

```
In [118... import pandas as pd
import numpy as np
```

```
In [119... import matplotlib as plt
import seaborn as sns
```

```
In [120... from plotly import __version__
import cufflinks as cf
from plotly.offline import download_plotlyjs,init_notebook_mode,plot,iplot
cf.go_offline()
```

```
In [121... data = pd.read_csv('Nigeria 36 States & FCT Votes 2019.csv', index_col='Sta
```

```
In [122... data.describe()
```

```
Out[122...
```

	Population (2019)	Total Registered Voter (2019)	APC	PDP	AAC	YPP	ANN	Total Votes 2019
count	37	37	37	37	37	37	37	37
unique	37	37	37	37	36	36	33	37
top	3,841,943	1,932,892	85,058	219,698	186	44	88	305,776
freq	1	1	1	1	2	2	3	1

```
In [123... data.info()
```

```
<class 'pandas.core.frame.DataFrame'>
Index: 37 entries, Abia to Zamfara
Data columns (total 8 columns):
#   Column                                Non-Null Count  Dtype
---  -
0   Population (2019)                     37 non-null    object
1   Total Registered Voter (2019)         37 non-null    object
2   APC                                   37 non-null    object
3   PDP                                   37 non-null    object
4   AAC                                   37 non-null    object
5   YPP                                   37 non-null    object
6   ANN                                   37 non-null    object
7   Total Votes 2019                     37 non-null    object
dtypes: object(8)
memory usage: 2.6+ KB
```

```
In [124... data
```

```
Out[124...
```

	Population (2019)	Total Registered Voter (2019)	APC	PDP	AAC	YPP	ANN	Total Votes 2019
--	----------------------	-------------------------------------	-----	-----	-----	-----	-----	------------------------

States								
Abia	3,841,943	1,932,892	85,058	219,698	212	720	88	305,776
Adamawa	4,536,948	1,973,083	378,078	410,266	282	109	162	788,897
Akwa Ibom	4,780,581	2,119,727	175,429	395,832	222	118	95	571,696
Anambra	5,599,910	2,447,996	33,298	524,738	124	4,091	45	562,296
Bauchi	7,540,663	2,462,843	798,428	209,313	183	112	46	1,008,082
Bayelsa	2,394,725	923,182	118,821	197,933	126	50	37	316,967
Benue	5,787,706	2,480,131	347,668	356,817	309	557	201	705,552
Borno	5,751,590	2,315,956	836,496	71,788	269	78	29	908,660
Cross River	4,175,020	1,527,289	117,302	295,737	242	217	88	413,586
Delta	5,307,543	2,845,274	221,292	594,068	1,626	497	320	817,803
Ebonyi	3,007,155	1,459,933	90,726	258,573	205	192	683	350,379
Edo	4,461,137	2,210,534	267,842	275,691	3,106	531	273	547,443
Ekiti	3,350,401	909,967	219,231	154,032	400	68	88	373,819
Enugu	4,396,098	1,944,016	54,423	355,553	219	1,379	141	411,715
FCT	2,702,443	1,344,856	152,224	259,997	583	1,083	652	414,539
Gombe	3,623,462	1,394,393	402,961	138,484	165	39	78	541,727
Imo	5,167,722	2,272,293	140,463	334,923	467	676	119	476,648
Jigawa	6,779,080	2,111,106	794,738	289,895	226	67	66	1,084,992
Kaduna	8,324,285	3,932,492	993,445	649,612	243	196	261	1,643,757
Kano	14,253,549	5,457,747	1,464,768	391,593	416	200	114	1,857,091
Katsina	9,300,382	3,230,230	1,232,133	308,056	186	61	82	1,540,518
Kebbi.	5,001,610	1,806,231	581,552	154,282	276	53	99	736,262
Kogi	4,153,734	1,646,350	285,894	218,207	250	87	89	504,527
Kwara	3,259,613	1,406,457	308,984	138,184	401	140	422	448,131
Lagos	12,772,884	6,570,291	580,825	448,015	8,910	5,733	6,946	1,050,429
Nasarawa	2,632,239	1,617,786	289,903	283,847	75	44	45	573,914
Niger	6,220,617	2,390,035	612,371	218,052	324	113	145	831,005
Ogun	5,945,275	2,375,003	281,762	194,655	3,196	553	1,509	481,675
Ondo	4,969,707	1,822,346	241,769	275,901	4,414	1,224	311	523,619
Osun	4,237,396	1,680,498	347,634	337,377	1,022	189	268	686,490
Oyo	7,512,855	2,934,107	365,229	366,690	4,014	1,608	1,896	739,437
Plateau	4,400,974	2,480,455	468,555	548,665	268	442	796	1,018,726
Rivers	7,034,973	3,215,273	150,710	473,971	372	415	365	625,833
Sokoto	5,863,187	1,903,166	490,333	361,604	181	84	124	852,326

Taraba	3,331,885	1,777,105	324,906	374,743	116	80	35	699,880
Yobe	3,398,177	1,365,913	497,914	50,763	137	36	37	548,887
Zamfara	5,317,793	1,717,128	438,682	125,423	186	44	24	564,359

In [125...

```
data.columns
```

Out[125...

```
Index(['Population (2019)', 'Total Registered Voter (2019)', 'APC', 'PDP',
      'AAC', 'YPP', 'ANN', 'Total Votes 2019'],
      dtype='object')
```

In [126...

```
#to convert our Population and total votes to int

def removecom(d):
    return int(d.replace(',',''))

# data['Population (2019)'].apply(lambda d: int(d.replace(',','')))
```

In [130...

```
for col in data.columns:
    data[str(col)] = data[str(col)].apply(removecom)
```

In [131...

```
data
```

Out[131...

	Population (2019)	Total Registered Voter (2019)	APC	PDP	AAC	YPP	ANN	Total Votes 2019
States								
Abia	3841943	1932892	85058	219698	212	720	88	305776
Adamawa	4536948	1973083	378078	410266	282	109	162	788897
Akwa Ibom	4780581	2119727	175429	395832	222	118	95	571696
Anambra	5599910	2447996	33298	524738	124	4091	45	562296
Bauchi	7540663	2462843	798428	209313	183	112	46	1008082
Bayelsa	2394725	923182	118821	197933	126	50	37	316967
Benue	5787706	2480131	347668	356817	309	557	201	705552
Borno	5751590	2315956	836496	71788	269	78	29	908660
Cross River	4175020	1527289	117302	295737	242	217	88	413586
Delta	5307543	2845274	221292	594068	1626	497	320	817803
Ebonyi	3007155	1459933	90726	258573	205	192	683	350379
Edo	4461137	2210534	267842	275691	3106	531	273	547443
Ekiti	3350401	909967	219231	154032	400	68	88	373819
Enugu	4396098	1944016	54423	355553	219	1379	141	411715
FCT	2702443	1344856	152224	259997	583	1083	652	414539

Gombe	3623462	1394393	402961	138484	165	39	78	541727
Imo	5167722	2272293	140463	334923	467	676	119	476648
Jigawa	6779080	2111106	794738	289895	226	67	66	1084992
Kaduna	8324285	3932492	993445	649612	243	196	261	1643757
Kano	14253549	5457747	1464768	391593	416	200	114	1857091
Katsina	9300382	3230230	1232133	308056	186	61	82	1540518
Kebbi.	5001610	1806231	581552	154282	276	53	99	736262
Kogi	4153734	1646350	285894	218207	250	87	89	504527
Kwara	3259613	1406457	308984	138184	401	140	422	448131
Lagos	12772884	6570291	580825	448015	8910	5733	6946	1050429
Nasarawa	2632239	1617786	289903	283847	75	44	45	573914
Niger	6220617	2390035	612371	218052	324	113	145	831005
Ogun	5945275	2375003	281762	194655	3196	553	1509	481675
Ondo	4969707	1822346	241769	275901	4414	1224	311	523619
Osun	4237396	1680498	347634	337377	1022	189	268	686490
Oyo	7512855	2934107	365229	366690	4014	1608	1896	739437
Plateau	4400974	2480455	468555	548665	268	442	796	1018726
Rivers	7034973	3215273	150710	473971	372	415	365	625833
Sokoto	5863187	1903166	490333	361604	181	84	124	852326
Taraba	3331885	1777105	324906	374743	116	80	35	699880
Yobe	3398177	1365913	497914	50763	137	36	37	548887
Zamfara	5317793	1717128	438682	125423	186	44	24	564359

In [132...

```
data.describe()
```

Out[132...

	Population (2019)	Total Registered Voter (2019)	APC	PDP	AAC	
count	3.700000e+01	3.700000e+01	3.700000e+01	37.000000	37.000000	37.000
mean	5.436088e+06	2.270381e+06	4.105905e+05	304404.810811	917.648649	591.513
std	2.542751e+06	1.116387e+06	3.261894e+05	141324.186034	1745.744926	1138.039
min	2.394725e+06	9.099670e+05	3.329800e+04	50763.000000	75.000000	36.000
25%	3.841943e+06	1.646350e+06	1.754290e+05	209313.000000	186.000000	78.000
50%	4.969707e+06	1.973083e+06	3.249060e+05	289895.000000	268.000000	189.000
75%	5.945275e+06	2.462843e+06	4.979140e+05	374743.000000	416.000000	553.000
max	1.425355e+07	6.570291e+06	1.464768e+06	649612.000000	8910.000000	5733.000

```
In [142... total_data = data.drop(['APC', 'PDP',  
                        'AAC', 'YPP', 'ANN'], axis=1)  
  
party_data = data.drop(['Population (2019)', 'Total Registered Voter (2019)'], axis=1)
```

```
In [133... data.iplot(kind='heatmap')
```



```
In [137... total_data.iplot(kind='heatmap', color='coolwarm')
```

Total Votes 2019



In [138...

```
data.iplot(title='Nigeria 2019 General Election Votes and Population visual',
            xTitle='States and FCT',
            yTitle='People')
```

Nigeria 2019 General Election Votes and Population visualiz



In [140...

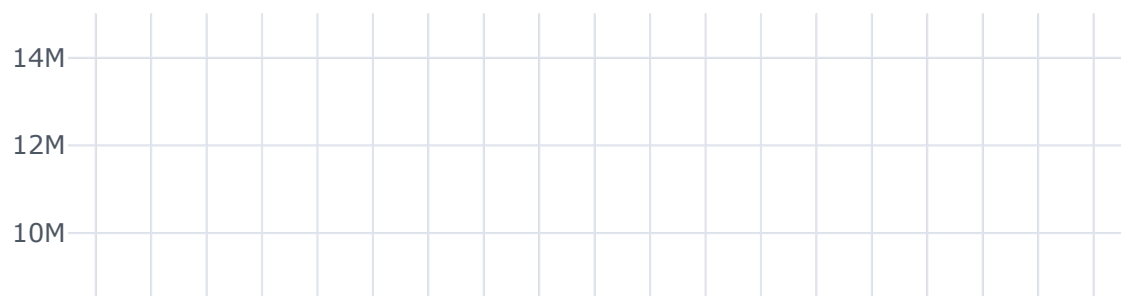
```
total_data.iplot(title='Nigeria 2019 General Election Votes and Population',
                  xTitle='States and FCT',
                  yTitle='People')
```

Nigeria 2019 General Election Votes and Population visualiz

In [141...

```
total_data.iplot(kind = 'bar',
                 title='Nigeria 2019 General Election Votes and Population visualization',
                 xTitle='States and FCT',
                 yTitle='People')
```


Nigeria 2019 General Election Votes and Population visualiz



In [143...

```
party_data.ipplot(kind = 'bar',  
    title='Nigeria 2019 General Election Votes and Population visualization',  
    xTitle='States and FCT',  
    yTitle='People')
```

Nigeria 2019 General Election Votes and Population visualiz



In [144...

```
data.ipplot(kind = 'ratio',  
            title='Nigeria 2019 General Election Votes and Population visualization',  
            xTitle='States and FCT',  
            yTitle='People')
```

Nigeria 2019 General Election Votes and Population visualiz

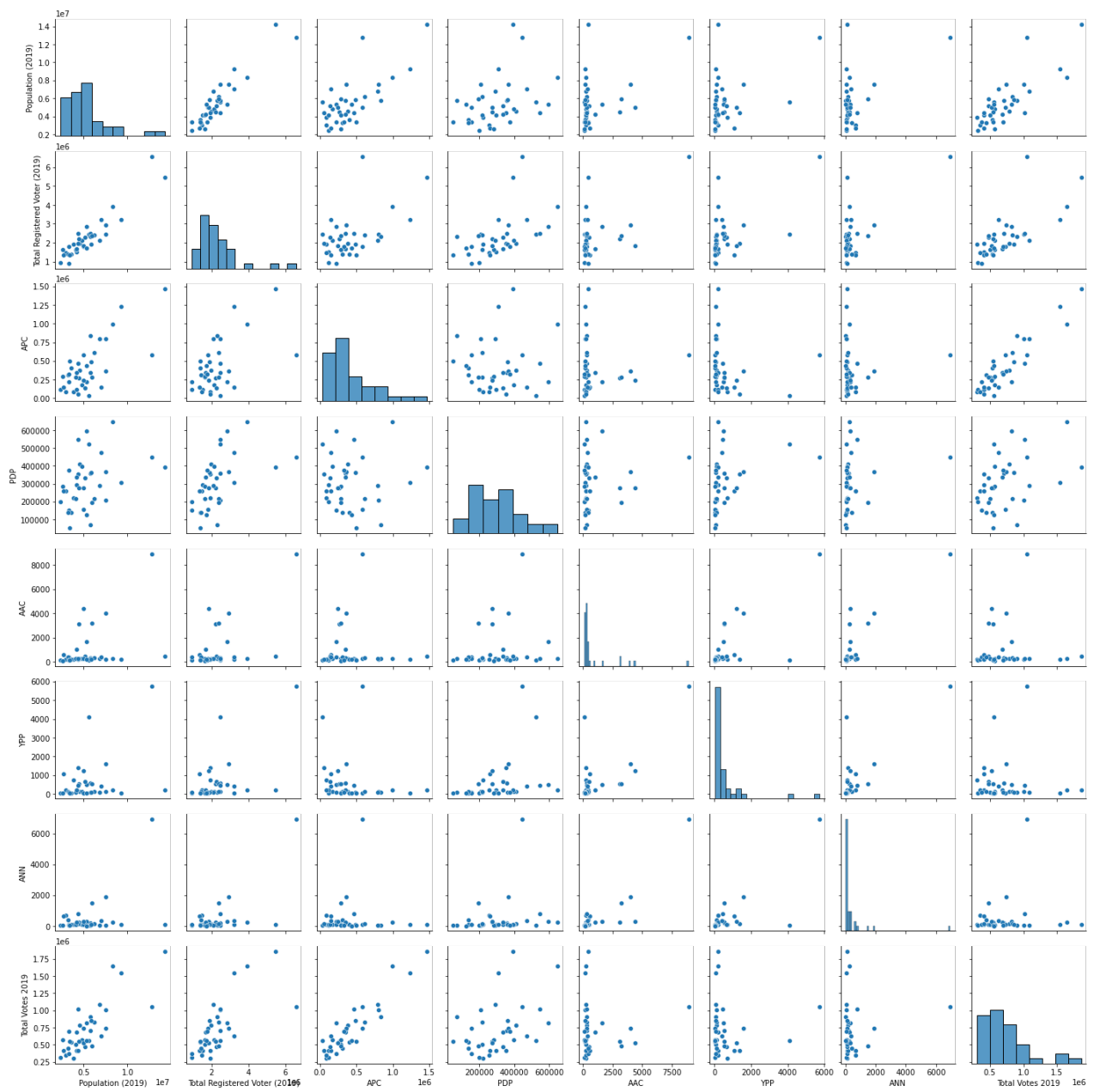


In [145...

```
sns.pairplot(data)
```

Out[145...

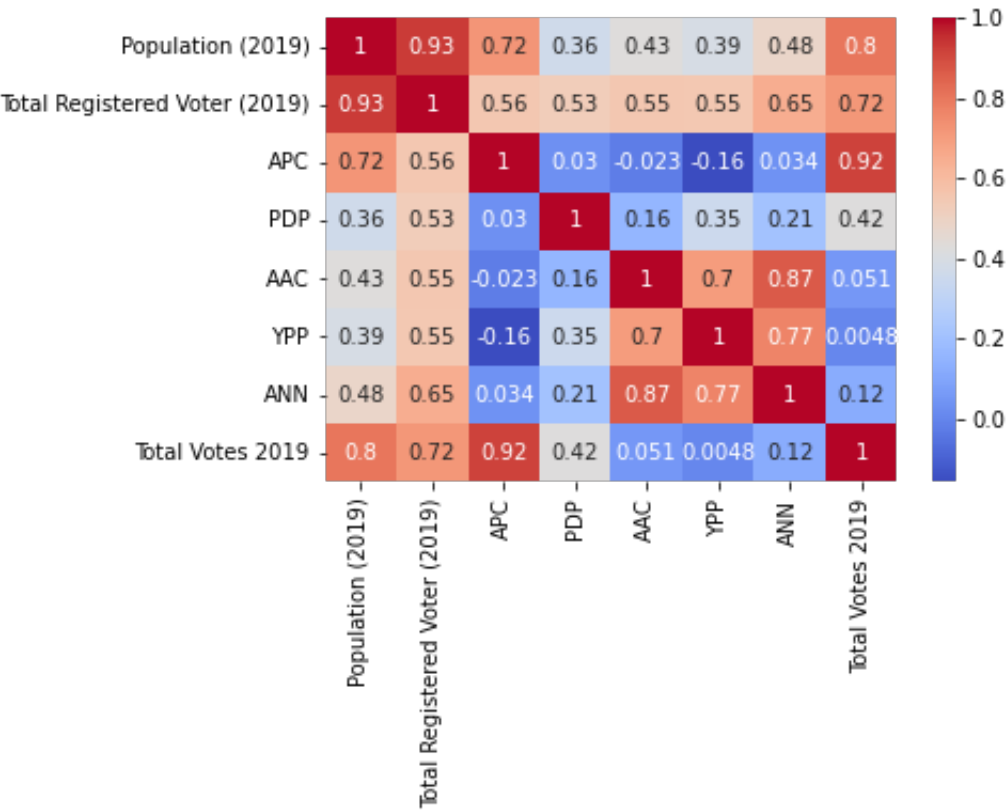
```
<seaborn.axisgrid.PairGrid at 0x7f89705515b0>
```



In [146...

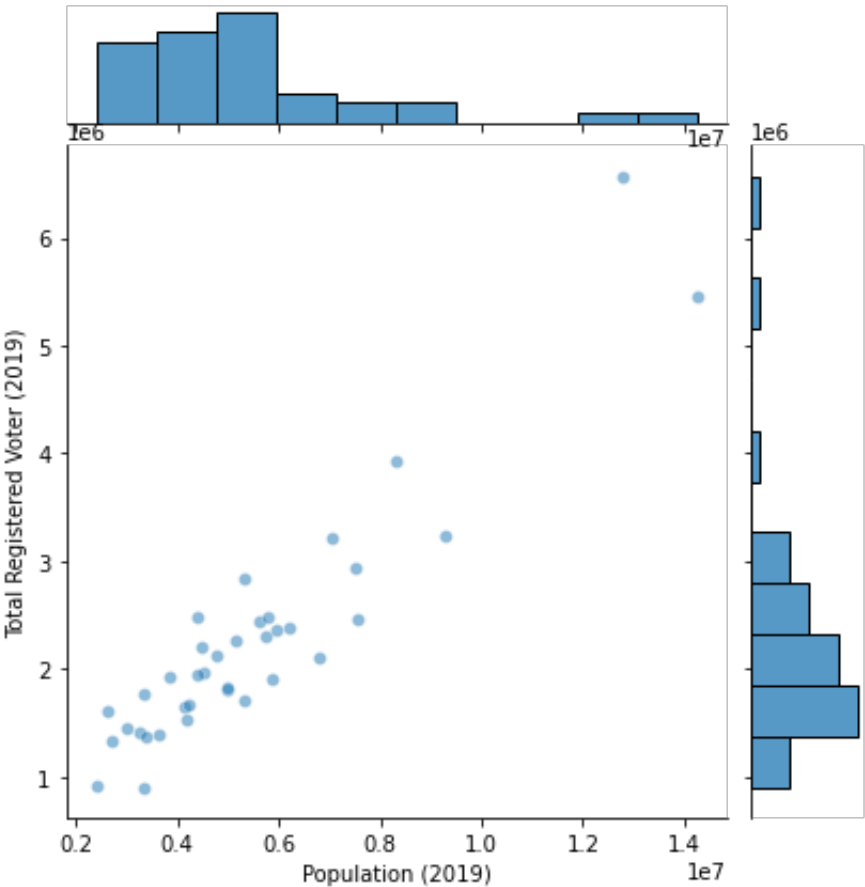
```
sns.heatmap(data.corr(), annot=True, cmap='coolwarm')
```

Out [146... <AxesSubplot:>



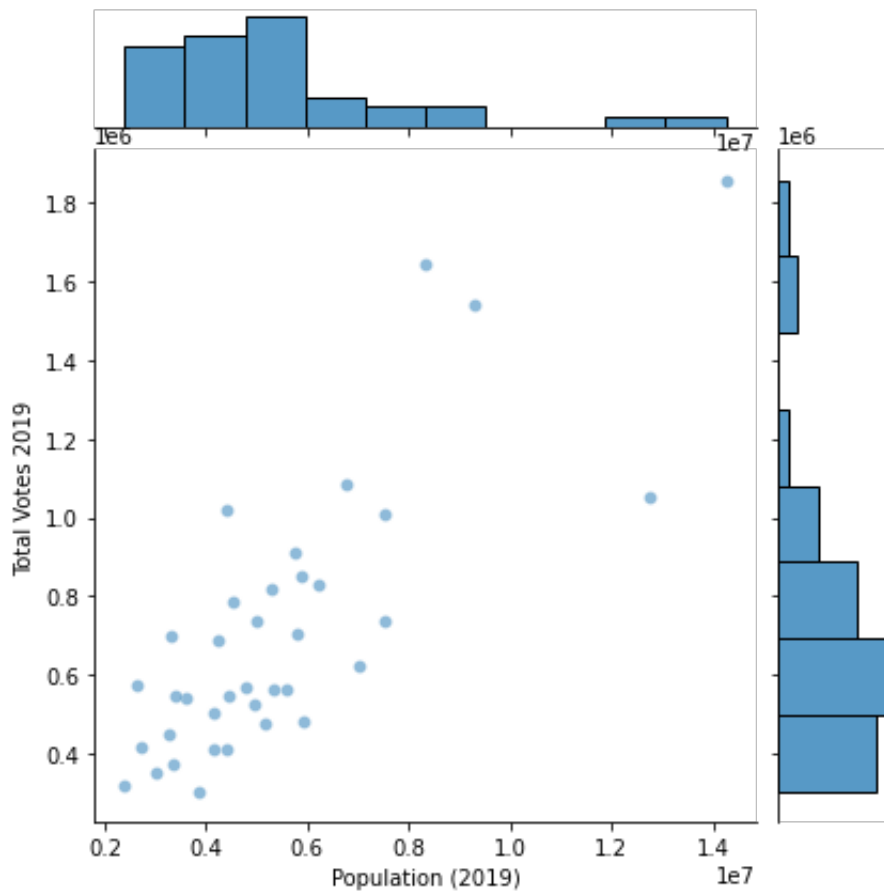
In [148... `sns.jointplot(x='Population (2019)', y = 'Total Registered Voter (2019)', c`

Out [148... `<seaborn.axisgrid.JointGrid at 0x7f89748ffca0>`



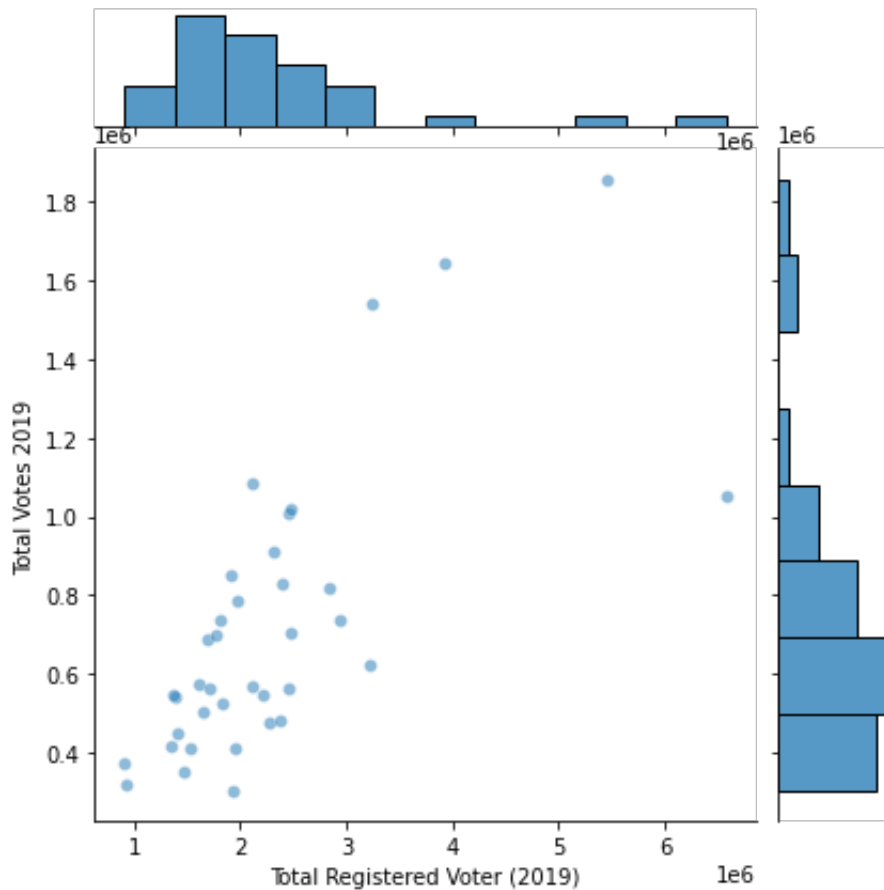
```
In [149... sns.jointplot(x='Population (2019)', y = 'Total Votes 2019', data=data, al
```

```
Out[149... <seaborn.axisgrid.JointGrid at 0x7f8974a4b3d0>
```



```
In [150... sns.jointplot(x='Total Registered Voter (2019)', y = 'Total Votes 2019', da
```

Out[150]... <seaborn.axisgrid.JointGrid at 0x7f8974928dc0>



In [99]:
data.columns

Out[99]: Index(['Population (2019)', 'Total Votes (2019)'], dtype='object')

In [155]...
Percentage of the population that voted
percentage = pd.DataFrame(data['Total Registered Voter (2019)']/data['Popu]
percentage['Vote Percentage'] = pd.DataFrame(data['Total Votes 2019']/data[

In [156]...
percentage

Out[156]...

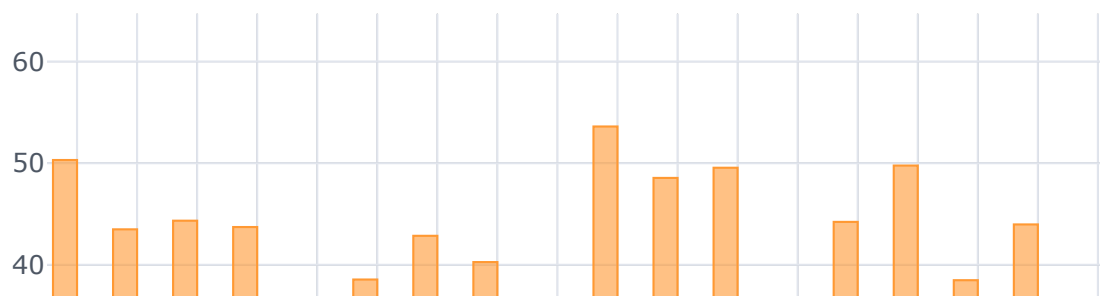
	Reg Percentage	Vote Percentage
States		
Abia	50.310273	7.958890
Adamawa	43.489213	17.388275
Akwa Ibom	44.340364	11.958714
Anambra	43.714917	10.041161
Bauchi	32.660828	13.368612
Bayelsa	38.550648	13.236050
Benue	42.851710	12.190529
Borno	40.266361	15.798414

Cross River	36.581597	9.906204
Delta	53.608120	15.408316
Ebonyi	48.548645	11.651511
Edo	49.550910	12.271378
Ekiti	27.159943	11.157441
Enugu	44.221398	9.365465
FCT	49.764454	15.339417
Gombe	38.482341	14.950536
Imo	43.970883	9.223561
Jigawa	31.141482	16.005004
Kaduna	47.241198	19.746525
Kano	38.290443	13.028973
Katsina	34.732229	16.564029
Kebbi.	36.112992	14.720500
Kogi	39.635422	12.146348
Kwara	43.147975	13.747982
Lagos	51.439370	8.223898
Nasarawa	61.460452	21.803263
Niger	38.421189	13.358884
Ogun	39.947740	8.101812
Ondo	36.669083	10.536215
Osun	39.658743	16.200752
Oyo	39.054487	9.842290
Plateau	56.361501	23.147740
Rivers	45.704127	8.896026
Sokoto	32.459582	14.536906
Taraba	53.336325	21.005527
Yobe	40.195464	16.152396
Zamfara	32.290238	10.612655

In [157...

```
percentage.iplot(kind = 'bar',
                  title='2019 %Percentage of Voters to Population',
                  xTitle='States and FCT',
                  yTitle='People')
```


2019 %Percentage of Voters to Population



In [114...

```
vote_percentage[vote_percentage['Percentage']>50]
```

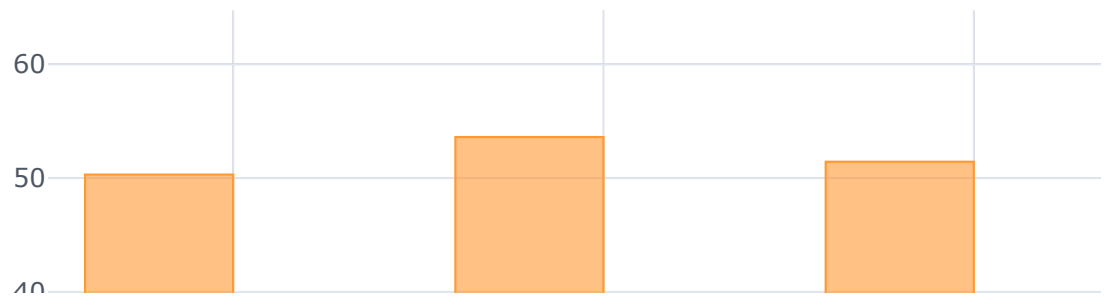
Out[114...

Percentage	
States	
Abia	50.310273
Delta	53.608120
Lagos	51.439370
Nasarawa	61.460452
Plateau	56.361501
Taraba	53.336325

In [161...

```
percentage[percentage['Reg Percentage']>50].iplot(kind = 'bar',  
          title='States with more than 50% Voters to Population 2019',  
          xTitle='States and FCT',  
          yTitle='People')
```

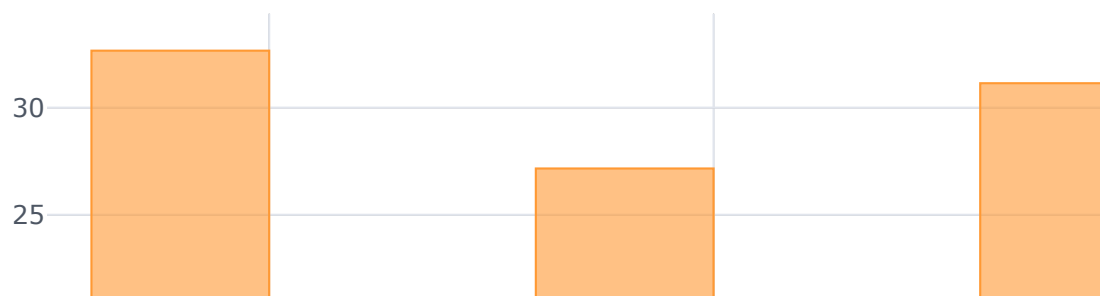
States with more than 50% Voters to Population 2019



In [162...

```
percentage[percentage['Reg Percentage']<34].iplot(kind = 'bar',  
          title='States with less than 34% of Voters to Population 2019',  
          xTitle='States and FCT',  
          yTitle='People')
```

States with less than 34% of Voters to Population 2019



```
In [176... data.sum()
```

```
Out[176... Population (2019)          201135262
Total Registered Voter (2019)  84004084
APC                            15191847
PDP                            11262978
AAC                             33953
YPP                             21886
ANN                             16779
Total Votes 2019              26527443
dtype: int64
```

```
In [168... data.columns
```

```
Out[168... Index(['Population (2019)', 'Total Registered Voter (2019)', 'APC', 'PDP',
      'AAC', 'YPP', 'ANN', 'Total Votes 2019'],
      dtype='object')
```

```
In [177... total = pd.DataFrame(data.sum(), index=['Population (2019)', 'Total Registered Voter (2019)',
      'AAC', 'YPP', 'ANN', 'Total Votes 2019']).transpose()
```

```
In [178... total
```

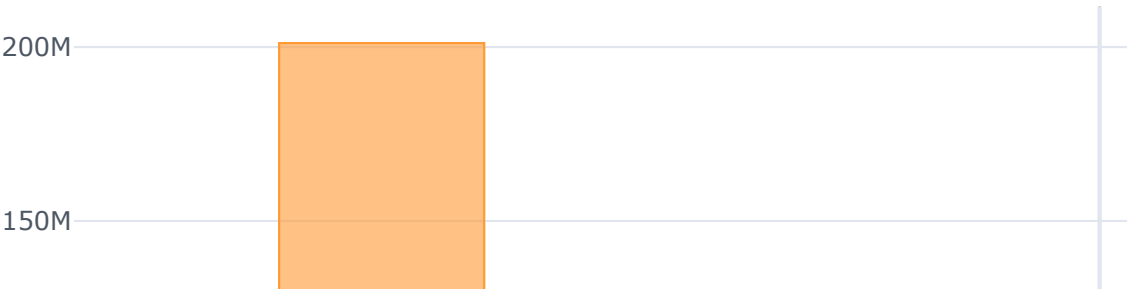
Out[178...

	Population (2019)	Total Registered Voter (2019)	APC	PDP	AAC	YPP	ANN	Total Votes 2019
0	201135262	84004084	15191847	11262978	33953	21886	16779	26527443

In [180...

```
total.iplot(kind='bar',
            title='Total Votes',
            xTitle='Data',
            yTitle='People')
```

Total Votes



In []: