Task 2

December 22, 2020

```python
[22]: import os
      import tweepy as tw
      import pandas as pd
      import json
      consumer_key= 'mykey'
      consumer_secret= 'mysecret'
      auth = tw.OAuthHandler(consumer_key, consumer_secret)
      api = tw.API(auth, wait_on_rate_limit=True)
      cnt=0
      arr=[]
      for tweet in tw.Cursor(api.search, q='#GodiMediaAgainstFarmers -filter:
       ↪retweets', rpp=10, exclude_replies=True, count=2, exclude_retweets=True).
       ↪items():
          print(cnt)
          arr.append(tweet._json)
          cnt=cnt+1
          if(cnt==4):
              break
      # op1 = open("op1", "w")
      # print(json.dumps(ak), file=op1)
      print("legthhhhh",len(arr))
```

```
0
1
2
3
legthhhhh 4
```

```python
[1]: import json
     with open('data_dump') as json_file:
         data = json.load(json_file)
```

```python
[16]: data[0]
```

```python
[16]: {'created_at': 'Mon Dec 21 05:58:33 +0000 2020',
       'id': 1340899439137992704,
       'id_str': '1340899439137992704',
       'text': '@jatt_junction @punjabisath1
```

      \n#GodiMediaAgainstFarmers',
 'truncated': False,
 'entities': {'hashtags': [{'text': 'GodiMediaAgainstFarmers',
     'indices': [53, 77]}],
  'symbols': [],
  'user_mentions': [{'screen_name': 'jatt_junction',
     'name': '   ',
     'id': 1313354713,
     'id_str': '1313354713',
     'indices': [0, 14]},
   {'screen_name': 'punjabisath1',
     'name': '   ',
     'id': 1588330345,
     'id_str': '1588330345',
     'indices': [15, 28]}],
  'urls': []},
 'metadata': {'iso_language_code': 'pa', 'result_type': 'recent'},
 'source': 'Twitter
for Android',
 'in_reply_to_status_id': 1340845483971936257,
 'in_reply_to_status_id_str': '1340845483971936257',
 'in_reply_to_user_id': 1313354713,
 'in_reply_to_user_id_str': '1313354713',
 'in_reply_to_screen_name': 'jatt_junction',
 'user': {'id': 1333696374320271361,
  'id_str': '1333696374320271361',
  'name': 'JatinderBasiala',
  'screen_name': 'JBasiala',
  'location': '   ,   ',
  'description': '#Support_farmers',
  'url': None,
  'entities': {'description': {'urls': []}},
  'protected': False,
  'followers_count': 45,
  'friends_count': 73,
  'listed_count': 0,
  'created_at': 'Tue Dec 01 08:56:24 +0000 2020',
  'favourites_count': 1549,
  'utc_offset': None,
  'time_zone': None,
  'geo_enabled': False,
  'verified': False,
  'statuses_count': 803,
  'lang': None,
  'contributors_enabled': False,
  'is_translator': False,
  'is_translation_enabled': False,

```
 'profile_background_color': 'F5F8FA',
 'profile_background_image_url': None,
 'profile_background_image_url_https': None,
 'profile_background_tile': False,
 'profile_image_url':
'http://pbs.twimg.com/profile_images/1333696654835388417/ZDO3ISSt_normal.jpg',
 'profile_image_url_https':
'https://pbs.twimg.com/profile_images/1333696654835388417/ZDO3ISSt_normal.jpg',
 'profile_banner_url':
'https://pbs.twimg.com/profile_banners/1333696374320271361/1606814981',
 'profile_link_color': '1DA1F2',
 'profile_sidebar_border_color': 'C0DEED',
 'profile_sidebar_fill_color': 'DDEEF6',
 'profile_text_color': '333333',
 'profile_use_background_image': True,
 'has_extended_profile': True,
 'default_profile': True,
 'default_profile_image': False,
 'following': None,
 'follow_request_sent': None,
 'notifications': None,
 'translator_type': 'none'},
 'geo': None,
 'coordinates': None,
 'place': None,
 'contributors': None,
 'is_quote_status': False,
 'retweet_count': 0,
 'favorite_count': 0,
 'favorited': False,
 'retweeted': False,
 'lang': 'pa'}
```

```python
[2]: a={}
for val in data:
    if val['source'] in a:
        a[val['source']]+=1
    else:
        a[val['source']]=1
a
```

```
[2]: {'<a href="http://twitter.com/download/android" rel="nofollow">Twitter for
Android</a>': 6608,
 '<a href="http://twitter.com/download/iphone" rel="nofollow">Twitter for
iPhone</a>': 3699,
 '<a href="https://mobile.twitter.com" rel="nofollow">Twitter Web App</a>': 624,
 '<a href="http://twitter.com/#!/download/ipad" rel="nofollow">Twitter for
```
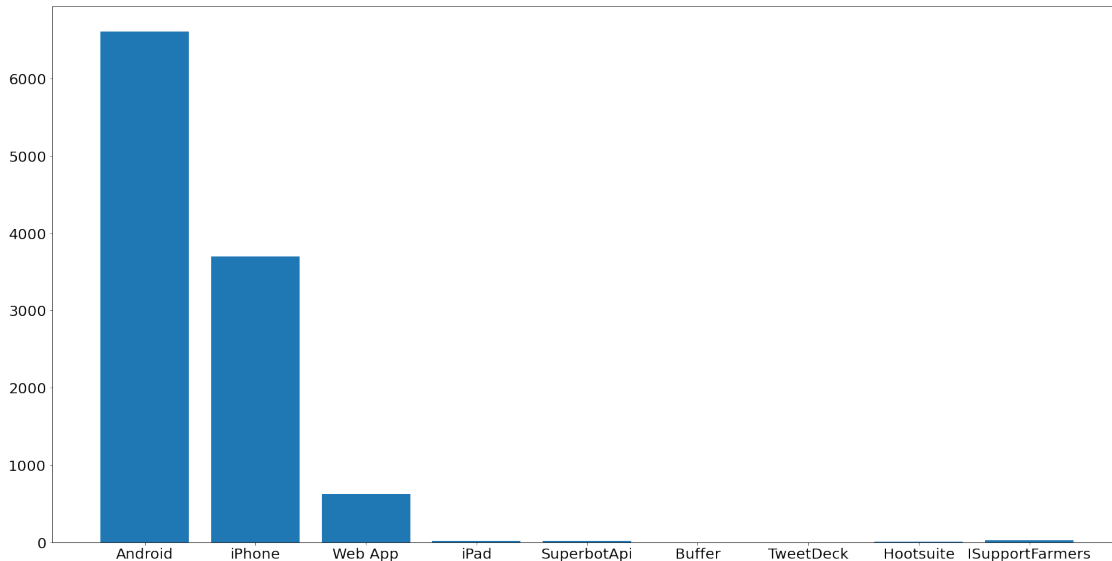
```
    iPad</a>': 19,
     '<a href="http://thermoengineers.com" rel="nofollow">SuperbotApi</a>': 13,
     '<a href="https://buffer.com" rel="nofollow">Buffer</a>': 2,
     '<a href="https://about.twitter.com/products/tweetdeck"
    rel="nofollow">TweetDeck</a>': 2,
     '<a href="https://www.hootsuite.com" rel="nofollow">Hootsuite Inc.</a>': 3,
     '<a href="https://waitrose.in" rel="nofollow">ISupportFarmers</a>': 30}
```

```python
[3]: arra1=["Android", "iPhone", "Web App", "iPad", "SuperbotApi", "Buffer",
      ↪"TweetDeck", "Hootsuite", "ISupportFarmers"]
     arra2=list(a.values())
     import matplotlib.pyplot as plt
     plt.rcParams["figure.figsize"]=20,10
     plt.rc('xtick', labelsize=20)
     plt.rc('ytick', labelsize=20)
     fig = plt.figure()
     ax = fig.add_axes([0,0,1,1])
     ax.bar(arra1, arra2)
     plt.show()
```


