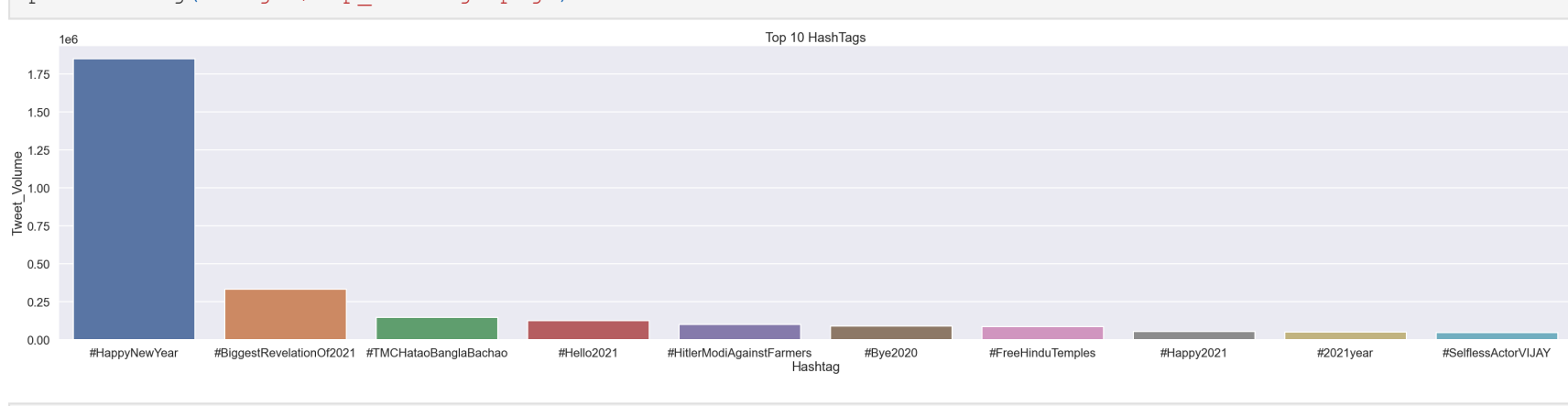
In [1]:
```python
### >> Twitter Analysis << ##
```

In [2]:
```python
# Importing Modules
import re
import json
import wordcloud
import numpy as np
import pandas as pd
import seaborn as sb
import textblob as tb
import matplotlib.pyplot as plt
%matplotlib inline
```

In [3]:
```python
# Plotting Top 10 HashTags

df = pd.read_json('Dump/Top_HashTags.json')
sb.set_theme(context = "poster", style='darkgrid')

plt.figure(figsize=(50,10))
g = sb.barplot(data=df,x="Hashtag",y="Tweet_Volume")

plt.title("Top 10 HashTags")
plt.savefig('Images/Top_HashTags.png')
```



In [4]:
```python
### EDA on Tweets ###
```

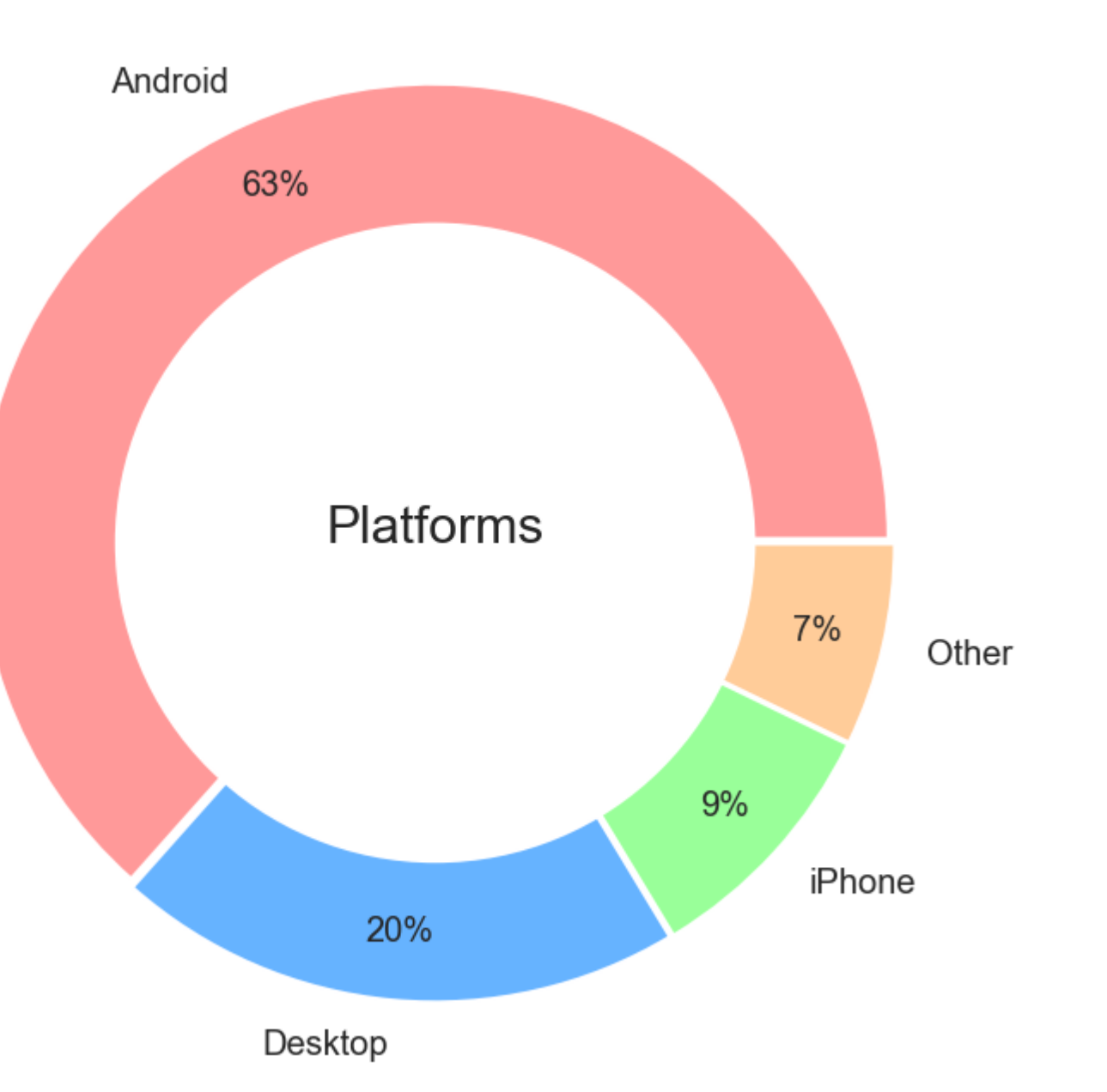
In [5]:
```python
# Creating Tweets Dataframe
Tweets = pd.read_json('Dump/Tweets.json')
Tweets.head()
```

Out[5]:

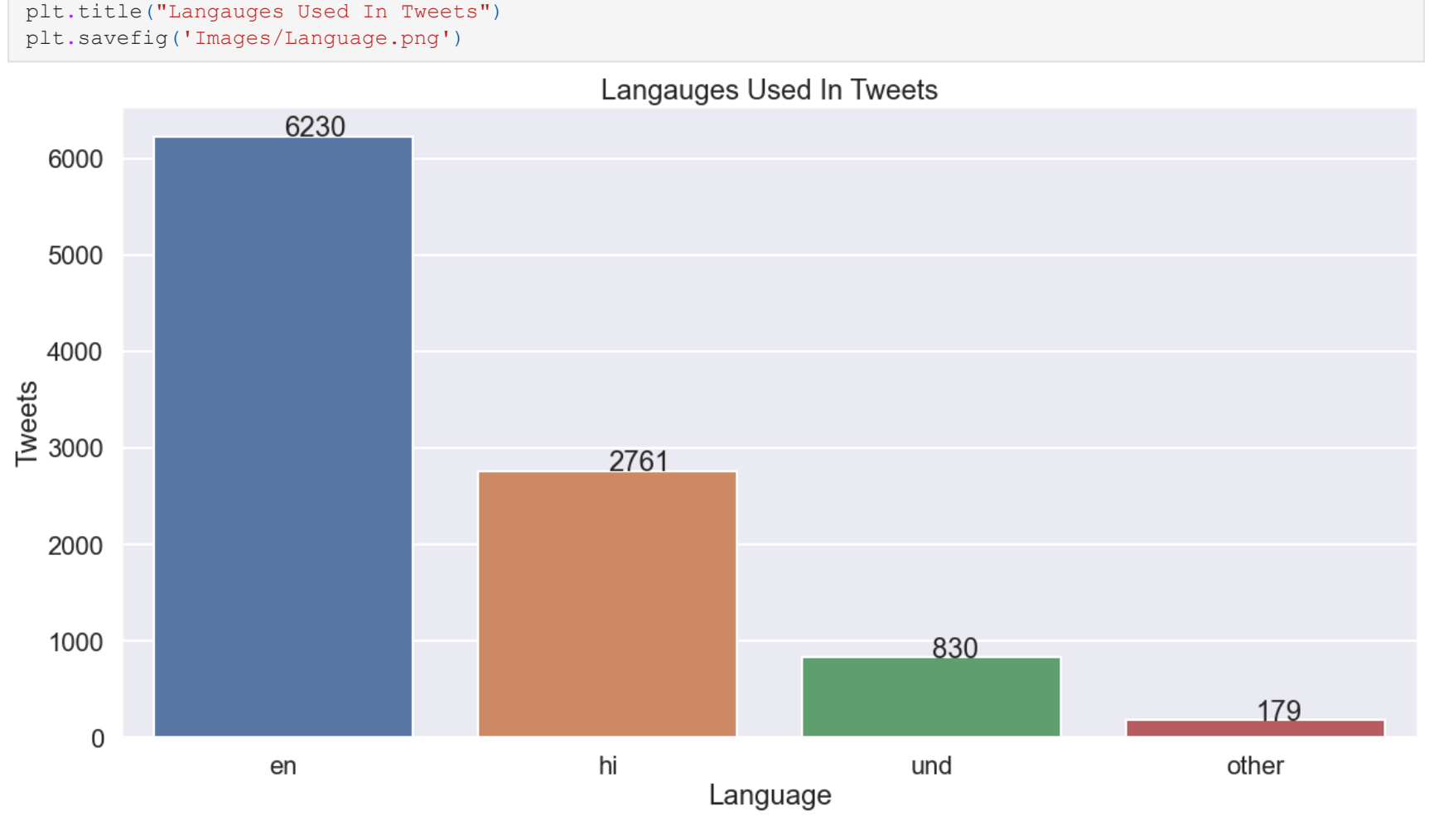
	id	user_id	created_at	lang	retweet_count	favorite_count	source	hashtags
0	1345149895221633025	1249846759305744386	2021-01-01 23:28:21+00:00	en	362	0	Twitter for iPhone	[HappyNewYear2021, happynewyear]
1	1345148050902142976	1334607597085683712	2021-01-01 23:21:01+00:00	en	24	0	Twitter for Android	[BHIMPeSafePay, NewYear, DigitalPayments]
2	1345147866537488386	1334607597085683712	2021-01-01 23:20:17+00:00	en	38	0	Twitter for Android	[Digital]
3	1345147378387410944	1038505455947997184	2021-01-01 23:18:21+00:00	hi	41	0	Twitter for iPhone	[]
4	1345143506407309312	1212468130917666816	2021-01-01 23:02:58+00:00	en	94	0	Twitter for Android	[IPOB]

In [6]:
```python
# Wordcloud of Tweets

df = Tweets
stop = set(wordcloud.STOPWORDS)
text = ""

TextList = list(df[df.lang.str.contains('en')]['text'])

for x in TextList:
    s = str(x)
    s.lower()
    s = ' '.join(re.sub("(@[A-Za-z0-9]+)|([^0-9A-Za-z \t])|(\w+:\/\/\S+)", " ", s).split())
    text+=s+" "

cloud = wordcloud.WordCloud(width = 1920, height = 900,  background_color ='black', stopwords = stop, min_fo
plt.figure(figsize=(20,10))
plt.axis('off')
plt.imshow(cloud)
plt.savefig('Images/WordCloud_Tweets.png')
```

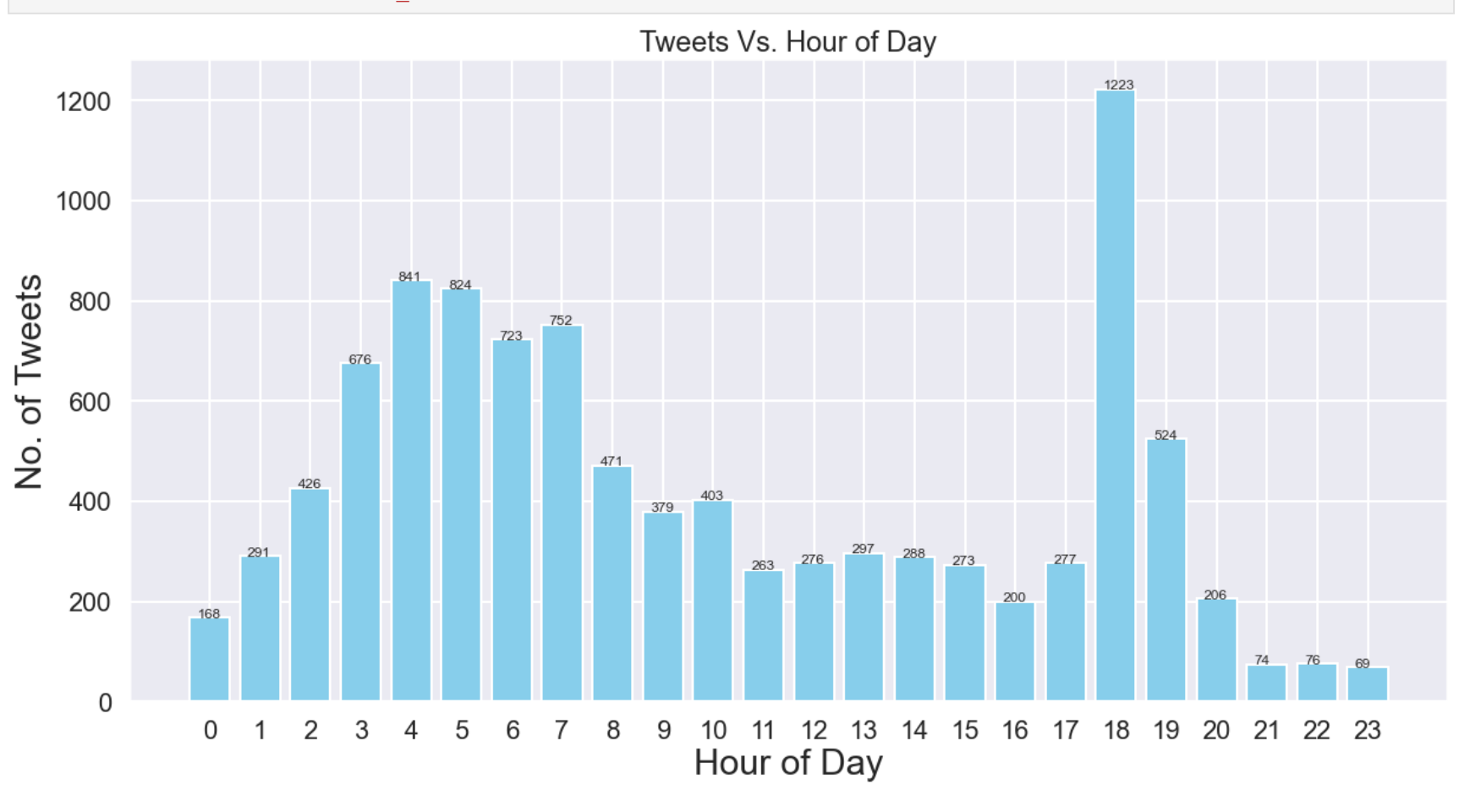
In [7]:
```python
# Platforms used to Tweet

df = Tweets
labels = ["Android","Desktop","iPhone","Other"]
sizes = []
sizes.append(len(df[df['source'].str.contains('Twitter for Android')]))
sizes.append(len(df[df['source'].str.contains('Twitter Web App')]))
sizes.append(len(df[df['source'].str.contains('Twitter for iPhone')]))
sizes.append(len(df)-sum(sizes))
explode = (0.01,0.01,0.01,0.01)
colors = ['#ff9999','#66b3ff','#99ff99','#ffcc99']

sb.set_theme(context = "poster", style='darkgrid')
plt.figure(figsize=(10,10))
plt.pie(sizes, colors = colors, labels=labels, autopct='%1.0f%%', pctdistance=0.85, explode = explode,textpr
fig = plt.gcf()
fig.gca().add_artist(plt.Circle((0,0),0.70,fc='white'))
fig.gca().annotate("Platforms", xy=(0, 0), fontsize=30,ha="center")
plt.tight_layout()
plt.savefig('Images/Platforms.png')
```



