



Logout

File Edit View Insert Cell Kernel Help

Not Trusted

Python 3

```
In [1]: #import libraries
import pandas as pd
import numpy as np
import matplotlib.pyplot as plt
import matplotlib.dates
import seaborn as sns
import plotly.express as px
import plotly.graph_objects as go
from plotly.subplots import make_subplots

In [2]: df=pd.read_csv("import_goods.csv") #the data of import goods in the world
df1=pd.read_csv("export_goods.csv") #the data of export goods in the world
df2=pd.read_csv("GDP_Country.csv") #GDP of countries
df3=pd.read_csv("Services_Value.csv") #services value

In [3]: #merge 'Value' from two datasets
df.rename(columns={"Value": "Import_Value"},inplace=True)
df1.rename(columns={"Value": "Export_Value"},inplace=True)
df['Export_Value']=df1['Export_Value'].values

In [4]: #convert int to datetime
df['TIME'] = pd.to_datetime(df['TIME'])
df3['TIME'] = pd.to_datetime(df3['TIME'])

In [5]: df.head() #the head of dataset
```

	LOCATION	INDICATOR	SUBJECT	MEASURE	FREQUENCY	TIME	Import_Value	Flag Codes	Export_Value
0	AUS	TRADEGOOD	IMP	BLN_USD	Q	2018-01-01	58.90638	NaN	63.19113
1	AUS	TRADEGOOD	IMP	BLN_USD	Q	2018-04-01	57.3599	NaN	63.80774
2	AUS	TRADEGOOD	IMP	BLN_USD	Q	2018-07-01	55.43180	NaN	64.78767
3	AUS	TRADEGOOD	IMP	BLN_USD	Q	2018-10-01	55.15244	NaN	65.44471
4	AUS	TRADEGOOD	IMP	BLN_USD	Q	2019-01-01	55.03162	NaN	66.43565

```
In [6]: plt.figure(figsize=(20,10)) #creating subplots and determining the dimensions
plt.subplot(2,2,1) #specifies the plane of the graphs and which graph it is
plt.plot(df.TIME[13],df.Import_Value[13],color="red",linewidth=3,marker="o") #import line and properties(color,li
plt.plot(df.TIME[13],df.Export_Value[13],color="black",linewidth=3,marker="o") #Export line and properties(color,l
plt.xlabel("Date") #to name the x column
plt.ylabel("Billion US Dollars") #to name the y column
plt.title("The Amount of Goods Import and Export in Australia",fontsize=15,color="black") #to name the title of the
plt.legend(['Import', 'Export']) #to add legend
plt.grid() #gives the graph a grid structure

plt.subplot(2,2,2)
plt.plot(df.TIME[13:26],df.Import_Value[13:26],color="blue",linewidth=3,marker="o")
plt.plot(df.TIME[13:26],df.Export_Value[13:26],color="dimgray",linewidth=3,marker="o")
plt.xlabel("Date")
plt.ylabel("Billion US Dollars")
plt.title("The Amount of Goods Import and Export in Canada",fontsize=15,color="black")
plt.legend(['Import', 'Export'])
plt.grid()

plt.subplot(2,2,3)
plt.plot(df.TIME[26:39],df.Import_Value[26:39],color="purple",linewidth=3,marker="o")
plt.plot(df.TIME[26:39],df.Export_Value[26:39],color="hotpink",linewidth=3,marker="o")
plt.xlabel("Date")
plt.ylabel("Billion US Dollars")
plt.title("The Amount of Goods Import and Export in France",fontsize=15,color="black")
plt.legend(['Import', 'Export'])
plt.grid()

plt.subplot(2,2,4)
plt.plot(df.TIME[39:52],df.Import_Value[39:52],color="magenta",linewidth=3,marker="o")
plt.plot(df.TIME[39:52],df.Export_Value[39:52],color="tomato",linewidth=3,marker="o")
plt.xlabel("Date")
plt.ylabel("Billion US Dollars")
plt.title("The Amount of Goods Import and Export in Germany",fontsize=15,color="black")
plt.legend(['Import', 'Export'])
plt.grid()
plt.show()
```