Most of the users who tweeted this used their mobile devices. We also notice that there is a significant portion of the users using iPhone. This suggests that despite this issue being related to farmers, even people who are rich enough to buy iPhone(considered to be a high-class thing in India) are tweeting about it.

```python
[4]: d={}
     for val in data:
         if(val['lang'] in d):
```

```
        d[val['lang']]+=1
    else:
        d[val['lang']]=1
d={k: v for k, v in sorted(d.items(), key=lambda item: item[1], reverse=True)}
```
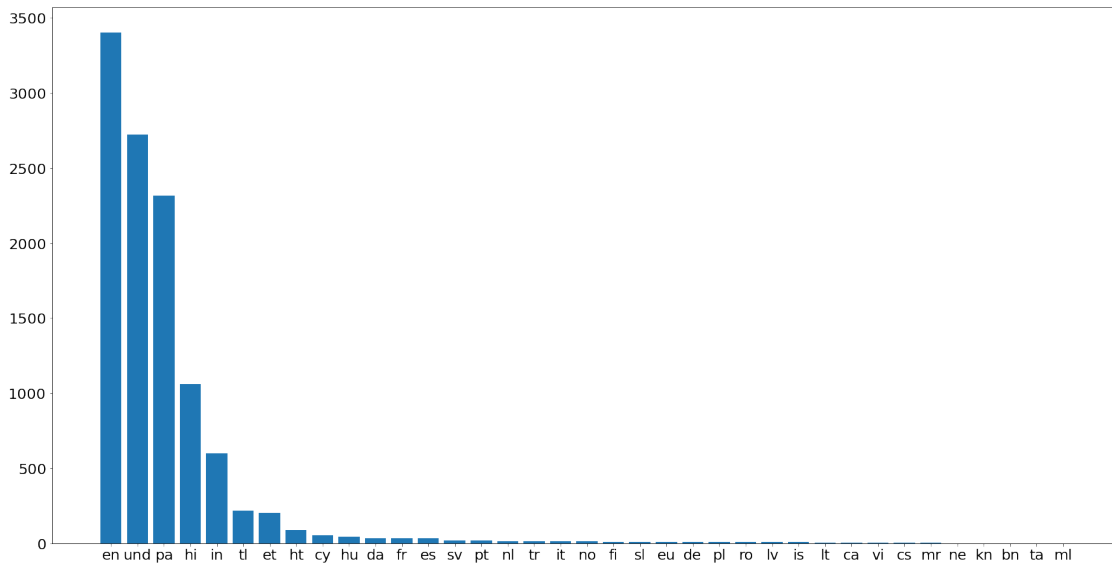
[5]:
```python
import matplotlib.pyplot as plt
plt.rcParams["figure.figsize"]=20,10
plt.rc('xtick', labelsize=20)
plt.rc('ytick', labelsize=20)
arr1=(list(d.keys()))
arr2=(list(d.values()))
print(arr1)
print(arr2)
fig = plt.figure()
ax = fig.add_axes([0,0,1,1])
ax.bar(arr1, arr2)
plt.show()
fig.savefig('bargraph_with_python.png')
```

```
['en', 'und', 'pa', 'hi', 'in', 'tl', 'et', 'ht', 'cy', 'hu', 'da', 'fr', 'es',
'sv', 'pt', 'nl', 'tr', 'it', 'no', 'fi', 'sl', 'eu', 'de', 'pl', 'ro', 'lv',
'is', 'lt', 'ca', 'vi', 'cs', 'mr', 'ne', 'kn', 'bn', 'ta', 'ml']
[3402, 2725, 2317, 1061, 600, 215, 203, 89, 52, 44, 36, 33, 32, 21, 20, 16, 16,
15, 12, 11, 10, 10, 10, 9, 8, 7, 7, 4, 4, 2, 2, 2, 1, 1, 1, 1, 1]
```


