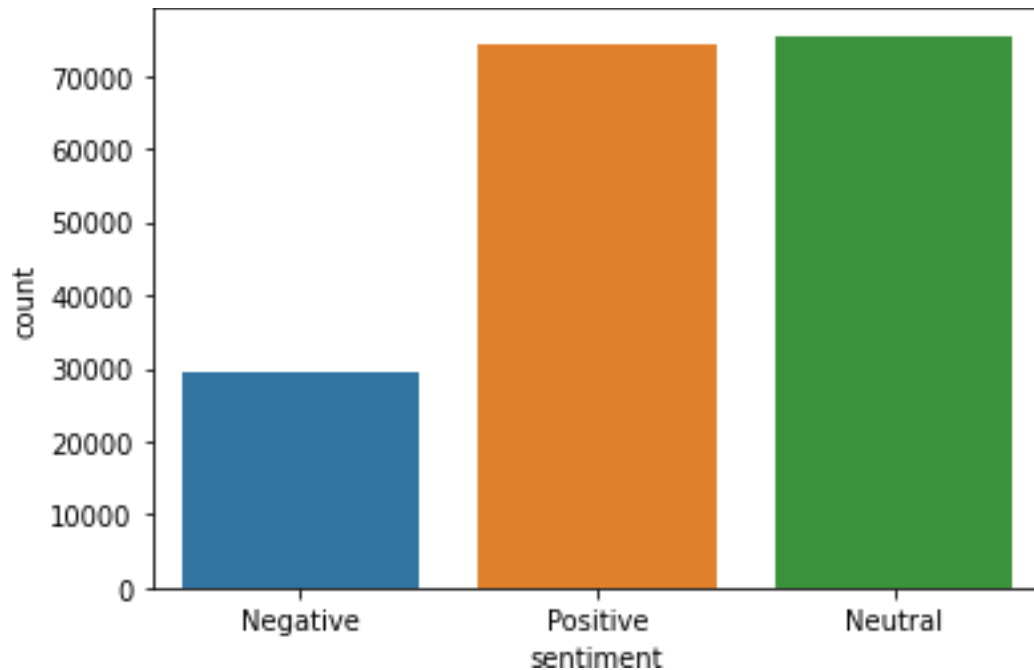
```
[50]: df['sentiment'].value_counts().plot(kind='bar')
```

```
[50]: <AxesSubplot:>
```



```
[51]: # Plot with seaborn  
      sns.countplot(df['sentiment'])
```

```
[51]: <AxesSubplot:xlabel='sentiment', ylabel='count'>
```



```
[ ]: ### Keyword Extraction
+ For Positive and Negative Sentiment
+ General
```

```
[56]: positive_tweet = df[df['sentiment'] == 'Positive']['clean_tweet']
```

```
[53]: neutral_tweet = df[df['sentiment'] == 'Neutral']['clean_tweet']
negative_tweet = df[df['sentiment'] == 'Negative']['clean_tweet']
```

```
[54]: positive_tweet
```

```
[54]: 1      Hey and  wouldnt it have made more sense to ha...
6      How Will Change Work in General (and recruitin...
8      Praying for good health and recovery of
12     —no one will be safe from until everyone i...
13     Lets all protect ourselves from Its real and t...
...
179096 We were really bummed we couldn't cop one of t...
179103 Thanks for nominating me for the challenge I n...
179104      2020 The year of insanity Lol
179105 A powerful painting by Juan Lucena Its a trib...
179106 More than 1200 students test positive for at m...
Name: clean_tweet, Length: 74154, dtype: object
```

```
[60]: # Remove Stopwords and Convert to Tokens
positive_tweet_list = positive_tweet.apply(nfx.remove_stopwords).tolist()

[57]: negative_tweet_list = negative_tweet.apply(nfx.remove_stopwords).tolist()
neutral_tweet_list = neutral_tweet.apply(nfx.remove_stopwords).tolist()

[61]: positive_tweet_list

[61]: ['Hey wouldnt sense players pay respects A...',
'Change Work General (and recruiting specifically) via/',
'Praying good health recovery',
' — safe safe commit ensure...',
'Lets protect real numbers climbing fast Continent Lets n...',
'Second wave Flandersback',
'COVID Update: infection rate Florida following natural curve experts predicted
initial cu...',
'Good Patriots Volunteer Election Judge Polls open without...',
'comprehensive review amp Analysis: key ways WASH help reduce transmission...',
'crosses 2 lakh mark 150055 ppp recovered far positive today 6988/total...',
'Actor father MrGKReddy tested positive 15/20 days s...',
'safe place visit guests said hotel meticulous applying hand sanitation als...',
'CEO live WSU talking “The effects Covid19 students”...',
'Actionables healthy recovery',
'understood hadnt missed meeting In...',
'released new podcast episodes week: Technology Platforms Conduct Telehealth
Visits C...',
'reports 1142 positive cases 29 deaths Saturday Death toll rises 3806 reports
ANI quot...',
'Venezuelas Economy/Budget tied Oil like Louisianas Funny rightwing example
of...',
'reporting yesterday 1145 people died USA 73K new cases reported Serio...',
'People relatives died file class action lawsuit Sinclair Broadcasting',
'4249584 cases 148521 deaths reported United States date 1257 new cases 31...',
': agree mask powerful accessories fight t...',
'miss isopropyl alcohol Ethanol hand sanitizer smells like poured tequila hands
',
'GVMC sanitation staff carrying regular sanitation activities city clean
prevent spread...',
'Local government sales tax revenue dropped 27 percent yeartoyear second
quarter thanks shutdo...',
'Look Lil’ Donny Micro Dick astounding achievement brilliance + cognitive
capabilities Somebody...',
'Check Angels beautiful mask hair bow designs',
'1 municipality reports new fatality compared yesterday 1 new fatality located
0 fa...',
'current situation calls awareness stress facilitate families our...',
'economic measures governments taking respond Key actions taken 193 countries
```

listed...',  
 "' everyone's fight covered major disasters like vi...',  
 "'I think government hugely overestimated danger disease" wonder he'd brave  
 en...',  
 'Ireland built COVID19 contract tracing app successful U states want use it...',  
 'Rakesh Sharma best business Coach India Website:',  
 '( year safe distancing requirements result o...',  
 'Learn new things period 2d 3d animations training ongoing Click link join  
 What...',  
 'literally head decisions safety government creating conf...',  
 'PR : father MrGKReddy tested positive 15/20 days s...',  
 'debates ensue reopening schools amid Young Leader says...',  
 'Companies protect workforce's physical mental health crisis use smart  
 technology...',  
 'Highest number new cases yesterday',  
 'CM Madhya Pradesh tested positive COVID Scindia tested',  
 'Bihar witnesses biggest singleday spike 2803 new cases',  
 'Lunch away mass tourists invaded quickly pandemic',  
 'Weve captured snapshot amazing VCSE response pandemic Salford want thank...',  
 '22000 nonprofits eventually close doors good result current economic crisis  
 acco...',  
 'Wells Fargo Tightens Purse Strings Ride Coronavirus Pandemic READ MORE:',  
 'informative interesting Lots think especially school age kids...',  
 'Veteran Affairs reports 252 new cases 13 new deaths bringing total confirmed  
 cases 35563 1980 to...',  
 'Irish home / commercial building model perfect breathing ground virus trade  
 treat...',  
 'residents – develop symptoms mild ones book test immediately at...',  
 'Actor father Mr GK Reddy tested positive couple weeks ago f...',  
 'Sounds like Plandemic second life Here's thread it's run debunks major cl...',  
 'know better Trump...',  
 'affected social anxiety wearing face mask amazing feel slightly hidden fro...',  
 'Vietnam's high level preparedness prevent Covid19 spread: Deputy PM',  
 'Republican Group Uses Trumps Words Searing SwingState Ad...',  
 'course absolutely diabolical government triple...',  
 'Learning fun interesting surprisingly easy Let's join WLF Nigeria Ambassadors  
 promote learning a...',  
 '\*Excellent data charts map CV progressing societies also...',  
 'coincidence influenza cases unusually down...',  
 '7813 new positive cases reported 24hours',  
 '(1) quick estimates Arizona post apex recovery rate: 7/03: 3849 7d avg Peak  
 Confirmed Cases...',  
 'Trump hates looking like loser — right looks like biggest losers history:  
 oped...',  
 'Private hospitals treatment rates General Ward 2300 HDU 3300 ICU 6500 ICU  
 ventilator 11500 In...',  
 'epidemic Im giving \$80 \$1000 person looking able round i...',

'395 new cases 3 new deaths Uzbekistan [13:22 GMT]',  
 "'Until day medical vaccine food best vaccine chaos" David Beasley Am...',  
 'Yes "we're learning day" amp "we're listening science"...',  
 'Puerto Rico reports 573 new cases 10 new deaths bringing total confirmed cases  
 14540 201 total de...',  
 '1142 positive cases 2137 patients recovered/discharged/migrated 29 deaths  
 Delhi today are...',  
 'Dying Dying huge difference usi...',  
 'design recovery plans humancentered mindset likely best position th...',  
 'unlike federal government largely depends funding fees collects citizenship  
 gree...',  
 'Rutlands supporting testing',  
 'time beloved survivors a...',  
 '100% feeling good 0% symptoms Long ',  
 'New York retail',  
 'Delhi reported 1142 new cases 29 deaths today taking total number cases 129531  
 death tally 3806',  
 'Successful mattolson21 thinking: FEET ce...',  
 'tested positive says latest test result negative',  
 '1000 deaths fourth day row questions global supply chains ability to...',  
 '1142 positive cases 2137 patients recovered/discharged/migrated 29 deaths  
 today a...',  
 'Check latest article: Supply Chain Risks Thwart Successful COVID19 Vaccine...',  
 'PR : father MrGKReddy tested positive 15/20 days s...',  
 '7813 new cases 52 deaths 53681 samples tested 3208 discharged E...',  
 'uncle tested positive lost 3 family members wear masksocial distance',  
 'Venrap Radio Playing Venrap Radio Stay safe love Download app listen on...',  
 'Absolutely wouldnt standing 3rd position worldwide 12 lakh cas...',  
 'update 7/25/2020: \*Nearly 40 countries report record singleday increases  
 infections \*US records o...',  
 'insurance face possible economic burdens pandemic Tens millions America...',  
 'Undercover inspectors deployed sure anti measures foll...',  
 'Hospital cleaners porters amp catering staff unsung heroes Tell pay fair  
 wage...',  
 'AP records 7813 new cases 24 hours taking tally 88671 52 deaths wer...',  
 'Economies participating AsiaPacific Economic Cooperation ( reaffirmed  
 prioritization economic...',  
 'WORLD SHORTENED BUSY PEOPLE',  
 'reaffirms economic recovery priorities movement essential goods',  
 'Cautious optimism Arizona plateauing Potential good news',  
 'Want Test It's Easier Wealthier Whiter Neighborhoods',  
 'realized trump amp win (God Forbid) finally stripped ACA...',  
 'Pleased share interesting results worldwide survey impact bariatric surgery  
 Need rob...',  
 'Warning death trap: second spike has...',  
 'Cs term hadn't heard Good advice',  
 '| 1142 positive cases 2137 patients recovered/discharged/migrated 29 deaths



today are...',  
 'Great yesterday',  
 'Yes real',  
 'pleased announce inclusion Virology Laboratory University Nigeria Teaching  
 Hospital Enugu...',  
 'Great tips friends',  
 'football jersey count MD NFL opting care',  
 'Pandemic push N Carolina families home school | Miami Herald',  
 'Government (Tabla player) countries',  
 'everything's changing start playing version Sweet Caroline games Th...',  
 'use sources guidance use CDC things fact check sour...',  
 'brilliant people awake accepting mainstream narrative',  
 '100% feeling good Sounds like soul song',  
 'Thanks \u2066 stressing personal responsibility limiting spread',  
 'development worrying continue monitored closely RKI exacerbati...',  
 'new beginning 6yrs ago wonderful new addition family Marley brought muc...',  
 'vaccine face coverings stay feels like massive shift a...',  
 'Dr Ebrahim Janahi CEO Tamkeen confirmed supporting sectors affected  
 coronavirus pandemic reac...',  
 '183 coronavirus cases linked AlTaqwa College Melbourne commentary nearly non  
 existent Imagine th...',  
 'Yes hoody mask far followers dont real friends l...',  
 'Absolutely Exceptional situations need extraordinary solutions fight battle  
 usual measu...',  
 'Oh yes sure perfectly happy selfcertification',  
 'Hello Twitter Delighted share great innovators creators thought leaders Visit  
 website an...',  
 'Amazing took regret choice hey better late never...',  
 'took weeks limited population members test positive weve followed...',  
 'Wow surprised impressed Mia understands rule (for waiting brother Fraser p...',  
 'new way lifeuntil Nov 4 day election lockdown charade meani...',  
 'help fight important threats addressing issues sanitization Pandemic A...',  
 'can't coffee shop (re)imagine outdoor space early morning reading...',  
 'today 77 new cases 5 new death active cases 881',  
 'textile reusable mask proven ability inactivate new coronavirus responsible  
 fo...',  
 'mishandling pandemic response lead excess deaths premature death losing  
 game...',  
 'reports 7813 new cases Saturday tally goes 88671 death toll increase...',  
 'Great reminder important nature – physically e...',  
 '1005 new cases 18 new deaths United States [13:16 GMT]',  
 'best teachers dont ignore chaos world outside classroom writes Instead us...',  
 'Latest updates covid19 Qatar',  
 'enjoy',  
 'new cases Sorsogon include teenagers',  
 'intersect ways Right expected bring severe flood...',  
 'recovery home requires space prevent infection living roof 1 i...',

'Fiji active cases novel coronavirus disease/COVID19',  
 'Barcelona legend Xavi Hernandez tested positive head coach Qatars Al Sadd said soc...',  
 'government Rajasthan poor pro Look kind slum sitting what...',  
 'University Kentucky working Somerset Community College create new advancements mask filtrati...',  
 'safely restart nonemergent pandemic Join 910:30am EDT o...',  
 'love wicked \u200d \u200d \u200d \u200d ',  
 'Wearing Sunscreen year kills',  
 'Trump cared protecting adults school children pandemic protec...',  
 'thing distinct',  
 '60 countries reported disruptions childrens immunizations Decades progress ...',  
 'Running Balance SMART number recharge online care',  
 'online retail sector busier outbreak 10 easy steps improving y...',  
 'dont wanna miss',  
 'retail stores limiting hours deep cleaning limit wages',  
 'Andhra Pradesh 25/07/2020 New positive cases 7813 New discharges 3320 Ne...',  
 'started inviting worlds Phase III clinical trials Heres how...',  
 'Surely carried correct risk assessments allow children play football are...',  
 'Amazing partnership period provide knowledge an...',  
 'Recovered corona B+ve plasma donor interested donate plasma DM urgently required',  
 'institutions forging ahead oncampus inperson classes + activities fall terms making...',  
 'know Dutch government legally mandate parents send children school c...',  
 '7813 new cases 52 deaths 53681 samples tested 3208 discharged E...',  
 'Compared rest California labor force Asian Americans high school...',  
 'strength idolo',  
 'okay can't visit granny nursing home doors visit',  
 'Inline UKs goals promoting quality mentorship opportunities young persons w...',  
 'Wear Mask Stay safe safe',  
 'resuming movie shootings latest interview',  
 'know foreseen far better position lo...',  
 'Delhi Update Jul 25 New Cases 1142 Total 129531 July 43452 (3354% total) Deaths 29 Total 3806 Disch...',  
 'Catalonia Spain reports 1493 new cases ',  
 'ALERT: Pregnant women risk death Kenyas COVID19 curfew Global Pandemic News I',  
 'look interests interests...',  
 'latest Islam Islamism',  
 'vilifying amp (Republicans premium stock) catering w...',  
 'reports 7813 new cases Saturday tally goes 88671 death toll increase...',  
 'total 52 confirmed deaths',  
 'Wear face cover pay £100 fine New laws imposed London Lol Chose cover',  
 'AP records 7813 new cases 24 hours taking tally 88671 52 deaths wer...',  
 'statistics gives info performing better fight',

'increased testing samples Covid19 fatality rate significantly dropped 235% Saturday an...',  
 'CM tested positive Theres news bcoz ministers wel...',  
 '(6) rise level knowledge acquiring new helpful informatio...',  
 'students tested positive coronavirus taking ACT Oklahoma high school...',  
 'Andhra Pradesh registered singleday spike 7813 positive cases amp 52 deaths 24...',  
 'dealing COVID19 outbreak survey developed psychologists world p...',  
 'Actor father MrGKReddy tested positive 15/20 days s...',  
 'resuming movie shootings latest interview',  
 'press knock “change tone” week Trump It’s...',  
 'New Personal View: Need sustainable biobanking networks diseases epidemic potential',  
 'worsened dire opioid crisis fewer social supports people battling addictions mu...',  
 'Corona Alert | arrivals Chennai tested positive Covid19 raising total Sri Lanka 2768...',  
 'wants sure 150K dead end July 7/24: 148490 dea...',  
 'America land free home brave land acquiescent home f...',  
 'RFK Jr soars Phenomenal read LACK scientific testing development',  
 'imagine right state mind voting LUMP MASS theyre membe...',  
 'Hello Lets hit 1k followers Twitter Kindly retweet follow ',  
 'district administration announcing complete 5 pm Saturday till 6 Monday h...',  
 'Cheap spray costs pennies end Britains nightmare',  
 'hit area major spread amp hospitals need',  
 'SRV Group Hospitals dedicated making neighborhood healthy book appointment SRV experts 86...',  
 '293 new cases 3 new deaths Uzbekistan [13:11 GMT]',  
 'helping families use opportunity teach young people global challenges including t...',  
 'Spike Cases Far Outpaces Testing Expansion',  
 'tested positive says latest test result negative',  
 'update July 25: New Cases 1142 Total 129531 Deaths 29 Total 3806 Discharged 2137 Total 113...',  
 'STRANGE NEW BEGINNING ※7/25/2020',  
 '(3) quick route fix success price pay success desire...',  
 'pandemic mass hysteria believe kill k...',  
 'Thinking clip wasn’t addressing that’s head went heard love s...',  
 'da hot dance moves amp view message link(need suggestionthanks )...',  
 'Long LOOK Good | Carl Vernon',  
 'pandemic live responsible people protect life save life’s',  
 'ICU District Headquarters Hospital sealed patient tests positive',  
 'soon unblocked debit card danger bank pandemic',  
 'Stay safe washing hands',  
 'aka I’ll sending 900people like amp retweet \$300\$900 CashA...',  
 'Love businesses come creative ways stay open',  
 'SRV Group Hospitals dedicated making neighborhood healthy book appointment

SRV experts 72...',  
 'Fear effective strategy Protect children doesnt care use...',  
 'Dont concentrate Ive lost friends amp important message Check th...',  
 'Actor father MrGKReddy tested positive 15/20 days s...',  
 'Social distancing necessity today GUCECs grand complex opengrounds social  
 distancing easy Book be...',  
 'pandemic live responsible people protect life save life's',  
 'Twitter great Florida Gator Grateful Lord TRIBE 1st generation student n...',  
 'Don't stuck fear \*failure wanna rise potential life count st...',  
 '1142 positive cases 2137 patients recovered/discharged/migrated 29 deaths  
 Delhi today are...',  
 'DPH July 24 Viral Tests (PCR/Molecular)1382444 (+45506\*) + PCR/Mol Ca...',  
 '1142 new cases reduction 1024 active cases 2137 recov...',  
 'worry called killed 14500...',  
 'Making interactive dashboard teams final data preparation having...',  
 'published Promote Good Hygiene Habits Kids',  
 'amp father MrGKReddy tested positive 1520 days f...',  
 'Webinar went recording soon available sharing lets...',  
 'Thankfully epidemiologist working w/ daily basis amp recognized symptoms right  
 away also...',  
 'awesome try consider collaboration Trust going b...',  
 'happening neighboring 200 daily deaths June number daily...',  
 'Dear little logic argument testing result cases of...',  
 'follow true freedom fighter',  
 'Shivraj Singh Chouhan Says Completely Healthy Getting Admitted COVID19  
 Hospital Bhopal...',  
 'ALERT: Federal Agents Use Tear Gas Clear Portland Protest Global Pandemic News  
 I',  
 'tests positive CM announced Twitter ha...',  
 'Dogs sniff saliva 1000 people healthy infected',  
 'youre going let denial old man run country fing ground hope vet...',  
 'Surprised need thought virus disappeari...',  
 '14 day% New Cases Florida 648% growth new cases 14 days Texas 545% growth new  
 cases 14...',  
 'Properly stated: Ladies gentlemen live clown planet Tata',  
 'New preprint: Country distancing reveals effectiveness travel restrictions  
 COVID19',  
 'According data Pakistan successfully flattened curve 81% Coronavirus patients  
 hav...',  
 'New preprint: Anxiety perceived risk COVID19 outbreak',  
 'Bangladesh records 38 new COVID19 deaths',  
 'Yesterday conference met referees gave plan safe spec...',  
 'New Study Highlights Impact Pandemic Families' Mental Health – NBC Chicago',  
 'New preprint: analysis mortality Ontario cremation data: Rise cremations  
 COVI...',  
 'Nearly 16 crore samples tested India far country registered 13 lakh positive  
 c...',

'Canadian driver stop locations tested free',  
 'New preprint: Epidemiological cohort study finds association COVID19  
 GuillainBarre sy...',  
 'Evidence airborne transmission main route spread SARSCoV2 infection policy  
 implicat...',  
 'Excellent analysis failure perfect example Late...',  
 'Survey week outbreak Italy suggest people highly resilient especiall...',  
 'Know Location Social Webinar Series Episode 2 Whitefield Bengaluru  
 conversation Home buyers Ash...',  
 'ur normal hardworking patriotic taxpaying Republican u r required abide law ur  
 insan...',  
 'New preprint: Infectivity susceptibility risk factors associated SARSCoV2  
 transmission under...',  
 'problem Shocked brought America knees Sad...',  
 'love borders',  
 '2020 right ',  
 'New COVID19 mutation helps outbreaks spread quicker: expert',  
 'TODAY testing 3pm Burke High School',  
 'Covid19 stressing 8 ways sleep better',  
 'New preprint: Mathematical modelling dynamics containment COVID19 Ukraine',  
 '10 cases confirmed',  
 'New preprint: SARSCoV2 serosurvey Health Care Workers Veneto Region',  
 'story saying good dead South Africa hard feel anguish left b...',  
 '5144 new cases 58 new deaths India [13:05 GMT]',  
 'Win Big Trump Reduces Drug costs Seniors benefit huge Medicare people costs  
 down...',  
 'New preprint: Sentiment Informed Timeseries Analyzing AI (SITALA) curb spread  
 COVID19 Houston',  
 ' Did miss webinar share new growth opportunities connected the...',  
 'New preprint: Concerns quality life access care productivity general  
 population during...',  
 'ICYMI: Youssef Belhaissi tv host amp union leader fired workers MED1 TV sought  
 better sa...',  
 'Colly Sweetness love daddy (Official Video) African story written Colly  
 Sweetness',  
 'It's important washing hands time return home kill virus you've picked  
 outside...',  
 'David Turner CEO Webhelp discusses clear phases resulting crisis inform CX...',  
 'Positive cases increased safe today Friends Let's protect',  
 'getting rid contract cleaners important theyve',  
 'joke real numbers allowed reveal',  
 'New preprint: Severe COVID19 associated elevated serum IgA antiphospholipid  
 IgAantibodies',  
 'stunning example need real leadership senior levels government Flattening  
 curve doesnt m...',  
 'Usually high summer hens stags inter railers tourists enjoying f...',  
 'Narcissists psychopaths likely refuse wear masks Surprised woman screaming

h...',  
 'New preprint: Reducing COVID19 hospitalization risk behavior change',  
 'Delicious rose milk cake cake loverstry pls likeshare subscribe chann...',  
 'Texas Hospital Says Man 30 Died Attending 'Covid Party' New York Times',  
 '9615 new confirmed cases reported 24 hours Info MoHFW',  
 'Supreme Court right decision houses worship shut casinos multiplex movi...',  
 'Half worlds users Africa Tech solutions help people affected jo...',  
 'New preprint: Comparative Evaluation 19 Reverse Transcription Loop Mediated  
 Isothermal Amplification As...',  
 'Peace better holding grudge Life short ',  
 'knew ways',  
 'New preprint: COVID19 Vulnerability Transgender Women HIV Infection Eastern  
 an...',  
 'Washing hands best ways protect millions people refugee c...',  
 'latest update (' ,  
 'New preprint: Development quantumdot lateral flow immunoassay strip based  
 portable fluorescence smar...',  
 'trip shops 10 days mandatory mask wearing lawseen people wearin...',  
 'Change Work General (and recruiting specifically) via/',  
 'New preprint: Presence SARS Coronavirus2 sewage',  
 'single use masks gloves amp bottles sanitizer ending streets seas amp wil...',  
 '2020 submission deadline amp solutions July 31st for...',  
 'Actor father tested positive 15/20 days fat...',  
 'I'm lies propaganda divert attention away...',  
 'New preprint: Tissue specific interferon inducible expression nonfunctional ACE2  
 endogenous...',  
 'Man better sense humor good hoax...',  
 'Tens thousands Americans infected daily millions face imminent eviction  
 peaceful p...',  
 'set children free Education Automation learn want learn they...',  
 'New preprint: Coexpression Mitochondrial Genes ACE2 Cornea Involved COVID19  
 Infection',  
 'Inspirational life',  
 'world map: countries cases deaths',  
 'thoughts improve healthcare services county Complete short survey hel...',  
 'case need reminding pivotal achieving control o...',  
 'Initial results two phase trials vaccine conducted trial sites UK showed has...',  
 'Updated preprint: Potent Neutralizing Antibodies Directed Multiple Epitopes  
 SARS CoV2 Spike',  
 'Amen Trump administration inadequate appointees ignored early warnings  
 misled...',  
 'remember people susceptible long circulating risk Its all...',  
 'Actor Father Mr GK Reddy Tested positive 15/20 Days s...',  
 'FIXED: starting today draconian new rules protesters...',  
 'great summary evidence limitations information transmission schools',  
 'feeling anxious normal Here destressing techniques help rig...',  
 'Hong Kongs situation remains grave new cases hit record',

'Real deaths figures',  
 'chart showing number new cases cases plus average number daily new cases...',  
 'love ',  
 'Wash Hands Clean Hands Save Lives Download FREE Google Play Store:',  
 'Lessons learned past epidemics sexual reproductive health learn ...',  
 'everyones health amp wear mask simple action sure covers nose mouth amp...',  
 'Qatar's announced today recorded 398 new cases 330 recoveries 4326 people  
 tested...',  
 'GOP bureaucrat like Steve ( ) loved paid',  
 'Victorias coronavirus cases rise 7744 people die COVID19 stup...',  
 'know disabled people cant wear mask makes import...',  
 'new makes smile Mask friends Stay safe (Wonder allows...',  
 'NHS test trace service help manage risk vital employers play part...',  
 'NHS test trace service help manage risk vital employers play part...',  
 'remember heading avoid big crowds social distance wear mask help stop...',  
 'AstraZenecas eagerly awaited COVID19 vaccine passes large test confirmation  
 needed',  
 'Landlordtenant mediation program launched new program aims provide housing  
 security tenants c...',  
 'thats going easy forget come sudden job loss abrupt shi...',  
 'long interesting thread re: kids',  
 'way achieve high levels engagement pre w...',  
 'Stay safe weekend',  
 'We've busy week talking partners amp advocating local MPs amp CrossBorder  
 Commissioners abou...',  
 'Dogs sniff saliva 1000 people healthy infected',  
 '25/07/20: R=10 cusp second wave cautious dil...',  
 'India conducted 420 lakh tests day highest far tests million rises 11485:  
 Health Ministry',  
 'Bishop John Hsane Hgyi Pathein joins church social workers moral support  
 people quarantined 21 da...',  
 'Bishop John Hsane Hgyi Pathein joins church social workers moral support  
 people quarantined 21 da...',  
 'Bishop John Hsane Hgyi Pathein joins church social workers moral support  
 people quarantined 21 da...',  
 'Bishop John Hsane Hgyi Pathein joins church social workers moral support  
 people quarantined 21 da...',  
 'Government Hospitals entire treatment FREE COST...',  
 'attitude civilization right with...',  
 'Herere lessons learnt outbreak hope best prepared t...',  
 'giving medical treatment people who've tested positive',  
 'point Spanish flu substantial portion death young people those...',  
 'suggest main different seasonal flu vaccination immunity seasonal fl...',  
 'stick rules rate infection fall ',  
 '85 million Canadians quickly employment revive recovery Dr Ather Akbari...',  
 'COVID19 crisis keeps growing Rio Grande Valley increase cases overwhelming  
 medical systems...',

'forced "believe" scam logical school reopenin...',  
 'confident business secure Check steps taki...',  
 'latest government advice',  
 'latest CWR World News',  
 'ICYMI: offering nocost inhome testing eligible residents live area zip code...',  
 'woods Please practice safe social distancing',  
 'sure swing FREE check (Conditions apply)',  
 'It's long lockdown nails perfect matter takes Don't judge ...',  
 'Thanks Yuqiang Liu Laboratory Director State Key Laboratory Crop Genetics amp  
 Germplasm Enhancement of...',  
 'clearly exposed cracks worldwide urgently need invest thes...',  
 'disrupted medically necessary health interventions like surgeries basic...',  
 'New COVID19 Data 20200725 08:00:00 EDT',  
 'trying work beat Trumps America busy creating mo...',  
 'Deep immune profiling patients reveals distinct immunotypes therapeutic  
 implications:',  
 ' Pandas Found Moment COVID19 Shutdowns Baby – Check amazing video ...',  
 'Health Services (Seha) starts conducting new clinical trials phase III  
 inactivated vaccine to...',  
 'latest numbers COVID19 Canada Saturday July 25',  
 'Nan second ordered dish ordered 335 lakh times',  
 '\U0001f7e7 Total Confirmed: 15762007 \U0001f7e9 Total Recovered: 9123433  
 \U0001f7e5 Total Deaths: 640276 update: 20200725 12:00 (...',  
 'Studies shown mask mandates correlated mitigating cases Learn whats sto...',  
 'safe follow strict guidance surface Limiti...',  
 'queue Ikea like queuing Disney think youre near theres mile go...',  
 'Join crossfunctional panel Gartner experts 7/27 free Panel Discussion: Adapt  
 Cust...',  
 'fighting lines offering free subscriptions help maintain mindfuln...',  
 'far',  
 'Alabama Cases: 74365 +1669 Tests: 627344 +9333 Cumulative positive: 118%  
 Hospitalized Total: 915...',  
 'okay feel okay Support Line provides 24/7 and...',  
 'long til YouTube 23pm: Speak listen m...',  
 'help key times mind clean sanitize toys amp games Learn more...',  
 'digital accelerant decade recent survey shows 95% companies seeking new w...',  
 '15% reduction transaction costs — great way bank track for...',  
 'hope citizens note warning',  
 'help stay pandemic new resource page added to...',  
 'parts world colliding ongoing HIV epidemic latest UNAIDS report shows...',  
 'travel: ensure coverage cost',  
 'pandemic sold tickets money place heaving no...',  
 'Me: Comfort today Comfort: I'm feeling comfortable sir Me: I'm feeling  
 bashabl...',  
 'religion absolute bullshit insists social distancing PPE pandemic youre  
 goin...',  
 'Calling clean air safe cycling A6 Levenshulme Government literally giving



money away emerg...',  
 'Canada drug imports better China',  
 'Wake America New Jersey close gym defiantly stayed open amid judge rules:...',  
 'Update Biggest single day spike 2984 new cases 39 deaths reported i...',  
 'Nice Read Rea...',  
 'fixed November 3rd demand Congress act sto...',  
 'New fashion accessory arrived ',  
 'predicted 2020's accessories include: Umbrellas Bike helmets Goggles  
 Fac...',  
 'going Texas visit parents new told t...',  
 'good vibes need survive Arellano family ',  
 'video Pandemic: Transparency Challenges New England discussion f...',  
 'UK demand new food products soars lockdown',  
 'missed hearing chatting super tal...',  
 'masks effective positive tests numbers climbing',  
 ' New visa measures support student visa Covid19 IMMIGRATION EXPERTS  
 9999467686 8448587890 01206...',  
 '5144 new cases 58 new deaths India [12:58 GMT]',  
 ' Weekly Update (25/07/2020) Global Confirmed Cases: 15759651 4113224  
 2287475 1337024 ...',  
 'Dont expect safe "Treat decisions meet...',  
 'Total Cases 2768 Active Cases 654 New Cases 4 Hospitals 84 Total Recoverd 2103  
 Total Deaths 11 Updat...',  
 'conclude IFR Spanish Flu depends infected assume attack rate...',  
 'Actor father MrGKReddy tested positive 15/20 days father tes...',  
 'total 39539 confirmed cases',  
 'recent video Content Engagement Manager talks patient...',  
 'thing learnt tonight Crowd numbers proves it's keeping Crows supporters away',  
 'Madhya Pradesh Chief Minister Tests Positive Nation in...',  
 'Rollen Quail Farm best quality fresh jumbo brown coturnix hatching Shipped  
 y...',  
 'come aint packs young White men women nonsense life...',  
 'NEGATIVE WORD POSITIVE',  
 'POLICE Update Total positive: 8232 Total discharges: 6314 Total de...',  
 'Actor Father MrGKReddy Tested positive 15/20 Days s...',  
 'going Houston visit parents new they...',  
 'happy baseball 60 game season causing major fantasy league anxiety Changing  
 r...',  
 'Nigeria live pandemic year says DG',  
 'MIDDAY BULLETIN | 25 July 38 new cases1 recovery amp 1 death reported today  
 till 9pm The to...',  
 'India's poultry industry lost 13 billion rupees (\$182 million) weeks  
 speculation social media...',  
 'Amazing read "A child's brain needs words lessons organized activities: needs  
 love friend...',  
 'politics gets way pandemic it's heartening world's scientists stand each...',  
 'Honble CM Madhya Pradesh Shri Shivraj Singh Chouhan Ji tested positive Praying

speedy recovery',  
 'good sitting enjoying pre haunts',  
 'happening globally brought large profit logistics bus...',  
 'brought fore kinder India New Sunday Express Magazine finds reading...',  
 'Good old British common sense wear mask shop staff won't wear \u200d good  
 old conside...',  
 'means presenting pretty femme (pre pixie cut wearing makeup want whe...',  
 'new article mask anxiety share help struggling anxiety wearing mask',  
 'New overalls ',  
 'important doesnt mean cant FUN Shop Safely',  
 'social sector spending instance don't think technology India matured r...',  
 'LIVE Join panel discussion launch Fiscal Data Explorer Listen to...',  
 'pandemic millions patients need diagnostic imaging procedures New IAEA  
 guidelines bee...',  
 'political cost running amok high politician stake Government b...',  
 'Bridal company western Japan providing free venues outfits planning support  
 couples wedding ceremo...',  
 'blows mind parents literally care can't wait send children to...',  
 'Actor father MrGKReddy tested positive 15/20 days s...',  
 'live happily secure identity doesn't affect don't speak Demonizi...',  
 'Look Eat drink wisely Nourish flourish App...',  
 'Tune shortly latest Austin',  
 'Culture Secretary Oliver Dowden announced July gyms leisure centres able  
 reopen strict...',  
 'people lost jobs unable loved ones people cant it...',  
 'Check latest updates here:',  
 'It's mysterious GOP militants eager send kids height...',  
 'Actor Father MrGKReddy Tested positive 15/20 Days s...',  
 'Actor father MrGKReddy tested positive 15/20 days s...',  
 'beautiful chaos midsummer garden metaphor life moment things gratef...',  
 '7100 Americans confirmed dead Friday',  
 'community best country love country Covid 19 helping team Love Stay safe  
 Spe...',  
 'Dont forget openly admits intentionally misconstrue numbers right on...',  
 'held online launch New lots new features youll definitely need check it...',  
 'featured video paper high covertness amp high transmissibility COVID19 high  
 chanc...',  
 'joke perfumes perceive right way',  
 'started wearing masks people wearing years ',  
 'puts stress lives self care extremely important think...',  
 'Societal upheaval COVID19 pandemic underscores need new AI data regulations',  
 'tests positive : total 2768',  
 'Cerina Air Purifier AIPowered air purification contemporary indoors',  
 'Access online education reflects reproduces amplifies existing economic  
 (dis)advantages provides benefi...',  
 '684 new cases 4 new deaths Kuwait [12:52 GMT]',  
 'COVID19 case data tally July 25 Total confirmed cases 78000 recoveries hit

25000',  
 'price gouging best Zovirax store shelf £485 demanded (not automatically  
 offere...',  
 'CNN: surpasses 4 million reported coronavirus cases hospitalizations near  
 record',  
 'Good job lot little man silver spoon mouth',  
 '45 deaths COVID19 young protect vuln...',  
 'EU launches EUR 3 Million program combat COVID19 Central Asia European  
 External Action Service...',  
 'Vietnam detects coronavirus case nearly 100 days',  
 'Uh yes doctor tell learn new aspects day knew facts always...',  
 'Goodbye Youve sweet times books',  
 '7100 Americans confirmed dead Friday dont care',  
 'BIO's Dr McMurryHeath Warns Executive Order "Cripple Small Innovative  
 Companies" Working Eradicate COVID1...',  
 'Uh yes doctor tell learn new aspects day knew facts...',  
 '7100 Americans confirmed dead Friday dont care',  
 '7 days fixed wing deployed 13 police forces',  
 'vacation took test Vacation nearly results',  
 'think best thing mask wearers Remember society laugh think wei...',  
 'Yep 4mil cases 111% unemployment Consumer confidence lowest Great Recession',  
 'Congratulations PhD level graduates successfully completing studies mark  
 milesto...',  
 'weather mild sunny Today a: 2020 amp season en...',  
 'Counties close facetoface birth registration services staff public safe',  
 'working home weve online course Understand amp Access Tools availabl...',  
 'Actor father MrGKReddy tested positive 15/20 days s...',  
 'wonder Lai Mohammed means stopping BBNaija COVID19 watch opening p...',  
 'symptoms coronavirus weeks testing positive Follow',  
 'Local stations country set air Fauci conspiracy theory weekend CNN m...',  
 'Families St Basils Homes Aged residents fear loved ones coronavirus outbreak  
 grows...',  
 'UAE icon giving helped world fight support packages s...',  
 'Good morning weather mild sunny Today a: 2020 amp...',  
 'asked occupation replied: forced stay insidewhile outsiders enjoying my...',  
 'order recover economically start support British jobs Im banning in...',  
 'pleased recent news emanating Abia State like returned the...',  
 'remembers advert \u200d funniest best advert ma...',  
 'amazing player Super Bowl champion giving shot championship hea...',  
 'UPDATE: New cases Kuwait (+684 tot 63309) El Salvador (+429 tot 14221) Uni...',  
 'peak season we're encourage people follow social distancing help stop t...',  
 '3 easy steps Stop acting like 3 stooges',  
 'Day day worse claiming eminent personalities Scared',  
 'friends Walter worse kind cancerhe c...',  
 'arrange bed patient temple premises important Ahead Mega Ram Temple...',  
 'Allcure Lifescience delivering rich quality Hand Sanitizers details contact  
 contact leave your...',

'good Best Products Lowest price looking solution vis...',  
 'Early elections rages Political opportunism/cynicism runs deep midst global  
 cri...',  
 'According official responsible collecting uploading daily provincial tests  
 government...',  
 'Cant believe visited Scotland skipping entire mainland going straight Orkney  
 t...',  
 'experience March bothered look like the...',  
 'party going',  
 'man like medical colleagues hero',  
 'Exactly Kate difficult concept board suffer with...',  
 'HEY Shut start right ~',  
 'precisely supposed buy facemask let shop buy facemask...',  
 'cant believe photos real school look cut scifi film a...',  
 'Tokyo reports 260 cases day record high ※7/24/2020',  
 '2020 look like pull bankjob straight clown',  
 'Selling babies R200 colours available DM information Durban based',  
 'thought Lets reduce social distancing 1metre youre lucky Light blue touch  
 paper a...',  
 'ALERT: Newsom economic task force starstudded cast cant solve reopening Global  
 Pandemic News |...',  
 'Australia welcomes Vietnams ban wildlife imports markets amid new health  
 fears',  
 'nails coffin need randomized study looking question publish...',  
 'district reports 1000+ positive cases 24 hours 1204 positive ca...',  
 'Meet heroes Elizabeth head childrens nursing Barnet Royal Free Hosp...',  
 'Despite differences we're way beat amp played great role combating...',  
 'mild obesity raises severe COVID19 risks',  
 'Highest total confirmed cases 357117 cases followed 1...',  
 'think surely Government Local Authorities callous incompetent in...',  
 'attitude civilization right with...',  
 'protect courthouse burn masks protect transm...',  
 'World COVID19 vaccine 2020 end early 2021 claims pharma cos',  
 'Stay safe Antwerp sees epidemic flare need respect social distancing  
 faceprotection...',  
 'latest Georgia numbers shows highest single day counts new cases we've far  
 481...',  
 '1 new case Gibraltar [12:47 GMT]',  
 'drug treats cough COVID19 Ehanire discloses advising healthy foods righ...',  
 'Shinjuku recorded 50 cases Setagaya Nakano Itabashi 15 cases day',  
 'saw lovely ad 100y/o granny talking new greatgrandson hopes fa...',  
 'health staff carrying checkup swab test urban primary health centre Kharghar  
 o...',  
 'needs Glastonbury create festival home Check latest video:',  
 'staff finally got accurate information evidence reveal...',  
 'Big Breaking CM tests positive man bla...',  
 'Depopulation Agenda: Melinda Gates wants deliver coronavirus vaccine based

racial groups blacks fir...',  
 'Absolute expert courtesy the...',  
 'Good day Beautiful People wish refreshing weekend Remember maintain social distancing wea...',  
 'live New England Hawaii NY wants stay heck q...',  
 'proud moment IMS team eminent faculty members Modern Medicine Ayurveda c...',  
 'Wear mask socially distance',  
 'use new Mode video meet app Microsoft Teams place basketball fans courtside in...',  
 "“blunt” gives U happiness U smoke inducing U employees come wo...",  
 'Humanity best reached helped we'd better place now...',  
 'new normal: Construction strict COVID19 regulations',  
 'Cultural continuity maintained educating children ways culture educated the...',  
 'Home starting place love hope dreams',  
 'genuine question works (advisors secretary etc) read an...',  
 'total 4248492 Covid19 Positive cases reported date United States and...',  
 'Washington demanding Australian government participate aggressively provocations South...',  
 'equitable future',  
 'Remember wear mask safe',  
 '17319 MT Fresh Ginger exported Manu LCS C',  
 'LIVE | Indias testing hits record high 420000 samples day Catch latest upda...',  
 'wearing Mask important amp stop arent dead homeless people big cities dyin...',  
 'beginning develop huge fondness online conferences experience better inperson ones...',  
 'says cool it's today',  
 '— UK 12:42:GMT: Total number labconfirmed cases 297914 positive test res...',  
 'worked happily',  
 'nice discussion',  
 'need Blood Plasma Group: B+ (B Positive) Patient Name: Rakesh Singhal63 yrs Male H...',  
 'Stories powerful told shared inspire people calling stories rural health amp social w...',  
 'slow return passengers lockdown means TfL require additional £29bn financial...',  
 'Lol international flight individual charter plane resell ticket high price Business',  
 'Spain's mistake: reopening mild success rely tourism New cases breaking Hawaii d...',  
 'confirmed tested statement',  
 'pets tested positive Corona carrying traitor pets',  
 'Ive saying long time funny style red...',  
 'Vietnam recorded local transmission case 3 months',  
 'total 4518 confirmed deaths',  
 'want free hand sanitizer Download medsearch zambia app location neare...',  
 'It's getting real Texas',  
 'said right kids don't school want tax money',

'easily win second round opponent popular exjustice minist...',  
 'dey talk EnoughisEnough cos kindly support brothers business Retweets goes...',  
 'Good insights summary responses pandemic Good proactive wide range soci...',  
 'Hi COVID19 Complete Info stats',  
 'WaPo good interactive list subset national numbers',  
 '(apparently Dom Cummings hates app sees enemy thats true then) Help slow  
 spread of...',  
 '2 new cases Turks Caicos Islands [12:41 GMT]',  
 'Km beats climbing higher going work digital platforms',  
 'India records highestever tests single day Nearly 16 crore samples tested far  
 in...',  
 'think irritating lady ‘ got...',  
 'Sinclair owns 200 local television stations nearly 100 markets conspiracy  
 spread faster',  
 'Hi thanks sharing check online map latest and...',  
 'detects domestic case 3 months',  
 'David Kriesels explanations findings plots interpretation aids shed light w...',  
 'important wear mask right way covering nose amp mouth completely control  
 spread of...',  
 'people talking “God you” “God protect you” That’s super nice an...',  
 'Lord good love discipline forgive set free time',  
 'Today Im donating high antibody blood plasma hope helps people fights  
 against...',  
 'Actor father MrGKReddy tested positive 15/20 days s...',  
 'Hola Amego tweet describes PERFECT Mexican STAND SLIM size ZERO amp ener...',  
 'understand virus attend meetings read reports listen scientists did...',  
 'inactivates created Portugal ',  
 'Haha',  
 '5000year historical timeline went obsolete 3 months dig amp thrilled buy  
 Timeline o...',  
 'Clinical Characteristics Covid 19 Subscribe videos health medicine :...',  
 'survivor fingers amputated: ‘This happen you’ “It sho...',  
 'pointed “low death rate” Oman understand deaths lag new cases month  
 (someone...',  
 'Actor father MrGKReddy tested positive 15/20 days s...',  
 'Worth share',  
 '700000 new infections days reloads: Graphics sad records re...',  
 'return ‘old normal’ says health chief cases 15 million',  
 'opportunity brought right wrongs lost politicians eager return normal...',  
 'belief GOD higher power transfer good morals easy Morality cho...',  
 'Brilliant minds giving insight post Worth read reality check reminder...',  
 'Stop spreading deny lies Covid spiking states Amercians banned...',  
 'Actor father MrGKReddy tested positive 15/20 days s...',  
 'got good resources/arguments masks arent bad good idea ',  
 'Africans capable liberating Africans poverty war',  
 'coronavirus: vaccine likely wont widely available months 2021 says',  
 'New study shows microvascular lesions 11/16 (69%) patients severe ...',

'Dear Twitter experts charge generated conflicting information dont you...',  
 'Shivraj Singh Chouhan tests COVID positive',  
 'Vietnam Lauded Coronavirus Fight Local Case 100 Days READ MORE:',  
 'drug treats cough COVID19 Ehanire discloses advising healthy foods righ...',  
 'real man afraid tell world dating real man points gal friends Kind...',  
 'Barcelona Legend Xavi Tests Positive COVID19 Fans Wish ‘Midfield Maestro’  
 Speedy Recovery (See Tweets)...',  
 'want hold stimulus package selfish reasons hotel prec...',  
 'Higher government spending isn’t ideal “crowds out” business investment 1  
 reason im thrille...',  
 'Republicans forcing \$600 cliff better prepared this...',  
 'Fascinating amp insightful Rachel Davis Inspiring confidence amp selfbelief  
 children music...',  
 ' Thanks fabricated figur...',  
 'Thank campaigning swim clubs running today',  
 'American school systems need ignore guidelines follow original White Hous...',  
 'lot questions circulating momstobe questions What...',  
 ' Available ...',  
 'Listening carers speaking it’s clear need support people are...',  
 'Challenge posed new diseases like de facto empirical ground zero entail  
 high...',  
 ' Oh news good esp ',  
 'Home Reflector test resultsgtgtgt Shot funds equipment lenses lighting  
 equipment...',  
 'Impeachment better different today dead 148498 4248759 every...',  
 'HI everybody follow link know seller music promote rated social m...',  
 'going old normal pandemic changed way live lives World...',  
 'competent president (eg Hillary) disaster manageable like rest worl...',  
 'randomized clinical trial convalescent plasma reported Li et al JAMA suggests  
 that...',  
 'Quick reminder there’s special ICU “bed” it’s nurses techs RTs doctors a...',  
 'people watching',  
 'Masks accessory necessity brands design experts crafting lifesaving a...',  
 'COVID claims 25 lives infects 798 others: Murad Shah',  
 'fully expect annual Trump Games year “celebrate”...',  
 '213 new cases 1 new death State Palestine [12:36 GMT]',  
 'Updated thread children amp Summary: schools reopen safely community  
 transmiss...',  
 'Damn John Roberts trying help save lives People right church sit close sing...',  
 'Pre COVID selfie CHALLENGE I’ll join trend Post selfie preferably pic took  
 right the...',  
 'masks eyebrow raise new polite smile walk passed folk supermarket',  
 '“Together management shortterm response seize historical unique opportunity...',  
 'Walmart wants customers wear mask 24 hours',  
 'need Thermometer R500 + Currier Available Bulks want number poster Whats...',  
 'Thank wendybibsqueak72 love Love Miss Ruby ',  
 'Maybe pay attention tweets interesting table showing...',

'rules protests legal gathering church isnt assembling congregation...',  
 'contribution initiative highly appreciated dm information',  
 'Good',  
 'life nowadays thanks',  
 'Impacted Counter Efforts Great read amp',  
 'eating help restaurant owners scared restaurant new tech c...',  
 'Dont expect safe Stay gt1m washing hands Wear mask Stop s...',  
 'MOISTURISER HAND SANITIZER SALE Enjoy instant clean natural hand sanitizer',  
 'youre going weekend remember social distancing',  
 "'To able meet financial needs women diversifying activities include animal  
 husba...',  
 'case werent aware capitalism beating socialism',  
 'Best Proper way Wear Viral Face Shield Federal Ministry Health Lets inform  
 Public ad...',  
 'agents plans Chinese students Know More:',  
 'wonder people shoplift fear identified...',  
 ' 1336861 total confirmed cases 849432 cases cured/recovered 15849068  
 samples tested He...',  
 'lifelong Seinfeldesque germaphobe reassuring resear...',  
 'White neighborhoods access testing sites—even disease hitting Black Hispanic  
 co...',  
 'COVID19: 2984 fresh cases active cases cross',  
 'Kuwait reports 684 new cases 692 new recoveries',  
 'government needs step save American businesses going spiral second Great  
 Depre...',  
 'Heres hashes people r getting tired seeing evidence Wayfair Maddy mcann etc  
 not...',  
 'According women talked (and internal social media) got case One...',  
 'SRASCoV2 experiments available kind research...',  
 'latest 1310 report shows link risk dying new...',  
 'Thanks initiatives fight...',  
 'Face masks: important pandemic Read ()',  
 'unprecedented situation important care loved ones Check f...',  
 'advocating teachers Youre comfortable teachers returning school the...',  
 'Awhad undergoing treatment Deenanath hospital test reports came positive said  
 family mem...',  
 'Luckily understand incompetence allowed death rates of...',  
 'sharing stories coping health social economic impacts Special Initiatives...',  
 'CORONAVIRUS VACCINE TRACKER latest complete list head link:...',  
 'CORONAVIRUS VACCINE TRACKER latest complete list head link:...',  
 '',  
 'CORONAVIRUS VACCINE TRACKER latest complete list head link:...',  
 'CORONAVIRUS VACCINE TRACKER latest complete list head link:...',  
 'MrsWilks Hi all:I'm loving Jason Donovan FaceMask arrived post this...',  
 'John cares kissing trumps ass Texans going hun...',  
 'JOB ALERT: number exciting job openings THET like join team dedicated...',  
 'getting stressed news 8 ways sleep better',



'Interesting (recent) graphic amp cases especially kids 1019yrs amp parents age group...',

'Returning new normal ',

'Heres list doctors available teleconsultation 9am 5 pm telemedicine OPD Sir Sun...',

'Hero lets fight battle together Information: 02617161111',

'accuses PM 'politicizing' laugh here's party monetizing pa...',

'Appreciation liner COVID ICU SHL dedicated team working day night cas...',

'said you're currently market new job time research company expectati...',

'best bit advice ',

'people whove died reopened \u2066',

'vets busy spreading/catching hope VA hospitals improved trained one...',

'course time look time people die needlessly...',

'5year old girl returning Russia confirmed latest cases Viet Nam bringing patient tally to...',

'quest cure critical look therapy being...',

'Horse barred trainers high temperature RTE <https://c>',

'130 new cases 5 new deaths Senegal [12:30 GMT]',

'thats delivery guys wear masks id try Thanks thanks...',

'warns impact business right latest:...',

'didnt civil discourse',

'Free testing TODAY July 25 8a2p Brooke County 9a4p Logan County Bring ID under...',

'Despite suspension routine transfers 81 incarcerated people moved New Orleans jails Lear...',

'Feel feelings valid Talk journal meditate li...',

'dont actually lets second best way (actually best way) and...',

'noticed giant software company (Inc) occupies special place amp',

'Hi thanks sharing check online map the...',

'New COVID19 Data 20200725 07:30:00 EDT',

'leaders thinking ahead comes states start ease lockdown restrictions implemen...',

'wear face mask social distancing possible public settings amazing article written...',

'View Important Abandon Display Selfishness Possess Great...',

'Hurry Book orders place disinfecting safe safety provide...',

'Madhya Pradesh Chief Minister tests positive',

' triggered collapse global economic activity responses governments lower income count...',

'Vietnam detects coronavirus case nearly 100 days',

'quick easy way support continue support Young People...',

"'Why small businesses use cause marketing build brand" Mr Luvneet Amin Director Pinnacle Ma...',

'MP CM Shivraj Singh Chouhan tests positive COVID19',

'756K Cases 315K Recoveries 12K Deaths',

'Health officials refugee camps confirmed 4 suspected cases turned positive...',

'NEW ALBUM DEATH DROPPING AUGUST 9TH',

'milestone Ive drawn climate skeptic trolls fascinating watching fate as...',  
 'guy line ahead convenience store told look better face mask Covid C...',  
 'UK Government preparations continue premises given permission reopen...',  
 'Good getting gyms running leisure sector smashing today...',  
 'Hope there's spike numbers stay stubborn new cases England 4000 new cases...',  
 'Congratulations California Los Angeles' diligent efforts fun fuck safety  
 place...',  
 'Covid19 lethal Destroys body kills life business social relations Dont drop  
 guard MNO2020...',  
 'Wow messing interferon vs Receptor story Tissuespecific interferoninducible  
 expres...',  
 'Incredible Twitter thread Premier League managers Simpsons characters goes  
 viral',  
 'new high cases testing hospitals filling people...',  
 'cases + lower death rate = herd immunity operational time rebuke fear exhort  
 living t...',  
 'Selling Tupperware convenient homeware today Based limpopo Nationwide  
 Contact i...',  
 'trending odd banned places didnt read book consid...',  
 'Politicize face masks free speech charades bullshit want POLITICIZE W...',  
 'test sure negative',  
 'latest Neville Hobson Daily Thanks',  
 'children 35 test positive Cuttack city',  
 'coming Cult Personality attractive DISTANCE...',  
 'reasonable lived China considered leader like cap...',  
 'Arts cultural industries worth far economy far enjoyable fish arent t...',  
 'Hi — trigger global food crisis push people into...',  
 ' — safe safe commit ensure...',  
 'Cancel neet exam 2020 critical situation moment conducting exam safe way  
 possible stude...',  
 "“raids authorities pushed prices slowly production units set major textile  
 fir...",  
 'Covid caught surprise asymptomatic findings weeks ey...',  
 'total 726 confirmed deaths',  
 'Xavi recovering isolation testing positive',  
 'reasonable lived China considered leader like captor Referri...',  
 'reasonable lived China considered leader like cap...',  
 'cases 400K State partners Target 7 new testing sites',  
 'CORONA KAVACH insurance best economical KAVACH insurance @ Rs 150 (incl GS...',  
 'normal humans knew sharing Twitter constitutional scholars',  
 'Maybe change country Great Britain Ge...',  
 'nationwide lockdown lifted vital good hygiene handwashing practices main...',  
 '9 previously reported cluster French high school Notable effect holiday  
 period...',  
 'Protect home Clean frequently touched surfaces',  
 'Interesting read ',  
 'humans/nature ( benefit unprecedented triggered',

'Obama tried lower drug costs Republican pharmaceutical company fit its...',  
 'Washing hands frequently helps removing killing diseasecausing germs',  
 'great convo Imperial Prof Justin Stebbing thinks',  
 'MEDTECH: unique effort researchers innovated novel portable rapid device de...',  
 'currently cases PA day',  
 '"young healthy people currently walk faces better of...',  
 'new opportunity involved research vaccine',  
 'faces possible fine taking photos fans',  
 'Brief impact Girls Adolescent Girls Young',  
 '7 study describes cluster high school Israel demonstrating potential mass  
 transmi...',  
 '2803 new cases reported taking total number cases 36314: State Health  
 Department',  
 'Day 136 Reported Cases 15759 million Record High July 23 2827K 9 Day rolling  
 average 24175...',  
 '125 new cases 2 new deaths Madagascar [12:25 GMT]',  
 'Heres list doctors available teleconsultation 9am 5 pm telemedicine OPD Sir  
 Sun...',  
 'microscopic virus called world it's knees challenging human capacity amp it's  
 social fabri...',  
 'Conspiracy theories necessary avenue truth Second question Fauci serv...',  
 'Ba vision life saver send contributions account details below: BAN...',  
 'Nearly 16 cr samples tested far taking Tests Million (TPM) 11485 Persistent  
 inc...',  
 '35 new deaths reported 24 hours Info Ministry Health Family Welfare',  
 'attitude civilization right wit...',  
 'said \*better\* regard shielding eld...',  
 'Amazing 3min video created Canadian teenager accurate view lot feeling the...',  
 'Pretty handled thing',  
 'deaths 1100 day row sees 49000 new cases',  
 'best decisions pandemic mandatory face coverings/masks closed public places  
 done...',  
 'common mistakes people getting masks t...',  
 'patients tested positive died Saturday deaths death to...',  
 'It's going beautiful weekend NJ don't forget taking break young...',  
 'positive mask hide resting bitch face',  
 'excited Book Number seller Education amp Covid right Amazon @',  
 'use new Mode video meet app Microsoft Teams place basketball fans courtside  
 in...',  
 'total number infections worldwide quickly nearing 16 million 10 million  
 patients recovered...',  
 '1 Updated thread children summarising latest research Summary: schools reopen  
 safe...',  
 'important: 'people safe virus' he's failure killed 145k (amp...',  
 'legitimately increasing nearly 40 cases 14 days Yihh ',  
 'adequate hospital facilities Promoting home isolation mild/asymptomatic cases  
 167 case...',

'Strategic Communication Group reported Saturday new recordhigh number cases1284...',  
 ' fans truly love Joe takes mi...',  
 'Looks like ISPs trying reintroduce data caps working home Care actually...',  
 'giving gift support unique gift idea way ensure expecting fam...',  
 'Good afternoon quick question apparent £12m+ cost contact tracing app ...',  
 'South Africans hostage kubi cant fly coastal provinces joy mxm 2020',  
 'FREE business webinar providing COVIDsecure guidance people work run restaurants pubs bars caf...',  
 'Stop spread pf purchase affordable Human sanitizing machine schools hospitals ...',  
 'COVID19 difficult tests faced humanity modern history globe despera...',  
 'gyms reopening todaywonder people working sweat ',  
 'Delighted speakers \u2066 Return Sports great efforts sporting bodi...',  
 'Pressure Grows Mayor Streets Outdoor Classes New York City',  
 'reaffirmed strong commitment supporting Cambodia achieve development priorities mitigate...',  
 'masks amp clean hands help aerosols aren't discussing ocular transmission Pink eye isn't novel...',  
 'Vert good interview Denise Brown DSRSG MarcAndre Franche new ways of...',  
 'Major Ruling Freedom...',  
 '"The outbreak meant access essential Read how...',  
 'Tales: Temporary Quarantine Longterm Segregation | Seriously Sensitive Pollution',  
 'healthy coping isolation: Stay contact family amp friends reach regularly those...',  
 'control risk infection: safe distance Wash hands moment home...',  
 'lies preventable deaths UK citizens criminal negligence ...',  
 'urgent need global stakeholders cooperate simultaneously managing direct consequences of...',  
 'humanitarian services crucial lifeline amp means access food amp health Dag...',  
 '148 new cases Switzerland [12:19 GMT]',  
 'patients tested positive died Saturday deaths death to...',  
 '73400 New Cases Nearing SingleDay Record',  
 '73400 New Cases Nearing SingleDay Record',  
 '73400 New Cases Nearing SingleDay Record',  
 'Production Disposable Nitrile Gloves Demanding Profitable Business Ideas',  
 'Saturday July 25: Latest developments coronavirus Michigan',  
 'attitude civilization right wi...',  
 'COVID19 killed 635000 people world infected 155 million',  
 'garden grow planted "victory garden" like post photo I'd love',  
 'Good question UK surveys suggesting drug use peak lockdown (April/May) allowed o...',  
 'lagi loh 1 hours FREE CP Bio DMCome join',  
 'Isnt strange people refuse wear masks happy wear tinfoil hats',  
 'Case Study: Psychological Contract Follow latest HR news insights world of...',  
 'Nurses doctors amp health professionals frontlines response great risk

infect...',  
 'patients tested positive died Saturday deaths death to...',  
 'AlSadd coach Barcelona captain Xavi Hernandez tests positive ahead Qatar league restart',  
 'patients tested positive died Saturday deaths death to...',  
 'right wing fascists power saw virus way seize control feb stop',  
 'Facing budget shortfalls nearly 100 Texas mayors plead Congre... READ MORE:',  
 'best thing wearing mask able lip sync want public transport',  
 'BREAKING NEWS: testers town battle spike',  
 'new normal',  
 'Learning loss real death friend teacher traumatic set years Fr...',  
 'new unfamiliar territory comes running business time COVID19 like a...',  
 'Despite Challenges Primary Care Practice Improves Patient Digital Tools',  
 'Coronavirus outbreak latest: July 19 2020 READ MORE:',  
 'Establishing triage stations healthcare facilities important protect health workers amp stop spread...',  
 'university recovered tested negative memorable pic to...',  
 'Repost: New Normal Etiquettes follow workplaces',  
 'em laugh em remember Good cat',  
 'UNITED CHINESE COMMUNIST PARTY LIVE FREE DIE',  
 'great believer domestic tourism recreating historical reality norm...',  
 'Today Minister Public Health inaugurated new ward Baalbek Govt Hospital built amp...',  
 'Brunei active cases novel coronavirus disease/COVID19',  
 'wore living safe life',  
 'true Professor Pantsdown BBC Acorn computer predict 500000 deaths Askin...',  
 'song educative',  
 'BREAKING NEWS: testers town battle spike',  
 'Regular physical activity benefits body mind reduce high blood pressure help manage weight an...',  
 'It's important tested straight away symptoms appointments available t...',  
 'hoping short lived series (a bit surprising I've seen)',  
 'promised election campaign 'miracle' getting forge new Britain bu...',  
 ' Tests (PCR): 339157 Tests (RDT): 312402 Positive: 18483  
 Recovered: 13053 Isolation: 5...',  
 'Heres weekend reading ways COVID19 changed sustainability investing m...',  
 'Indian Institute Technology Kharagpur Saturday said researchers developed portable diagnostic devi...',  
 'doesnt reek desperation mean sure years ago b...',  
 'said help God social media',  
 'lockdown changed lives ways obvious area emerg...',  
 'blooming beats nature refreshing weekend Can't wait enjoy...',  
 'I'm pretty sure that's spread masks don't work don't practice social distancing',  
 'Ji Kindly DM contact details patient resolve matter priority...',  
 'flight pandemic critical times admit sanitary precaution...',  
 'Exactly preexisting condition good p...',

'Zostels Travel Survey 2020 indicates 317% Indians willing travel 2020',  
 'outlined actions successful transmission amp saving lives Let's use tools have...',  
 'symptoms dont leave home test Remember symptoms High temperature...',  
 'round COVID vaccine',  
 'Wearing mask good preventive measure protect infection I...',  
 'Here's it's important infections long term health ef...',  
 'crime century this: 148000 Americans dead 42 mi...',  
 'READ: Airborne Transmission SARSCoV2—Theoretical Considerations amp Available Evidence',  
 'total 217797 confirmed cases',  
 'contacted contact tracers phone text message important follow advi...',  
 'PM reaction covid19 like child getting new session books got excited later got bo...',  
 '50000 nursing home residents died Proper protection increased testing virtua...',  
 'India records highestever 42 lakh COVID tests single day Nearly 16 crore samples tested far...',  
 'Discovering separated quiet london routes revelation ...',  
 'stay 2M everbody thats fine Try countries...',  
 'manager Xavi announced tested positive coronavirus',  
 'Okay want control Population step',  
 'Solo mining bring nice piece BTC effective way earn CryptoTab mining itself...',  
 'Picture doctors Hawari Hospital main hospital hospital trea...',  
 'PUERTO RICO COVID19 DAILY UPDATE: July 25 2020 244 new confirmed cases (PCR tests) 294 new possible cases...',  
 'nice trip fall Soak rich',  
 'spokesperson Ministry Health: yesterday 2316 new confirmed cases id...',  
 'Didn't Lancet find indicators prevalent China way sooner reported',  
 'busy Speeded rate work finished enzyme playlist Continuing project Hopin...',  
 '10 causes death (annual average) vs (so far) Heart disease: 647K Cancer: 599K Accidents: 1...',  
 'TV remember old times check fight ',  
 'promask amp antimask incredible dares compromise way ends nonm...',  
 'flood situation worsening 100 people die far 32m marooned',  
 'DAILY SNAPSHOT: Total Cases inched 239000 7:00 pm 4400 New Cases reported region...',  
 'Leading health officials warned obese people 40% likely die relate...',  
 'Leading health officials warned obese people 40% likely die relate...',  
 'denial: great American nightmare \u2066 uses google mobility data establishes...',  
 'Care Homes set 870 beds suspected cases Home isolation allowed mild amp asymptomati...',  
 'Datuk Dr Noor Hisham Abdullah said case related Construction Company Cluster...',  
 '23 positive cases today highest June 16th month ago Ya Allah protect i...',  
 'Crises kind impact women girls differently gender inequality spoke women...',

'Dr Ashley Bloomfield like Dr SmashLee Boom Field man lead NZ Covid19 crisis  
 conti...',  
 'Sinclair Media Group TV stations air "Plandemic" story story sure t...',  
 'brother lives Los Angeles keeps insisting Im likeno thanks would...',  
 'Percent increase bit misleading Look absolute numbers',  
 ' — safe safe commit ensure...',  
 'Bhubaneswar Municipal Corporation (BMC) Saturday said 111 people tested  
 positive COVID19 the...',  
 'Nice masks fun stylish people fussy wear mask save life...',  
 'nations world we've deaths tim...',  
 'question Scotlands Nicola Sturgeon fear Boris Johnson positive regard for...',  
 'better reason people shouldnt forced crowded office buildings',  
 'half positive cases comes South Africa Open ears bantu ba se South Africa',  
 'Kindly share details whatsapp message email icmrhqds[at]sansad[dot]nic[dot]in  
 p...',  
 'minister CM gets affected admitted best private hospitals best amenit...',  
 'Capitalism people planet puts profit/money pandemic tur...',  
 'Thanks highlighting impact families...',  
 '1500 beds added Covid Hospitals Bhubaneswar: Anu Garg Observer Bhubaneswar',  
 'Best thing kids: Vice President Mike Pence discusses reopening schools  
 colleges: way can't...',  
 'Themes coming impact amp lockdown children young people amp adults Worries  
 future...',  
 'Dear Hank amp Doug net worth increased \$11 BILLION past 4 months ended  
 employee appreci...',  
 'Help Worcestershire's shops safe wear face covering stores supermarkets latest  
 COVID19 g...',  
 '109 new cases 1 new death Nepal [12:08 GMT]',  
 'trials going far',  
 'thing SAFE',  
 'chart matters shows likely Florida ELSE...',  
 'Taking care Children Special Needs times held:...',  
 'Covid heat rises N R MLA Tanveer Sait action',  
 'latest Rettew Creative Daily Thanks',  
 'Landlordtenant mediation program launched new program aims provide housing  
 security tenants c...',  
 'Great rv trip family VA PA outside rv VA state quarantine lis...',  
 'Allison Hanes: Challenging myths published @',  
 'you're looking week don't forget tweetchat live Tuesday 7/28 3pm EST wi...',  
 'We're prepping deep clean afternoon advance reopening soon che...',  
 'Great thread applies medical appointments Doctors patients need honest fair  
 o...',  
 'COVID19 Reports 25/07/2020 11:07 (UTC) Confirmed Cases: 15729173 Recovered:  
 9068334 Deaths: 640150',  
 '13225 new cases 122 deaths wrote letter wait...',  
 'UAE: returning special flights know need ge...',  
 'big setback head coach great tests positive Sadd are...'

'Oh look youve managed use pandemic true obsession controlling p...',  
 'Todays global extrapolation chart available',  
 'Fyapena nombra Politicians holding rallies ate people love SMH',  
 '2803 new positive cases reported 36314 total cases',  
 'Ministry Public Health announces 398 new confirmed cases (Covid 19) 330 cases recovered',  
 'magic crystal showing outbreak humm yes...',  
 'reported 1487 new infections Saturday recorded 24 deaths caused debilitating...',  
 'Day 11 Memes amp Images fun ',  
 'subject pleaseid like buy takes soooo long...',  
 'Register Free:',  
 '\u2066 true reality nightmare America 146000 deaths 4 million cases of...',  
 'MP CM Shivraj Singh Chouhan tests positive coronavirus',  
 'SMEs risk failing impacts emerging economies...',  
 'football club coach Xavi Hernandez tested positive posted Instagram he'll r...',  
 'realted death tally JK crosses 300 mark 5 new deaths today',  
 'handled outbreak better country mentioned article',  
 'Spain discovered dexamethasone useful UK Spain succ...',  
 'Listen recent episode podcast: Whats Diana Laufenberg',  
 'Sallah orders available High taste affordablewe offer home deliveries kaduna Message 08...',  
 'Superior Court considers impact COVID19 pandemic tenants obligations pay rent recent...',  
 'confirms 684 new cases deaths',  
 'new clusters identified Bukit Tiram Kuching Health DG',  
 'coach great tests positive',  
 ...]

```
[ ]: # Tokenization
for line in positive_tweet_list:
#     print(line)
    for token in line.split():
        print(token)
```

```
[64]: pos_tokens = [token for line in positive_tweet_list for token in line.split()]
```

```
[66]: neg_tokens = [token for line in negative_tweet_list for token in line.split()]
neut_tokens = [token for line in neutral_tweet_list for token in line.split()]
```

```
[67]: pos_tokens
```

```
[67]: ['Hey',
      'wouldnt',
      'sense',
      'players',
      'pay',
```



'respects',  
'A...',  
'Change',  
'Work',  
'General',  
'(and',  
'recruiting',  
'specifically)',  
'via/',  
'Praying',  
'good',  
'health',  
'recovery',  
' ',  
'—',  
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'commit',  
'ensure...',  
'Lets',  
'protect',  
'real',  
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'Continent',  
'Lets',  
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'Second',  
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'COVID',  
'Update:',  
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'experts',  
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'Good',  
'Patriots',  
'Volunteer',  
'Election',

'Judge',  
'Polls',  
'open',  
'without...',  
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'amp',  
'Analysis:',  
'key',  
'ways',  
'WASH',  
'help',  
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'MrGKReddy',  
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'WSU',

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'students"...',  
'Actionables',  
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'meeting',  
'In...',  
'released',  
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'podcast',  
'episodes',  
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'Technology',  
'Platforms',  
'Conduct',  
'Telehealth',  
'Visits',  
'C...',  
'reports',  
'1142',  
'positive',  
'cases',  
'29',  
'deaths',  
'Saturday',  
'Death',  
'toll',  
'rises',  
'3806',  
'reports',  
'ANI',  
'quot...',  
'Venezuelas',  
'Economy/Budget',  
'tied',  
'Oil',  
'like',  
'Louisianas',  
'Funny',  
'rightwing',  
'example',

'of...',  
'reporting',  
'yesterday',  
'1145',  
'people',  
'died',  
'USA',  
'73K',  
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'cases',  
'reported',  
'Serio...',  
'People',  
'relatives',  
'died',  
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'action',  
'lawsuit',  
'Sinclair',  
'Broadcasting',  
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'cases',  
'148521',  
'deaths',  
'reported',  
'United',  
'States',  
'date',  
'1257',  
'new',  
'cases',  
'31...',  
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'',  
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'mask',  
'powerful',  
'accessories',  
'fight',  
't...',  
'miss',  
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'alcohol',  
'Ethanol',  
'hand',  
'sanitizer',

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'poured',  
'tequila',  
'hands',  
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'regular',  
'sanitation',  
'activities',  
'city',  
'clean',  
'prevent',  
'spread...',  
'Local',  
'government',  
'sales',  
'tax',  
'revenue',  
'dropped',  
'27',  
'percent',  
'yeartoyear',  
'second',  
'quarter',  
'thanks',  
'shutdo...',  
'Look',  
'Lil'',  
'Donny',  
'Micro',  
'Dick',  
'astounding',  
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'brilliance',  
'+',  
'cognitive',  
'capabilities',  
'Somebody...',  
'Check',  
'Angels',  
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'mask',  
'hair',

'bow',  
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'1',  
'municipality',  
'reports',  
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'fatality',  
'compared',  
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'located',  
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'fa...',  
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'awareness',  
'stress',  
'facilitate',  
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```

```
[68]: # Get Most Commonest Keywords  
from collections import Counter
```

```
[73]: def get_tokens(docx,num=30):  
        word_tokens = Counter(docx)  
        most_common = word_tokens.most_common(num)  
        result = dict(most_common)  
        return result
```

```
[74]: get_tokens(pos_tokens)
```

```
[74]: {'cases': 10310,  
        'new': 9947,  
        'amp': 5298,  
        'positive': 3888,  
        'people': 3655,  
        'New': 3325,  
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        'right': 1266,
```

```
'reports': 1264,  
'India': 1230,  
'Total': 1227,  
'2020': 1222}
```

```
[75]: most_common_pos_words = get_tokens(pos_tokens)  
most_common_neg_words = get_tokens(neg_tokens)  
most_common_neut_words = get_tokens(neut_tokens)
```

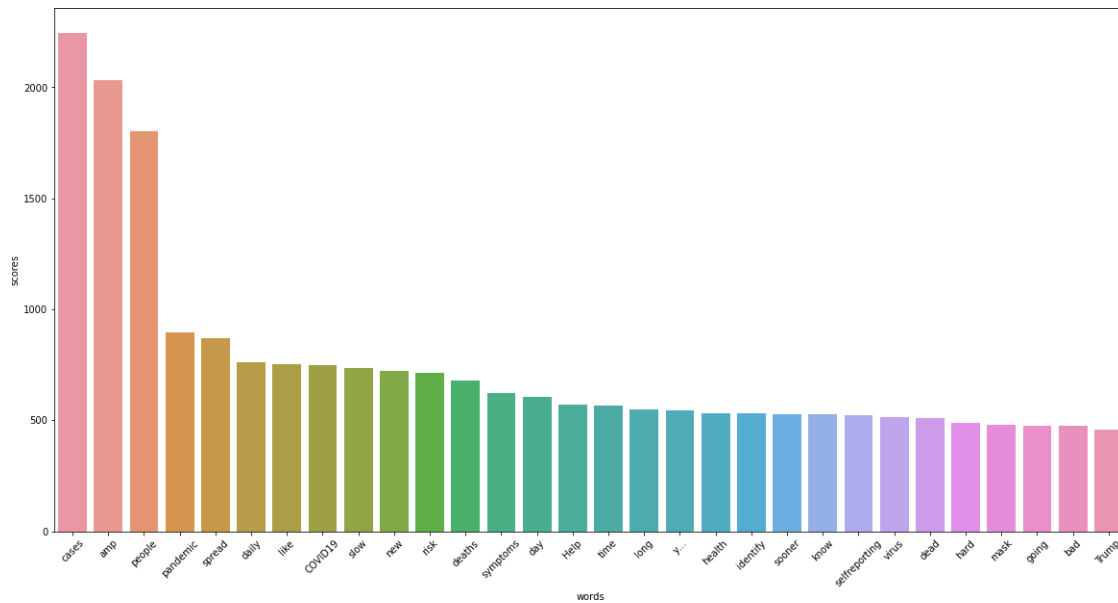
```
[80]: # Plot with seaborn  
neg_df = pd.DataFrame(most_common_neg_words.items(), columns=['words', 'scores'])
```

```
[81]: neg_df
```

```
[81]:
```

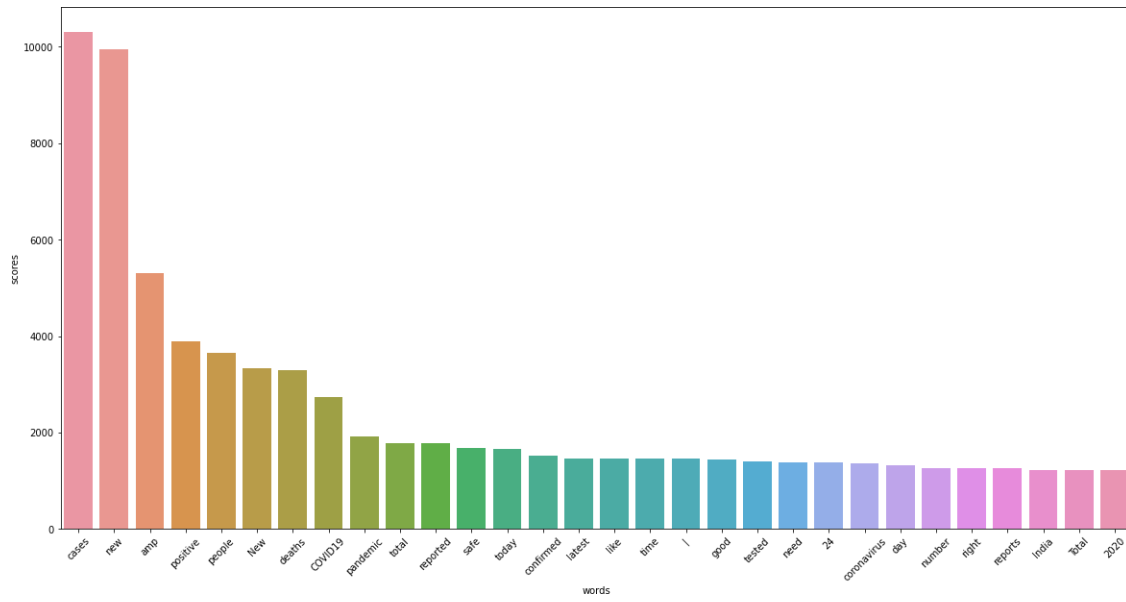
	words	scores
0	cases	2245
1	amp	2033
2	people	1801
3	pandemic	895
4	spread	870
5	daily	760
6	like	754
7	COVID19	748
8	slow	734
9	new	723
10	risk	713
11	deaths	679
12	symptoms	621
13	day	604
14	Help	573
15	time	568
16	long	550
17	y...	547
18	health	534
19	identify	533
20	sooner	529
21	know	527
22	selfreporting	522
23	virus	516
24	dead	510
25	hard	489
26	mask	478
27	going	475
28	bad	474
29	Trump	459

```
[83]: plt.figure(figsize=(20,10))
sns.barplot(x='words',y='scores',data=neg_df)
plt.xticks(rotation=45)
plt.show()
```

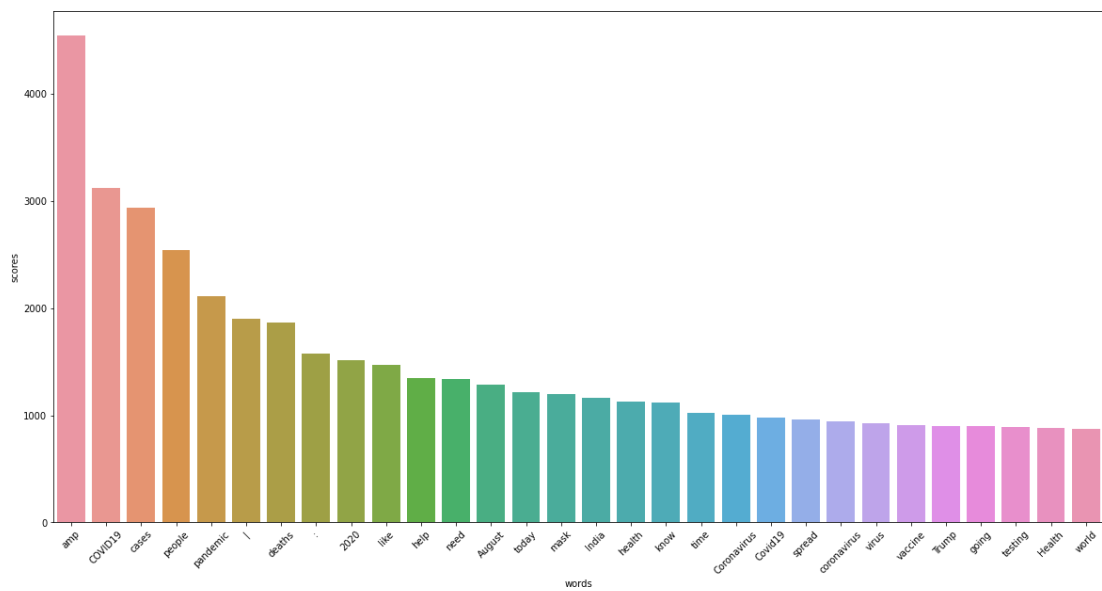


```
[84]: # Plot with seaborn
pos_df = pd.DataFrame(most_common_pos_words.items(),columns=['words','scores'])
plt.figure(figsize=(20,10))
sns.barplot(x='words',y='scores',data=pos_df)
plt.xticks(rotation=45)
plt.show()
```





```
[86]: # Plot with seaborn
neut_df = pd.DataFrame(most_common_neut_words.
    ↪items(),columns=['words','scores'])
plt.figure(figsize=(20,10))
sns.barplot(x='words',y='scores',data=neut_df)
plt.xticks(rotation=45)
plt.show()
```

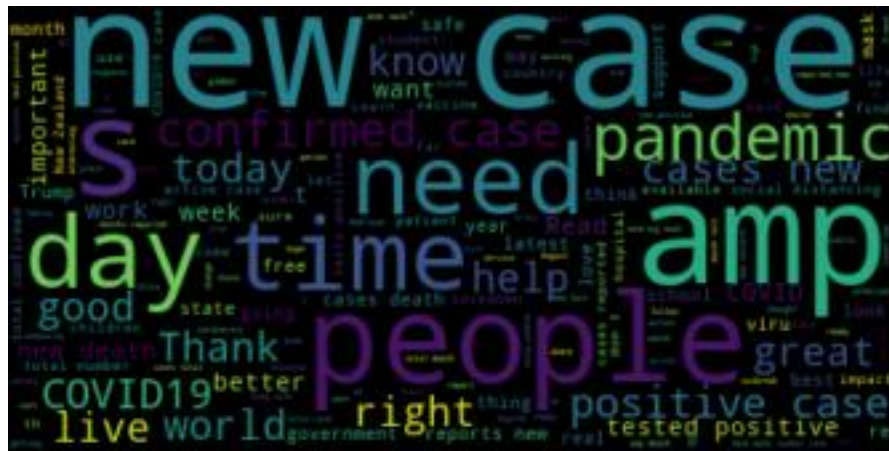


```
### Word Cloud
from wordcloud import WordCloud
```

```
def plot_wordcloud(docx):  
    plt.figure(figsize=(20,10))  
    mywordcloud = WordCloud().generate(docx)  
    plt.imshow(mywordcloud,interpolation='bilinear')  
    plt.axis('off')  
    plt.show()
```

```
pos_docx = ' '.join(pos_tokens)
neg_docx = ' '.join(neg_tokens)
neu_docx = ' '.join(neu_tokens)
```

```
plot_wordcloud(pos_docx)
```



```
plot_wordcloud(neg_docx)
```



