Intractive Visulization with Pandas

```
! pip install plotly
```

```
Requirement already satisfied: plotly in c:\users\abhis\anaconda3\lib\
site-packages (5.24.1)
Requirement already satisfied: tenacity>=6.2.0 in c:\users\abhis\
anaconda3\lib\site-packages (from plotly) (9.0.0)
Requirement already satisfied: packaging in c:\users\abhis\anaconda3\
lib\site-packages (from plotly) (24.2)
```

```
! pip install cufflinks
```

```
Requirement already satisfied: cufflinks in c:\users\abhis\anaconda3\
lib\site-packages (0.17.3)
Requirement already satisfied: numpy>=1.9.2 in c:\users\abhis\
anaconda3\lib\site-packages (from cufflinks) (2.1.3)
Requirement already satisfied: pandas>=0.19.2 in c:\users\abhis\
anaconda3\lib\site-packages (from cufflinks) (2.2.3)
Requirement already satisfied: plotly>=4.1.1 in c:\users\abhis\
anaconda3\lib\site-packages (from cufflinks) (5.24.1)
Requirement already satisfied: six>=1.9.0 in c:\users\abhis\anaconda3\
lib\site-packages (from cufflinks) (1.17.0)
Requirement already satisfied: colorlover>=0.2.1 in c:\users\abhis\
anaconda3\lib\site-packages (from cufflinks) (0.3.0)
Requirement already satisfied: setuptools>=34.4.1 in c:\users\abhis\
anaconda3\lib\site-packages (from cufflinks) (72.1.0)
Requirement already satisfied: ipython>=5.3.0 in c:\users\abhis\
anaconda3\lib\site-packages (from cufflinks) (8.30.0)
Requirement already satisfied: ipywidgets>=7.0.0 in c:\users\abhis\
anaconda3\lib\site-packages (from cufflinks) (8.1.5)
Requirement already satisfied: decorator in c:\users\abhis\anaconda3\
lib\site-packages (from ipython>=5.3.0->cufflinks) (5.1.1)
Requirement already satisfied: jedi>=0.16 in c:\users\abhis\anaconda3\
lib\site-packages (from ipython>=5.3.0->cufflinks) (0.19.2)
Requirement already satisfied: matplotlib-inline in c:\users\abhis\
anaconda3\lib\site-packages (from ipython>=5.3.0->cufflinks) (0.1.6)
Requirement already satisfied: prompt-toolkit<3.1.0,>=3.0.41 in c:\
users\abhis\anaconda3\lib\site-packages (from ipython>=5.3.0-
>cufflinks) (3.0.43)
Requirement already satisfied: pygments>=2.4.0 in c:\users\abhis\
anaconda3\lib\site-packages (from ipython>=5.3.0->cufflinks) (2.19.1)
Requirement already satisfied: stack-data in c:\users\abhis\anaconda3\
lib\site-packages (from ipython>=5.3.0->cufflinks) (0.2.0)
Requirement already satisfied: traitlets>=5.13.0 in c:\users\abhis\
anaconda3\lib\site-packages (from ipython>=5.3.0->cufflinks) (5.14.3)
Requirement already satisfied: colorama in c:\users\abhis\anaconda3\
lib\site-packages (from ipython>=5.3.0->cufflinks) (0.4.6)
```

```
Requirement already satisfied: wcwidth in c:\users\abhis\anaconda3\
lib\site-packages (from prompt-toolkit<3.1.0,>=3.0.41->ipython>=5.3.0-
>cufflinks) (0.2.5)
Requirement already satisfied: comm>=0.1.3 in c:\users\abhis\
anaconda3\lib\site-packages (from ipywidgets>=7.0.0->cufflinks)
(0.2.1)
Requirement already satisfied: widgetsnbextension~=4.0.12 in c:\users\
abhis\anaconda3\lib\site-packages (from ipywidgets>=7.0.0->cufflinks)
(4.0.13)
Requirement already satisfied: jupyterlab_widgets~=3.0.12 in c:\users\
abhis\anaconda3\lib\site-packages (from ipywidgets>=7.0.0->cufflinks)
(3.0.13)
Requirement already satisfied: parso<0.9.0,>=0.8.4 in c:\users\abhis\
anaconda3\lib\site-packages (from jedi>=0.16->ipython>=5.3.0-
>cufflinks) (0.8.4)
Requirement already satisfied: python-dateutil>=2.8.2 in c:\users\
abhis\anaconda3\lib\site-packages (from pandas>=0.19.2->cufflinks)
(2.9.0.post0)
Requirement already satisfied: pytz>=2020.1 in c:\users\abhis\
anaconda3\lib\site-packages (from pandas>=0.19.2->cufflinks) (2024.1)
Requirement already satisfied: tzdata>=2022.7 in c:\users\abhis\
anaconda3\lib\site-packages (from pandas>=0.19.2->cufflinks) (2025.2)
Requirement already satisfied: tenacity>=6.2.0 in c:\users\abhis\
anaconda3\lib\site-packages (from plotly>=4.1.1->cufflinks) (9.0.0)
Requirement already satisfied: packaging in c:\users\abhis\anaconda3\
lib\site-packages (from plotly>=4.1.1->cufflinks) (24.2)
Requirement already satisfied: executing in c:\users\abhis\anaconda3\
lib\site-packages (from stack-data->ipython>=5.3.0->cufflinks) (0.8.3)
Requirement already satisfied: asttokens in c:\users\abhis\anaconda3\
lib\site-packages (from stack-data->ipython>=5.3.0->cufflinks) (3.0.0)
Requirement already satisfied: pure-eval in c:\users\abhis\anaconda3\
lib\site-packages (from stack-data->ipython>=5.3.0->cufflinks) (0.2.2)
```

```
import numpy as np
import pandas as pd
import cufflinks as cf
from IPython.display import display, HTML

cf.set_config_file(sharing='public',theme='ggplot',offline=True)

import plotly.express as px # if .iplot not working in your device
then you


# reading the csv file
df_population=pd.read_csv('population_total.csv',encoding='latin1')

# dropping null values
df_population.dropna(inplace=True)
```

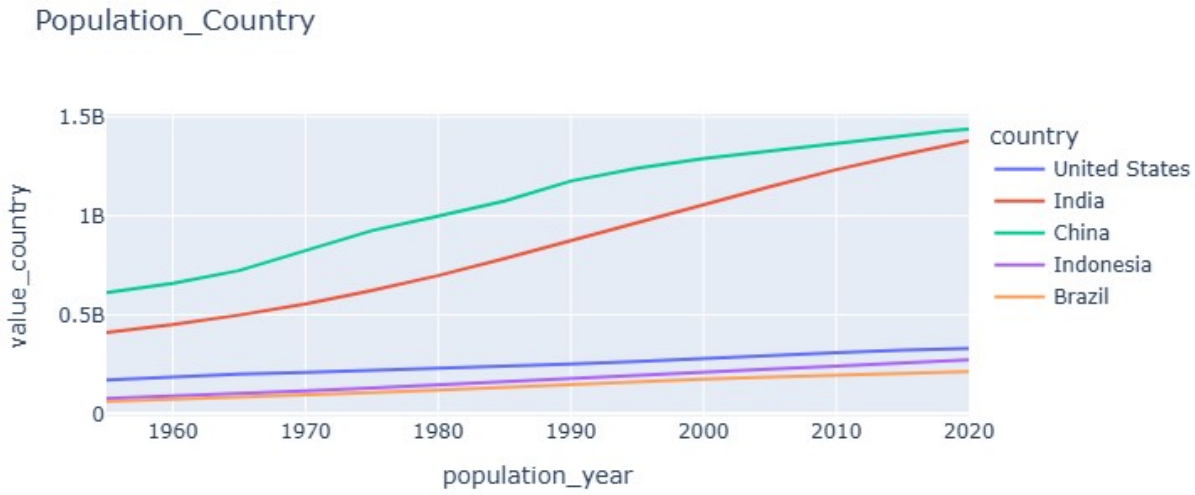
```
# making pivot table
df_new =
df_population.pivot(index='year',columns='country',values='population'
)

# selecting some countries
df_new = df_new[['United
States' ,'India','China','Indonesia','Brazil']]

#showing pivot table
df_new
```

```
country  United States         India         China    Indonesia
Brazil
year

1955.0     171685336.0  4.098806e+08  6.122416e+08   77273425.0
62533919.0
1960.0     186720571.0  4.505477e+08  6.604081e+08   87751068.0
72179226.0
1965.0     199733676.0  4.991233e+08  7.242190e+08  100267062.0
83373530.0
1970.0     209513341.0  5.551898e+08  8.276014e+08  114793178.0
95113265.0
1975.0     219081251.0  6.231029e+08  9.262409e+08  130680727.0
107216205.0
1980.0     229476354.0  6.989528e+08  1.000089e+09  147447836.0
120694009.0
1985.0     240499825.0  7.843600e+08  1.075589e+09  164982451.0
135274080.0
1990.0     252120309.0  8.732778e+08  1.176884e+09  181413402.0
149003223.0
1995.0     265163745.0  9.639226e+08  1.240921e+09  196934260.0
162019896.0
2000.0     281710909.0  1.056576e+09  1.290551e+09  211513823.0
174790340.0
2005.0     294993511.0  1.147610e+09  1.330776e+09  226289470.0
186127103.0
2010.0     309011475.0  1.234281e+09  1.368811e+09  241834215.0
195713635.0
2015.0     320878310.0  1.310152e+09  1.406848e+09  258383256.0
204471769.0
2016.0     323015995.0  1.324517e+09  1.414049e+09  261556381.0
206163053.0
2017.0     325084756.0  1.338677e+09  1.421022e+09  264650963.0
207833823.0
2018.0     327096265.0  1.352642e+09  1.427648e+09  267670543.0
209469323.0
2019.0     329064917.0  1.366418e+09  1.433784e+09  270625568.0
211049527.0
```

```
2020.0     331002651.0  1.380004e+09  1.439324e+09  273523615.0
212559417.0
```

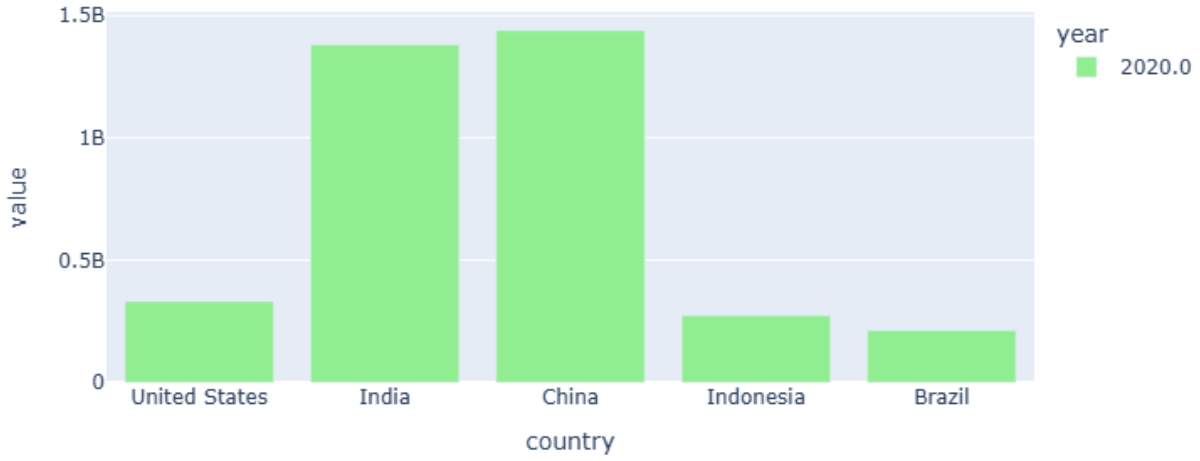
1 Lineplot

```
# if .iplot not working in your device then you do this

fig=px.line(df_new,title='Population_Country',labels={'value':'value_c
ountry',

'year':'population_year'})

fig.show()
```



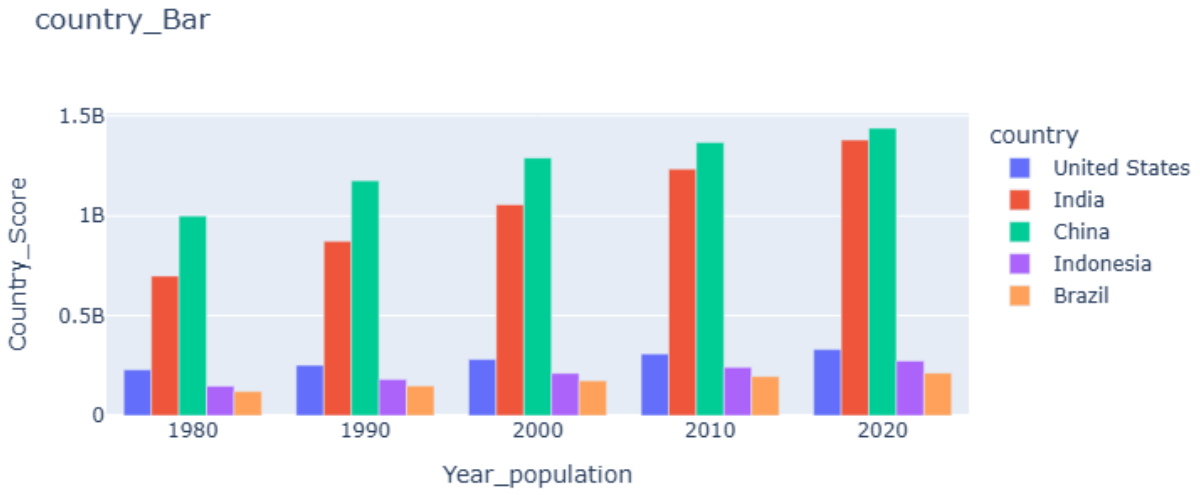
2 Barplot

```
# selecting only one year (2020)

df_2020=df_new[df_new.index.isin([2020])]
df_2020=df_2020.T

fig = px.bar(df_2020)
fig.update_traces(marker_color='lightgreen')

fig.show()
```



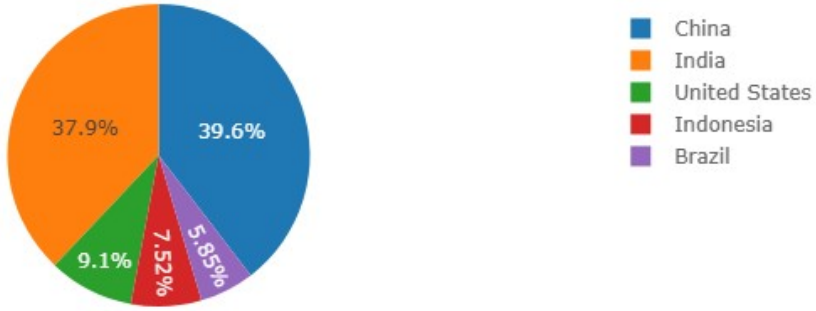
2.1 Barplot grouped by 'n' variables

```
df_five=df_new[df_new.index.isin([1980,1990,2000,2010,2020])]

fig = px.bar(df_five,title='country_Bar',labels={ 'year':
'Year_population',

'value':'Country_Score'},barmode='group')

fig.show()
```

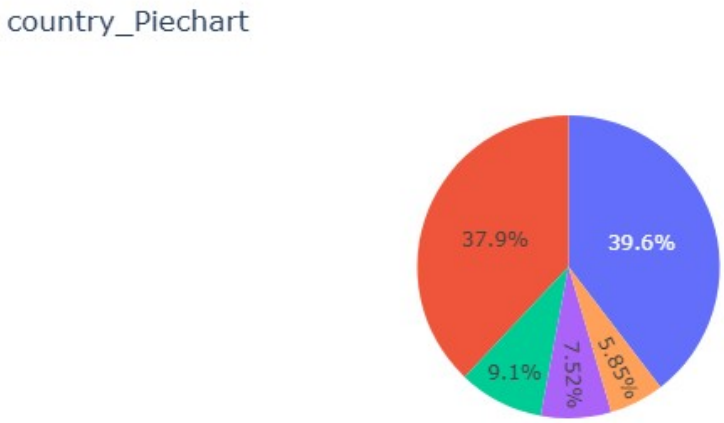


4 Piechart

```
# changing column name
df_2020.rename(columns={2020:'2020'},inplace=True)
df_2020=df_2020.reset_index()

df_2020.iplot(kind='pie',values='2020',labels='country')
```

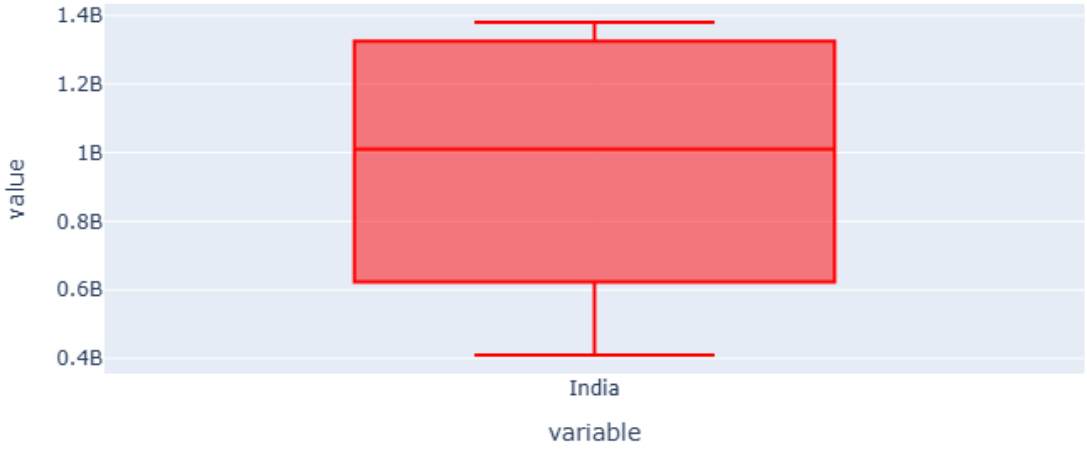



```
# if .plot not working then we use this method
fig =
px.pie(df_2020,labels='country',values='2020',title='country_Piechart'
,)
fig.show()
```

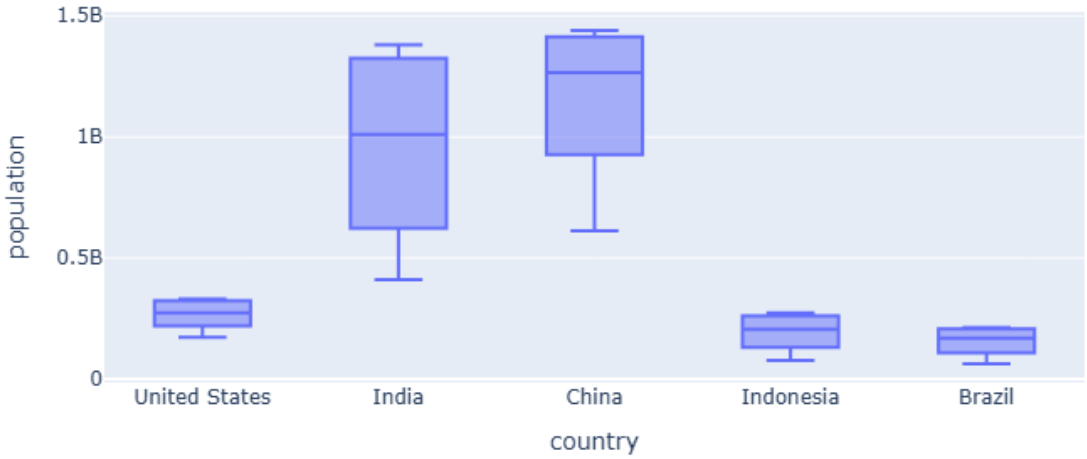


4 Boxplot

```
# single boxplot show in our box plot
fig=px.box(df_new['India'])
fig.update_traces(marker_color='red')

fig.show()
```

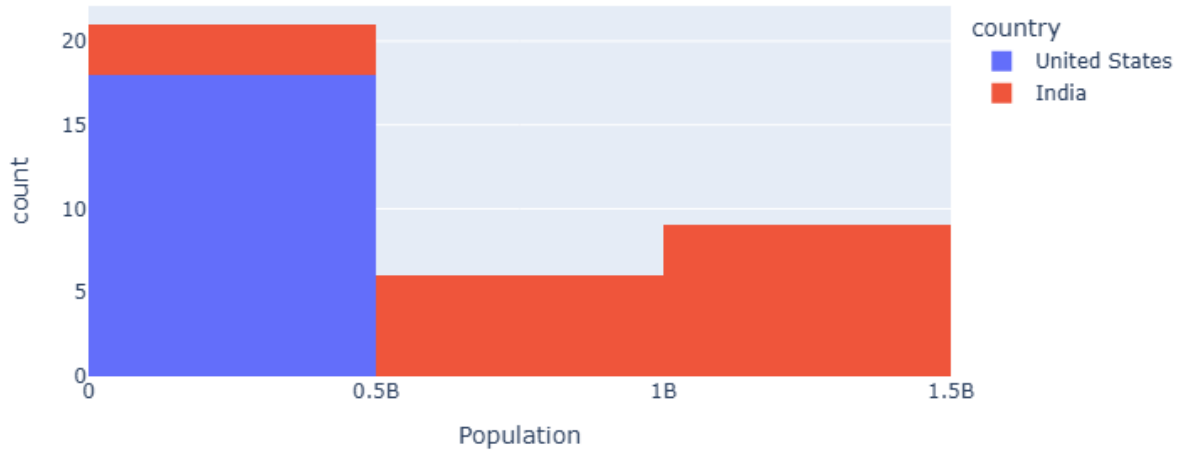



```
# multiple country showes in your boxplot
fig=px.box(df_new,labels={'value':'population'})
fig.show()
```



5 Histogram

```
fig = px.histogram(df_new[['United States', 'India']],labels={'value':
'Population'},nbins=3)
fig.show()
```



6 ScatterPlot

```
fig=px.scatter(df_new)
fig.show()
```