From the above graph, we can see that ~3500 tweets are in English, which is indicative of use of English in formal social media. We also notice that the second highest langauge is Punjabi, which is because the Farmer's Bill Issue severely affects Punjabi Farmers, and this is the reason behind the high amount of Punjabi tweets(2317 tweets).

```python
import numpy as np
dic={}
for val in data:
    if(val['user']['followers_count'] in dic):
        dic[val['user']['followers_count']]+=1
    else:
        dic[val['user']['followers_count']]=1
arr1=[]
arr2=[]
for i in sorted (dic):
    arr1.append(i)
    arr2.append(dic[i])
i=0
binarr=[]
while i<10000:
    binarr.append(i)
    i+=100
npar=np.array(arr1)
plt.rcParams["figure.figsize"]=20,10
plt.rc('xtick', labelsize=20)
plt.rc('ytick', labelsize=20)
plt.hist(npar, bins=binarr, weights=arr2)
```
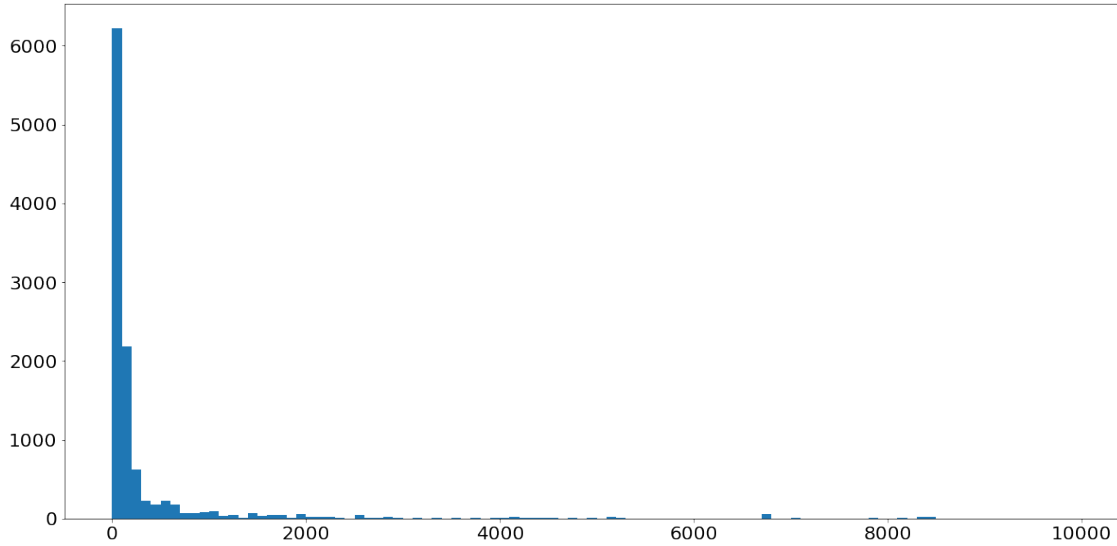
[10]: (array([6.221e+03, 2.187e+03, 6.260e+02, 2.250e+02, 1.720e+02, 2.210e+02,
        1.750e+02, 6.800e+01, 6.900e+01, 8.000e+01, 9.600e+01, 3.200e+01,
        4.000e+01, 1.100e+01, 6.700e+01, 3.600e+01, 4.000e+01, 4.100e+01,
        1.400e+01, 6.300e+01, 1.800e+01, 2.300e+01, 1.600e+01, 5.000e+00,
        3.000e+00, 4.800e+01, 6.000e+00, 1.200e+01, 2.300e+01, 5.000e+00,
        2.000e+00, 8.000e+00, 2.000e+00, 9.000e+00, 3.000e+00, 5.000e+00,
        2.000e+00, 4.000e+00, 3.000e+00, 5.000e+00, 4.000e+00, 2.600e+01,
        1.400e+01, 4.000e+00, 9.000e+00, 5.000e+00, 0.000e+00, 9.000e+00,
        2.000e+00, 6.000e+00, 3.000e+00, 2.400e+01, 1.200e+01, 1.000e+00,
        0.000e+00, 2.000e+00, 0.000e+00, 3.000e+00, 1.000e+00, 1.000e+00,
        1.000e+00, 0.000e+00, 1.000e+00, 1.000e+00, 1.000e+00, 1.000e+00,
        1.000e+00, 5.200e+01, 0.000e+00, 2.000e+00, 8.000e+00, 0.000e+00,
        0.000e+00, 1.000e+00, 0.000e+00, 0.000e+00, 0.000e+00, 1.000e+00,
        7.000e+00, 1.000e+00, 0.000e+00, 1.100e+01, 1.000e+00, 2.200e+01,
        2.000e+01, 1.000e+00, 1.000e+00, 0.000e+00, 0.000e+00, 0.000e+00,
        0.000e+00, 0.000e+00, 0.000e+00, 1.000e+00, 0.000e+00, 0.000e+00,
        0.000e+00, 0.000e+00, 0.000e+00]),
 array([0, 100, 200, 300, 400, 500, 600, 700, 800, 900, 1000,
        1100, 1200, 1300, 1400, 1500, 1600, 1700, 1800, 1900, 2000, 2100,
        2200, 2300, 2400, 2500, 2600, 2700, 2800, 2900, 3000, 3100, 3200,
        3300, 3400, 3500, 3600, 3700, 3800, 3900, 4000, 4100, 4200, 4300,
        4400, 4500, 4600, 4700, 4800, 4900, 5000, 5100, 5200, 5300, 5400,
        5500, 5600, 5700, 5800, 5900, 6000, 6100, 6200, 6300, 6400, 6500,
        6600, 6700, 6800, 6900, 7000, 7100, 7200, 7300, 7400, 7500, 7600,
```

```
        7700, 7800, 7900, 8000, 8100, 8200, 8300, 8400, 8500, 8600, 8700,
        8800, 8900, 9000, 9100, 9200, 9300, 9400, 9500, 9600, 9700, 9800,
        9900]),
 <a list of 99 Patch objects>)
```


The above Histogram indicates that a large number of people who are tweeting about this have very less follower counts, i.e. are not very influential people. For example, there are 6000+ users with followers in the range of 0-100, 2000+ in the range of 100-200, which itself covers more than 80% of the tweets.

```
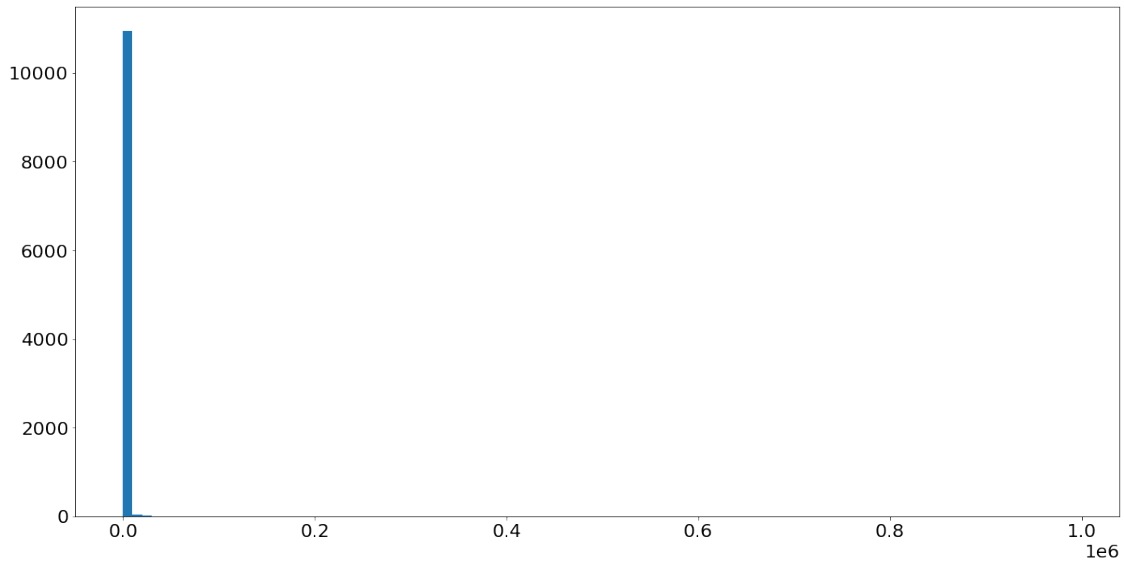[11]: plt.show()
      binarr=[]
      i=0
      while i<1000000:
          binarr.append(i)
          i+=10000
      plt.hist(arr1, bins=binarr, weights=arr2)
```

```
[11]: (array([1.0947e+04, 3.4000e+01, 1.1000e+01, 1.0000e+00, 1.0000e+00,
             0.0000e+00, 0.0000e+00, 1.0000e+00, 0.0000e+00, 0.0000e+00,
             0.0000e+00, 0.0000e+00, 0.0000e+00, 0.0000e+00, 0.0000e+00,
             0.0000e+00, 0.0000e+00, 0.0000e+00, 0.0000e+00, 1.0000e+00,
             0.0000e+00, 0.0000e+00, 0.0000e+00, 2.0000e+00, 0.0000e+00,
             0.0000e+00, 0.0000e+00, 0.0000e+00, 0.0000e+00, 0.0000e+00,
             0.0000e+00, 1.0000e+00, 0.0000e+00, 0.0000e+00, 0.0000e+00,
             0.0000e+00, 0.0000e+00, 0.0000e+00, 0.0000e+00, 0.0000e+00,
             0.0000e+00, 0.0000e+00, 0.0000e+00, 0.0000e+00, 0.0000e+00,
             0.0000e+00, 0.0000e+00, 0.0000e+00, 0.0000e+00, 0.0000e+00,
             0.0000e+00, 0.0000e+00, 0.0000e+00, 0.0000e+00, 0.0000e+00,
```

```
        0.0000e+00, 0.0000e+00, 0.0000e+00, 0.0000e+00, 0.0000e+00,
        0.0000e+00, 0.0000e+00, 0.0000e+00, 0.0000e+00, 0.0000e+00,
        0.0000e+00, 0.0000e+00, 0.0000e+00, 0.0000e+00, 0.0000e+00,
        0.0000e+00, 0.0000e+00, 0.0000e+00, 0.0000e+00, 0.0000e+00,
        0.0000e+00, 0.0000e+00, 0.0000e+00, 0.0000e+00, 0.0000e+00,
        0.0000e+00, 0.0000e+00, 0.0000e+00, 0.0000e+00, 0.0000e+00,
        0.0000e+00, 0.0000e+00, 0.0000e+00, 0.0000e+00, 0.0000e+00,
        0.0000e+00, 0.0000e+00, 0.0000e+00, 0.0000e+00, 0.0000e+00,
        0.0000e+00, 0.0000e+00, 0.0000e+00, 0.0000e+00]),
 array([     0,  10000,  20000,  30000,  40000,  50000,  60000,  70000,
         80000,  90000, 100000, 110000, 120000, 130000, 140000, 150000,
        160000, 170000, 180000, 190000, 200000, 210000, 220000, 230000,
        240000, 250000, 260000, 270000, 280000, 290000, 300000, 310000,
        320000, 330000, 340000, 350000, 360000, 370000, 380000, 390000,
        400000, 410000, 420000, 430000, 440000, 450000, 460000, 470000,
        480000, 490000, 500000, 510000, 520000, 530000, 540000, 550000,
        560000, 570000, 580000, 590000, 600000, 610000, 620000, 630000,
        640000, 650000, 660000, 670000, 680000, 690000, 700000, 710000,
        720000, 730000, 740000, 750000, 760000, 770000, 780000, 790000,
        800000, 810000, 820000, 830000, 840000, 850000, 860000, 870000,
        880000, 890000, 900000, 910000, 920000, 930000, 940000, 950000,
        960000, 970000, 980000, 990000]),
 <a list of 99 Patch objects>)
```

From the above plot, we can see that out of 11,000 tweets 10,947 are from users with followers <=10,000. This again supports the fact that majority are less influential people on twitter.

```
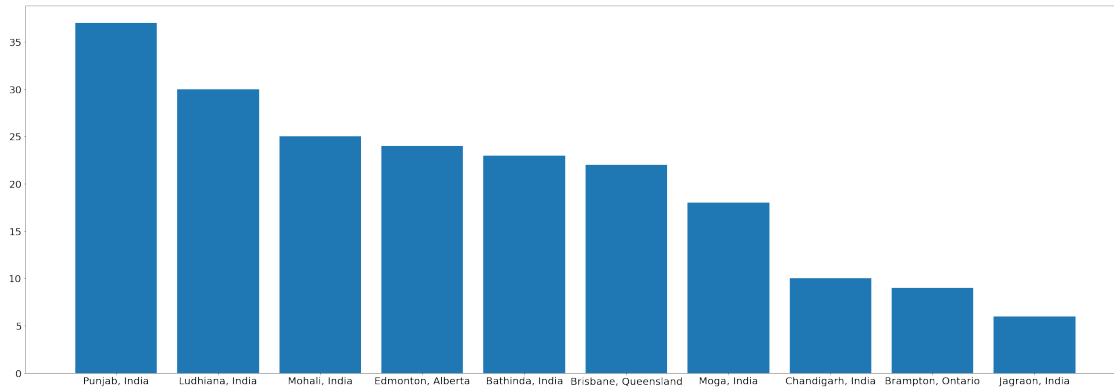[13]: dict_place={}
      counter=0
      for val in data:
          if isinstance(val['place'],int) or val['place'] is None:
              continue
          if 'full_name' in val['place']:
              if val['place']['full_name'] in dict_place:
                  dict_place[val['place']['full_name']]+=1
              else:
                  dict_place[val['place']['full_name']]=1
              counter+=1
      dict_place={k: v for k, v in sorted(dict_place.items(), key=lambda item:␣
       →item[1], reverse=True)}
      print(dict_place)
      print(counter)
```

{'Punjab, India': 37, 'Ludhiana, India': 30, 'Mohali, India': 25, 'Edmonton,
Alberta': 24, 'Bathinda, India': 23, 'Brisbane, Queensland': 22, 'Moga, India':
18, 'Chandigarh, India': 10, 'Brampton, Ontario': 9, 'Jagraon, India': 6, 'Bukit
Katil, Melaka': 5, 'Surrey, British Columbia': 4, 'Patiala, India': 4, 'Rajpura,
India': 4, 'Firozpur, India': 4, 'Bahrain': 4, 'Jammu, Jammu And Kashmir,
India': 3, 'Dubai, United Arab Emirates': 3, 'San Jose, CA': 3, 'Kharar, India':
3, 'Jamshedpur, India': 2, 'Danapur, India': 2, 'Mumbai, India': 2, 'New Delhi,
India': 2, 'Batala, India': 2, 'Winnipeg, Manitoba': 2, 'sirsa, India': 2, 'Modi
Gobindgarh Sirhind, India': 2, 'Nawashahr, India': 2, 'Perth, Western
Australia': 2, 'Rajasthan, India': 2, 'Delta, British Columbia': 2, 'Dilshad
Garden Metro Station': 1, 'Washington, USA': 1, 'Dirba, India': 1, 'Nawanshahr,
India': 1, 'Amritsar, India': 1, 'Lucknow, India': 1, 'Egmore Nungambakkam,
India': 1, 'Haldwani-Kathgodam, India': 1, 'Anandpur Sahib Gurudwara': 1,
'India': 1, 'Delhi, India': 1, 'Mullanpur Dakha, India': 1, 'Haryana, India': 1,
'Bahadurgarh, India': 1, 'Sankhol, India': 1, 'Kashipur, India': 1, 'Fresno,
CA': 1, 'Karnataka, India': 1, 'Jalandhar, India': 1, 'Bilaspur, India': 1,
'Muktsar, India': 1, 'Budhlada, India': 1, 'Maharashtra, India': 1, 'Roseville,
CA': 1, 'Texas, USA': 1, 'Auckland, New Zealand': 1, 'Hoshiarpur, India': 1,
'Toronto, Ontario': 1, 'Sonipat, India': 1, 'Mina Abdulla, Kuwait': 1,
'Chhattisgarh, India': 1, 'Kota, India': 1, 'Agra, India': 1, 'Panipat Haveli':
1, 'Goindwal, India': 1, 'Bengaluru, India': 1, 'Vancouver, British Columbia':
1, 'Maur, India': 1, 'Sanganer, India': 1, 'Delhi, OH': 1, 'Montréal, Québec':
1, 'Miamisburg, OH': 1, 'Kolkata, India': 1, 'Jodhpur, India': 1, 'Banga,
India': 1, 'Guru Tegh Bahadur Memorial': 1, 'Rupnagar, India': 1}
312

```
[14]: x_axis=list(dict_place.keys())[:10]
      y_axis=list(dict_place.values())[:10]
      import matplotlib.pyplot as plt
      plt.rcParams["figure.figsize"]=30,10
      plt.rc('xtick', labelsize=20)
```

```
plt.rc('ytick', labelsize=20)
fig = plt.figure()
ax = fig.add_axes([0,0,1,1])
ax.bar(x_axis, y_axis)
plt.show()
```


As talked above, the Farmer Bill heavily affects the farmers of Punjab, and this can be seen in the representation that among thee people who mentioned their location in the tweet, highest(37) mentions Punjab, followed by Punjabi cities(Ludhiana and Mohali). Since lot of Punjabis are tweeting about this, we can see th next highest locations in Alberta, Canada, which is a place where a lot of Punjabis had immigrated in the past. This is again, followed by various Punjabi cities like Bathinda, Moga, Chandigarh, Jagraon, all of which are present in Punjab.

```
[15]: loc_dic={}
      for val in data:
          if not isinstance(val['user'],dict):
              continue
          if 'location' in val['user']:
              if val['user']['location']=='':
                  continue
              if val['user']['location'] in loc_dic:
                  loc_dic[val['user']['location']]+=1
              else:
                  loc_dic[val['user']['location']]=1
      loc_dic={k: v for k, v in sorted(loc_dic.items(), key=lambda item: item[1],⊔
       ↪reverse=True)}
      len(loc_dic)
```

[15]: 758

```
[41]: loc_dic
```

10

```
[41]: {'Punjab, India': 570,
       'India': 329,
       'Canada': 192,
       'United States': 175,
       'Punjab': 150,
       'Chandigarh, India': 149,
       'Moga, India': 120,
       'Brampton, Ontario': 114,
       '   ,    ': 101,
       'Ludhiana, India': 94,
       'New Delhi, India': 85,
       'Edmonton, Alberta': 82,
       'Chicago, IL': 67,
       'Washington, USA': 65,
       'Bathinda, India': 65,
       'Vancouver, British Columbia': 64,
       'Surrey, British Columbia': 57,
       '            ': 56,
       '   ': 54,
       '        ': 51,
       'Patiala, India': 49,
       '                 ': 45,
       'Winnipeg, Manitoba': 41,
       'Sangrur, India': 41,
       '          ': 41,
       'California, USA': 40,
       'New Zealand': 38,
       'Faridkot, India': 38,
       'Calgary, Alberta': 37,
       '     ': 37,
       'punjab': 37,
       'Surrey BC Canada': 33,
       'Toronto, Canada': 33,
       'Amritsar': 29,
       'Amritsar, Punjab': 28,
       'Amritsar, India': 27,
       'Mohali, India': 26,
       'Brandon, Manitoba': 25,
       'Hoshiarpur, India': 25,
       'Mumbai, India': 25,
       'ULELA JAHAZPUR BHILWARA': 25,
       'Mianpur': 24,
       'Kashipur, India': 24,
       'Moga ': 23,
       'Gurgaon, India': 23,
       'ludhiana': 22,
       'TU AMBH LAINE AA ?? ': 22,
```

```
'   British Columbia': 22,
'Ranchi, India': 21,
'Kerala, India': 21,
'Rajasthan, India': 19,
'Jalandhar, India': 19,
'Goal Pokher, U/D, W/B, India. ': 19,
'San Francisco, CA': 19,
'Melbourne, Victoria': 18,
'New York, USA': 18,
'          ': 17,
'Hoshiarpur, Punjab, India': 17,
'Toronto, Ontario': 16,
'Ambala, India': 16,
'Chandigarh': 16,
'Punjab India ': 16,
'Jagraon, India': 16,
'Punjab ': 16,
'Houston, TX': 15,
'Ludhiana, Punjab, India': 15,
'Seattle, WA': 14,
'Planet Earth ': 14,
'Perth, Western Australia': 13,
'Kotkapura,punjab': 13,
'Australia': 13,
'Jaipur, India': 13,
'Italy': 13,
'      ': 13,
'Your ': 12,
'Dubai, United Arab Emirates': 12,
'New Delhi': 12,
'canada': 12,
'Gurdaspur': 12,
'Ottawa': 11,
'Ludhiana': 11,
'Greater Vancouver': 11,
'Lucknow,Etah, India': 11,
'   ,   ': 10,
'Delhi ': 10,
'Doaba': 10,
'Australia ': 10,
'Moga, Punjab': 10,
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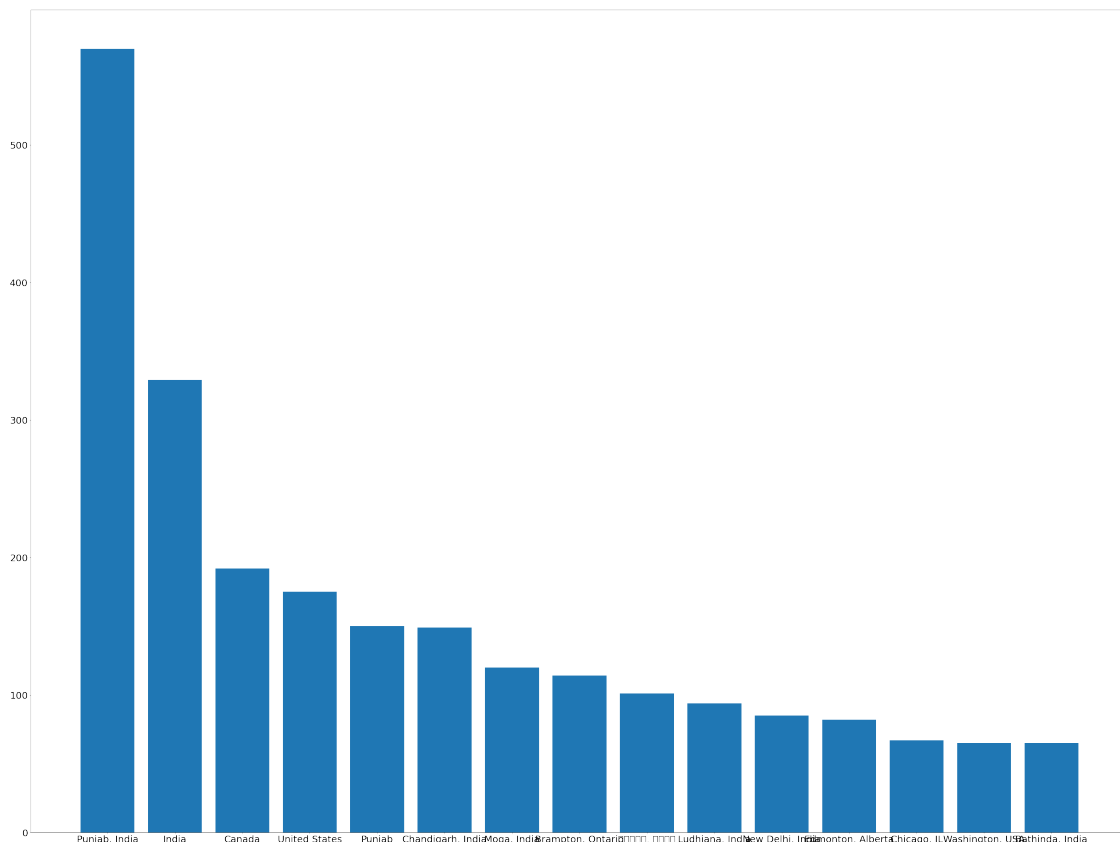    'Rajkot, India': 1}
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[16]:
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plt.rcParams["figure.figsize"]=40,30
plt.rc('xtick', labelsize=25)
plt.rc('ytick', labelsize=25)
array1=list(loc_dic.keys())[:15]
array2=list(loc_dic.values())[:15]
fig = plt.figure()
ax = fig.add_axes([0,0,1,1])
ax.bar(array1, array2)
plt.show()
```

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/home/suyash/lib/python3.8/site-packages/matplotlib/backends/backend_agg.py:214:
RuntimeWarning: Glyph 2346 missing from current font.
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/home/suyash/lib/python3.8/site-packages/matplotlib/backends/backend_agg.py:214:
RuntimeWarning: Glyph 2306 missing from current font.
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RuntimeWarning: Glyph 2352 missing from current font.
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RuntimeWarning: Glyph 2346 missing from current font.
  font.set_text(s, 0, flags=flags)
/home/suyash/lib/python3.8/site-packages/matplotlib/backends/backend_agg.py:183:
RuntimeWarning: Glyph 2306 missing from current font.
  font.set_text(s, 0, flags=flags)
```

```
/home/suyash/lib/python3.8/site-packages/matplotlib/backends/backend_agg.py:183:
RuntimeWarning: Glyph 2332 missing from current font.
  font.set_text(s, 0, flags=flags)
/home/suyash/lib/python3.8/site-packages/matplotlib/backends/backend_agg.py:183:
RuntimeWarning: Glyph 2366 missing from current font.
  font.set_text(s, 0, flags=flags)
/home/suyash/lib/python3.8/site-packages/matplotlib/backends/backend_agg.py:183:
RuntimeWarning: Glyph 2348 missing from current font.
  font.set_text(s, 0, flags=flags)
/home/suyash/lib/python3.8/site-packages/matplotlib/backends/backend_agg.py:183:
RuntimeWarning: Glyph 2349 missing from current font.
  font.set_text(s, 0, flags=flags)
/home/suyash/lib/python3.8/site-packages/matplotlib/backends/backend_agg.py:183:
RuntimeWarning: Glyph 2352 missing from current font.
  font.set_text(s, 0, flags=flags)
/home/suyash/lib/python3.8/site-packages/matplotlib/backends/backend_agg.py:183:
RuntimeWarning: Glyph 2340 missing from current font.
  font.set_text(s, 0, flags=flags)
```


The above graph, which shows the location of the accounts of the users, we again see the similar
pattern as before, with major number of tweets coming from users residing in Punjab and Canada