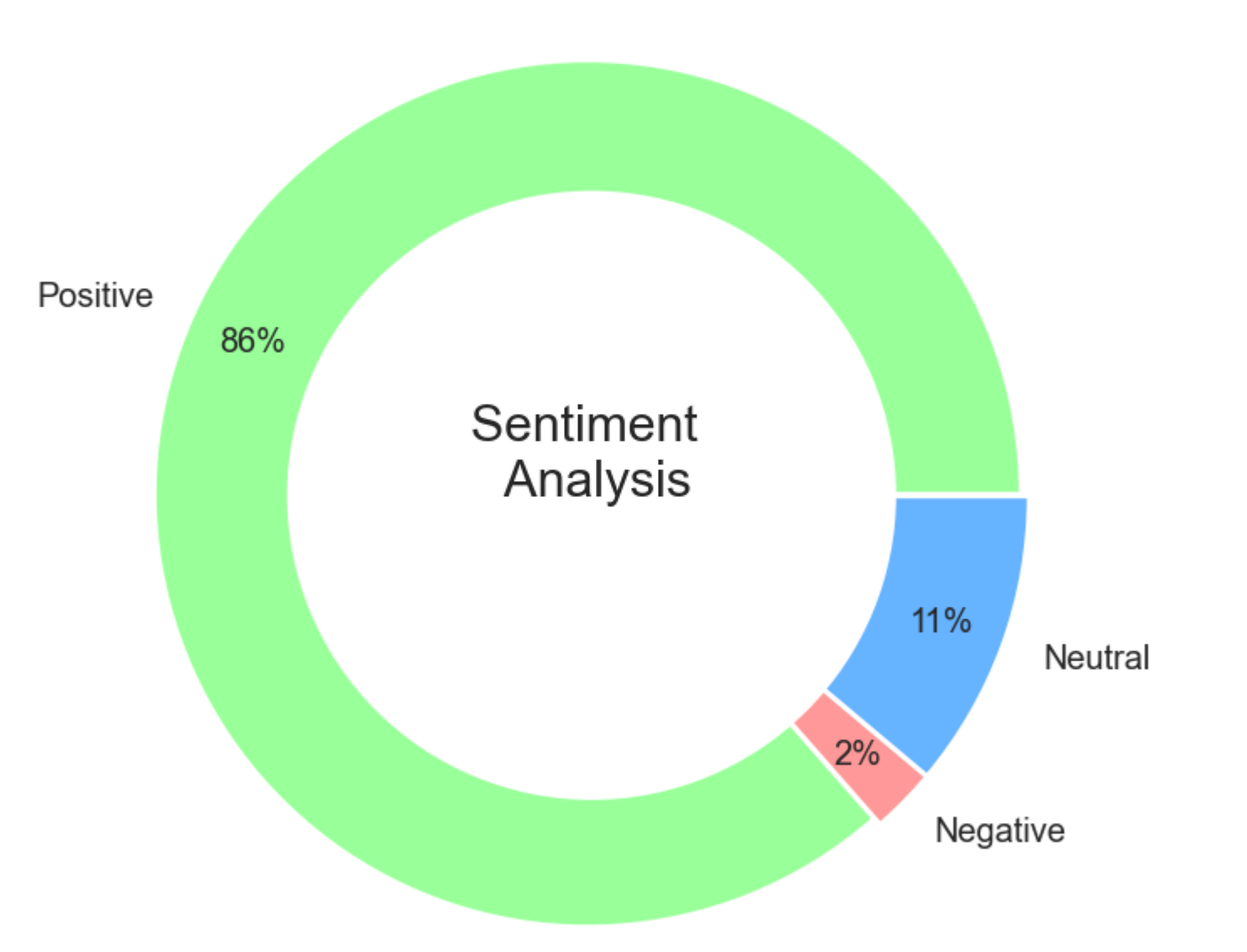
In [8]:
```python
# Languages used in Tweets

df = Tweets
df = df.lang.value_counts().to_frame().reset_index()

df.columns = ['Language','Tweets']
df = df.sort_values(['Tweets'],ascending=False)
df = df.append({'Language':'other', 'Tweets': df[3:]['Tweets'].sum()},ignore_index=True)
df = df.sort_values(['Tweets'],ascending=False)
df = df[:4]

groupedvalues=df.groupby('Language').sum().reset_index()

sb.set_theme(context = "poster", style='darkgrid')
plt.figure(figsize=(20,10))
g = sb.barplot(data=df,x="Language",y="Tweets")

Y = list(df['Tweets'])
for i in range(len(Y)):
    g.text(i,Y[i],str(Y[i]))

plt.title("Langauges Used In Tweets")
plt.savefig('Images/Language.png')
```



In [9]:
```python
# Tweets Vs. Hour of Day

df = Tweets

Activity = {i:0 for i in range(24)}

for i in df['created_at']:
    Activity[int(str(i)[11:13])]+=1

sb.set_theme(context = "poster", style='darkgrid')
plt.figure(figsize=(20,10))
x = [str(i) for i in Activity]
y = [Activity[i] for i in Activity]
plt.bar(x,y,color='skyblue')
for i in range(len(y)):
    plt.text(i-0.25,y[i],str(y[i]),fontsize=12)
plt.xlabel("Hour of Day",fontsize =30)
plt.ylabel("No. of Tweets",fontsize = 30)
plt.title("Tweets Vs. Hour of Day")
plt.savefig('Images/Tweeting_Hours.png')
```



In [10]:
```python
# Sentiment Analysis

df = Tweets
Tweet_Texts = df[df.lang.str.contains('en')]['text']

Positive = 0
Negative = 0
Neutral = 0

for T in Tweet_Texts:
    Cleaned_Text = ' '.join(re.sub("(@[A-Za-z0-9]+)|([^0-9A-Za-z \t])|(\w+:\/\/\S+)", " ", T).split())
    Result = tb.TextBlob(Cleaned_Text).sentiment.polarity
    if Result > 0: Positive+=1
    elif Result < 0: Negative+=1
    else: Neutral+=1

labels = ["Positive","Negative","Neutral"]
sizes = [Positive,Negative,Neutral]

explode = (0.01,0.01,0.01)
colors = ['#99ff99','#ff9999','#66b3ff']

sb.set_theme(context = "poster", style='darkgrid')
plt.figure(figsize=(10,10))
plt.pie(sizes, colors = colors, labels=labels, autopct='%1.0f%%', pctdistance=0.85, explode = explode,textpr
fig = plt.gcf()
fig.gca().add_artist(plt.Circle((0,0),0.70,fc='white'))
fig.gca().annotate("Sentiment \n Analysis", xy=(0, 0), fontsize=30,ha="center")
plt.tight_layout()
plt.savefig('Images/Sentiments.png')
```



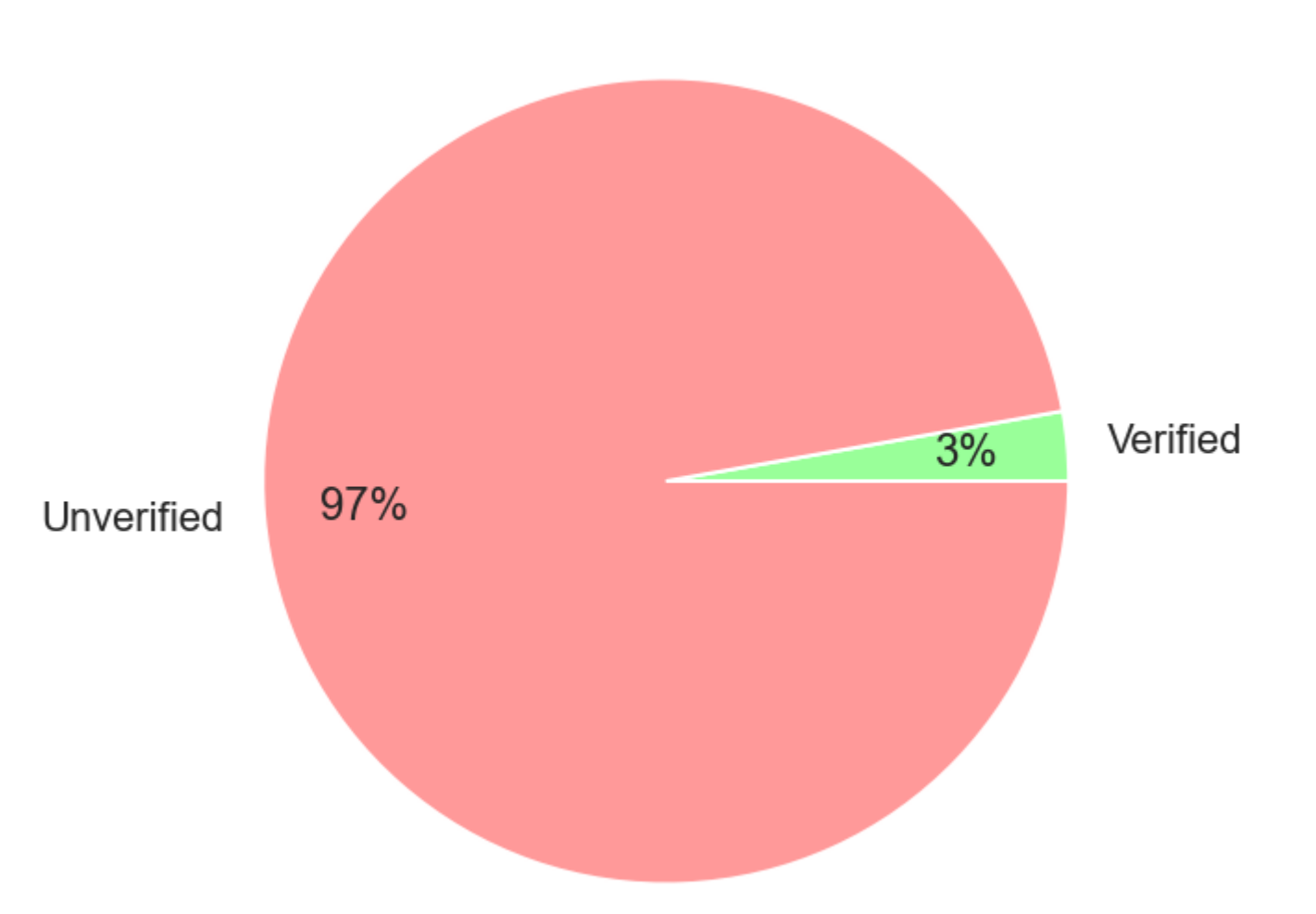
In [11]:
```python
### EDA on Users ###
```

In [12]:
```python
# Creating Users Dataframe
Users = pd.read_json('Dump/Users.json')
Users.head()
```

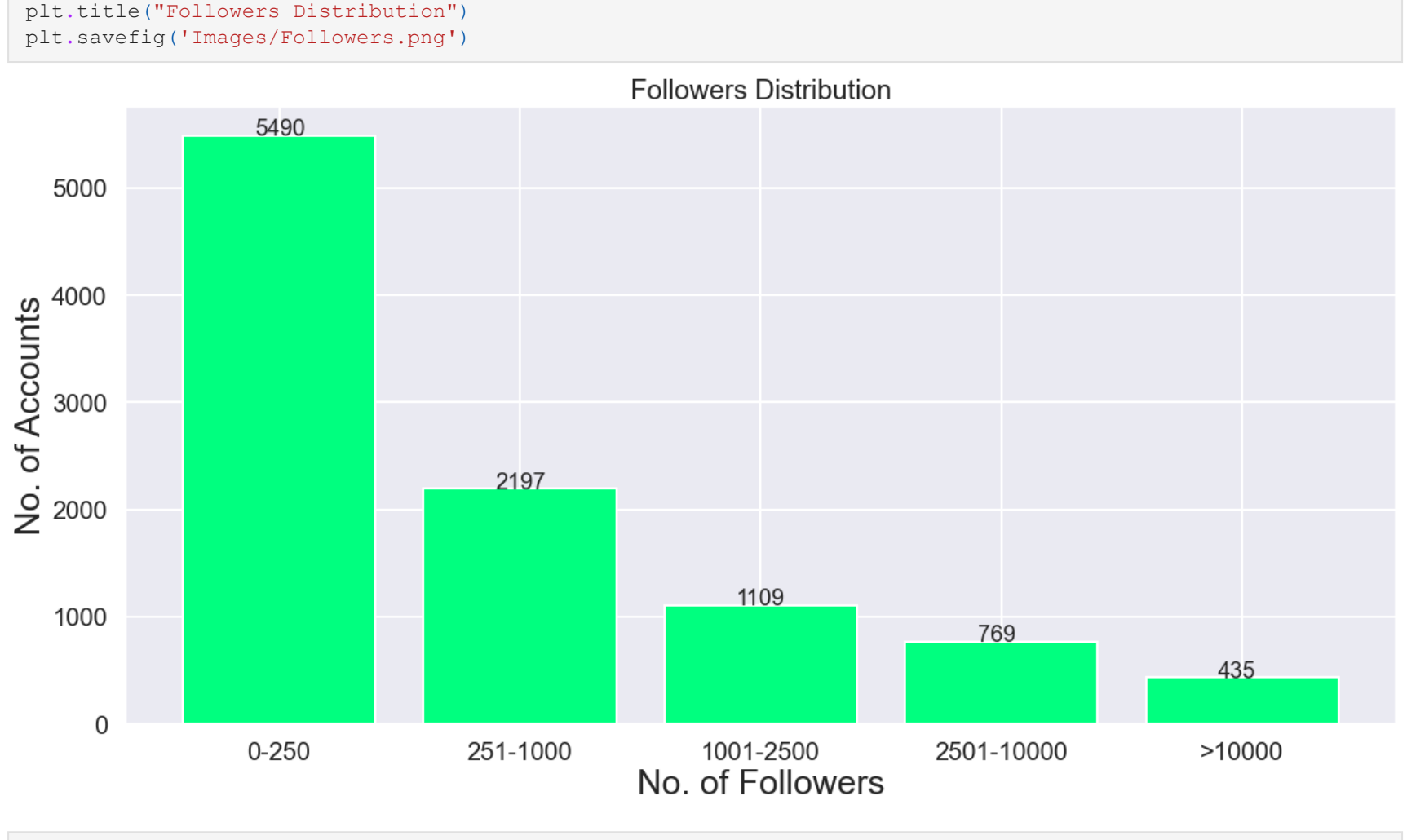
Out[12]:

	id	name	screen_name	created_at	location	protected	followers_count	friends_count	favourite
0	1249846759305744386	bahar uddin	baharud14408396	2020-04-13 23:48:06+00:00		False	15	30	
1	1334607597085683712	Vipul	Vipul041220	2020-12-03 21:17:14+00:00	कोई नी	False	2	17	
2	1334607597085683712	Vipul	Vipul041220	2020-12-03 21:17:14+00:00	कोई नी	False	2	17	
3	1038505455947997184	Nikhil Patre	nikhil_patre	2018-09-08 19:12:50+00:00		False	54	34	
4	1212468130917666816	Chukwu	Aba90788437	2020-01-01 20:18:39+00:00	Biafra	False	187	242	

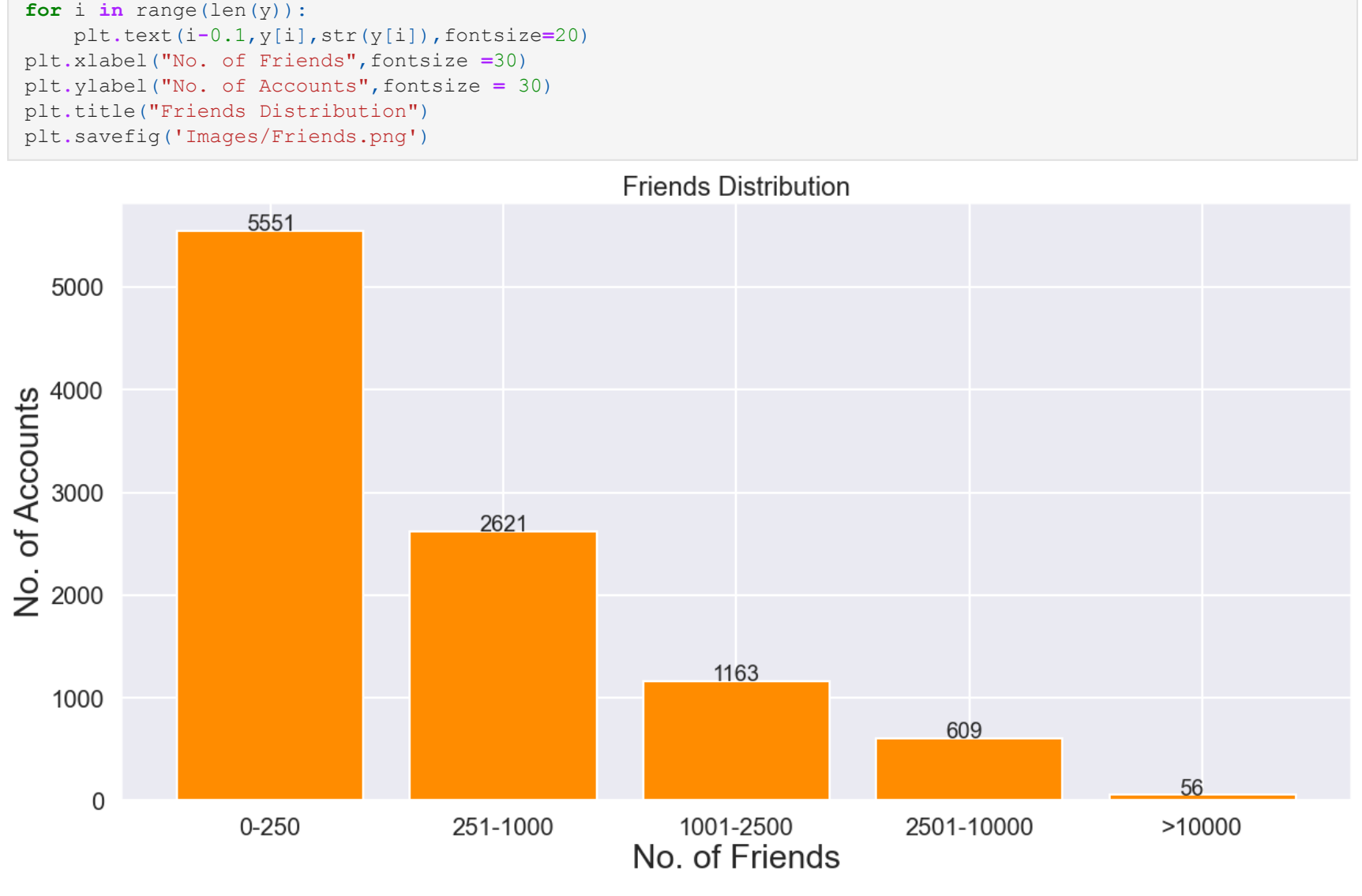
In [13]:
```python
# Percentage of Verified Accounts

df = Users

Yes = len(df[df.verified==True])
No = len(df[df.verified==False])

sb.set_theme(context = "poster", style='darkgrid')
plt.figure(figsize=(20,10))
x = [Yes,No]
plt.pie(x,labels=["Verified","Unverified"],explode=(0,0),colors=['#99ff99','#ff9999'], autopct='%1.0f%%', st
plt.savefig('Images/Verified.png')
```



In [14]:
```python
# Followers Distribution

df = Users
Followers = list(df['followers_count'])

D = {'0-250':0,'251-1000':0,'1001-2500':0,'2501-10000':0,'>10000':0}

for i in Followers:
    if i<=250:D['0-250']+=1
    elif i<=1000:D['251-1000']+=1
    elif i<=2500:D['1001-2500']+=1
    elif i<=10000:D['2501-10000']+=1
    else:D['>10000']+=1

sb.set_theme(context = "poster", style='darkgrid')
plt.figure(figsize=(20,10))
x = [i for i in D]
y = [D[i] for i in D]
plt.bar(x,y,color='springgreen')
for i in range(len(y)):
    plt.text(i-0.1,y[i],str(y[i]),fontsize=20)
plt.xlabel("No. of Followers",fontsize =30)
plt.ylabel("No. of Accounts",fontsize = 30)
plt.title("Followers Distribution")
plt.savefig('Images/Followers.png')
```



In [15]:
```python
# Friends Distribution

df = Users
Friends = list(df['friends_count'])

D = {'0-250':0,'251-1000':0,'1001-2500':0,'2501-10000':0,'>10000':0}

for i in Friends:
    if i<=250:D['0-250']+=1
    elif i<=1000:D['251-1000']+=1
    elif i<=2500:D['1001-2500']+=1
    elif i<=10000:D['2501-10000']+=1
    else:D['>10000']+=1

sb.set_theme(context = "poster", style='darkgrid')
plt.figure(figsize=(20,10))
x = [i for i in D]
y = [D[i] for i in D]
plt.bar(x,y,color='darkorange')
for i in range(len(y)):
    plt.text(i-0.1,y[i],str(y[i]),fontsize=20)
plt.xlabel("No. of Friends",fontsize =30)
plt.ylabel("No. of Accounts",fontsize = 30)
plt.title("Friends Distribution")
plt.savefig('Images/Friends.png')
```



In [16]:
```python
### END OF NOTEBOOK ###
```