The Amount of Goods Import and Export in Australia

The Amount of Goods Import and Export in Canada

The Amount of Goods Import and Export in France

The Amount of Goods Import and Export in Germany

```
In [7]: plt.figure(figsize=(20,10))
plt.subplot(2,2,1)
plt.plot(df.TIME[65:78],df.Import_Value[65:78],color="black",linewidth=3,marker="o")
plt.plot(df.TIME[65:78],df.Export_Value[65:78],color="olive",linewidth=3,marker="o")
plt.xlabel("Date")
plt.ylabel("Billion US Dollars")
plt.title("The Amount of Goods Import and Export in Japan",fontsize=15,color="black")
plt.legend(['Import', 'Export'])
plt.grid()

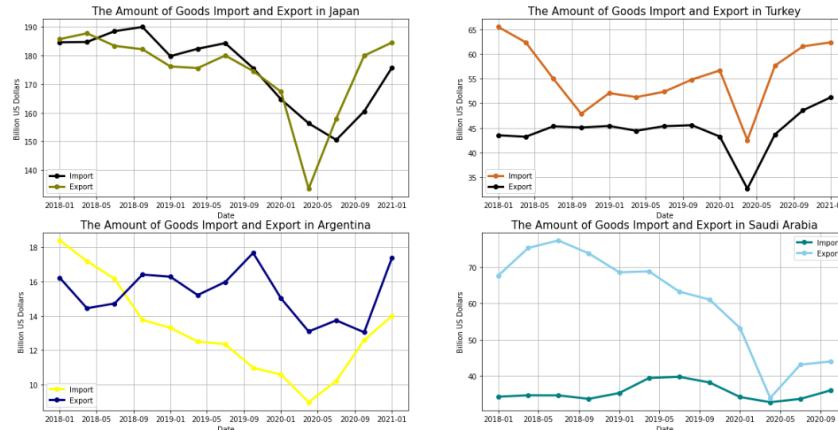
plt.subplot(2,2,2)
plt.plot(df.TIME[104:117],df.Import_Value[104:117],color="chocolate",linewidth=3,marker="o")
plt.plot(df.TIME[104:117],df.Export_Value[104:117],color="black",linewidth=3,marker="o")
plt.xlabel("Date")
plt.ylabel("Billion US Dollars")
plt.title("The Amount of Goods Import and Export in Turkey",fontsize=15,color="black")
plt.legend(['Import', 'Export'])
plt.grid()
```

```

plt.subplot(2,2,3)
plt.plot(df.TIME[143:156],df.Import_Value[143:156],color="yellow",linewidth=3,marker="o")
plt.plot(df.TIME[143:156],df.Export_Value[143:156],color="navy",linewidth=3,marker="o")
plt.xlabel("Date")
plt.ylabel("Billion US Dollars")
plt.title("The Amount of Goods Import and Export in Argentina",fontsize=15,color="black")
plt.legend(['Import', 'Export'])
plt.grid()
plt.show()

plt.subplot(2,2,4)
plt.plot(df.TIME[195:207],df.Import_Value[195:207],color="teal",linewidth=3,marker="o")
plt.plot(df.TIME[195:207],df.Export_Value[195:207],color="skyblue",linewidth=3,marker="o")
plt.xlabel("Date")
plt.ylabel("Billion US Dollars")
plt.title("The Amount of Goods Import and Export in Saudi Arabia",fontsize=15,color="black")
plt.legend(['Import', 'Export'])
plt.grid()
plt.show()

```



```

In [8]: labels = ["Australia", "Canada", "France", "Germany", "Italy", "Japan", "Netherlands", "Spain", "Turkey", "United Kingdom", "United States", "Brazil", "China", "India", "Argentina", "Saudi Arabia"]

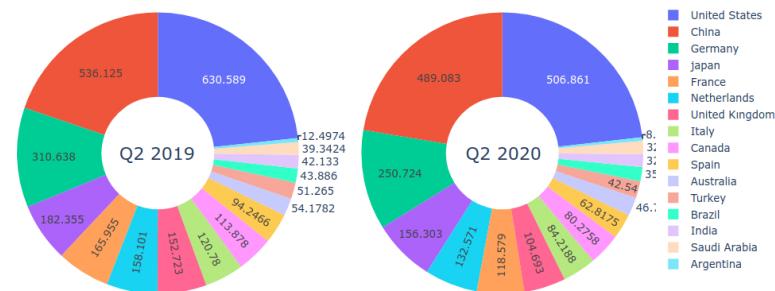
# Create subplots: use 'domain' type for Pie subplot
fig = make_subplots(rows=1, cols=2, specs=[[{"type": 'domain'}, {"type": 'domain'}]])
fig.add_trace(go.Pie(labels=labels, values=[54.1782, 113.878, 165.955, 310.638, 120.78, 182.355, 158.101, 94.2466, 51.265, 152.723, 630.589, 43.886, 536.125, 42.133, 12.4974, 39.3424, 42.133, 43.886, 51.265, 54.1782], name="Import Goods"), 1, 1)
fig.add_trace(go.Pie(labels=labels, values=[46.7704, 80.2758, 118.579, 250.724, 84.2188, 156.303, 132.571, 62.8175, 42.54, 104.693, 506.861, 35.1314, 489.083, 32.7068, 8.97283, 32.6459], name="Import Goods"), 1, 2)

# Use 'hole' to create a donut-like pie chart
fig.update_traces(hole=.4, hoverinfo="label+value+name", textinfo='value')

fig.update_layout(
    title_text="Comparison of Goods Imported by Countries in Q2 2019 and Q2 2020(Million US Dollars)",
    title_font_family="Times New Roman",
    title_font_color="red",
    legend_title_font_color="green",
    title_x=0.5,
    # Add annotations in the center of the donut pies.
    annotations=[dict(text='Q2 2019', x=0.16, y=0.5, font_size=20, showarrow=False),
                 dict(text='Q2 2020', x=0.84, y=0.5, font_size=20, showarrow=False)])
fig.show()

```

Comparison of Goods Imported by Countries in Q2 2019 and Q2 2020(Million US Dollars)



```

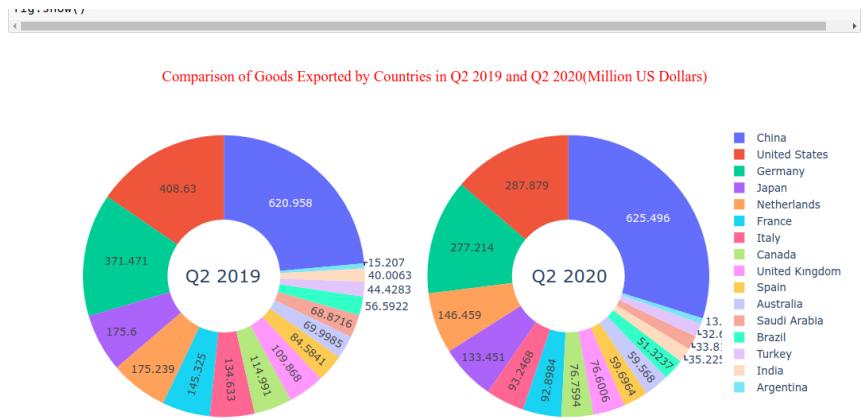
In [9]: labels = ["Australia", "Canada", "France", "Germany", "Italy", "Japan", "Netherlands", "Spain", "Turkey", "United Kingdom", "United States", "Argentina", "Brazil", "China", "India", "Saudi Arabia"]

# Create subplots: use 'domain' type for Pie subplot
fig = make_subplots(rows=1, cols=2, specs=[[{"type": 'domain'}, {"type": 'domain'}]])
fig.add_trace(go.Pie(labels=labels, values=[69.9985, 114.991, 145.325, 371.471, 134.633, 175.6, 175.239, 84.5841, 44.4283, 189.868, 408.63, 15.207, 56.5922, 620.958, 40.0063, 68.8716], name="Export Goods"), 1, 1)
fig.add_trace(go.Pie(labels=labels, values=[59.568, 76.7594, 92.8984, 277.214, 93.2468, 133.451, 146.459, 59.6964, 32.6644, 76.6006, 287.879, 13.0894, 51.3237, 625.496, 35.2258, 33.8145], name="Export Goods"), 1, 2)

# Use 'hole' to create a donut-like pie chart
fig.update_traces(hole=.4, hoverinfo="label+value+name", textinfo='value')

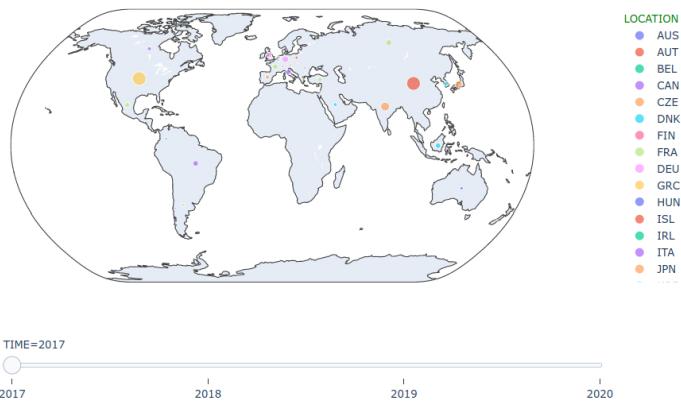
fig.update_layout(
    title_text="Comparison of Goods Exported by Countries in Q2 2019 and Q2 2020(Million US Dollars)",
    title_font_family="Times New Roman",
    title_font_color="red",
    legend_title_font_color="green",
    title_x=0.5,
    # Add annotations in the center of the donut pies.
    annotations=[dict(text='Q2 2019', x=0.16, y=0.5, font_size=20, showarrow=False),
                 dict(text='Q2 2020', x=0.84, y=0.5, font_size=20, showarrow=False)])
fig.show()

```



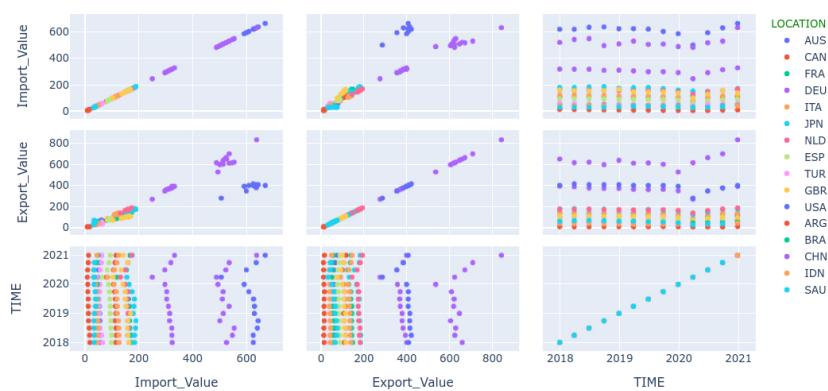
```
In [10]: fig = px.scatter_geo(df2, locations="LOCATION", color="LOCATION",
                           hover_name="LOCATION", size="Value",
                           animation_frame="TIME",
                           projection="natural earth")
# Add annotations in the map.
fig.update_layout(
    title_text="GDP change of world countries between 2017-2020(Million US Dollars)",
    title_font_family="Times New Roman",
    title_font_color="red",
    legend_title_font_color="green",
    title_x=0.5)
fig.show()
```

GDP change of world countries between 2017-2020(Million US Dollars)



```
In [11]: #Create scatter plot
fig = px.scatter_matrix(df, dimensions=["Import_Value", "Export_Value","TIME"], color="LOCATION")
fig.update_layout(
    title_font_family="Times New Roman",
    title_font_color="red",
    legend_title_font_color="green",
    title_x=0.5,
    title_text="Comparison of Goods Exported and Imported(Million US Dollars)")
fig.show()
```

Comparison of Goods Exported and Imported(Million US Dollars)



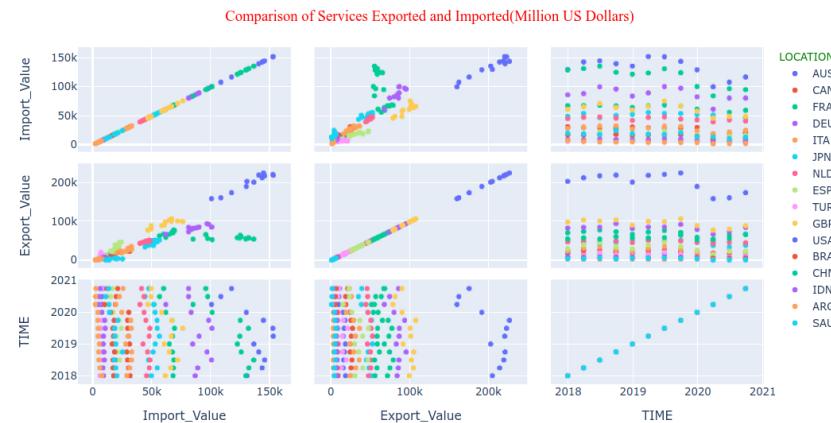
```
In [12]: df3.head() #the head of import and export value of services(dataframe3)
```

```
Out[12]:
```

	LOCATION	INDICATOR	SUBJECT	MEASURE	FREQUENCY	TIME	Import_Value	Flag Codes	Export_Value
0	AUS	TRADESERV	IMP	MLN_USD	Q	2018-01-01	17820.03	NaN	19076.05
1	AUS	TRADESERV	IMP	MLN_USD	Q	2018-04-01	17979.49	NaN	15912.62
2	AUS	TRADESERV	IMP	MLN_USD	Q	2018-07-01	19139.03	NaN	16739.61
3	AUS	TRADESERV	IMP	MLN_USD	Q	2018-10-01	18589.74	NaN	17684.94
4	AUS	TRADESERV	IMP	MLN_USD	Q	2019-01-01	17224.44	NaN	18963.97

```
In [13]: #Create scatter plot
fig = px.scatter_matrix(df3, dimensions=["Import_Value", "Export_Value","TIME"], color="LOCATION")
```

```
fig.update_layout(
    title_font_family="Times New Roman",
    title_font_color="red",
    legend_title_font_color="green",
    title_x=0.5,
    title_text="Comparison of Services Exported and Imported(Million US Dollars)")
fig.show()
```



In []: