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Branch&year:IT 4th year

```
import pandas as pd import
matplotlib.pyplot as plt from IPython
import display import plotly.express as px
from wordcloud import WordCloud
df=pd.read_csv('/content/CO2_emission.csv'
)
```

```
df
```

	Country Name	country_code	Region	Indicator Name	1990	1991	1992	
2	Angola	AGO	Sub-Saharan Africa	CO2 emissions (metric tons per capita)				
3	Albania	ALB	Europe & Central Asia	CO2 emissions (metric tons per capita)				
0	Aruba	ABW	Latin America & Caribbean	CO2 emissions (metric tons per capita)	NaN	NaN	NaN	
1	Afghanistan	AFG	South Asia	CO2 emissions (metric tons per capita)	0.191745	0.167682	0.095958	0.08

```
type(df)
```

```
pandas.core.frame.DataFrame
```

```
df.info()
```

```
<class 'pandas.core.frame.DataFrame'>
RangeIndex: 215 entries, 0 to 214
Data columns (total 35 columns):
```

0.553662 0.544539 0.543557 0.70

CO2

```
 #   Column          Non-Null Count  Dtype
```

Europe & emissions

```
---4  ------          --------------  -----  AndorraAND
```

1.819542 1.242810 0.683700 0.63

Central (metric

```
 0   Country Name    215 non-null    object
```

Asia tons per 1

```
country_code    215 non-null    object  capita) 2
Region          215 non-null    object
```

```
 3   Indicator Name  215 non-null    object ...
```

7.521832 7.235379 6.963079 6.72

```
 ...     ...     ...           ... 4   1990            185
non-null    float64
5   1991            186 non-null    float64 CO2          ...         ...         ...
6   1992            189 non-null    float64emissions
```

East Asia

0.552836 0.609756 0.604266 0.65

```
7   1993            189 non-null    float64210
```

Samoa WSM (metric

& Pacific

```
8   1994            189 non-null    float64tons per
9   1995            190 non-null    float64
```

capita)

```
 10  1996            190 non-null    float64
```

0.567037 0.690937 0.704793 0.62

```
11  1997            190 non-null    float64Middle CO2  12  1998
189 non-null    float64Yemen,  East & emissions
```

```
 13  1999            189 non-null    float64211 Rep.
```

YEM North (metric 14 2000 190 non-null 6.729799 6.424622 6.175430 6.21

```
float64Africa tons per  15  2001            190 non-
null    float64 capita)
16  2002            191 non-null    float64
17  2003            191 non-null    float64
```

CO2

0.340930 0.349232 0.337224 0.28

```
18  2004            191 non-null    float64South
```

Sub- emissions

```
19  2005            191 non-null    float64212 Africa
```

ZAF Saharan (metric 20 2006 191 non-

1 585444 1 713321 1 694416 1 53

```
null    float64
```

Africa tons per 21 2007

```
191 non-null    float64
```

capita) 22 2008 191 non-null float64

CO2

```
23  2009            191 non-null    float64
```

Sub- emissions

```
24  2010            191 non-null    float64
```

213 Zambia ZMB Saharan (metric

```
25      2011            191 non-null    float64
```

Africa tons per

```
26      2012            191 non-null    float64 capita)
27      2013            191 non-null    float64
```

```
3  2014            191 non-null    float64 CO2  29  2015            191 non-null
float64Sub- emissions
```

214 Zimbabwe ZWE Saharan (metric

214 Zimbabwe ZWE Saharan (metric 1.585444 1.713321 1.694416 1.53

```
30  2016            191 non-null    float64
```

Africa tons per 31

```
2017            191 non-null    float64 capita)
```

```
32  2018            191 non-null    float64
33  2019            191 non-null    float64215 rows × 35 columns
34  2019.1          191 non-null    float64 dtypes: float64(31), object(4) memory
    usage: 58.9+ KB
```

```
df.shape
```

```
(215, 35)
```

```
df.size
```

```
7525
```

```
df.iloc[10:20,3:7]
```

	Indicator Name	1990	1991	1992
10	CO2 emissions (metric tons per capita)	15.448488	15.318213	15.341526
11	CO2 emissions (metric tons per capita)	7.589364	8.049114	7.353927
12	CO2 emissions (metric tons per capita)	7.453451	7.159655	8.616848
13	CO2 emissions (metric tons per capita)	0.031256	0.039533	0.031659
14	CO2 emissions (metric tons per capita)	10.966775	11.390890	11.182502
15	CO2 emissions (metric tons per capita)	0.066285	0.052432	0.052515
16	CO2 emissions (metric tons per capita)	0.056747	0.056353	0.055931
17	CO2 emissions (metric tons per capita)	0.111658	0.102558	0.109461
18	CO2 emissions (metric tons per capita)	8.443170	6.815049	6.482311
19	CO2 emissions (metric tons per capita)	21.656413	20.303593	23.457125

```
dsize =df.groupby('Region',sort=False).size() dsize
```

```
Region
Latin America & Caribbean     42
South Asia                     8
Sub-Saharan Africa            48
Europe & Central Asia         56
Middle East & North Africa    21
East Asia & Pacific           37 North
America                  3 dtype:
int64
```

```
fd
```

```
0      ABW
1      AFG
2      AGO
3      ALB
4      AND       ...
210    WSM
```

```
211    YEM
212    ZAF
213    ZMB
214    ZWE
Name: country_code, Length: 215, dtype: object
```

```
fd=df.country_code fd
```

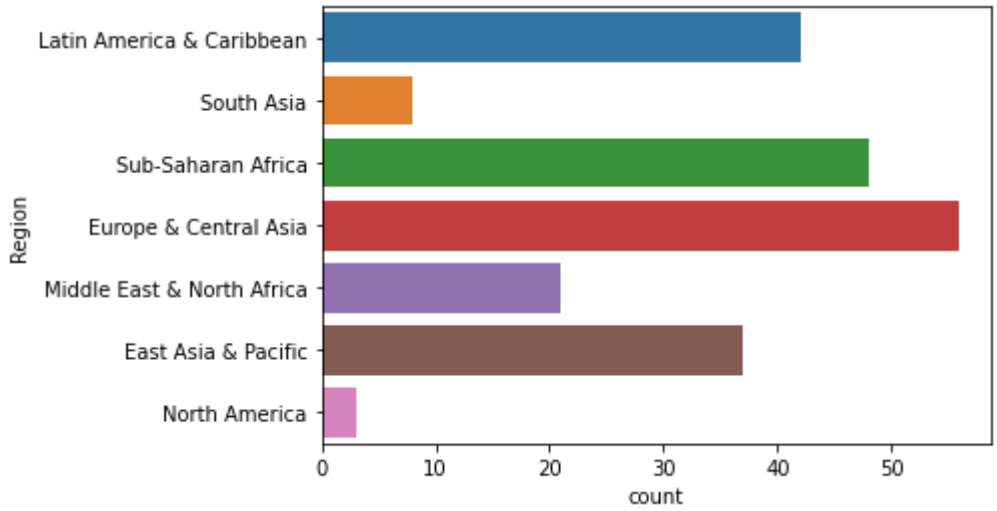
```
0      ABW
1      AFG
2      AGO
3      ALB
4      AND       ...
210    WSM
211    YEM
212    ZAF
213    ZMB
214    ZWE
Name: country_code, Length: 215, dtype: object
```

```
len(fd.unique())
```

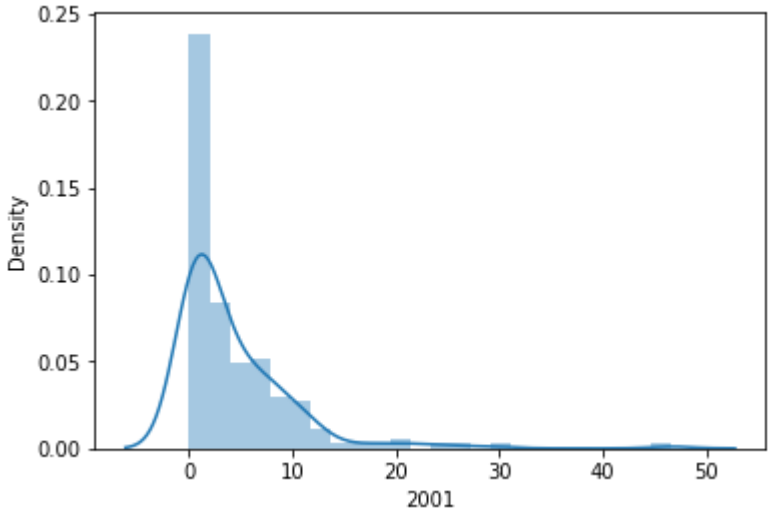
```
215
```

```
import seaborn as sns sns.countplot(y='Region',data=df)
```

```
<matplotlib.axes._subplots.AxesSubplot at 0x7f6c7121c210>
```



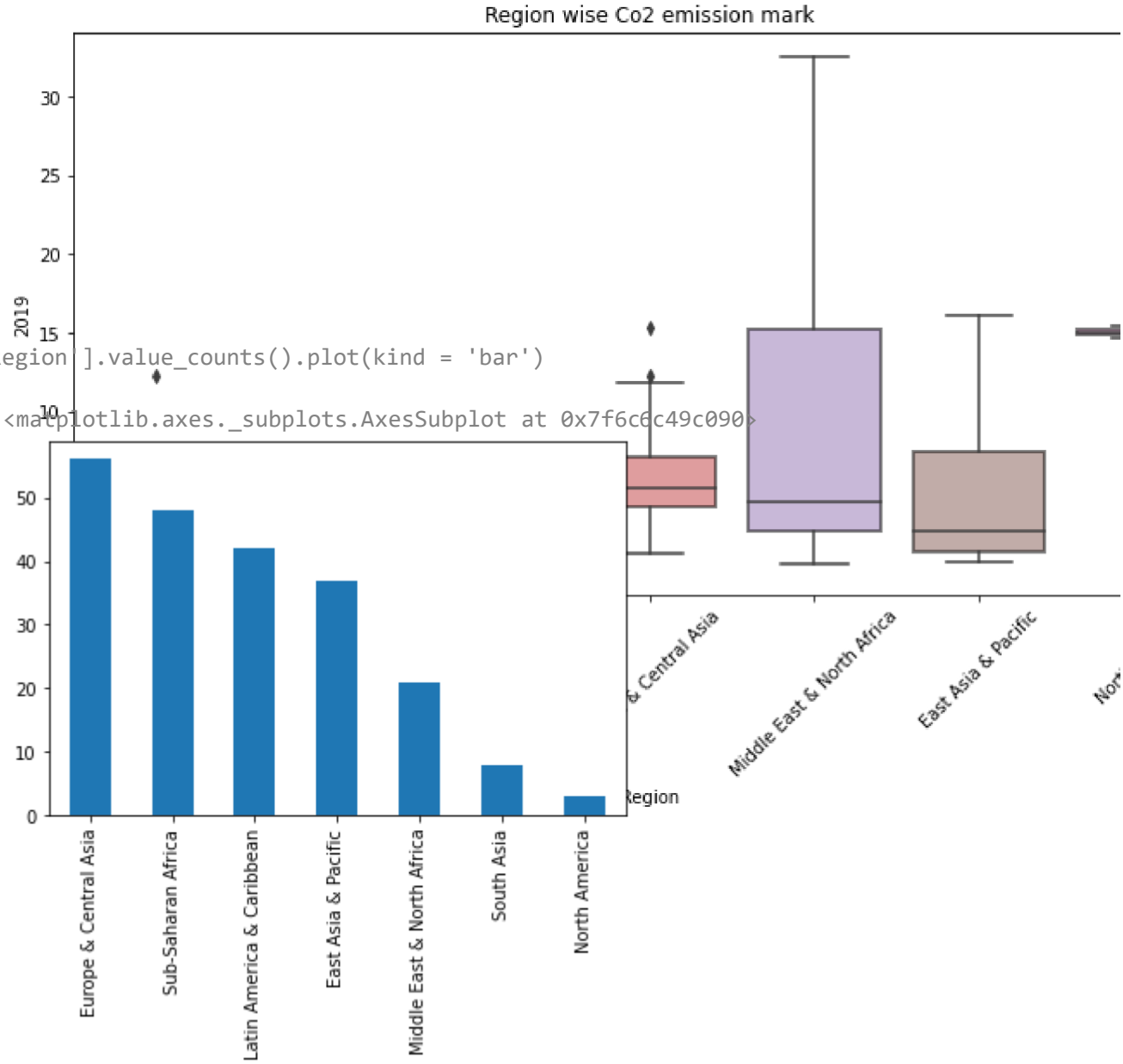

```
sns.distplot(df['2001']) /usr/local/lib/python3.7/dist-
packages/seaborn/distributions.py:2619: FutureWarning:
      warnings.warn(msg, FutureWarning)
<matplotlib.axes._subplots.AxesSubplot at 0x7f6c707feb90>
```




```
df.groupby(['1999','2000']).size()
```

```
1999       2000
0.036699   0.040760     1
0.040157   0.036574     1
0.044819   0.071981     1
0.045514   0.034603     1
0.049423   0.053756     1
..
20.101132  20.469807    1 23.436675
24.370172    1 24.271845  23.893712
1 28.887108  27.035159    1
50.833850  48.374002    1 Length:
189, dtype: int64
```

```
plt.figure(figsize = (12, 6)) ax = sns.boxplot(x='Region',
y='2019', data=df) plt.setp(ax.artists, alpha=.5,
linewidth=2, edgecolor="k") plt.xticks(rotation=45)
plt.title('Region wise Co2 emission mark')
     Text(0.5, 1.0, 'Region wise Co2 emission mark')
```




```
df['Region'].value_counts().plot(kind = 'bar')
```

```
<matplotlib.axes._subplots.AxesSubplot at 0x7f6c0c49c090>
```

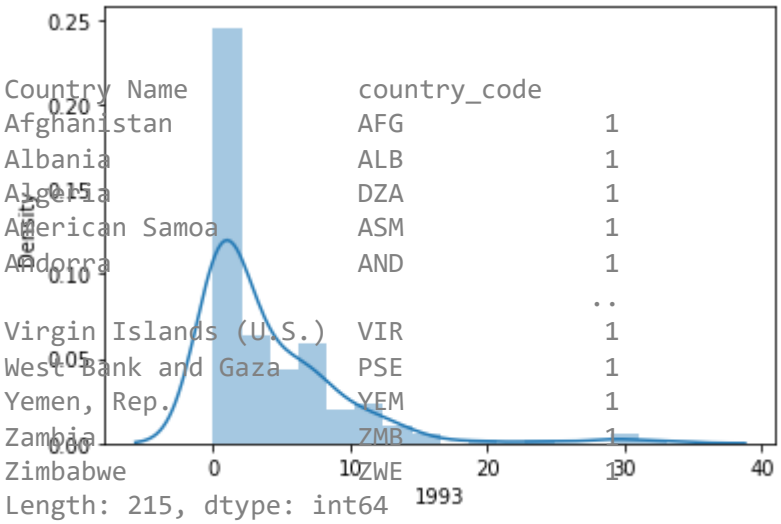
```
sns.distplot(df['1993'])
```

```
/usr/local/lib/python3.7/dist-packages/seaborn/distributions.py:2619: FutureWarning:

`distplot` is a deprecated function and will be removed in a future version. Please a
```

```
df=df.groupby(['Country Name','country_code']).size()
```

```
<matplotlib.axes._subplots.AxesSubplot at 0x7f6c6a70eb50>
```




```
df
```

```
Country Name           country_code
Afghanistan            AFG             1
Albania                ALB             1
Algeria                DZA             1
American Samoa         ASM             1
Andorra                AND             1
                                      ..
Virgin Islands (U.S.)  VIR             1
West Bank and Gaza     PSE             1
Yemen, Rep.            YEM             1
Zambia                 ZMB             1
Zimbabwe               ZWE             1
Length: 215, dtype: int64
```