In [1]:

```
import json
import csv
import tweepy
import re
import pandas as pd
from matplotlib import pyplot as plt
from matplotlib.pyplot import pie, axis, show
from matplotlib import rcParams
```

Reading Json data of tweets

In [2]:

```
lines = []
with open("INDvsAUS1.json") as file_in:
    for line in file_in:
        lines.append(json.loads(line))

df = pd.DataFrame(lines)
df.head(5)
```

Out[2]:

	id	conversation_id	created_at	date	time	timezone	
0	1339654889132179459	1339654889132179459	2020-12-18 01:03:09 IST	2020-12-18	01:03:09	+0530	
1	1339647037093027840	1339647037093027840	2020-12-18 00:31:57 IST	2020-12-18	00:31:57	+0530	
2	1339646080527396864	1339646080527396864	2020-12-18 00:28:09 IST	2020-12-18	00:28:09	+0530	
3	1339645151010979840	1339645151010979840	2020-12-18 00:24:28 IST	2020-12-18	00:24:28	+0530	
4	1339643143273123840	1339643143273123840	2020-12-18 00:16:29 IST	2020-12-18	00:16:29	+0530	78077833

5 rows × 36 columns

All the attributes that json data has

In [3]:

```
df.columns
```

Out[3]:

```
Index(['id', 'conversation_id', 'created_at', 'date', 'time', 'timezon
e',
       'user_id', 'username', 'name', 'place', 'tweet', 'language', 'm
entions',
       'urls', 'photos', 'replies_count', 'retweets_count', 'likes_cou
nt',
       'hashtags', 'cashtags', 'link', 'retweet', 'quote_url', 'vide
o',
       'thumbnail', 'near', 'geo', 'source', 'user_rt_id', 'user_rt',
       'retweet_id', 'reply_to', 'retweet_date', 'translate', 'trans_s
rc',
       'trans_dest'],
      dtype='object')
```

Sample tweet

In [4]:

```
df.iloc[90]['tweet']
```

Out[4]:

```
'Ind vs Aus: Virat Kohli के अर्धशतक के बावजूद मुश्किल में भारत, पहले दिन स्कोर-233/
6 #IndvsAus #AdelaideTest #ViratKohli #CheteshwarPujara #Rahane    htt
ps://t.co/xWYkdHTBYY' (https://t.co/xWYkdHTBYY')
```

Reading User data for the users who tweated

In [5]:

```
lines = []
with open("user_data.json") as file_in:
    for line in file_in:
        lines.append(json.loads(line))
user_df = pd.DataFrame(lines)
```

Follower Count

The pie chart shows the data for number of followers of users who tweeted.

In [6]:

```
print("Maximum, Minimum Followers")
user_df['followers'].max(), user_df['followers'].min()
```

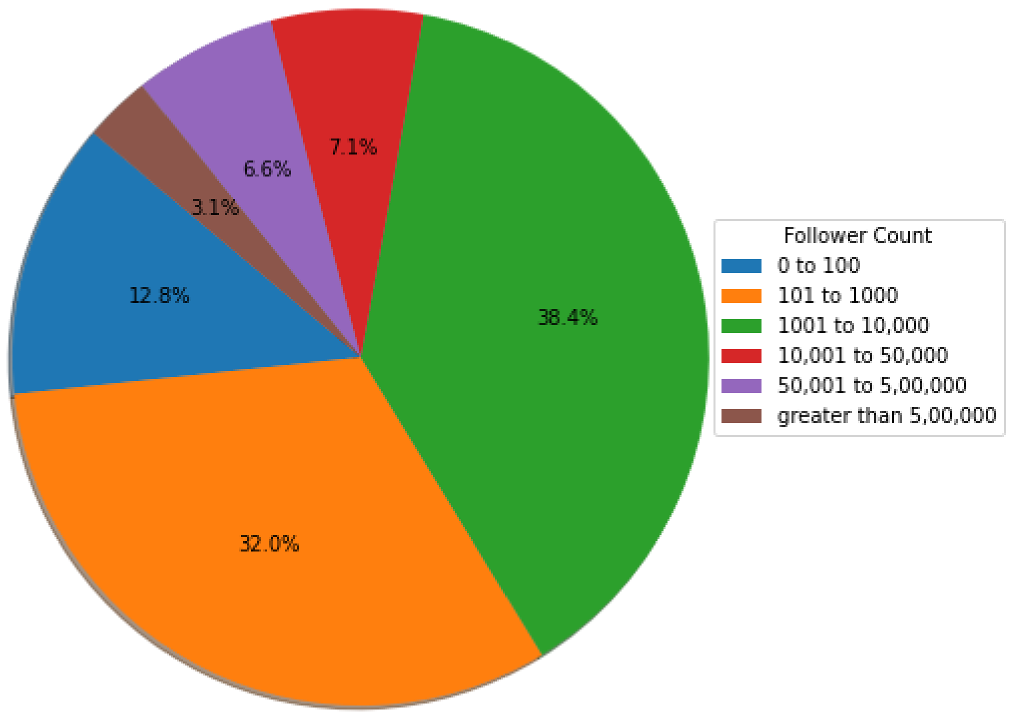
```
Maximum, Minimum Followers
```

Out[6]:

```
(13287039, 0)
```

In [7]:

```
x_value = [100, 1000, 10000, 50_000, 5_00_000, 100_00_000]
y_value = []
for i in x_value:
    y_value.append(0)

for i in user_df['followers']:
    for idx,j in enumerate(x_value):
        if j > i:
            y_value[idx] = y_value[idx] + 1
            break


plt.pie(y_value, shadow=True, startangle=140, radius=2,  autopct='%1.1f%%')
legend_array = ['0 to 100', '101 to 1000', '1001 to 10,000', '10,001 to 50,000', '5
plt.legend(legend_array, loc="lower right", title='Follower Count', bbox_to_anchor=
plt.show()
```



Following Count

The pie chart shows the data for number of following of users who tweeted.

In [8]:

```
print("Maximum, Minimum Following")
user_df['following'].max(), user_df['following'].min()
```

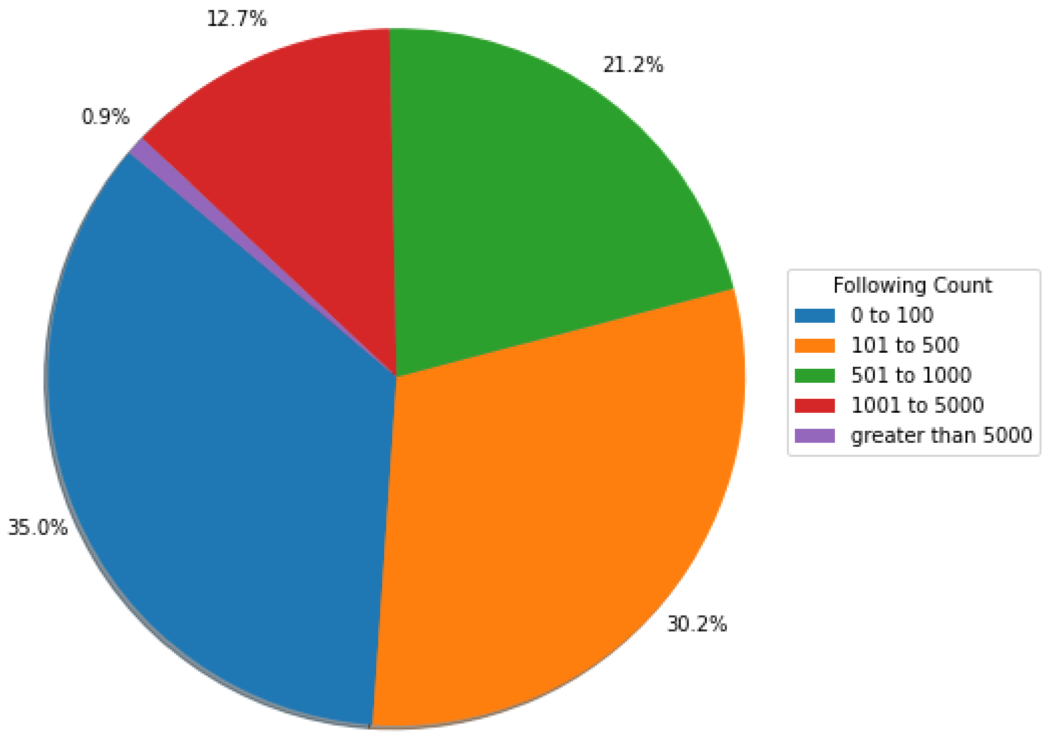
```
Maximum, Minimum Following
```

Out[8]:

```
(19542, 0)
```

In [9]:

```
x_value = [100, 500, 1000, 5000, 10000]
y_value = []
for i in x_value:
    y_value.append(0)

for i in user_df['following']:
    for idx,j in enumerate(x_value):
        if j > i:
            y_value[idx] = y_value[idx] + 1
            break


plt.pie(y_value, shadow=True, startangle=140, radius=2,  autopct='%1.1f%%', pctdist
legend_array = ['0 to 100', '101 to 500', '501 to 1000', '1001 to 5000', 'greater t
plt.legend(legend_array, loc="lower right", title='Following Count', bbox_to_anchor
plt.show()
```



Tweet Frequency

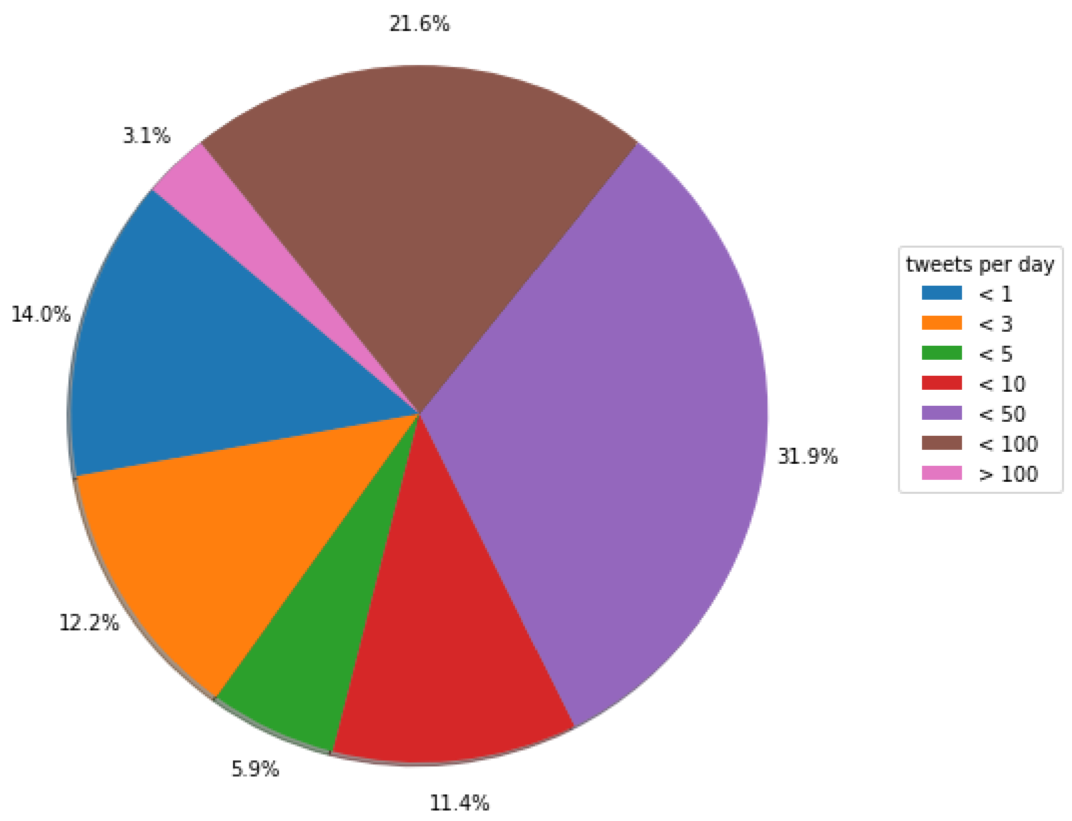
This is basically average number of tweets that user posts per day. It is basically the ratio of **(tweets / number_of_days_after_user_joined_twitter)**

In [10]:

```
from datetime import date
import datetime
```

In [11]:

```
def tweet_freq(x):
#     print(x)
    d2 = date(2020, 12, 18)
    d1 = datetime.datetime.strptime( x['join_date'], '%Y-%m-%d').date()
    delta = d2 - d1
    ret = x['tweets']/delta.days
    return ret


user_df['tweet_freq'] = user_df.apply(lambda x: tweet_freq(x), axis=1)
user_df['tweet_freq'].max(), user_df['tweet_freq'].min()


tweet_freq_base = [1, 3, 5, 10, 50, 100, 1000]
res = []
for i in tweet_freq_base:
    res.append(0)

for index, row in user_df.iterrows():
    for idx,freq in enumerate(tweet_freq_base):
        if freq > row['tweet_freq']:
            res[idx] = res[idx] + 1
            break

plt.pie(res, shadow=True, startangle=140, radius=2,  autopct='%1.1f%%', pctdistance

legend_array = ['< 1', '< 3', '< 5', '< 10', '< 50', '< 100', '> 100' ]
plt.legend(legend_array, loc="lower right", title='tweets per day', bbox_to_anchor=
plt.show()
```



Media Count

The count of media (like gif, images, videos, etc) that user has posted on his timeline. The pie chart shows the percentage of users with media count in this range.

In [12]:

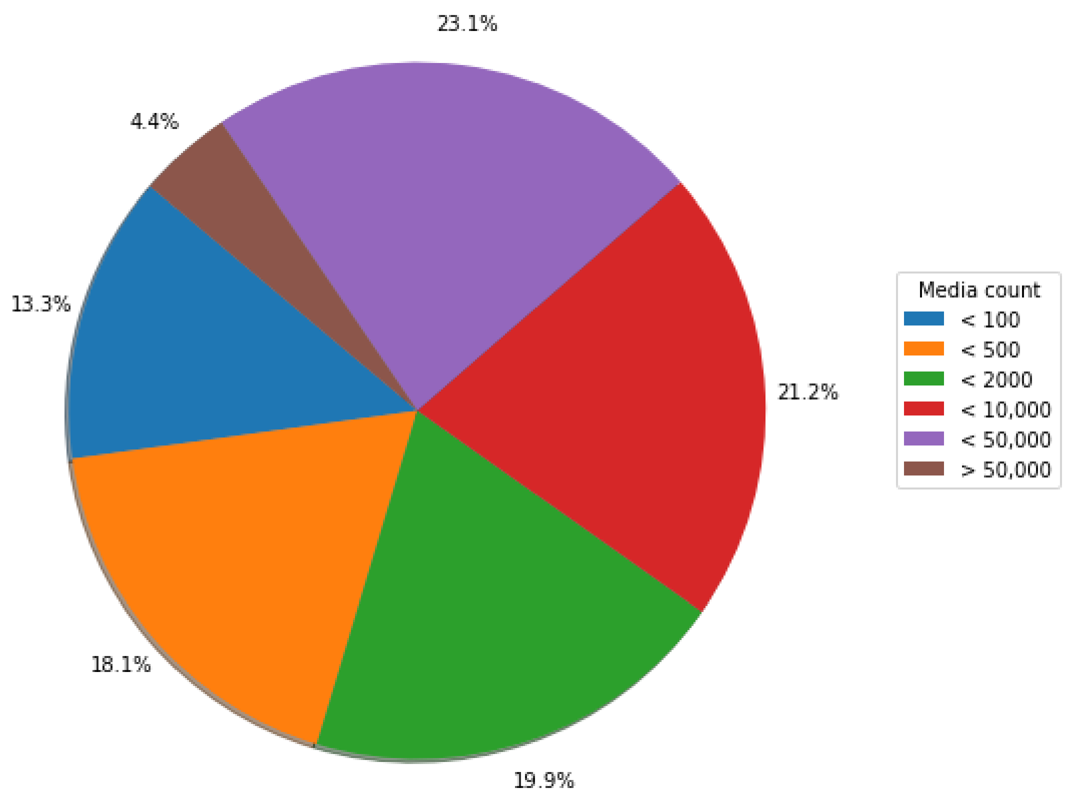
```
user_df['media'].min(), user_df['media'].max()
```

Out[12]:

```
(0, 280490)
```

In [13]:

```
media_counts = [100, 500, 2000, 10000, 50000, 1000000]
res = []
for i in media_counts:
    res.append(0)

for index, row in user_df.iterrows():
    for idx,freq in enumerate(media_counts):
        if freq > row['media']:
            res[idx] = res[idx] + 1
            break

plt.pie(res, shadow=True, startangle=140, radius=2,  autopct='%1.1f%%', pctdistance

legend_array = ['< 100', '< 500', '< 2000', '< 10,000', '< 50,000', '> 50,000']
plt.legend(legend_array, loc="lower right", title='Media count', bbox_to_anchor=(2.
plt.show()
```



Language Analysis for the data

Plotting for Tweets vs Language of tweets.

In [14]:

```
df.groupby(['language']).size().reset_index(name='counts').head(5)
```

Out[14]:

	language	counts
0	bn	120
1	ca	9
2	cs	12
3	cy	5
4	da	25

In [15]:

```
lang_df = df.groupby(['language']).size().reset_index(name='counts').sort_values(by
lang_df.head(5)
```

Out[15]:

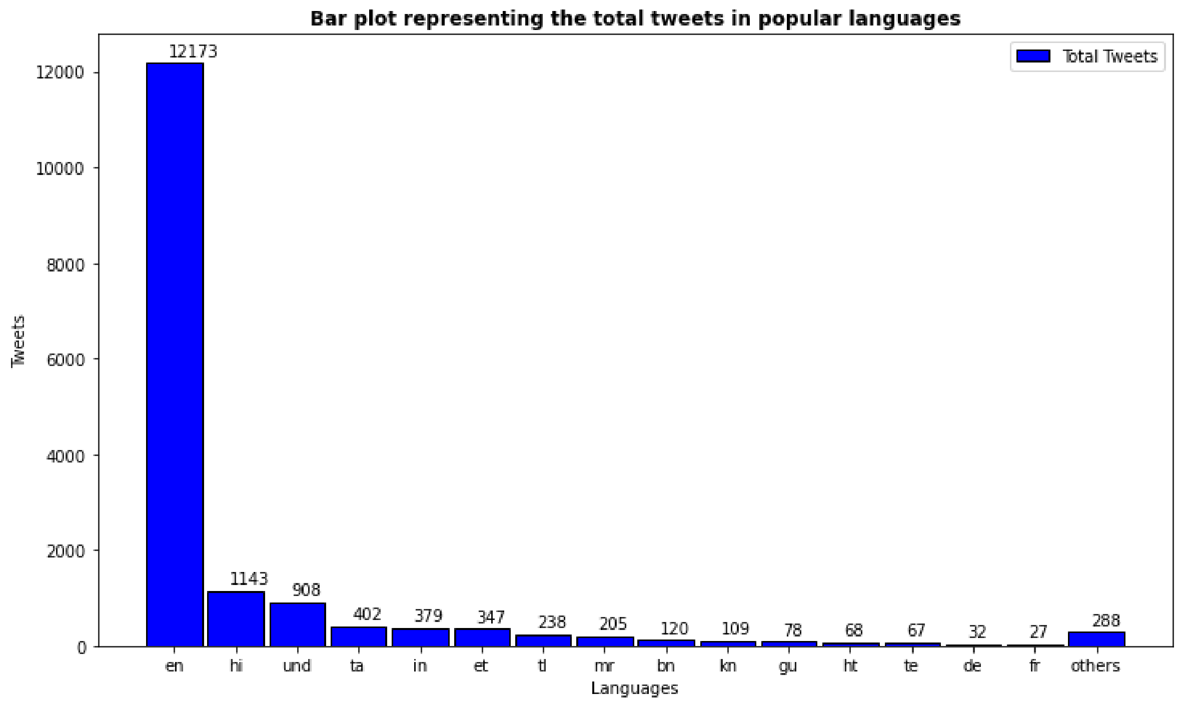
	language	counts
0	en	12173
1	hi	1143
2	und	908
3	ta	402
4	in	379

In [16]:

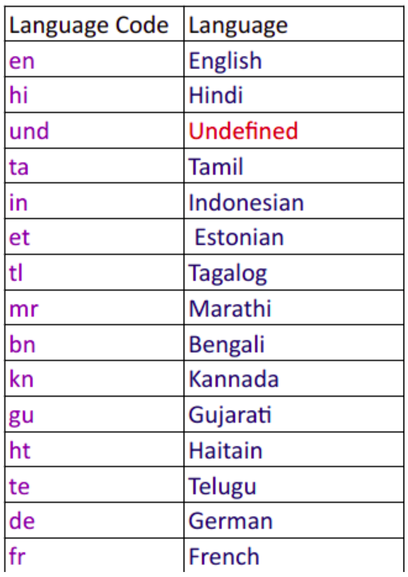
```
lang_arr = lang_df['language'].head(15).to_list()
count_arr = lang_df['counts'].head(15).to_list()
# lang_arr
lang_arr.append('others')
# lang_arr
count_arr.append(0)
for i in range(16,37):
    count_arr[-1] = count_arr[-1] + lang_df['counts'][i]
```

In [17]:

```
plt.figure(figsize = (12,7))
plt.bar(lang_arr, count_arr, width= 0.9, align='center',color='blue', edgecolor = '
i = 1.0
j = 150
# Annotating the bar plot with the values (total death count)
for i in range(len(lang_arr)):
    plt.annotate(count_arr[i], (-0.1 + i, count_arr[i] + j))
plt.legend(labels = ['Total Tweets'])
plt.title("Bar plot representing the total tweets in popular languages",fontweight=
plt.xlabel('Languages')
plt.ylabel('Tweets')
# figure size in inches optional
rcParams['figure.figsize'] = 11 ,8

img1 = plt.show()
#Import library
from IPython.display import Image
# Load image from local storage
Image(filename = "lang_code.png", width = 200, height = 100)
```



Out[17]:



Language Code	Language
en	English
hi	Hindi
und	Undefined
ta	Tamil
in	Indonesian
et	Estonian
tl	Tagalog
mr	Marathi
bn	Bengali
kn	Kannada
gu	Gujarati
ht	Haitain
te	Telugu
de	German
fr	French