28

- Punjab, India having 570 users, and Canada, Punjab, Chandigarh, Moga and other Punjabi cities follow in the list.

```
[3]: import re
     from collections import Counter
     wordsarr=[]
     for val in data:
         wordsarr+=re.split(', |_|-|!|\+| |\n', val['text'])
     len(wordsarr)
     print(wordsarr[:20])
     seta=set(wordsarr)
     fin_dict={}
     for w in wordsarr:
         if w in fin_dict:
             fin_dict[w]+=1
         else:
             fin_dict[w]=1
     fin_dict={k: v for k, v in sorted(fin_dict.items(), key=lambda item: item[1],
      ↪reverse=True)}
     fin_dict
```

```
['@jatt', 'junction', '@punjabisath1', ' ', '   ', '    ', '    ',
'#GodiMediaAgainstFarmers', ' Hahaha.', 'Giving', 'back', 'to', 'Modi', 'in',
'his', 'own', 'style.', ' ', '#GodiMediaAgainstFarmers',
'https://t.co/MUrPiAuzI6']
```

```
[3]: {'': 11529,
      '#GodiMediaAgainstFarmers': 9145,
      'media': 905,
      '@republic': 887,
      '@aajtak': 812,
      'the': 691,
      '@indiatvnews': 660,
      'Godi': 636,
      'farmers': 599,
      'to': 550,
      'is': 531,
      'of': 511,
      '@ZeeNews': 484,
      ' ': 475,
      '  ': 459,
      'are': 428,
      'on': 428,
      '@abpnewshindi': 397,
      '   ': 392,
      'and': 389,
      'Media': 382,
      '    ': 370,
```

```
'a': 349,
' ': 338,
' ': 334,
'': 331,
'': 319,
'#ShameOnFacebook': 300,
'in': 292,
' ': 290,
'': 281,
'for': 280,
'godi': 276,
' ': 268,
'you': 263,
' ': 254,
'Shame': 253,
'  ': 253,
'': 249,
'#FarmersProtest': 245,
'   ': 245,
'   ': 243,
'': 241,
'Modi': 236,
'  ': 224,
'@abpnewshindi…': 224,
'@News18India': 222,
' ': 220,
'Farmers': 216,
'': 215,
'  ': 209,
'   ': 208,
' ': 208,
' ': 205,
' ': 205,
' ': 201,
' ': 199,
'': 194,
'   ': 187,
'Support': 185,
' ': 184,
'  ': 181,
'': 179,
'   ': 179,
'We': 178,
'not': 175,
'@TimesNow…': 169,
'@republic…': 160,
' ': 159,
```

```
'this': 159,
'their': 158,
' ': 157,
'with': 156,
'   ': 154,
' ': 154,
'they': 153,
'Waheguru': 153,
'support': 151,
' ': 149,
' ': 148,
'.': 145,
'  ': 143,
' ': 132,
'#GodiMediaAgainstFarmers…': 129,
'that': 128,
'  ': 127,
'The': 127,
' ': 127,
' ': 127,
'@Tractor2twitr': 122,
' ': 121,
'India': 120,
'our': 117,
'hai': 116,
'wad': 116,
' ': 114,
' ': 114,
'it': 111,
'Indian': 108,
'we': 107,
'news': 107,
'have': 106,
' ': 105,
'..': 104,
'modi': 101,
'  ': 101,
' ': 100,
'against': 99,
'   ': 99,
'no': 98,
'I': 98,
' ': 97,
'l': 96,
'aa': 95,
'nu': 94,
'te': 93,
```

```
'&amp;': 93,
'but': 92,
'will': 90,
'these': 89,
'farmer': 89,
'#ZuckerbergShameOnYou': 88,
'your': 87,
' ': 87,
'from': 87,
' ': 87,
'them': 86,
'v': 86,
'@narendramodi': 85,
'@PMOIndia': 84,
' ': 84,
'all': 82,
'No': 81,
' ': 81,
'@invinciblewife': 80,
'@pramster': 80,
'as': 80,
' ': 80,
' ': 79,
' ': 79,
'be': 78,
'@gikishergill': 78,
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'ji': 77,
' ': 77,
'people': 77,
'da': 76,
'BJP': 76,
' ': 76,
' ': 76,
'shame': 75,
'has': 75,
'This': 74,
' ': 74,
'Boycott': 73,
' ': 73,
' ': 72,
'u': 72,
' ': 72,
'only': 72,
' ': 71,
'Facebook': 71,
```

```
'hashtag': 71,
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'k': 70,
'#   ': 70,
'But': 69,
'They': 68,
'  ': 68,
'show': 68,
'@ABPNews': 68,
'Tweet': 68,
'at': 67,
' ': 67,
'ki': 67,
'c': 67,
' ': 66,
'who': 66,
'  ': 65,
'  ': 64,
'ton': 64,
'Karo': 64,
'like': 63,
'Bycott': 63,
'di': 63,
'…': 63,
'  ': 63,
'should': 63,
'  ': 63,
'': 62,
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'protest': 61,
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'de': 61,
'ke': 60,
'#GodiMedia': 60,
' ': 60,
'ne': 60,
' ': 60,
'by': 60,
' ': 59,
' ': 59,
'    ': 59,
'   ': 59,
'FB': 59,
'about': 58,
'@anjanaomkashyap': 58,
'share': 58,
'F': 58,
```

```
'hi': 57,
'ni': 57,
'#FarmersProtests': 56,
'   ': 55,
'india': 55,
' ': 55,
'Kisan': 55,
'so': 55,
' ': 55,
'   ': 54,
' ': 54,
'  ': 54,
'   ': 53,
'right': 53,
'@ZeeNews…': 52,
'': 52,
'    ': 52,
' ': 51,
' ': 51,
'    ': 51,
'@jatt': 50,
' ': 50,
'    ': 50,
'Punjab': 50,
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'   ': 50,
'can': 49,
'National': 49,
'Hashtag': 49,
'': 49,
'   ': 49,
'  ': 49,
'  ': 49,
'b': 49,
' …': 49,
'up': 48,
'   ': 48,
' ': 48,
'ch': 48,
' ': 48,
'fake': 48,
' ': 48,
'junction': 47,
'ta': 47,
'    ': 47,
'Ekta': 47,
'   ': 47,
```

```
'  ': 47,
'You': 46,
'now': 46,
' ': 46,
'  ': 46,
'  ': 46,
'  ': 45,
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' ': 45,
'@RubikaLiyaquat': 45,
'#FarmActsAreUnconstitutional': 45,
'@': 45,
'  ': 45,
'   ': 45,
' ': 44,
'1': 44,
'how': 44,
'know': 44,
'  ': 44,
'  ': 44,
' ': 43,
'government': 43,
' ': 43,
'kro': 43,
'  ': 43,
'his': 42,
' ': 42,
'need': 42,
'do': 42,
'@TimesNow': 42,
'g': 42,
'rights': 42,
' ': 42,
'  ': 42,
'   ': 42,
'out': 41,
' ': 41,
'just': 41,
'Good': 41,
'Hnji': 41,
' ': 41,
'us': 40,
' ': 40,
'?': 40,
' ': 40,
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'In': 40,
```

```
'  ': 40,
'Save': 39,
'@Kisanektamorcha': 39,
'Murdabad': 39,
'what': 39,
'   ': 39,
'or': 39,
'Ambani': 39,
'   ': 39,
'If': 39,
' ': 39,
'other': 39,
'…"   ': 39,
' ': 39,
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' ': 38,
'  "': 38,
'   ': 38,
'    ': 38,
'  ': 38,
'   ': 37,
'Retweet': 37,
'   ': 37,
'sale': 37,
' ': 37,
'then': 37,
' ': 37,
'Fallow': 37,
'@Bhupind65725959…': 37,
'    ': 36,
' ': 36,
'page': 36,
'Fake': 36,
' ': 36,
' ': 36,
'@sudhirchaudhary': 36,
'use': 36,
'retweet': 36,
'#IndiaUnsafeUnderBJP': 36,
'    ': 36,
'   …': 36,
'1.  ': 36,
'ho': 35,
'   ': 35,
'Yes': 35,
'media.': 35,
'real': 35,
```

```
'nhi': 35,
'     ': 34,
'channel': 34,
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'@diljitdosanjh': 34,
'  ': 34,
'IT': 34,
' ': 34,
'4': 34,
'also': 34,
'country': 34,
'MEDIA': 34,
'laws': 33,
'  ': 33,
'time': 33,
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' ': 33,
'eh': 33,
'  ': 33,
'if': 33,
'see': 33,
'na': 33,
' ': 33,
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'@Sandhu': 33,
'  ': 33,
' ': 32,
'#godimediaagainstfarmers': 32,
'…': 32,
' ': 32,
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'koi': 32,
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```

```
'vs': 31,
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'Please': 30,
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'@Facebook': 29,
'murdabad': 29,
' ': 29,
'  ': 29,
'  ': 29,
'#Tractor2Twitter': 29,
'  ': 29,
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'terrorists': 29,
'    ': 29,
'Jass': 29,
'democracy': 28,
'When': 28,
'Right': 28,
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'PM': 28,
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'  ': 28,
'    ': 28,
'kr': 28,
'he': 28,
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'  ': 28,
'@AMISHDEVGAN': 28,
'    ': 28,
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'#ShameOnFacebook…': 27,
' ': 27,
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'  ': 27,
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```

```
'false': 27,
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' …': 26,
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'@harman': 26,
'malla': 26,
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'don't': 26,
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'    ': 26,
'Kisaan': 26,
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'2': 25,
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'For': 25,
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'    ': 25,
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'terrorist': 25,
'when': 24,
```

```
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'#FarmerProtest': 24,
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'  ': 24,
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'TO': 24,
'sab': 24,
'@Cute': 24,
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'  ': 24,
'Haha': 23,
'#KisanEktaMorcha': 23,
'   ': 23,
'cover': 23,
'@GurpreetSSahota': 23,
'ko': 23,
' ': 23,
'#FarmersBill': 23,
' ': 23,
'    ': 23,
'Now': 23,
'Ji': 23,
'  ': 23,
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'  ': 23,
'stop': 23,
'@hundal': 23,
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'   ': 22,
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'  ': 22,
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'  ': 22,
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'     ': 22,
'  ': 22,
'my': 22,
'It': 22,
'because': 22,
'think': 22,
' ': 22,
```

```
'true': 22,
'even': 22,
'@news24tvchannel': 22,
'    ': 22,
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'ravi': 22,
'got': 21,
'#EVM': 21,
'  ': 21,
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'@HansrajMeena': 21,
'#  ': 21,
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'These': 21,
'bhi': 21,
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'    ': 21,
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'lahnta': 21,
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'#Farmers': 21,
'All': 21,
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'   ': 20,
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```

```
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'@RamnsekhonRamn': 19,
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'    ': 19,
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'News': 18,
'@Republic': 18,
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'??': 18,
'@mnprtsandhu34': 18,
'@jatti': 18,
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```
'Remove': 18,
'Food': 18,
'Is': 18,
'rhe': 18,
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'  ': 18,
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'keep': 18,
'What': 18,
'@Ludhianviz': 18,
'everyone': 18,
' ': 18,
'@jazzyb': 18,
'many': 18,
'work': 18,
'Keep': 18,
'    ': 18,
'@ibf': 18,
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'And': 18,
'  ': 18,
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'GODI': 18,
'Are': 18,
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'NEWS': 18,
'    ': 18,
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'@irajinderdhiman': 18,
'back': 17,
'Don't': 17,
'Bharat': 17,
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'giving': 17,
'please': 17,
'jo': 17,
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'Finally': 17,
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```
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'@RajatSharmaLive': 17,
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'@News18India…': 17,
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'India.': 17,
'@sushant': 17,
'Kissan': 17,
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```

```
'@GippyGrewal': 16,
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'     ': 16,
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'Govt': 16,
'@Team': 16,
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'Reality': 16,
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'NEWS.': 16,
'BECAUSE': 16,
'@IndiaNews': 16,
'defame': 16,
'life': 16,
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```
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'  ': 14,
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'#   ': 14,
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'@ParamjaspalM': 14,
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'Protest': 13,
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'@Rmnpreetk': 13,
'Stand': 13,
'   ': 13,
'world.': 13,
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'pe': 13,
'SYL': 13,
'   ': 13,
'hain': 13,
'Oh': 13,
'He': 13,
'here': 13,
'gobar': 13,
'  ': 13,
'  ': 13,
'   ': 13,
'|': 13,
'    ': 13,
'tn': 13,
'every': 13,
'Democracy': 13,
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'Jio': 13,
'ah': 13,
'    ': 13,
```

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'anything': 13,
'hunda': 13,
'sade': 13,
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' ': 13,
' ': 13,
'Te': 13,
'#GodimediaAgainstFarmers': 13,
'   ': 13,
'@puneetramgarhia': 13,
'such': 13,
'job': 13,
'kya': 13,
'To': 13,
'     ': 13,
'   ': 13,
'@ravishndtv': 13,
' ': 13,
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'  ': 13,
'  ': 13,
'  ': 13,
'failed': 13,
'Hanji': 13,
'#FarmerBill2020': 13,
'@RedLabel0011': 13,
'everywhere': 13,
'nowhere.': 13,
'@PunYaab': 13,
'Salute': 13,
' ': 13,
'cold': 13,
'40': 13,
'during': 13,
'@GurNaazz': 13,
' ,': 12,
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'       ': 12,
'   ': 12,
'business': 12,
'   ': 12,
```

```
'@birsinghmusic': 12,
'gurudwara': 12,
'@singhkaur1984': 12,
'Terrorists': 12,
'    ': 12,
'ban': 12,
' ': 12,
'eating': 12,
' ': 12,
'  ': 12,
'normal': 12,
'propaganda': 12,
'would': 12,
'=': 12,
'keha': 12,
'®kaim': 12,
'6': 12,
'liye': 12,
'  ': 12,
'   ': 12,
'': 12,
'kha': 12,
'   ': 12,
'zindabaad': 12,
"it's": 12,
'after': 12,
'go': 12,
' ': 12,
' ': 12,
'   ': 12,
'showing': 12,
'its': 12,
'Sikhs': 12,
's…': 12,
'mehar': 12,
'Bycoat': 12,
' ': 12,
'Singh': 12,
…}
```

We can see that words like 'media', as well as names of media/news outlets like '@republic', '@aajtak', '@indiatvnews', '@ZeeNews' have high number of occurences in the tweets. This is because the tweets are about News outlets reporting the Farmers issue, and this is why these can be seen in high numbers. We can also see high frequency of 'farmers', which again points towards the issue being related to farmers.

```python
[17]:  import matplotlib.pyplot as plt
       from wordcloud import WordCloud, STOPWORDS
       for x in range(len(wordsarr)):
           wordsarr[x]=wordsarr[x].strip()
           if len(wordsarr[x])==1:
               wordsarr[x]=""
       comment_words=" ".join(wordsarr)
       stopwords = set(STOPWORDS)
       wordcloud = WordCloud(width = 800, height = 800,
                       background_color ='white',
                       stopwords = stopwords,
                       min_font_size = 10,
                       ).generate(comment_words)
       # plot the WordCloud image
       plt.figure(figsize = (8, 8), facecolor = None)
       plt.imshow(wordcloud)
       plt.axis("off")
       plt.tight_layout(pad = 0)

       plt.show()
```

Because of a large number of Punjabi words, meaningful word cloud and graphs couldn't be produced for lack of suitable font to handle Punjabi, Hindi and English simultaneously.