

File Edit View Insert Cell Kernel Help

Not Trusted

Python 3

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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")
df3=pd.read_csv("Services_Value.csv")

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]: df['TIME'] = pd.to_datetime(df['TIME'])
df3['TIME'] = pd.to_datetime(df3['TIME'])

In [5]: df.head()

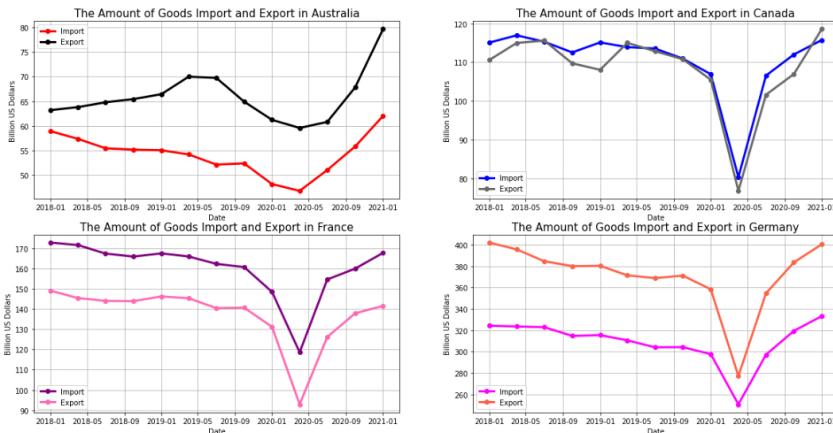
Out[5]:
   LOCATION INDICATOR SUBJECT MEASURE FREQUENCY TIME Import_Value Flag Codes Export_Value
0    AUS TRADEGOOD    IMP   BLN_USD      Q 2018-01-01      59.90638    NaN 63.19113
1    AUS TRADEGOOD    IMP   BLN_USD      Q 2018-04-01      57.35599    NaN 63.80774
2    AUS TRADEGOOD    IMP   BLN_USD      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 2018-01-01      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.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.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()



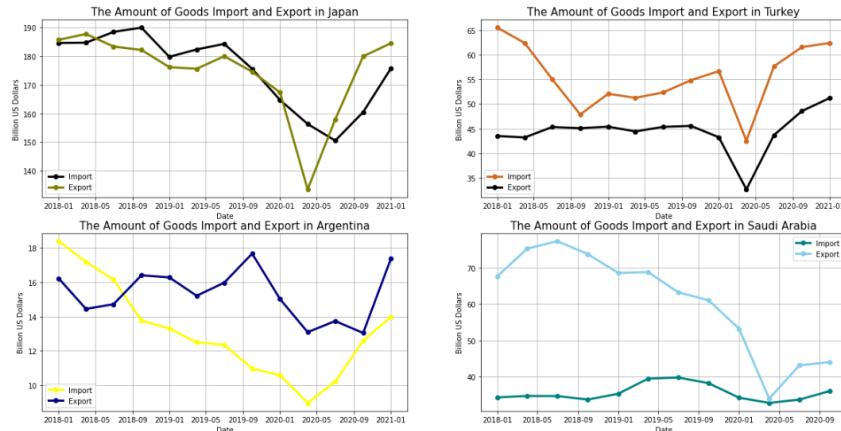
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plt.plot(df.TIME[143:156],df.Import_Value[143:156],color="yellow",linewidth=3,marker="o")
plt.plot(df.TIME[143:156],df.Export_Value[143:156],color="navy",linewidth=3,marker="o")
plt.xlabel("Date")
plt.ylabel("Billion US Dollars")
plt.title("The Amount 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()

```



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

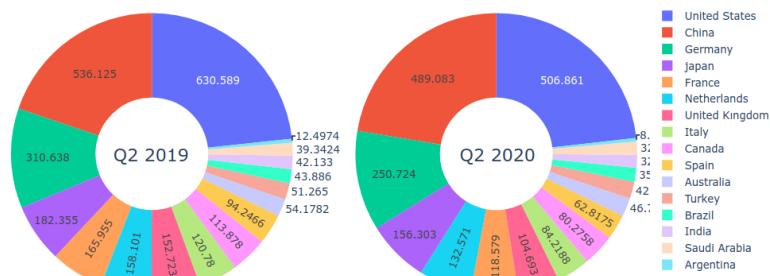
# Create subplots: use 'domain' type for Pie subplot
fig = make_subplots(rows=1, cols=2, specs=[[{"type":'domain'}, {"type":'domain'}]])
fig.add_trace(go.Pie(labels=labels,values=[54.1782, 113.878, 165.955, 310.638, 120.78, 182.355, 158.101, 94.2466, 51.265, 152.723, 630.589, 43.886, 536.125, 42.133, 12.4974, 39.3424, 42.133, 43.886, 51.265, 152.723, 630.589, 43.886, 536.125, 42.133, 12.4974, 39.3424 ], 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, 586.861, 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)



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

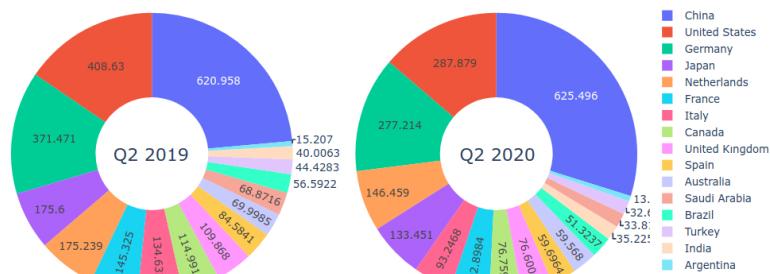
# Create subplots: use 'domain' type for Pie subplot
fig = make_subplots(rows=1, cols=2, specs=[[{"type":'domain'}, {"type":'domain'}]])
fig.add_trace(go.Pie(labels=labels,values=[69.9985, 114.991, 145.325, 371.471, 134.633, 175.6, 175.239, 84.5841, 44.4283, 189.868, 408.63, 15.207, 56.5922, 620.958, 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, 76.6096, 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()

```

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



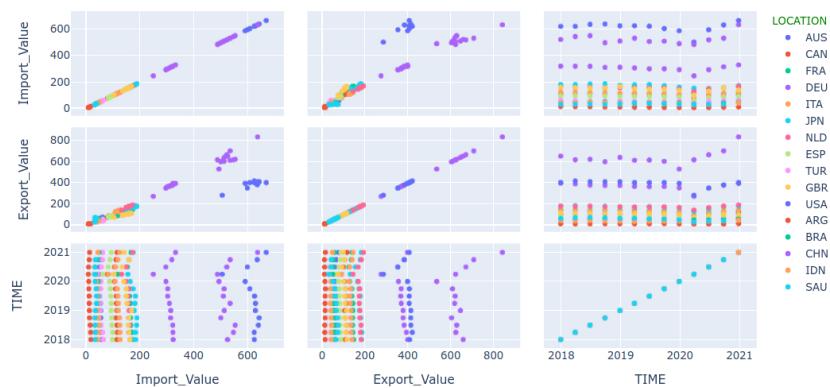
```
In [10]: fig = px.scatter_geo(df2, locations="LOCATION", color="LOCATION",
                           hover_name="LOCATION", size="Value",
                           animation_frame="TIME",
                           projection="natural earth")
fig.update_layout(
    title_text="GDP change of world 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]: 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)



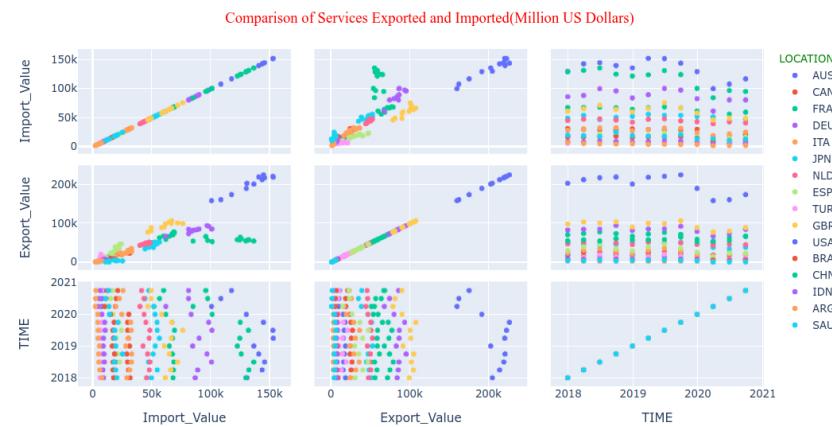
```
In [12]: df3.head()
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Out[12]:
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LOCATION	INDICATOR	SUBJECT	MEASURE	FREQUENCY	TIME	Import_Value	Flag Codes	Export_Value	
0	AUS	TRADESERV	IMP	MLN_USD	Q	2018-01-01	17820.03	NaN	19076.05
1	AUS	TRADESERV	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]: 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 []: