

# African Financial Crisis

Objectives of this exploration is to make conclusions on the state of Africa economy backed up by available data using relevant charts to demonstrate trends.

```
In [1]: import pandas as pd
import numpy as np
import matplotlib.pyplot as plt
import seaborn as sns
import random
%matplotlib inline
```

In [ ]:

```
In [2]: df = pd.read_csv('african_crises.csv')
df.head()
```

Out[2]:

	case	cc3	country	year	systemic_crisis	exch_usd	domestic_debt_in_default	sovereign_ex
0	1	DZA	Algeria	1870	1	0.052264	0	
1	1	DZA	Algeria	1871	0	0.052798	0	
2	1	DZA	Algeria	1872	0	0.052274	0	
3	1	DZA	Algeria	1873	0	0.051680	0	
4	1	DZA	Algeria	1874	0	0.051308	0	

```
In [3]: df.dtypes
```

```
Out[3]: case                int64
cc3                object
country            object
year                int64
systemic_crisis    int64
exch_usd           float64
domestic_debt_in_default  int64
sovereign_external_debt_default  int64
gdp_weighted_default  float64
inflation_annual_cpi  float64
independence        int64
currency_crises      int64
inflation_crises     int64
banking_crisis       object
dtype: object
```

In [4]: df.info()

```
<class 'pandas.core.frame.DataFrame'>
RangeIndex: 1059 entries, 0 to 1058
Data columns (total 14 columns):
#   Column                                Non-Null Count  Dtype
---  -
0   case                                1059 non-null   int64
1   cc3                                1059 non-null   object
2   country                            1059 non-null   object
3   year                                1059 non-null   int64
4   systemic_crisis                    1059 non-null   int64
5   exch_usd                           1059 non-null   float64
6   domestic_debt_in_default           1059 non-null   int64
7   sovereign_external_debt_default    1059 non-null   int64
8   gdp_weighted_default               1059 non-null   float64
9   inflation_annual_cpi               1059 non-null   float64
10  independence                       1059 non-null   int64
11  currency_crises                    1059 non-null   int64
12  inflation_crises                    1059 non-null   int64
13  banking_crisis                     1059 non-null   object
dtypes: float64(3), int64(8), object(3)
memory usage: 116.0+ KB
```

In [5]: df.tail()

Out[5]:

	case	cc3	country	year	systemic_crisis	exch_usd	domestic_debt_in_default	soverei
1054	70	ZWE	Zimbabwe	2009	1	354.8	1	
1055	70	ZWE	Zimbabwe	2010	0	378.2	1	
1056	70	ZWE	Zimbabwe	2011	0	361.9	1	
1057	70	ZWE	Zimbabwe	2012	0	361.9	1	
1058	70	ZWE	Zimbabwe	2013	0	361.9	1	

In [6]: df['country'].unique()

Out[6]: array(['Algeria', 'Angola', 'Central African Republic', 'Ivory Coast', 'Egypt', 'Kenya', 'Mauritius', 'Morocco', 'Nigeria', 'South Africa', 'Tunisia', 'Zambia', 'Zimbabwe'], dtype=object)

```
In [7]: df_Algeria = df[df['country']=='Algeria']
df_Angola = df[df['country']=='Angola']
df_CAR = df[df['country']=='Central African Republic']
df_Ivr = df[df['country']=='Ivory Coast']
df_Egypt = df[df['country']=='Egypt']
df_Kenya = df[df['country']=='Kenya']
df_Mauritius = df[df['country']=='Mauritius']
df_Morocco = df[df['country']=='Morocco']
df_Nigeria = df[df['country']=='Nigeria']
df_SA = df[df['country']=='South Africa']
df_Tun = df[df['country']=='Tunisia']
df_Zam = df[df['country']=='Zambia']
df_Zimb = df[df['country']=='Zimbabwe']
```

```
In [8]: df_Algeria.head()
```

Out[8]:

	case	cc3	country	year	systemic_crisis	exch_usd	domestic_debt_in_default	sovereign_ex
0	1	DZA	Algeria	1870	1	0.052264	0	
1	1	DZA	Algeria	1871	0	0.052798	0	
2	1	DZA	Algeria	1872	0	0.052274	0	
3	1	DZA	Algeria	1873	0	0.051680	0	
4	1	DZA	Algeria	1874	0	0.051308	0	

```
In [9]: lis = ['case', 'country', 'systemic_crisis',
               'domestic_debt_in_default', 'sovereign_external_debt_default',
               'independence',
               'currency_crises', 'inflation_crises', 'banking_crisis']
```

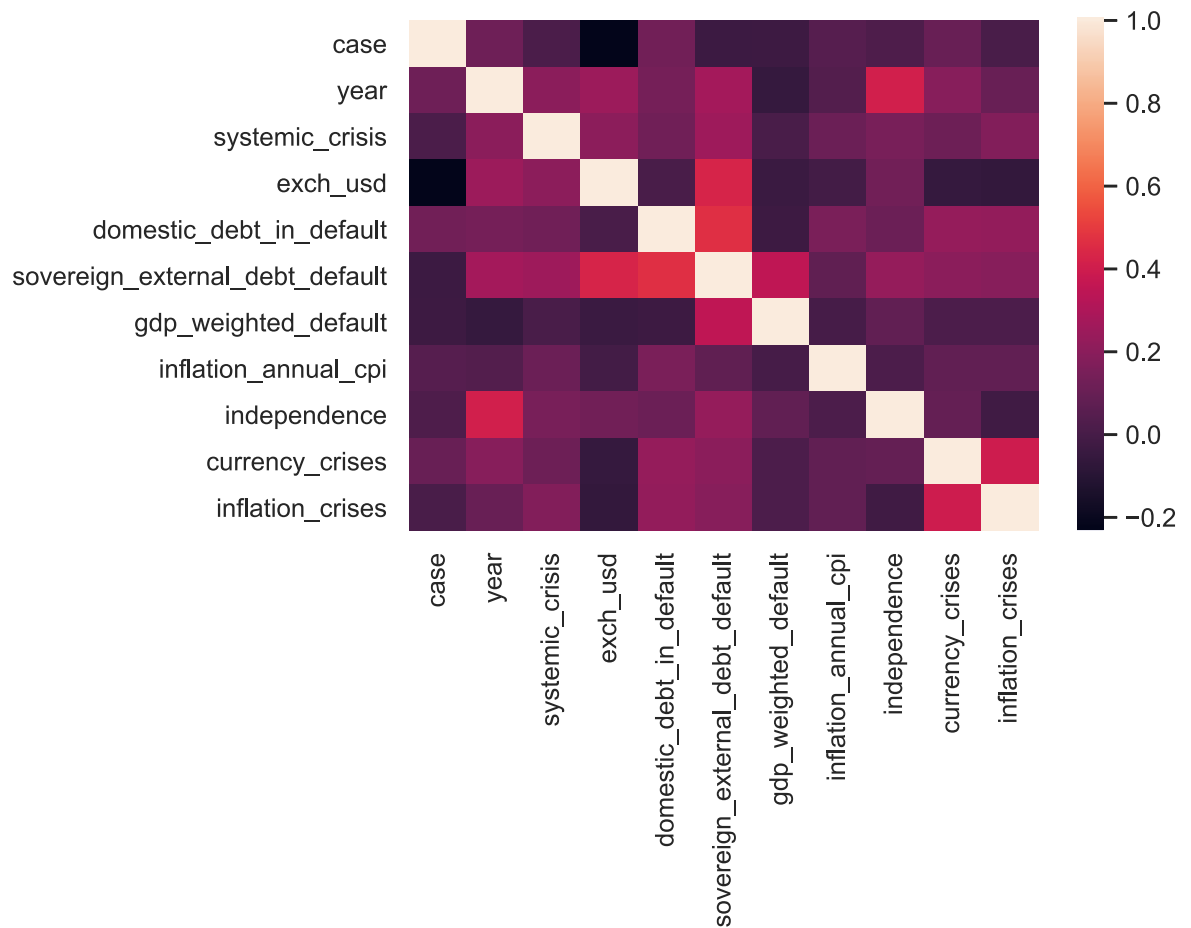
```
In [10]: for i in lis:
          print(df[i].unique())
          print(i)

[ 1  2 10 15 19 35 38 40 45 56 63 69 70]
case
['Algeria' 'Angola' 'Central African Republic' 'Ivory Coast' 'Egypt'
 'Kenya' 'Mauritius' 'Morocco' 'Nigeria' 'South Africa' 'Tunisia' 'Zambia'
 'Zimbabwe']
country
[1 0]
systemic_crisis
[0 1]
domestic_debt_in_default
[0 1]
sovereign_external_debt_default
[0 1]
independence
[0 1 2]
currency_crises
[0 1]
inflation_crises
['crisis' 'no_crisis']
banking_crisis
```

```
In [11]: countries = df['country'].unique()
```

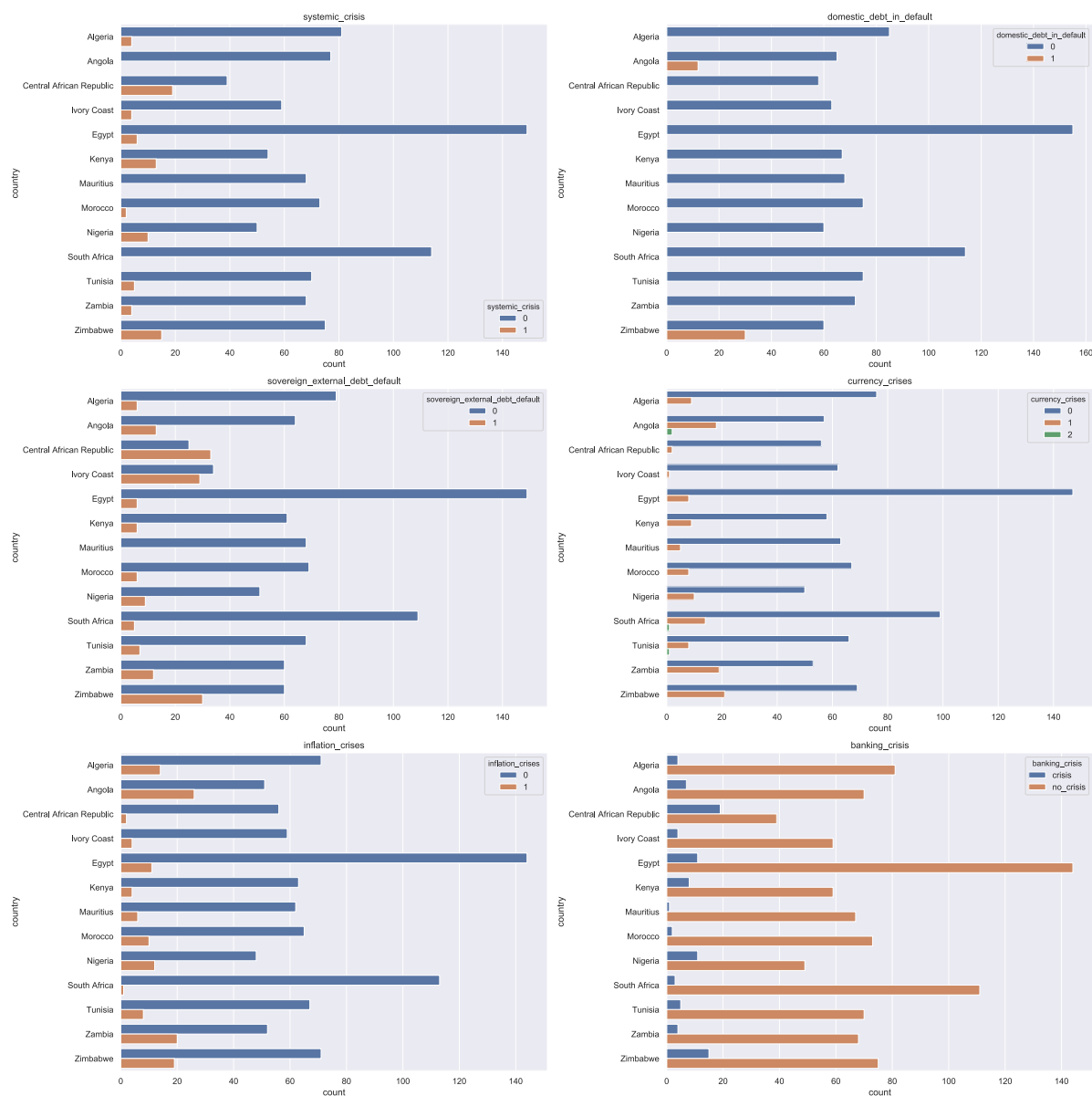
```
In [30]: sns.heatmap(df.corr())
```

```
Out[30]: <matplotlib.axes._subplots.AxesSubplot at 0x7bb62567f0>
```



```
In [13]: sns.set(style='darkgrid')
cols = ['systemic_crisis', 'domestic_debt_in_default', 'sovereign_external_debt_default', 'currency_crises', 'inflation_crises', 'banking_crisis']
plt.figure(figsize=(20,20))

x = 1
for item in cols:
    plt.subplot(3,2,x)
    x = x + 1
    sns.countplot(y=df.country, hue=df[item])
    plt.title(item)
plt.tight_layout()
plt.show()
```



```
In [15]: countries = df['country'].unique()
```

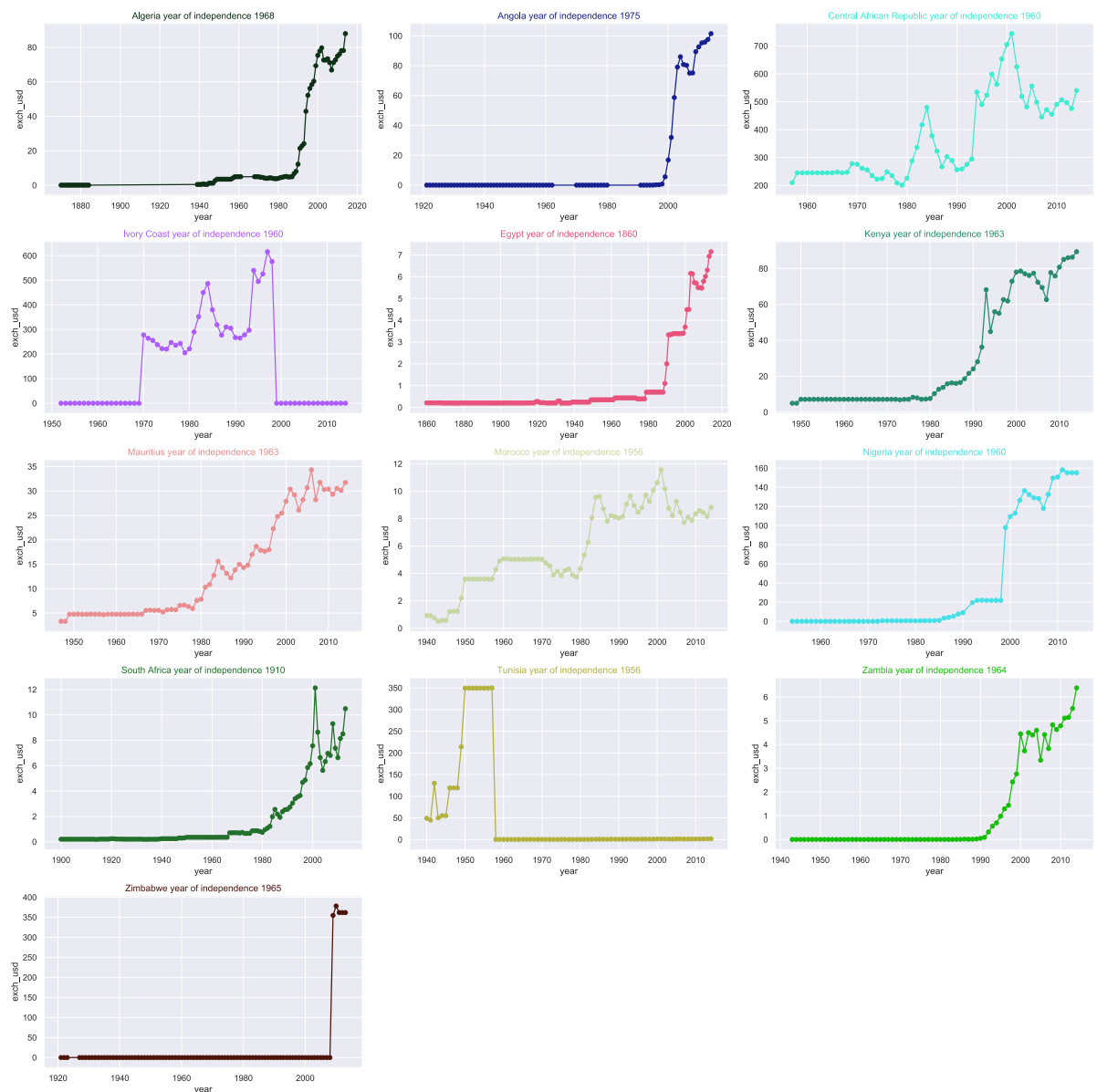
```
In [16]: #df[df.country == 'Algeria']['year']  
df[df.country == 'Algeria'][['year', 'exch_usd', 'banking_crisis']]
```

Out[16]:

	year	exch_usd	banking_crisis
0	1870	0.052264	crisis
1	1871	0.052798	no_crisis
2	1872	0.052274	no_crisis
3	1873	0.051680	no_crisis
4	1874	0.051308	no_crisis
...	...	...	...
80	2010	74.943700	no_crisis
81	2011	76.056300	no_crisis
82	2012	78.102500	no_crisis
83	2013	78.148701	no_crisis
84	2014	87.970698	no_crisis

85 rows × 3 columns

```
In [25]: sns.set(style='darkgrid')
plt.figure(figsize=(20,20))
start = 1
for item in countries:
    plt.subplot(5,3, start)
    start = start + 1
    col="#"+''.join([random.choice('0123456789ABCDEF') for j in range(6)])
    sns.lineplot(x=df[df.country == item]['year'], y = 'exch_usd', data=df, color=col)
    plt.scatter(x=df[df.country == item]['year'], y = df[df.country == item]['exch_usd'], color=col, s=28)
    plt.title(f"{item} year of independence {np.min(df[np.logical_and(df.country==item,df.independence==1)]['year'])}",
            color=col)
plt.tight_layout()
plt.show()
```





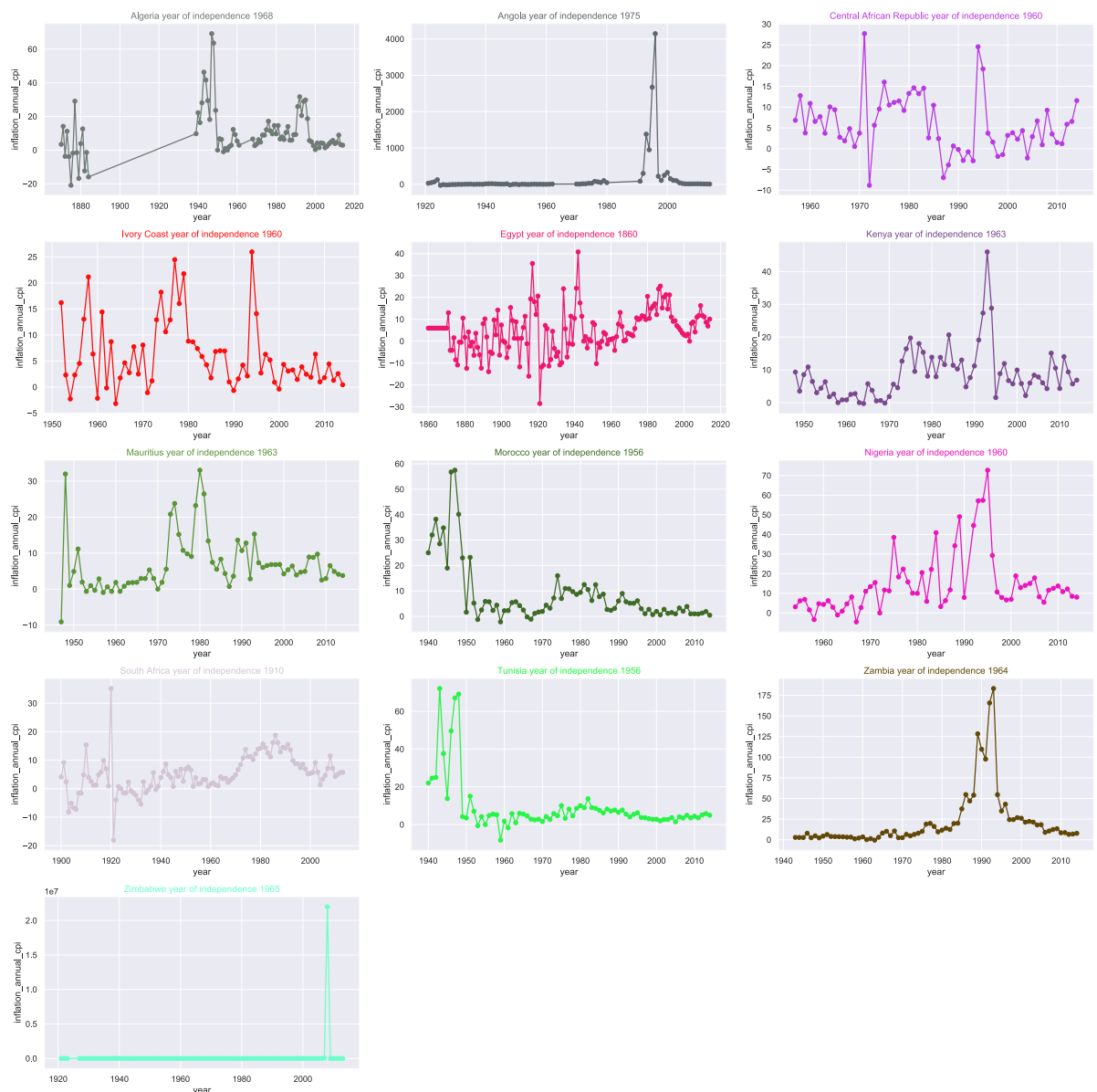
```
In [19]: np.min(df[np.logical_and(df.country=='Algeria',df.independence==1)]['year'])
```

```
Out[19]: 1968
```

```

In [26]: 'inflation_annual_cpi'
sns.set(style='darkgrid')
plt.figure(figsize=(20,20))
start = 1
for item in countries:
    plt.subplot(5,3, start)
    start = start + 1
    col="#"+''.join([random.choice('0123456789ABCDEF') for j in range(6)])
    sns.lineplot(x=df[df.country == item]['year'], y = 'inflation_annual_cpi',
    data=df, color=col)
    plt.scatter(x=df[df.country == item]['year'], y = df[df.country == item][
    'inflation_annual_cpi'], color=col, s=28)
    plt.title(f"{item} year of independence {np.min(df[np.logical_and(df.count
    ry==item,df.independence==1)]['year'])}",
    color=col)
plt.tight_layout()
plt.show()

```



```

In [20]: col="#"+''.join([random.choice('0123456789ABCDEF') for j in range(6)])

```

In [21]: col

Out[21]: '#285BF3'

In [23]: `from pandas import DataFrame`

In [ ]: