dac-phase5

PHASE5: SUBMISSION
PROJECTTITLE:PRODUCTSALEANALYSIS
PHASE5:Projectdocumentation&submission
Topic:documenttheprojectofproductsaleanalysis

1 Product Sales Analysis

ObjectivesforproductsalesanalysisIdentifyMarketTrends:Analyzesalesdatatoidentifymarkettrends, such as popular products and customer preferences.Optimize Pricing Strategies:Evaluatepricingstrategiestodeterminethemosteffectivepricepointsformaximizingsalesandprofitabil-ity.Customer Segmentation:Analyze customer data to identify different segments and tailormarketing strategies for each segment.Inventory Management:Monitor product sales to optimizeinventory levels, ensuring products are available when customers demand them. Sales Forecasting:Use historical data to create accurate sales forecasts, aiding in production planning and resourceallocation.Competitor Analysis: Analyze sales data of competitors to identify strengths, weak-nesses, and market gaps for strategic advantage.Customer Satisfaction: Gather feedback fromcustomers related to product sales, helping to enhance customer satisfaction and loyalty.SalesChannel Performance:Evaluate the performance of different sales channels (online, retail, etc.)toallocate resources effectively. Promotion Effectiveness: Assess the impact of marketing and pro-motional activities on sales to refine future marketing strategies. Profitability Analysis: Analyzeproduct sales in relation to costs, ensuring profitability by identifying high-margin products andcost-effectivesaleschannels

1.1 project objectives:

Productsalesanalysisistheprocessofexaminingandevaluatingtheperformanceofacompany'sproducts or services in the market to gain insights and make informed business decisions.Thisanalysisinvolvescollecting,organizing,andinterpretingsalesdatatounderstandvariousaspectsof the company's products, such as their popularity, profitability, and market trends. It can be avaluable tool for businesses looking to optimize their product offerings, pricing strategies, marketingefforts,andoverallsalesperformance.

Design Thinking Process: 1.Empathize: Understand the current challenges and pain points ininventory management and marketing for product sales.2.Define:Clearly define the specificproblems, such as stockouts, excess inventory, and underperforming marketing campaigns.3.Ideate:Generatepotentialsolutionsandstrategiesforbetterinventorymanagementandmarket-ing in the context of product sales.4.Prototype:Develop a plan for data collection, analysis,and visualization. 5. Test: Execute the plan, collect and analyze data. 6. Implement: Implementdata-driveninsightsintoinventoryandmarketingstrategies.

1.1.1 DevelopmentPhases:

1. DataCollection:
   - Gatherhistoricalproductsalesdata,inventorydata,andmarketingcampaigndata.
   - Collectdataoncustomerbehavior,preferences,andmarkettrendsrelatedtoproductsales.
2. AnalysisObjectives:
   - Identifyproductsalestrends,includingtop-performingandunderperformingproducts.
   - Analyzetheimpactofmarketingcampaignsonproductsales.
   - Assessinventoryturnoverratesandidentifyslow-movingorfast-sellingproducts.
   - Understandcustomerdemographicsandbuyingbehaviorforproductsales.
3. DataVisualizationusingIBMCognos:
   - UtilizeIBMCognostocreateinteractivedashboardsandreports.
   - Visualizeproductsalestrends,marketingcampaigneffectiveness,andinventoryturnoverrates.
   - Createvisualizationsthatshowcustomerdemographicsandbuyingpatterns.

2 Insights

2.1 InventoryManagement:

Insights might include identifying which products are best-sellers and which are underperforming.Assess the effectiveness of marketing campaigns to allocate resources more efficiently.Optimizeinventory levels by adjusting orders for fast-selling and slow-moving products.Tailor marketingstrategiestocustomerdemographicsandpreferencesforproductsales.

3 Importing required libraries

[ ]:
```
importpandasaspdimportn
umpyasnp
importmatplotlib.pyplotaspltimport
seabornassns
```

[ ]:
```
pip install wordcloud
```

```
Requirementalreadysatisfied:wordcloudinc:\users\sanjaypk\
anaconda3\lib\site-packages(1.9.2)
Requirementalreadysatisfied:matplotlibinc:\users\sanjaypk\a
naconda3\lib\site-packages(fromwordcloud)(3.5.2)
Requirementalreadysatisfied:pillowinc:\users\sanjaypk\anaconda3\lib\site-
packages(fromwordcloud)(9.2.0)
Requirementalreadysatisfied:numpy>=1.6.1inc:\users\sanjaypk\anaco
nda3\lib\site-packages(fromwordcloud)(1.21.5)
Requirementalreadysatisfied:fonttools>=4.22.0inc:\users\sanjaypk\a
naconda3\lib\site-packages(frommatplotlib-
>wordcloud)(4.25.0)Requirementalreadysatisfied:packaging>=20.0inc:\
users\sanjaypk\anaconda3\lib\site-packages(frommatplotlib-
>wordcloud)(21.3)Requirementalreadysatisfied:cycler>=0.10inc:\user
s\sanjay
```

pk\anaconda3\lib\site-packages(frommatplotlib->wordcloud)(0.11.0)Requirementalreadysatisfied:kiwisolver>=1.0.1inc:\users\sanjaypk\anaconda3\lib\site-packages(frommatplotlib->wordcloud)(1.4.2)Requirementalreadysatisfied:pyparsing>=2.2.1inc:\users\sanjaypk\anaconda3\lib\site-packages(frommatplotlib->wordcloud)(3.0.9)Requirementalreadysatisfied:python-dateutil>=2.7inc:\users\sanjaypk\anaconda3\lib\site-packages(frommatplotlib->wordcloud)(2.8.2)Requirementalreadysatisfied:six>=1.5inc:\users\sanjaypk\anaconda3\lib\site-packages(frompython-dateutil>=2.7->matplotlib->wordcloud)(1.16.0)

[]:
```
importos
fromwordcloudimportWordCloud
%matplotlibinline
importwarnings
warnings.filterwarnings("ignore")
```

4 ImportingtheDataset

[]:
```
data=pd.read_csv('Documents/statsfinal.csv')data
```

[ ]:
```
      Unnamed:0        Date  Q-P1  Q-P2  Q-P3  Q-P4      S-P1      S-P2  \
0             0  13-06-2010  5422  3725   576   907  17187.74  23616.50
1             1  14-06-2010  7047   779  3578  1574  22338.99   4938.86
2             2  15-06-2010  1572  2082   595  1145   4983.24  13199.88
3             3  16-06-2010  5657  2399  3140  1672  17932.69  15209.66
4             4  17-06-2010  3668  3207  2184   708  11627.56  20332.38
...         ...         ...   ...   ...   ...   ...       ...       ...
4595       4595  30-01-2023  2476  3419   525  1359   7848.92  21676.46
4596       4596  31-01-2023  7446   841  4825  1311  23603.82   5331.94
4597       4597  01-02-2023  6289  3143  3588   474  19936.13  19926.62
4598       4598  02-02-2023  3122  1188  5899   517   9896.74   7531.92
4599       4599  03-02-2023  1234  3854  2321   406   3911.78  24434.36

          S-P3      S-P4
0      3121.92   6466.91
1     19392.76  11222.62
2      3224.90   8163.85
3     17018.80  11921.36
4     11837.28   5048.04
...        ...       ...
4595   2845.50   9689.67
4596  26151.50   9347.43
4597  19446.96   3379.62
4598  31972.58   3686.21
```

4599 12579.82 2894.78

[4600rowsx10columns]

4.0.1 Dropingthecolumns

[ ]:
```
data =data.drop(columns=["Unnamed: 0"])
data
```

[ ]:
```
            Date  Q-P1  Q-P2  Q-P3  Q-P4      S-P1      S-P2      S-P3  \
0     13-06-2010  5422  3725   576   907  17187.74 23616.50  3121.92
1     14-06-2010  7047   779  3578  1574  22338.99  4938.86 19392.76
2     15-06-2010  1572  2082   595  1145   4983.24 13199.88  3224.90
3     16-06-2010  5657  2399  3140  1672  17932.69 15209.66 17018.80
4     17-06-2010  3668  3207  2184   708  11627.56 20332.38 11837.28
...          ...   ...   ...   ...   ...       ...       ...       ...
4595  30-01-2023  2476  3419   525  1359   7848.92 21676.46  2845.50
4596  31-01-2023  7446   841  4825  1311  23603.82  5331.94 26151.50
4597  01-02-2023  6289  3143  3588   474  19936.13 19926.62 19446.96
4598  02-02-2023  3122  1188  5899   517   9896.74  7531.92 31972.58
4599  03-02-2023  1234  3854  2321   406   3911.78 24434.36 12579.82

          S-P4
0      6466.91
1     11222.62
2      8163.85
3     11921.36
4      5048.04
...        ...
4595   9689.67
4596   9347.43
4597   3379.62
4598   3686.21
4599   2894.78

[4600   rowsx9  columns]
```

5 Checkingthedataset

[]:
```
data.info()
```

```
<class'pandas.core.frame.DataFrame'>
RangeIndex:4600entries,0to4599Datac
olumns(total9columns):
 #    Column  Non-NullCount    Dtype
---   -------  ----------------   ------
```

```
 0   Date    4600non-null    object
 1   Q-P1    4600non-null    int64
 2   Q-P2    4600non-null    int64
 3   Q-P3    4600non-null    int64
 4   Q-P4    4600non-null    int64
 5   S-P1    4600non-null    float64
 6   S-P2    4600non-null    float64
 7   S-P3    4600non-null    float64
 8   S-P4    4600non-null
     float64dtypes:float64(4),int64(4),ob
ject(1)memoryusage:323.6+KB
```

6 Checkingthemissingvalues

[]:
```
data.isnull().sum()
```

[]:
```
Date      0
Q-P1      0
Q-P2      0
Q-P3      0
Q-P4      0
S-P1      0
S-P2      0
S-P3      0
S-P4      0
dtype:int64
```

[]:
```
data["Day"]=data["Date"].apply(lambdax:x.split("-")[0])
data["Month"]=data["Date"].apply(lambdax:x.split("-")[1])
data["Year"]=data["Date"].apply(lambdax:x.split("-")[2])data
```

[ ]:

	Date	Q-P1	Q-P2	Q-P3	Q-P4	S-P1	S-P2	S-P3	\
0	13-06-2010	5422	3725	576	907	17187.74	23616.50	3121.92	
1	14-06-2010	7047	779	3578	1574	22338.99	4938.86	19392.76	
2	15-06-2010	1572	2082	595	1145	4983.24	13199.88	3224.90	
3	16-06-2010	5657	2399	3140	1672	17932.69	15209.66	17018.80	
4	17-06-2010	3668	3207	2184	708	11627.56	20332.38	11837.28	
…	…	…	…	…	…	…	…	…	
4595	30-01-2023	2476	3419	525	1359	7848.92	21676.46	2845.50	
4596	31-01-2023	7446	841	4825	1311	23603.82	5331.94	26151.50	
4597	01-02-2023	6289	3143	3588	474	19936.13	19926.62	19446.96	
4598	02-02-2023	3122	1188	5899	517	9896.74	7531.92	31972.58	
4599	03-02-2023	1234	3854	2321	406	3911.78	24434.36	12579.82	

	S-P4	Day	Month	Year
0	6466.91	13	06	2010

```
1     11222.62  14    06  2010
2      8163.85  15    06  2010
3     11921.36  16    06  2010
4      5048.04  17    06  2010
...        ...  ..   ...   ...
4595   9689.67  30    01  2023
4596   9347.43  31    01  2023
4597   3379.62  01    02  2023
4598   3686.21  02    02  2023
4599   2894.78  03    02  2023

[4600rowsx12columns]
```

7 Visualizingthedata'sfrom2010to2023

[ ]:
```
data_reduced=data.query("Year!=da "2010" andYear  !="2023"")
ta
```

[ ]:
```
            Date  Q-P1  Q-P2  Q-P3  Q-P4     S-P1      S-P2      S-P3  \
0     13-06-2010  5422  3725   576   907  17187.74  23616.50   3121.92
1     14-06-2010  7047   779  3578  1574  22338.99   4938.86  19392.76
2     15-06-2010  1572  2082   595  1145   4983.24  13199.88   3224.90
3     16-06-2010  5657  2399  3140  1672  17932.69  15209.66  17018.80
4     17-06-2010  3668  3207  2184   708  11627.56  20332.38  11837.28
...          ...   ...   ...   ...   ...       ...       ...       ...
4595  30-01-2023  2476  3419   525  1359   7848.92  21676.46   2845.50
4596  31-01-2023  7446   841  4825  1311  23603.82   5331.94  26151.50
4597  01-02-2023  6289  3143  3588   474  19936.13  19926.62  19446.96
4598  02-02-2023  3122  1188  5899   517   9896.74   7531.92  31972.58
4599  03-02-2023  1234  3854  2321   406   3911.78  24434.36  12579.82

          S-P4 Day Month  Year
0      6466.91  13    06  2010
1     11222.62  14    06  2010
2      8163.85  15    06  2010
3     11921.36  16    06  2010
4      5048.04  17    06  2010
...        ...  ..   ...   ...
4595   9689.67  30    01  2023
4596   9347.43  31    01  2023
4597   3379.62  01    02  2023
4598   3686.21  02    02  2023
4599   2894.78  03    02  2023

[4600rowsx12columns]
```

[ ]:
```
data['Date']=pd.to_datetime(data['Date'],errors='coerce')data
```

[ ]:
```
           Date  Q-P1  Q-P2  Q-P3  Q-P4      S-P1      S-P2      S-P3  \
0    2010-06-13  5422  3725   576   907  17187.74  23616.50   3121.92
1    2010-06-14  7047   779  3578  1574  22338.99   4938.86  19392.76
2    2010-06-15  1572  2082   595  1145   4983.24  13199.88   3224.90
3    2010-06-16  5657  2399  3140  1672  17932.69  15209.66  17018.80
4    2010-06-17  3668  3207  2184   708  11627.56  20332.38  11837.28
...         ...   ...   ...   ...   ...       ...       ...       ...
4595 2023-01-30  2476  3419   525  1359   7848.92  21676.46   2845.50
4596 2023-01-31  7446   841  4825  1311  23603.82   5331.94  26151.50
4597 2023-01-02  6289  3143  3588   474  19936.13  19926.62  19446.96
4598 2023-02-02  3122  1188  5899   517   9896.74   7531.92  31972.58
4599 2023-03-02  1234  3854  2321   406   3911.78  24434.36  12579.82

          S-P4 Day Month  Year
0      6466.91  13    06  2010
1     11222.62  14    06  2010
2      8163.85  15    06  2010
3     11921.36  16    06  2010
4      5048.04  17    06  2010
...        ...  ..   ...   ...
4595   9689.67  30    01  2023
4596   9347.43  31    01  2023
4597   3379.62  01    02  2023
4598   3686.21  02    02  2023
4599   2894.78  03    02  2023

[4600rowsx12columns]
```

[ ]:
```
fromdatetimeimportdatetimeasdtdata[
data["Date"]=="31-9-2010"]
data["Date"]
```

[ ]:
```
0       2010-06-13
1       2010-06-14
2       2010-06-15
3       2010-06-16
4       2010-06-17
           ...
4595    2023-01-30
4596    2023-01-31
4597    2023-01-02
4598    2023-02-02
4599    2023-03-02
Name: Date,Length:4600,dtype:datetime64[ns]
```

[ ]:
```
data['Date']=pd.to_datetime(data['Date'],errors='coerce')
```

[ ]:
```
data["Date"].fillna(data["Date"].mean(),inplace=True)
```

[ ]:
```
data[data['Date'].isnull()]
data['Date']
```

[ ]:
```
0       2010-06-13
1       2010-06-14
2       2010-06-15
3       2010-06-16
4       2010-06-17
           ...
4595    2023-01-30
4596    2023-01-31
4597    2023-01-02
4598    2023-02-02
4599    2023-03-02
Name: Date,Length:4600,dtype:datetime64[ns]
```

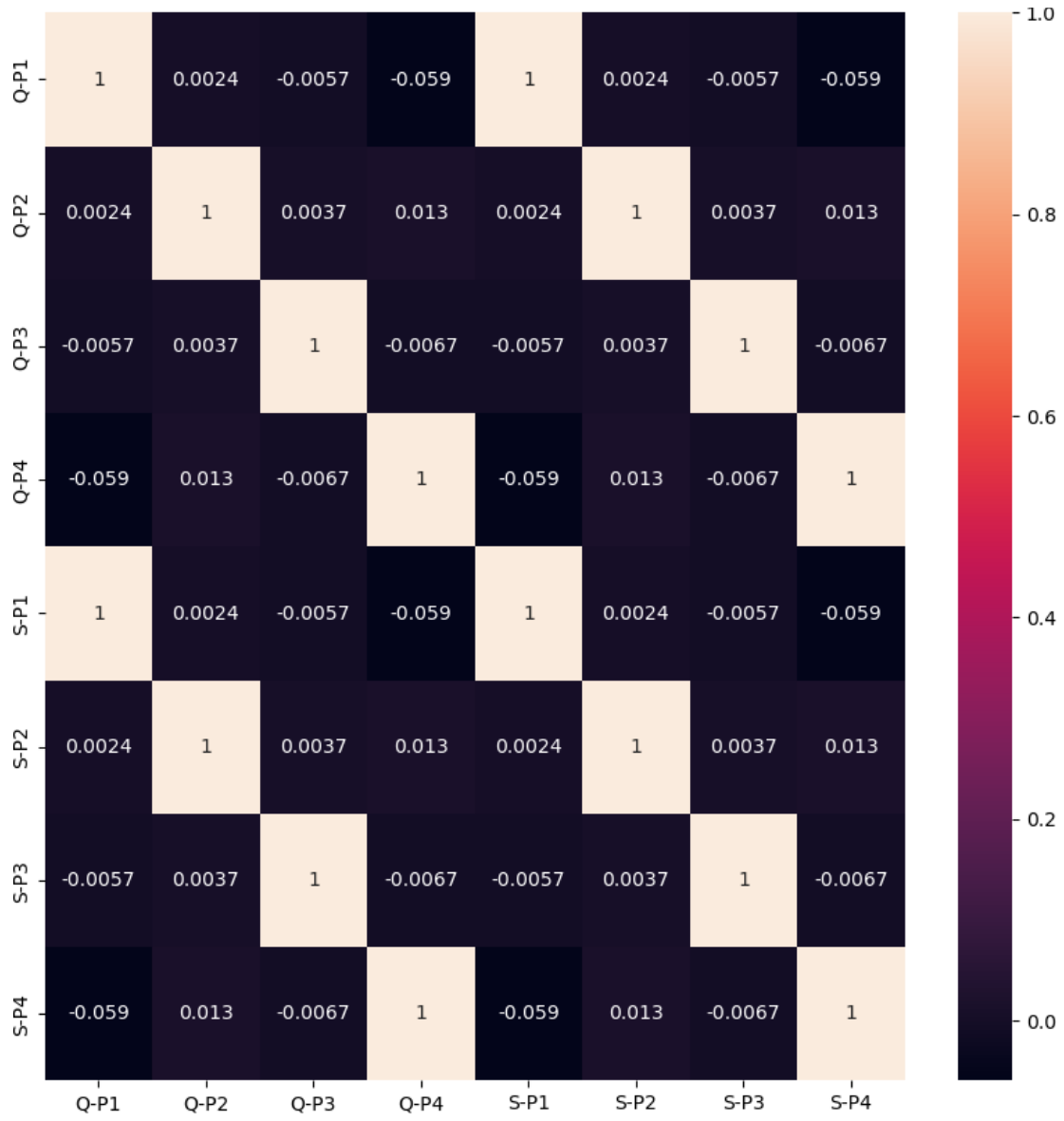
[ ]:
```
data["month"]=data["Date"].dt.month_name()
data["day"]=data["Date"].dt.day_name()
data["dayoftheweek"]=data["Date"].dt.weekday
data["year"]=data["Date"].dt.year
data.sample()
```

[ ]:
```
            Date  Q-P1  Q-P2  Q-P3  Q-P4     S-P1      S-P2      S-P3      S-P4
\7102012-05-27     1401  1609  1961     1897      4441.17   10201.06
10628.62     13525.61

    DayMonth   Yearmonth       day  dayoftheweek
     year710   27      05    2012    May          Sunday
           6   2012
```

8 VisualizingtheDatasetsusingvariousGraphs

[ ]:
```
plt.figure(figsize=(10,10))
sns.heatmap(data.corr(),annot=True)
```

[]:<AxesSubplot:>



[]:
```
data.corr().T
```

[]:

	Q-P1	Q-P2	Q-P3	Q-P4	S-P1	S-P2	S-P3 \
Q-P1	1.000000	0.002422	-0.005650	-0.059365	1.000000	0.002422	-0.005650
Q-P2	0.002422	1.000000	0.003729	0.013082	0.002422	1.000000	0.003729
Q-P3	-0.005650	0.003729	1.000000	-0.006693	-0.005650	0.003729	1.000000
Q-P4	-0.059365	0.013082	-0.006693	1.000000	-0.059365	0.013082	-0.006693
S-P1	1.000000	0.002422	-0.005650	-0.059365	1.000000	0.002422	-0.005650
S-P2	0.002422	1.000000	0.003729	0.013082	0.002422	1.000000	0.003729
S-P3	-0.005650	0.003729	1.000000	-0.006693	-0.005650	0.003729	1.000000
S-P4	-0.059365	0.013082	-0.006693	1.000000	-0.059365	0.013082	-0.006693

```
          S-P4
Q-P1 -0.059365
Q-P2  0.013082
Q-P3 -0.006693
Q-P4  1.000000
S-P1 -0.059365
S-P2  0.013082
S-P3 -0.006693
S-P4  1.000000
```

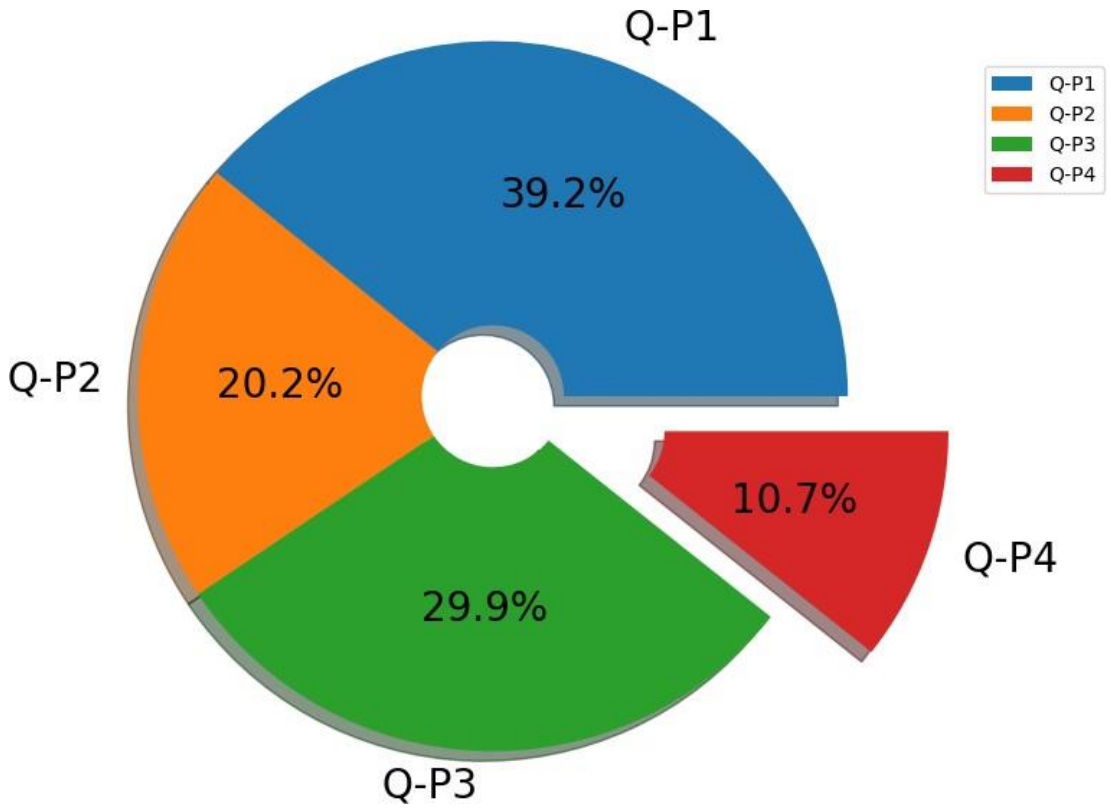
[ ]:
```
foriindata.columns:
    print(i," ------ ",data[i].unique())
```

```
Date---------['2010-06-13T00:00:00.000000000"2010-06-
 14T00:00:00.000000000"2010-06-15T00:00:00.000000000'...'2023-01-
 02T00:00:00.000000000'
 '2023-02-02T00:00:00.000000000"2023-03-
02T00:00:00.000000000']Q-P1---------[542270471572...122731221234]
Q-P2---------[3725     7792082...3404     8413143]
Q-P3---------[5763578     595...482535885899]
Q-P4---------[90715741145...1161111511112]
S-P1---------[17187.7422338.99      4983.24...   3889.59  9896.74  3911.78]
S-P2---------[23616.5     4938.8613199.88...21581.36     5331.9419926.62]
S-P3---------[3121.9219392.76      3224.9  ...26151.5   19446.9631972.58]
S-P4---------[6466.9111222.62      8163.85...   8277.93  8206.63  7928.56]
Day---------['13"14"15"16"17"18"19"20"21"22"23"24"25'
'26'
 '27"28"29"30"01"02"03"04"05"06"07"08"09"10'
 '11"12"31']
Month---------['06"07"08"09"9"10"11"12"01"02"03"04'
'05']
Year---------['2010"2011"2012"2013"2014"2015"2016"2017"2018'
'2019'
 '2020"2021"2022"2023']
```

[ ]:
```
q=data[["Q-P1","Q-P2","Q-P3","Q-P4"]].sum()
print(q)plt.figure(figsiz
e=(8,8))
plt.pie(q,labels=data[["Q-P1","Q-P2","Q-P3","Q-P4"]].sum().
  ↪index,shadow=True,autopct="%0.01f%%",textprops={"fontsize":
  ↪20},wedgeprops={"width":0.8},explode=[0,0,0,0.3])
plt.legend(loc="centerright",bbox_to_anchor=(1.2,0.8));
```

```
Q-P1    18960506
Q-P2     9799295
Q-P3    14470404
Q-P4     5168100
```

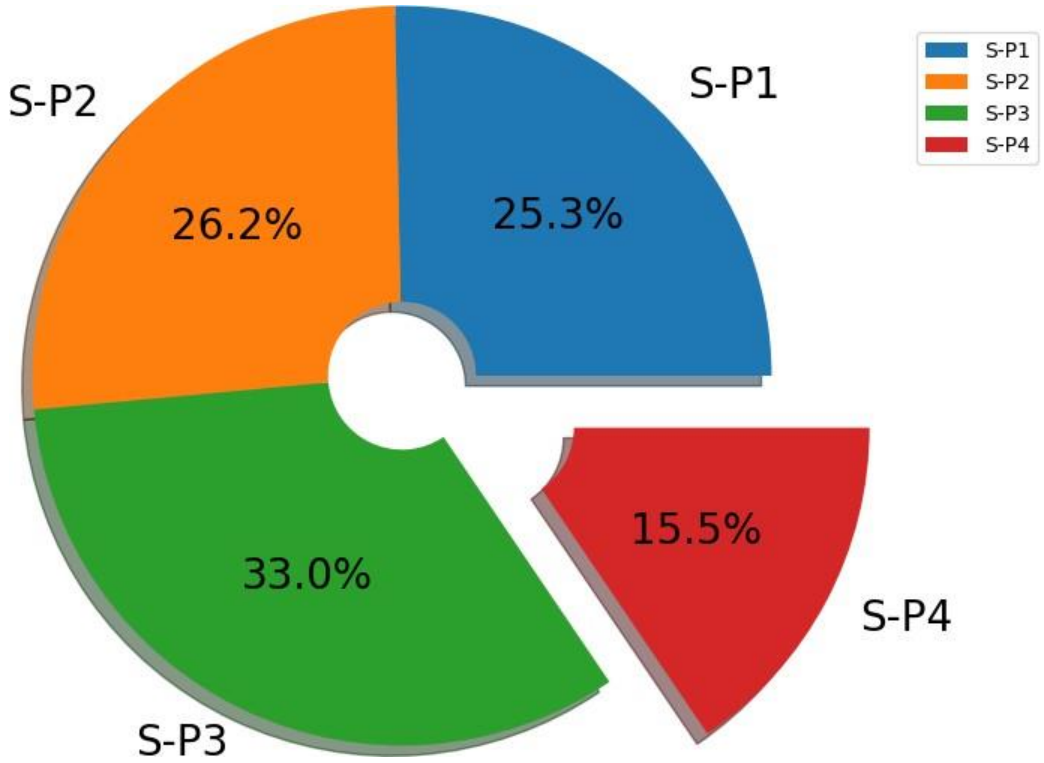
dtype:int64



[]:
```
s=data[["S-P1","S-P2","S-P3","S-P4"]].sum()
print(s)plt.figure(figsiz
e=(8,8))
plt.pie(s,labels=data[["S-P1","S-P2","S-P3","S-P4"]].sum().
  ↪index,shadow=True,autopct="%0.01f%%",textprops={"fontsize":
  ↪20},wedgeprops={"width":0.8},explode=[0,0,0,0.3])
plt.legend(loc="centerright",bbox_to_anchor=(1.2,0.8))
```

```
S-P1    60104804.02
S-P2    62127530.30
S-P3    78429589.68
S-P4     36848553.00
dtype:float64
```

[]:<matplotlib.legend.Legendat0x1d721073790>



[ ]:
```
data.groupby("Year")[["Q-P1","Q-P2","Q-P3","Q-P4"]].sum()
```

[ ]:

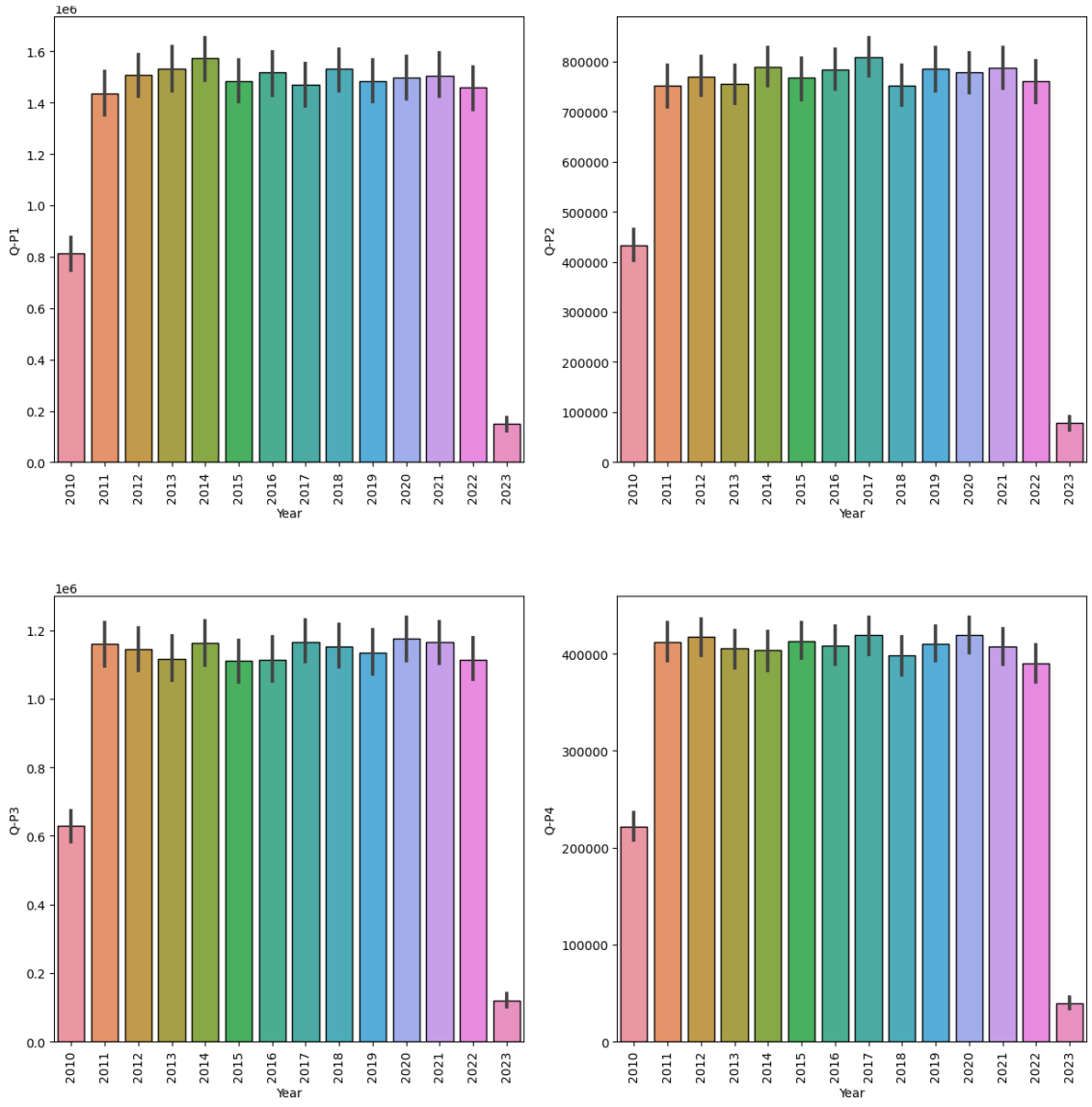
Year	Q-P1	Q-P2	Q-P3	Q-P4
2010	811971	433310	630125	221988
2011	1435633	751692	1160897	412322
2012	1508611	769797	1144590	417920
2013	1533099	754526	1116114	405394
2014	1572144	789069	1162719	403748
2015	1484197	767964	1112136	413251
2016	1517603	783892	1112698	408415
2017	1469715	808843	1166668	419020
2018	1531419	751252	1152070	398550
2019	1482623	785373	1135262	410425
2020	1498357	778322	1175277	419854
2021	1504995	786444	1166733	407373
2022	1459829	760510	1115085	389915
2023	150310	78301	120030	39925

[]:
```
data.groupby("month")[["Q-P1","Q-P2","Q-P3","Q-P4"]].sum()
```

[ ]:

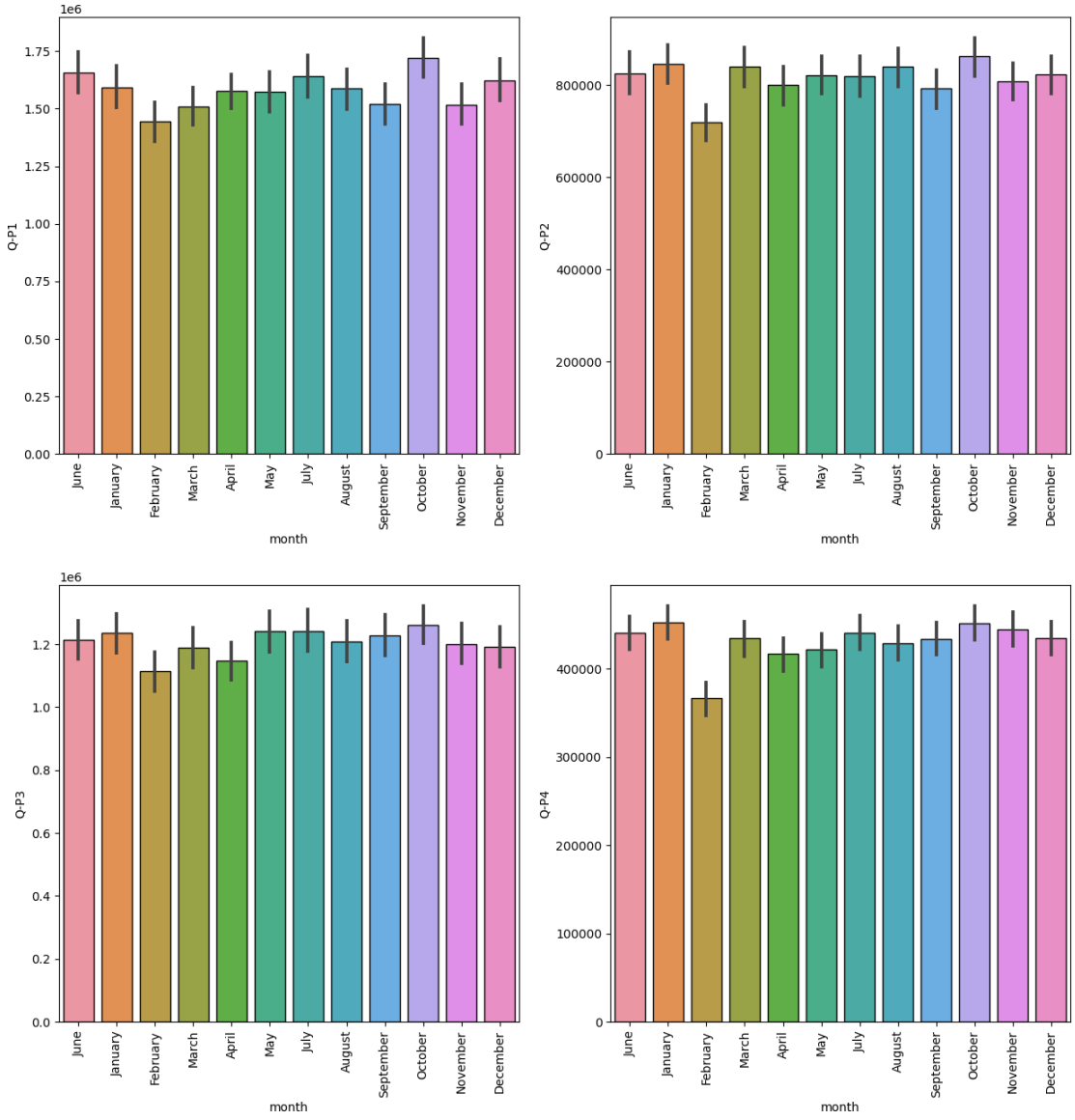
month	Q-P1	Q-P2	Q-P3	Q-P4
April	1575469	800379	1147329	416638
August	1587520	840265	1207606	428962
December	1621585	823098	1191402	435175
February	1443764	719534	1114785	366542
January	1592433	845579	1234912	452832
July	1642160	820048	1242157	440686
June	1656731	824354	1213026	440737
March	1509817	841015	1188338	434589
May	1572199	821412	1240223	421638
November	1518591	807424	1200826	444350
October	1720772	863143	1262142	451772
September	1519465	793044	1227658	434179

[]:
```
plt.figure(figsize=(15,15),dpi=100)
plt.subplot(2,2,1)
sns.barplot(x="Year",y="Q-P1",data=data,edgecolor="black",estimator=sum)
plt.xticks(rotation=90);
plt.subplot(2,2,2)
sns.barplot(x="Year",y="Q-P2",data=data,edgecolor="black",estimator=sum)
plt.xticks(rotation=90);
plt.subplot(2,2,3)
sns.barplot(x="Year",y="Q-P3",data=data,edgecolor="black",estimator=sum)
plt.xticks(rotation=90);
plt.subplot(2,2,4)
sns.barplot(x="Year",y="Q-P4",data=data,edgecolor="black",estimator=sum)
plt.xticks(rotation=90)
plt.subplots_adjust(hspace=0.3);
```



[]:
```
plt.figure(figsize=(15,15),dpi=100)
plt.subplot(2,2,1)
sns.barplot(x="month",y="Q-P1",data=data,edgecolor="black",estimator=sum)
plt.xticks(rotation=90);
plt.subplot(2,2,2)
sns.barplot(x="month",y="Q-P2",data=data,edgecolor="black",estimator=sum)
plt.xticks(rotation=90);
plt.subplot(2,2,3)
sns.barplot(x="month",y="Q-P3",data=data,edgecolor="black",estimator=sum)
plt.xticks(rotation=90);
plt.subplot(2,2,4)
sns.barplot(x="month",y="Q-P4",data=data,edgecolor="black",estimator=sum)
```

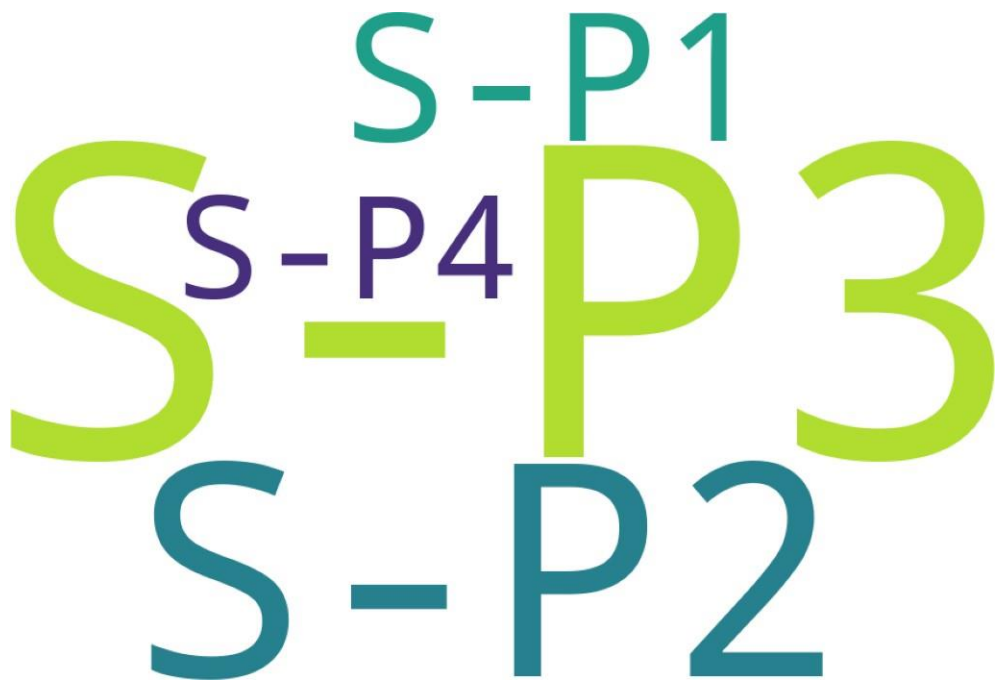
```
plt.xticks(rotation=90)
plt.subplots_adjust(hspace=0.3);
```



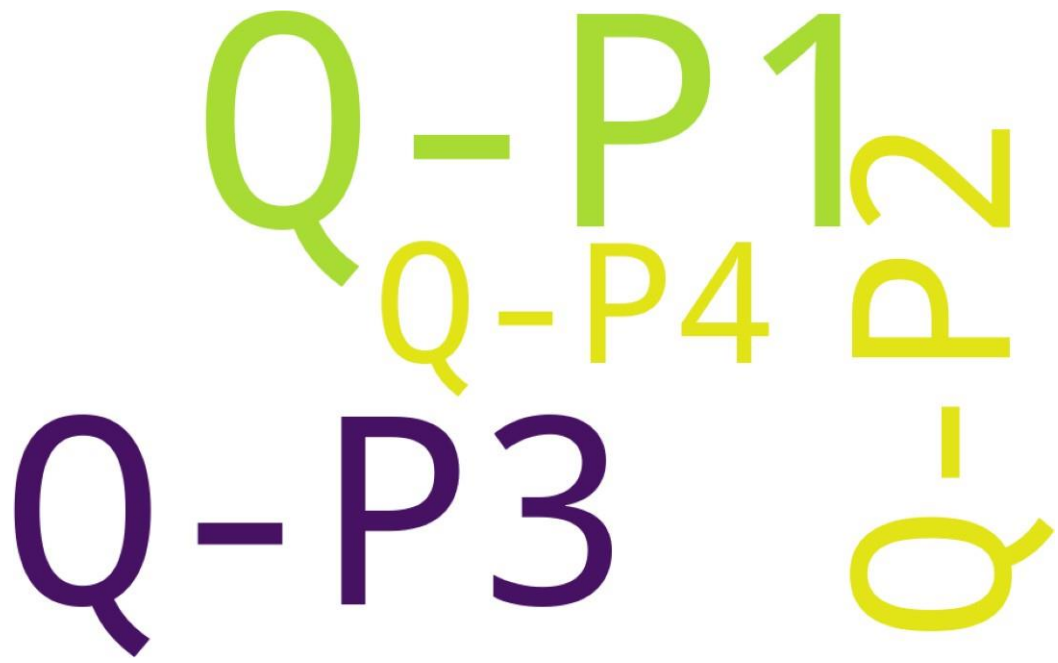
[]:
```
data[["S-P1","S-P2","S-P3","S-P4"]].agg(["sum","max","min","mean"])
```

[]:
```
             S-P1          S-P2          S-P3          S-
P4sum6.010480e+076.212753e+077.842959e+073.684855e+07max2.5
35366e+042.534732e+043.252000e+041.426000e+04min8.051800e+
021.591340e+031.355000e+031.782500e+03mean1.306626e+041.3
50598e+041.704991e+048.010555e+03
```

[ ]:
```
fromwordcloudimportWordCloud
aswordd=data[["S-P1","S-P2","S-P3","S-
P4"]].sum()
wc=word(background_color="white",width=1000,height=600)wc.gener
ate_from_frequencies(d) plt.figure(figsize=(15,15),dpi=100)
plt.imshow(wc)plt.axis
('off')plt.show()
```

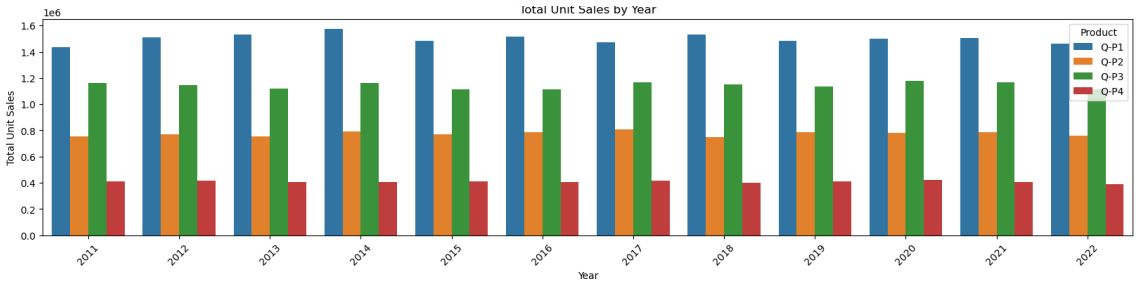


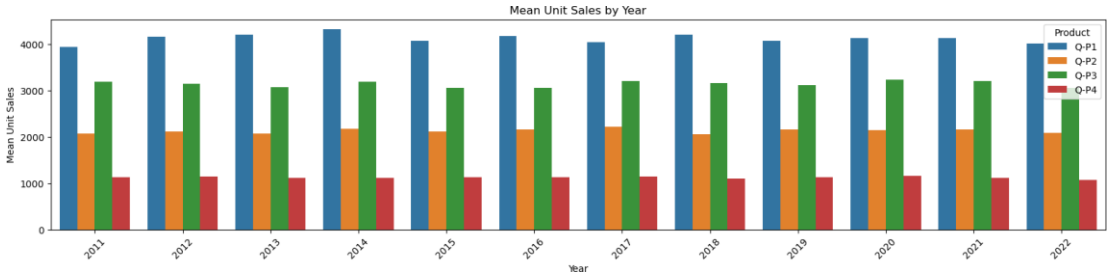
[ ]:
```
q=data[["Q-P1","Q-P2","Q-P3","Q-P4"]].sum()
wc=word(background_color="white",width=1000,height=600)wc.gener
ate_from_frequencies(q) plt.figure(figsize=(15,15),dpi=100)
plt.imshow(wc)plt.axis
('off')plt.show()
```



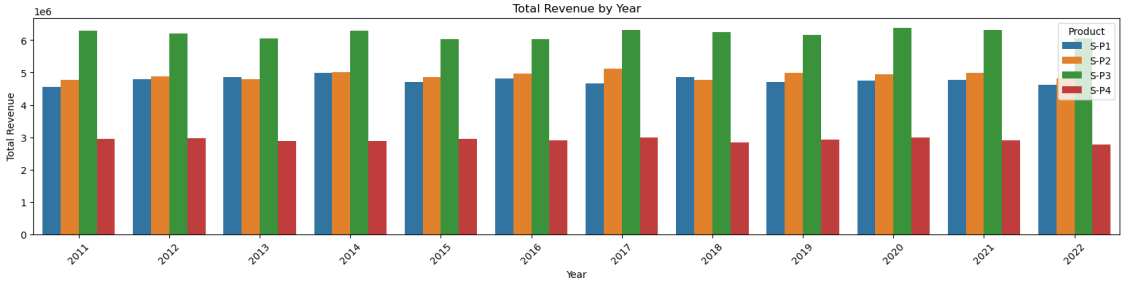
[ ]:
```
defplot_bar_chart(df,columns,stri,str1,val):
    ifval=='sum':
        sales_by_year=df.groupby('Year')[columns].sum().reset_index()
    elifval=='mean':
        sales_by_year=df.groupby('Year')[columns].mean().reset_index()sales_by_ye
    ar_melted=pd.melt(sales_by_year,id_vars='Year',␣
↪value_vars=columns,var_name='Product',value_name='Sales')
    plt.figure(figsize=(20,4))
    sns.barplot(data=sales_by_year_melted,x='Year',y='Sales',hue='Product')␣
↪#,palette="cividis")
    plt.xlabel('Year')
    plt.ylabel(stri)plt.title(f'{s
    tri}by{str1}')plt.xticks(rotati
    on=45)  plt.show()
```

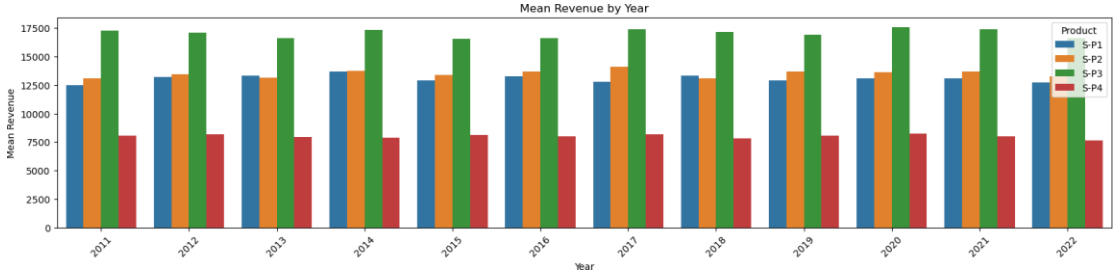
[ ]:
```
plot_bar_chart(data_reduced,['Q-P1','Q-P2','Q-P3','Q-P4'],'TotalUnit␣
↪Sales','Year','sum')

plot_bar_chart(data_reduced,['Q-P1','Q-P2','Q-P3','Q-P4'],'MeanUnit␣
↪Sales','Year','mean')
```





[]:
```
plot_bar_chart(data_reduced,["S-P1","S-P2","S-P3","S-P4"],"TotalRevenue",␣
↪"Year","sum")

plot_bar_chart(data_reduced,["S-P1","S-P2","S-P3","S-P4"],"MeanRevenue",␣
↪"Year","mean")
```

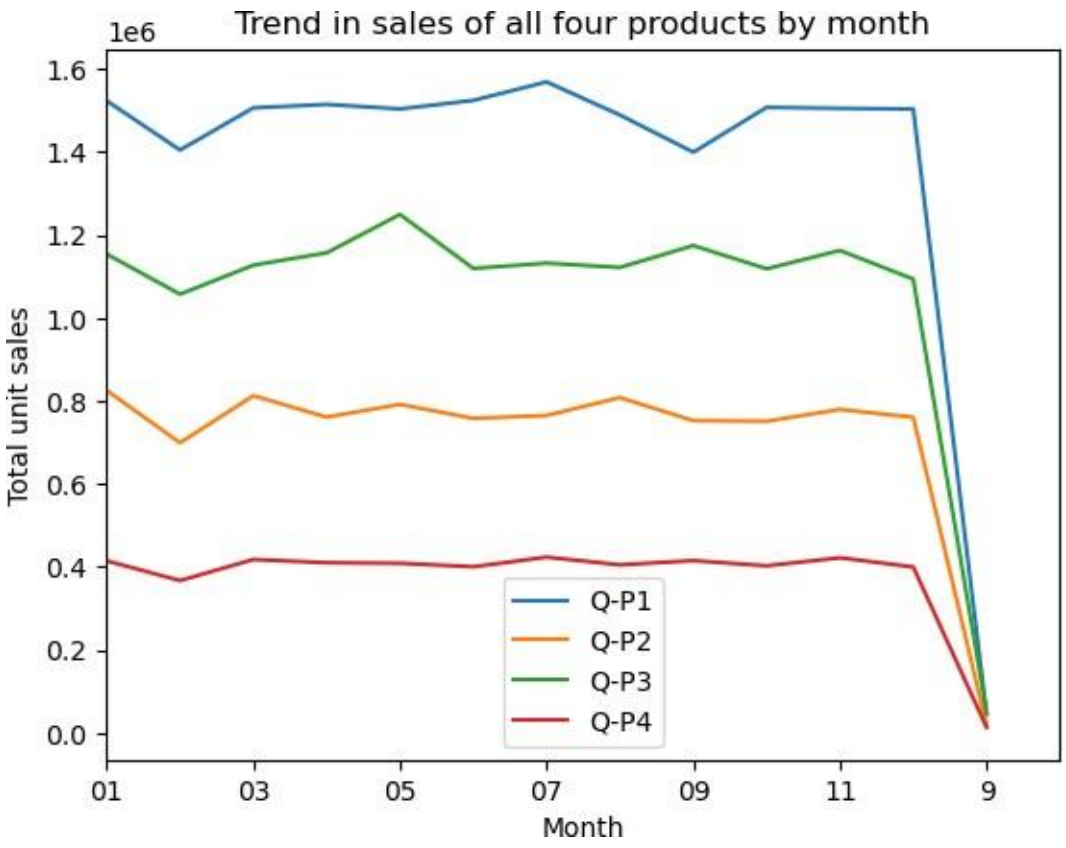




[]:
```
data
```

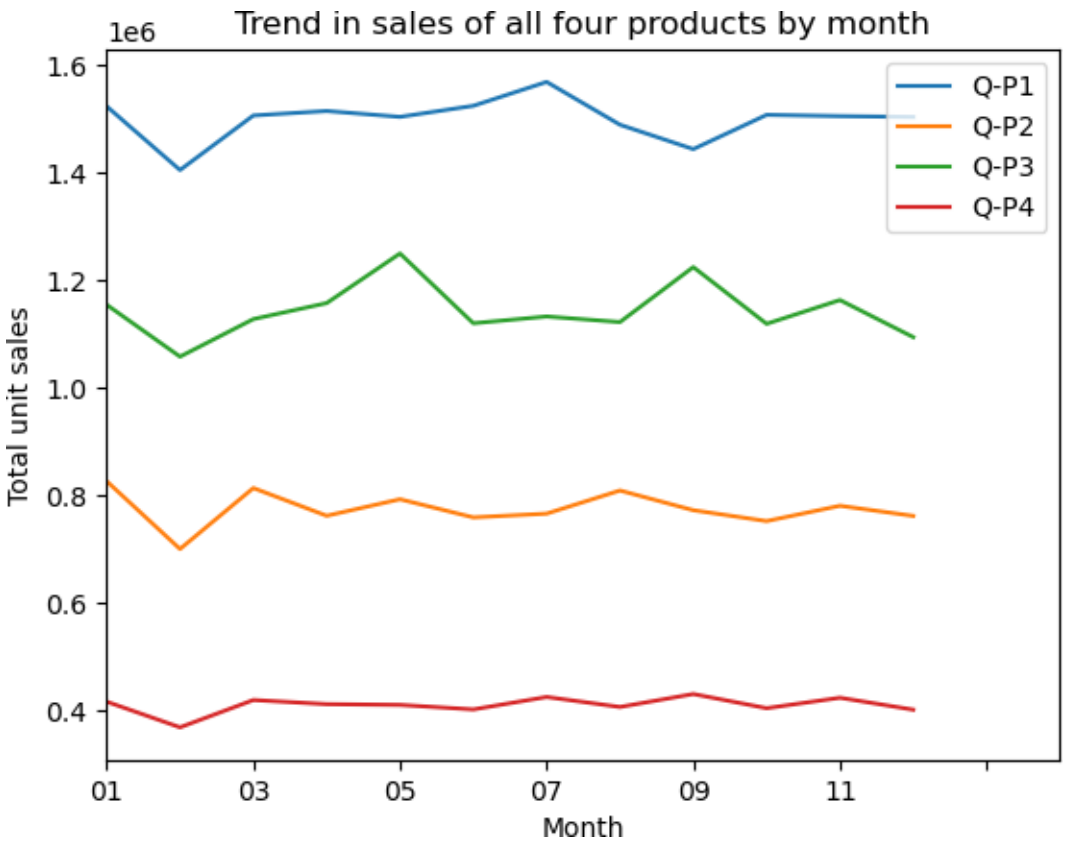
[ ]:
```
            Date  Q-P1  Q-P2  Q-P3  Q-P4      S-P1      S-P2      S-P3  \
0     2010-06-13  5422  3725   576   907  17187.74  23616.50   3121.92
1     2010-06-14  7047   779  3578  1574  22338.99   4938.86  19392.76
2     2010-06-15  1572  2082   595  1145   4983.24  13199.88   3224.90
3     2010-06-16  5657  2399  3140  1672  17932.69  15209.66  17018.80
4     2010-06-17  3668  3207  2184   708  11627.56  20332.38  11837.28
...          ...   ...   ...   ...   ...       ...       ...       ...
45952023-01-30  2476  3419   525  1359   7848.92  21676.46   2845.50
45962023-01-31  7446   841  4825  1311  23603.82   5331.94  26151.50
45972023-01-02  6289  3143  3588   474  19936.13  19926.62  19446.96
45982023-02-02  3122  1188  5899   517   9896.74   7531.92  31972.58
45992023-03-02  1234  3854  2321   406   3911.78  24434.36  12579.82

          S-P4 Day Month  Year
0      6466.91  13    06  2010
1     11222.62  14    06  2010
2      8163.85  15    06  2010
3     11921.36  16    06  2010
4      5048.04  17    06  2010
...        ...  ..   ...   ...
4595   9689.67  30    01  2023
4596   9347.43  31    01  2023
4597   3379.62  01    02  2023
4598   3686.21  02    02  2023
4599   2894.78  03    02  2023

[4600rowsx12columns]
```

[]:
```
defmonth_plot():
    fig,ax=plt.subplots()
    data_reduced.groupby("Month")[["Q-P1","Q-P2","Q-P3","Q-P4"]].sum().
 ↪plot(ax=ax)
    ax.set_xlim(left=0,right=13)
    ax.set_xlabel("Month")
    ax.set_ylabel("Totalunitsales")
    ax.set_title("Trendinsalesofallfourproductsbymonth")plt.show()

month_plot()
```



[ ]:
```
data_reduced['Month']=data['Month'].replace('9','09')
```

[ ]:
```
month_plot()
```



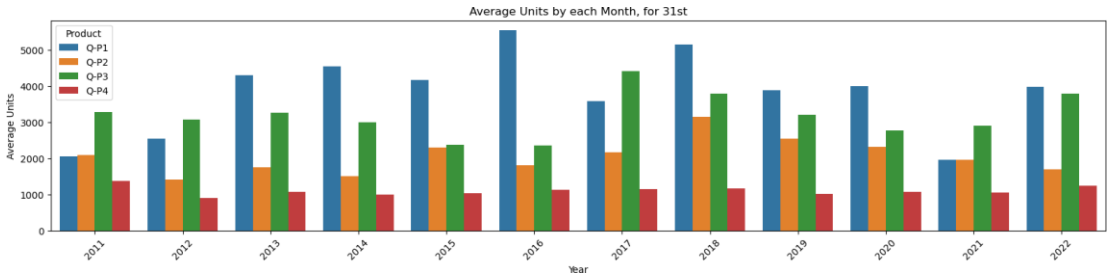
[ ]:
```
defmonth_31_data(df,months):
    m31_data=df[df['Month'].isin(months)&(df['Day']=='31')]
    returnm31_data

  _31_months=month_31_data(data_reduced,    ['01','02','03','04','05','06',␣
    ↪'07','08','09','10','11','12'])
_31_months
```

[ ]:

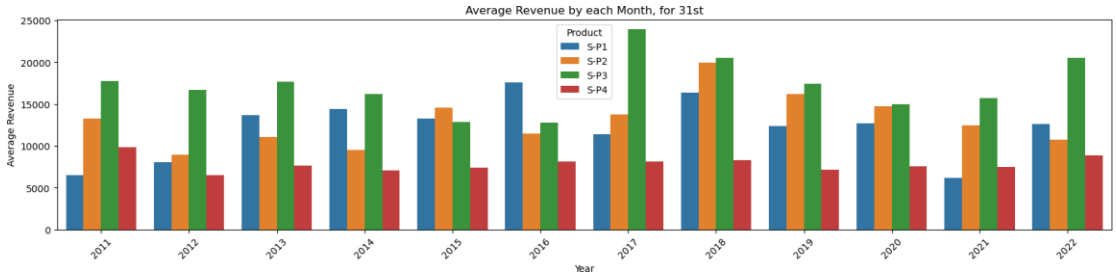
	Date	Q-P1	Q-P2	Q-P3	Q-P4	S-P1	S-P2	S-P3	\
231	31-01-2011	939	3325	1863	1612	2976.63	21080.50	10097.46	
290	31-03-2011	464	2220	421	1663	1470.88	14074.80	2281.82	
351	31-05-2011	1507	2980	3816	1202	4777.19	18893.20	20682.72	
412	31-07-2011	4336	744	4717	667	13745.12	4716.96	25566.14	
442	31-08-2011	4548	1484	1596	1974	14417.16	9408.56	8650.32	
…	…	…	…	…	…	…	…	…	
4352	31-05-2022	3669	2710	3067	1593	11630.73	17181.40	16623.14	
4413	31-07-2022	1437	833	1867	1270	4555.29	5281.22	10119.14	
4443	31-08-2022	1035	1639	3658	841	3280.95	10391.26	19826.36	
4474	31-9-2022	6964	1873	5481	1336	22075.88	11874.82	29707.02	
4535	31-11-2022	4600	2006	3796	1426	14582.00	12718.04	20574.32	

```
          S-P4 Day Month  Year
231   11493.56  31    01  2011
290   11857.19  31    03  2011
351    8570.26  31    05  2011
412    4755.71  31    07  2011
442   14074.62  31    08  2011
...        ...  ..   ...   ...
4352  11358.09  31    05  2022
4413   9055.10  31    07  2022
4443   5996.33  31    08  2022
4474   9525.68  31    09  2022
4535  10167.38  31    11  2022

[84rowsx12columns]
```

[ ]:
```
plot_bar_chart(_31_months,["Q-P1","Q-P2","Q-P3","Q-P4"],"AverageUnits",␣
↪"eachMonth,for31st","mean")
```



[ ]:
```
plot_bar_chart(_31_months,["S-P1","S-P2","S-P3","S-P4"],"AverageRevenue",␣
↪"eachMonth,for31st","mean")
```



[ ]:
```
defavg_on_31st(df,product):df_31=
    df[df["Day"]=="31"]
    avg_sales=df_31[product].mean()
```

```
    return avg_sales
```

[]:
```
avg_on_31st(data_reduced,['Q-P1','Q-P2','Q-P3','Q-P4']).round(2)
```

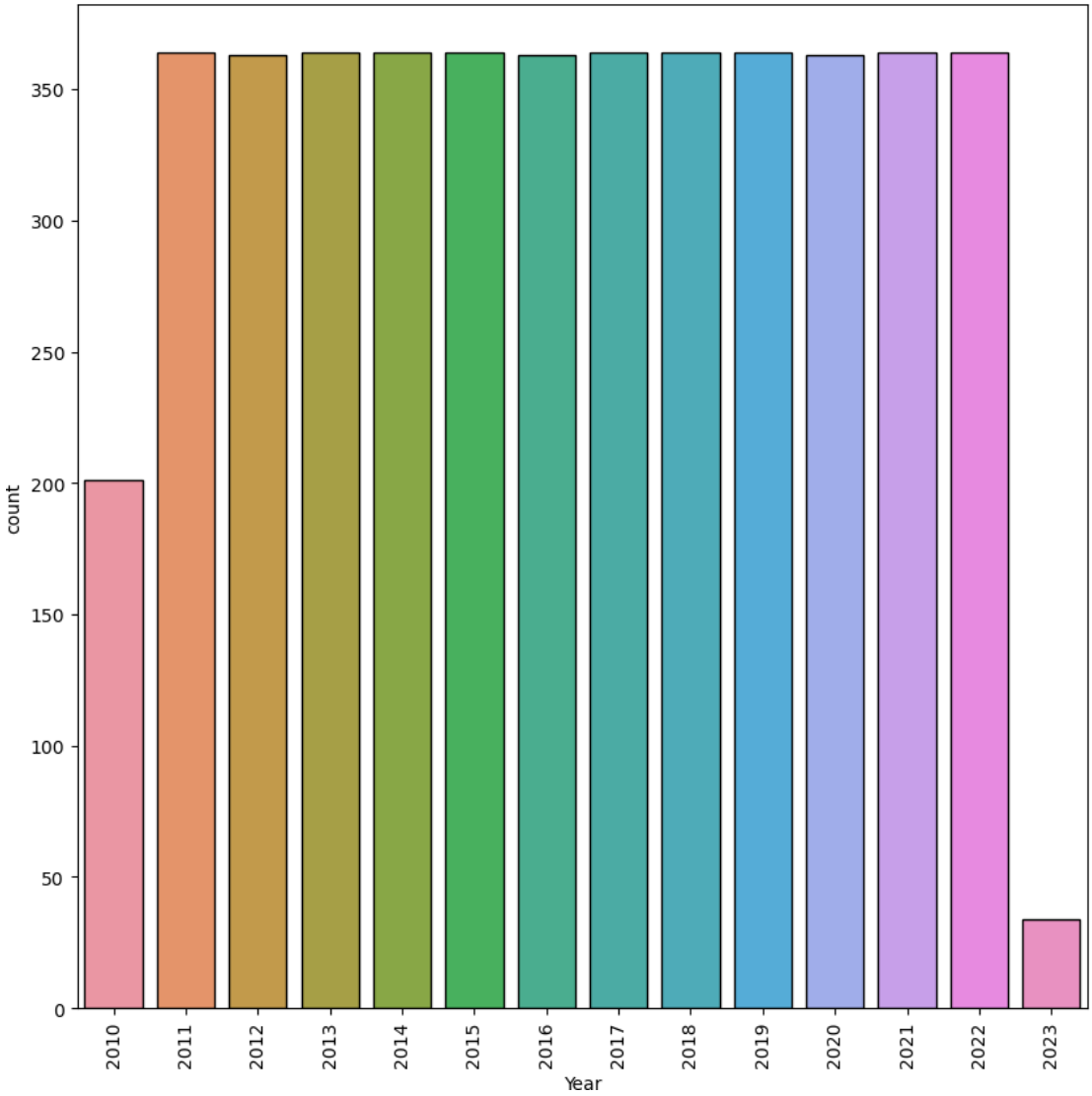
[]:
```
Q-P1    3813.74
Q-P2    2058.80
Q-P3    3183.88
Q-P4    1098.61
dtype:float64
```

[]:
```
avg_on_31st(data_reduced,['S-P1','S-P2','S-P3','S-P4']).round(2)
```

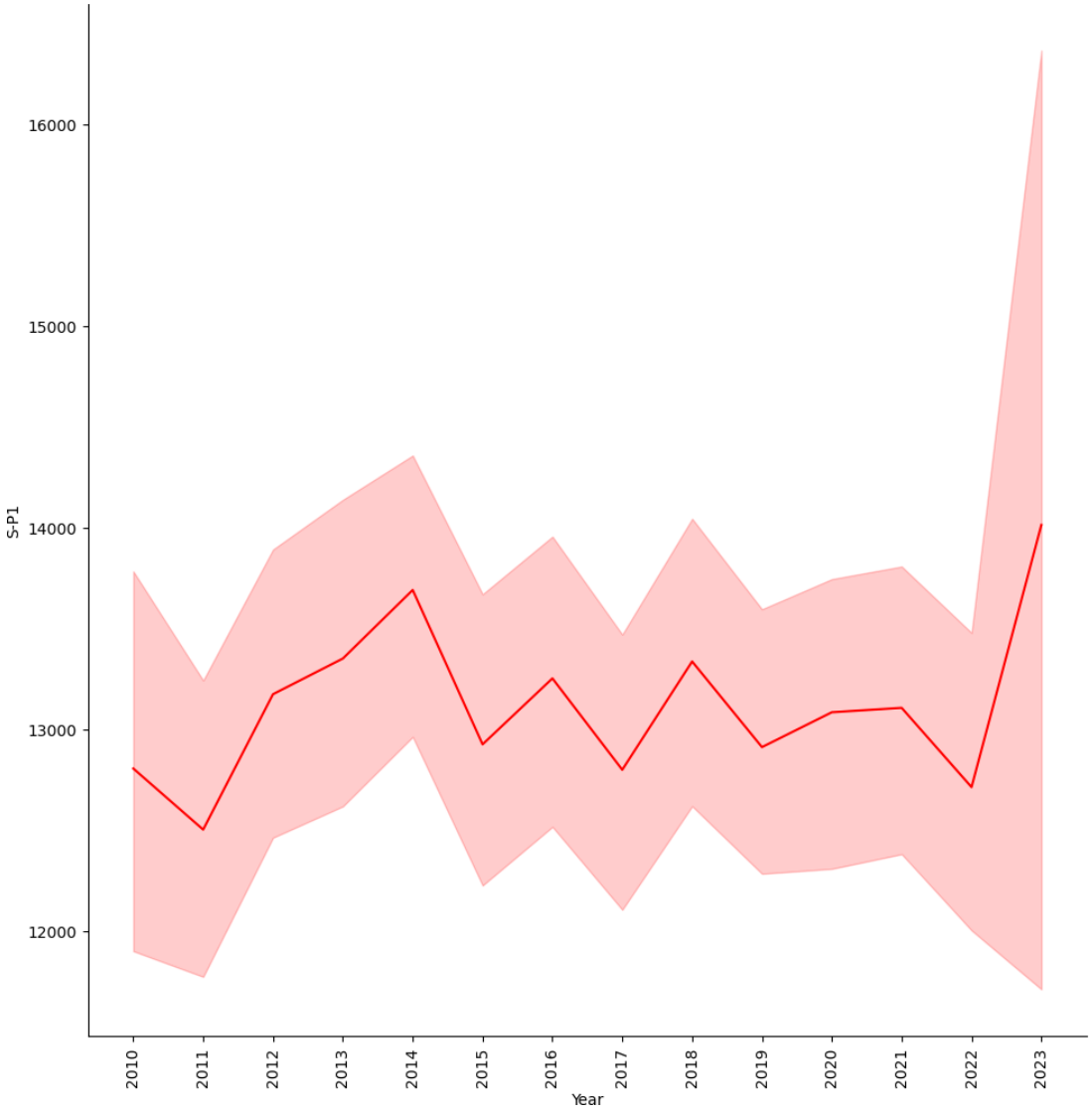
[]:
```
S-P1     12089.55
S-P2     13052.78
S-P3     17256.63
S-P4      7833.07
dtype:float64
```

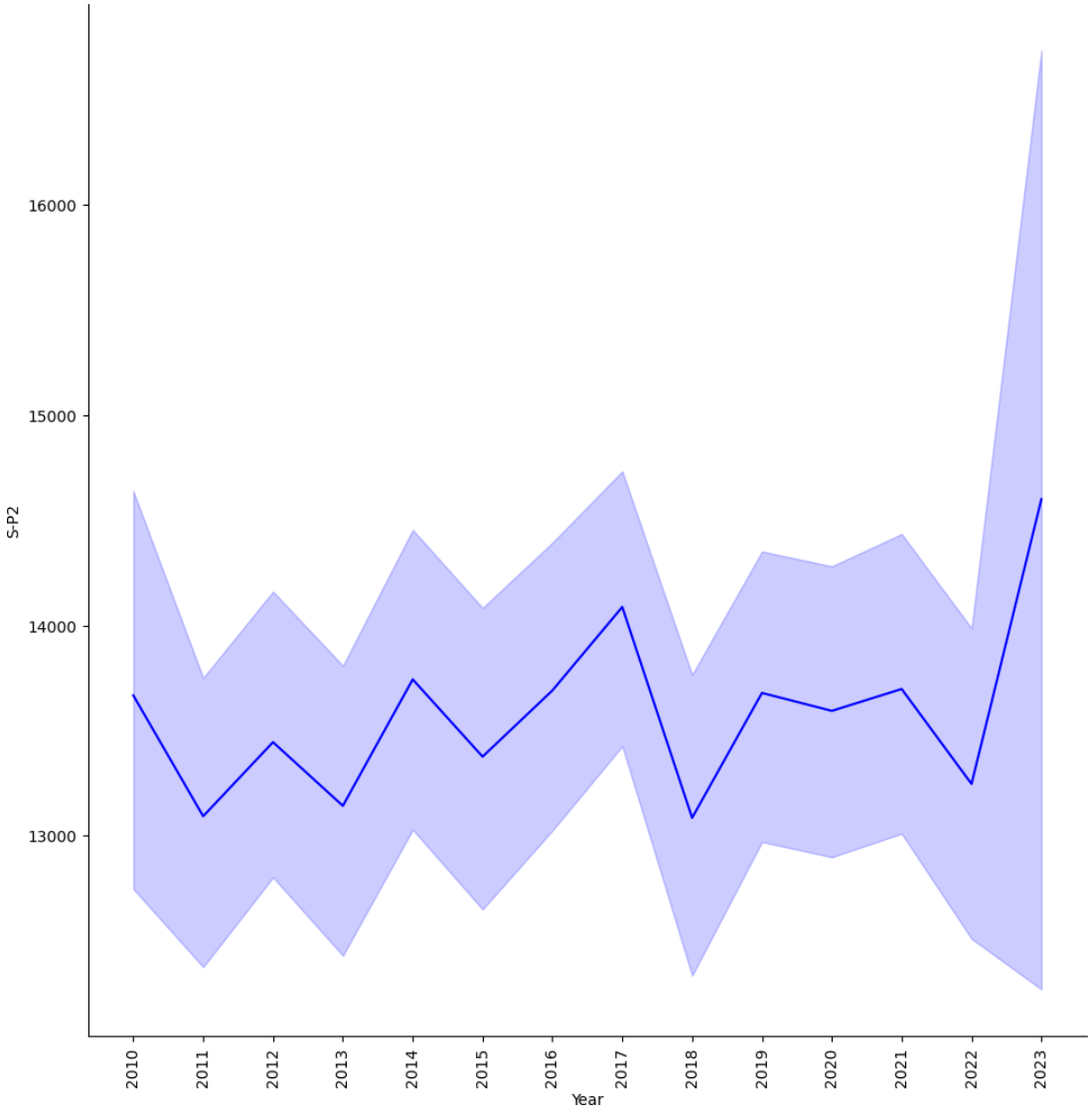
[]:
```
print(data["Year"].value_counts())plt.figure(figsiz
e=(10,10))
sns.countplot(x="Year",data=data,edgecolor="black")
plt.xticks(rotation=90);
```

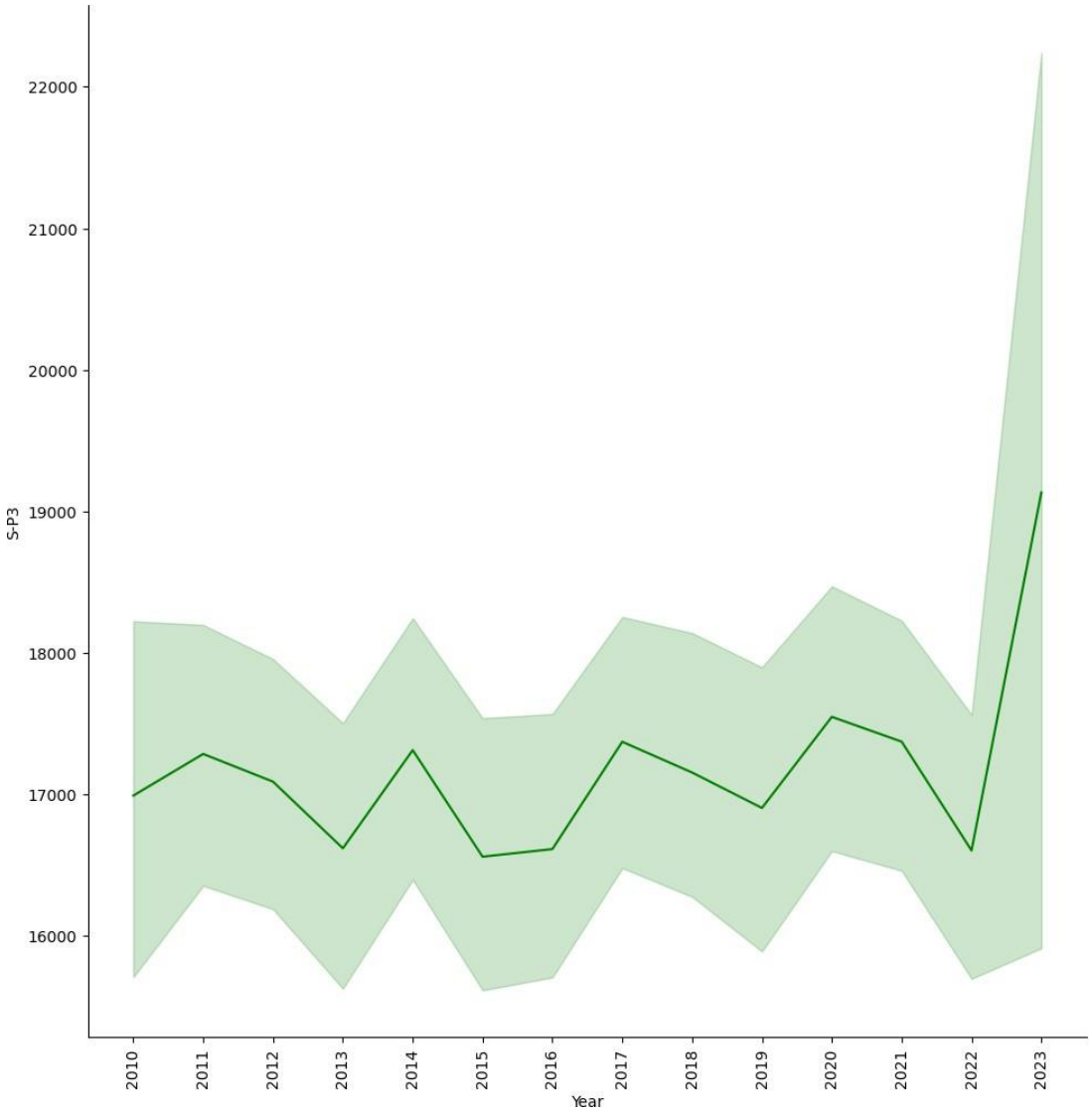
```
2011    364
2013    364
2014    364
2015    364
2017    364
2018    364
2019    364
2021    364
2022    364
2012    363
2016    363
2020    363
2010    201
2023     34
Name: Year, dtype:int64
```

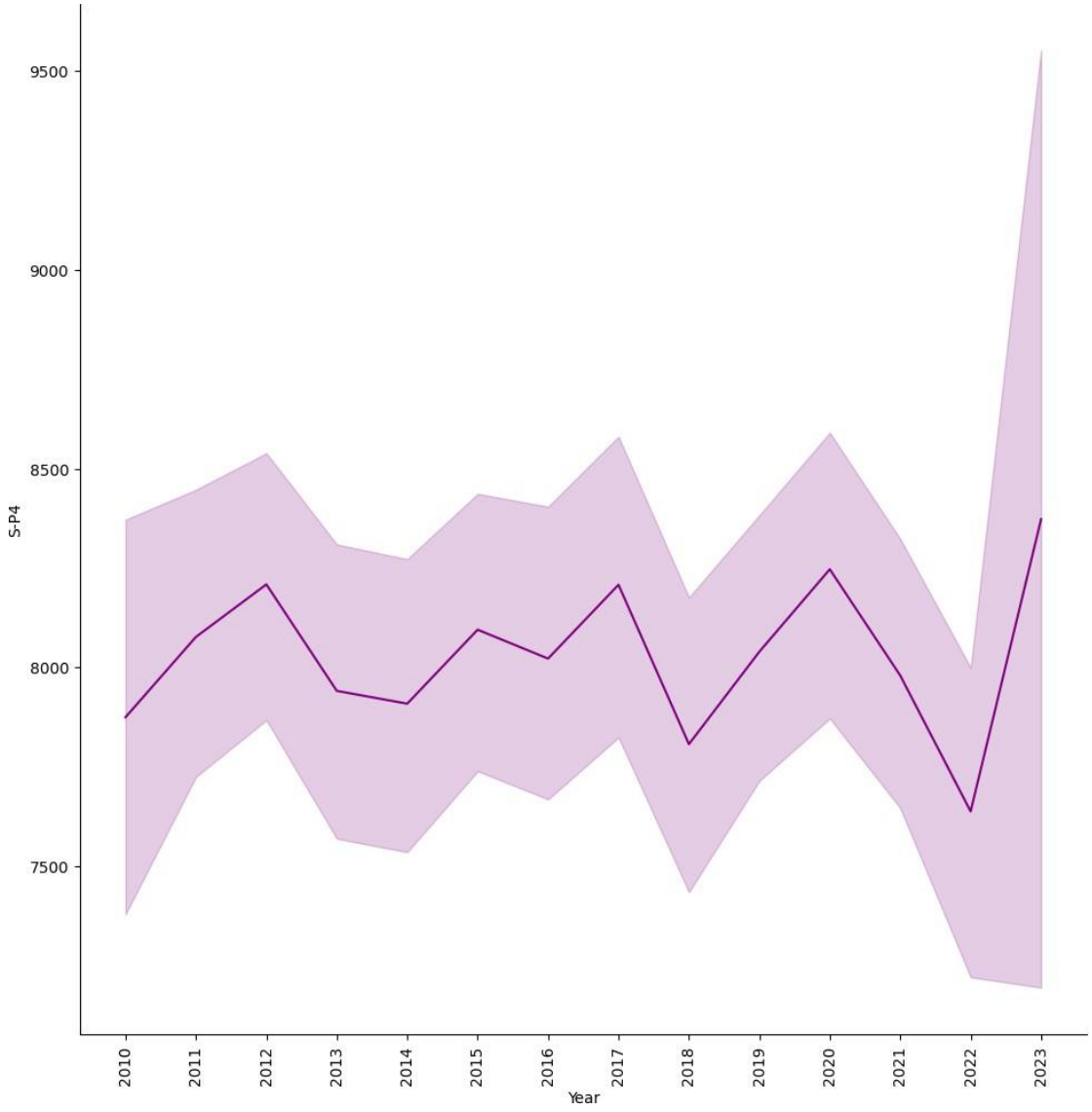


[]:
```
sns.relplot(x="Year",y="S-P1",data=data,kind="line",height=10,color="red")
plt.xticks(rotation=90);
sns.relplot(x="Year",y="S-P2",data=data,kind="line",height=10,color="blue")
plt.xticks(rotation=90);
sns.relplot(x="Year",y="S-P3",data=data,kind="line",height=10,color="green")
plt.xticks(rotation=90);
sns.relplot(x="Year",y="S-P4",data=data,kind="line",height=10,color="purple")
plt.xticks(rotation=90);
```

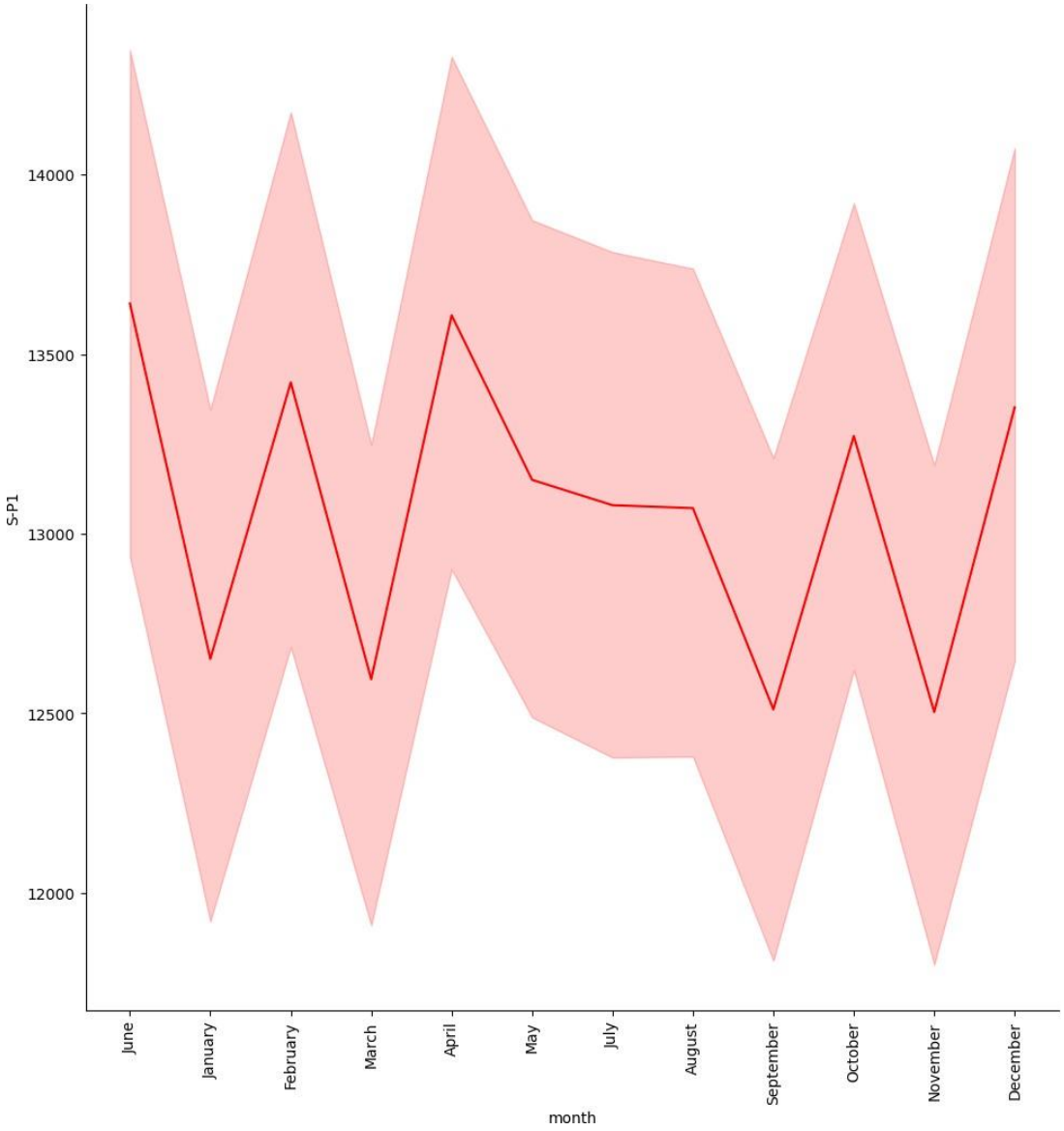

16000
15000
14000
13000
12000
S-P1
2010
2011
2012
2013
2014
2015
2016
2017
2018
2019
2020
2021
2022
2023
Year

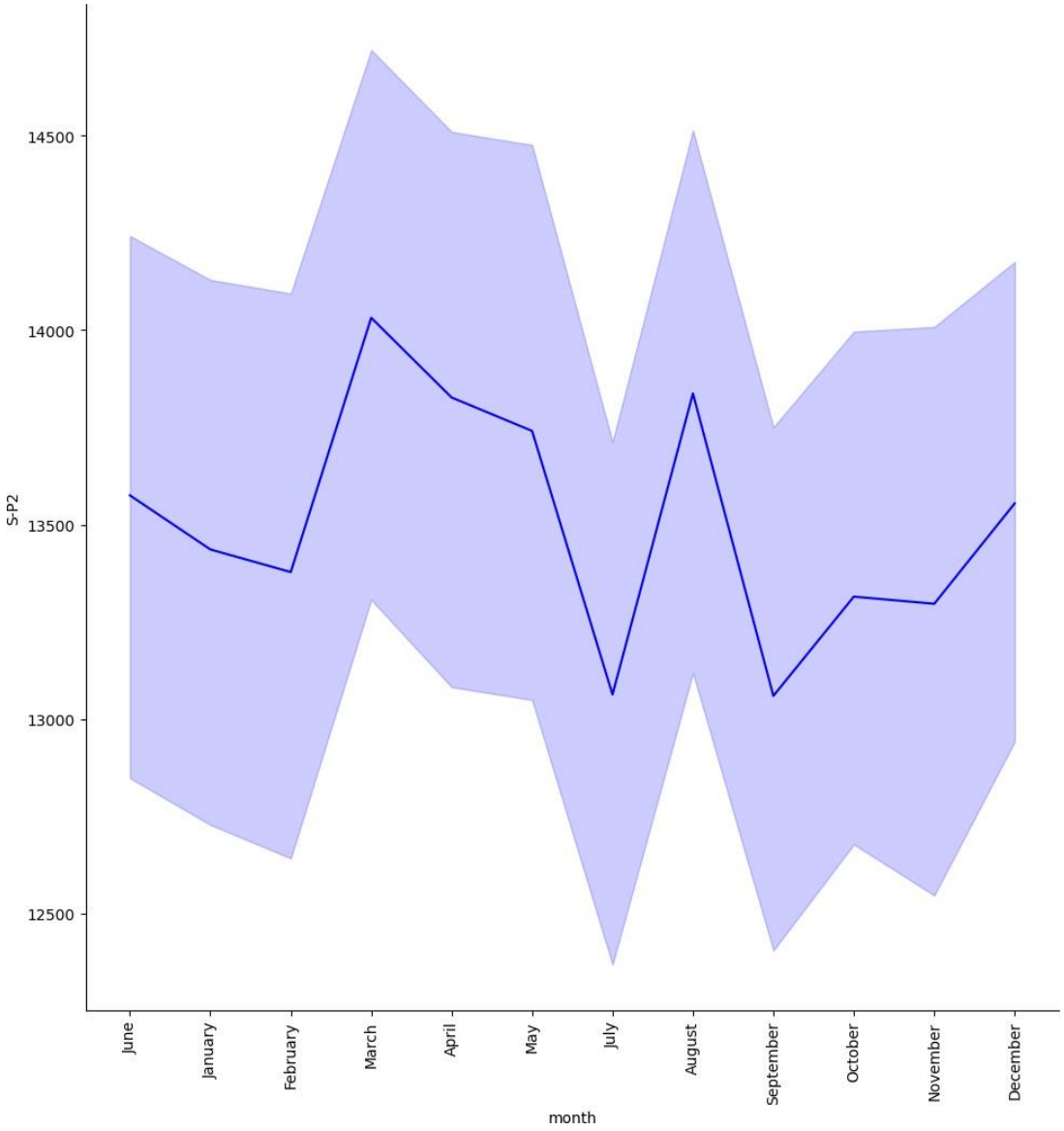

16000
15000
14000
13000
S-P2
2010
2011
2012
2013
2014
2015
2016
2017
2018
2019
2020
2021
2022
2023
Year

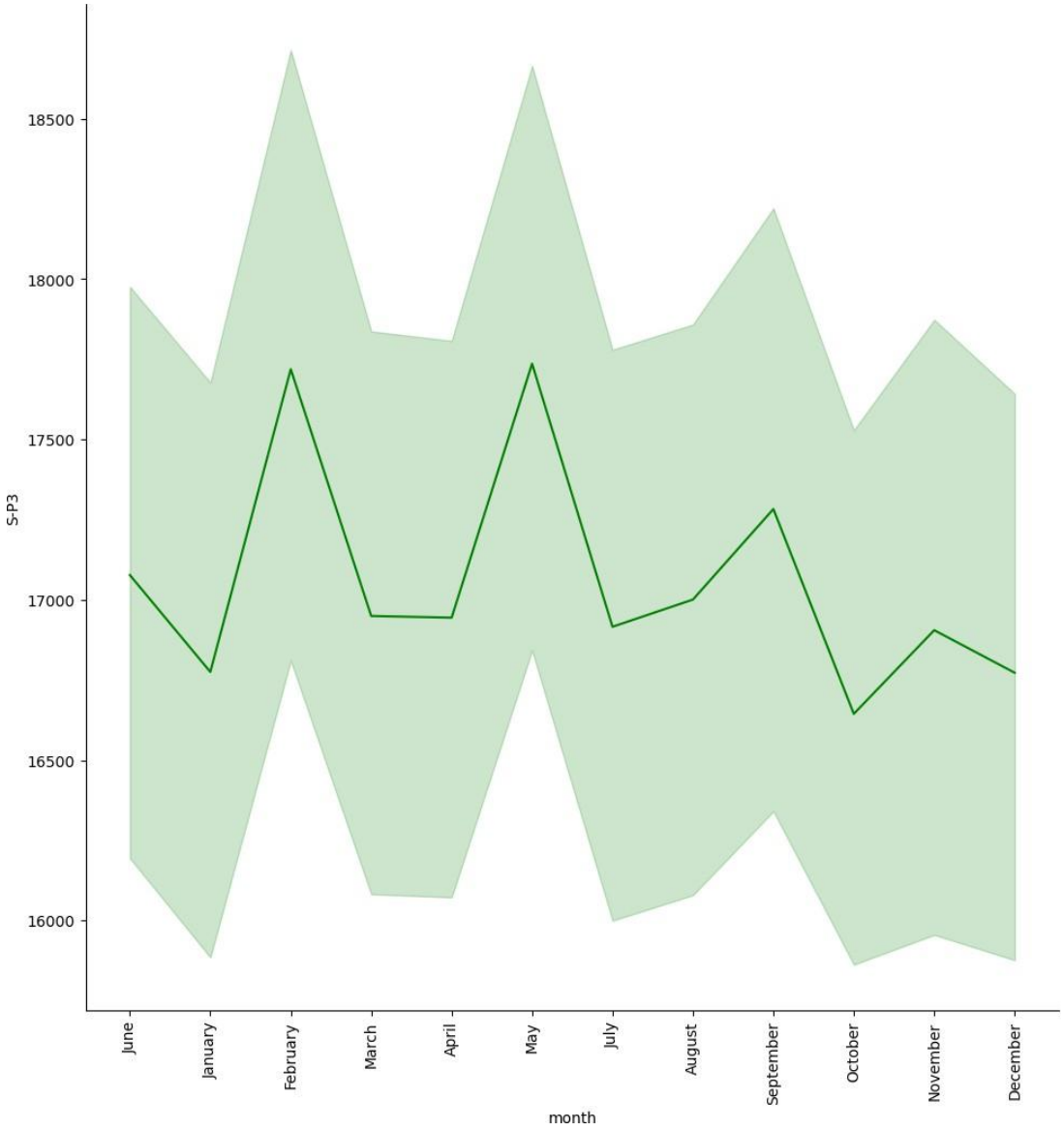

22000
21000
20000
19000
18000
17000
16000
S-P3
2010
2011
2012
2013
2014
2015
2016
2017
2018
2019
2020
2021
2022
2023
Year



[]:
```
#Monthly distrubution of revenue
sns.relplot(x="month",y="S-P1",data=data,kind="line",height=10,color="red")
plt.xticks(rotation=90);
sns.relplot(x="month",y="S-P2",data=data,kind="line",height=10,color="blue")
plt.xticks(rotation=90);
sns.relplot(x="month",y="S-P3",data=data,kind="line",height=10,color="green")
plt.xticks(rotation=90);
sns.relplot(x="month",y="S-P4",data=data,kind="line",height=10,color="purple")
plt.xticks(rotation=90);
```


14000
13500
13000
12500
12000
S-P1
June
January
February
March
April
May
July
August
September
October
November
December
month


14500
14000
13500
13000
12500
S-P2
June
January
February
March
April
May
July
August
September
October
November
December
month


18500
18000
17500
17000
16500
16000
S-P3
June
January
February
March
April
May
July
August
September
October
November
December
month

[]:
```
data.groupby("month")[["S-P1","S-P2","S-P3","S-P4"]].sum()
```

[]:

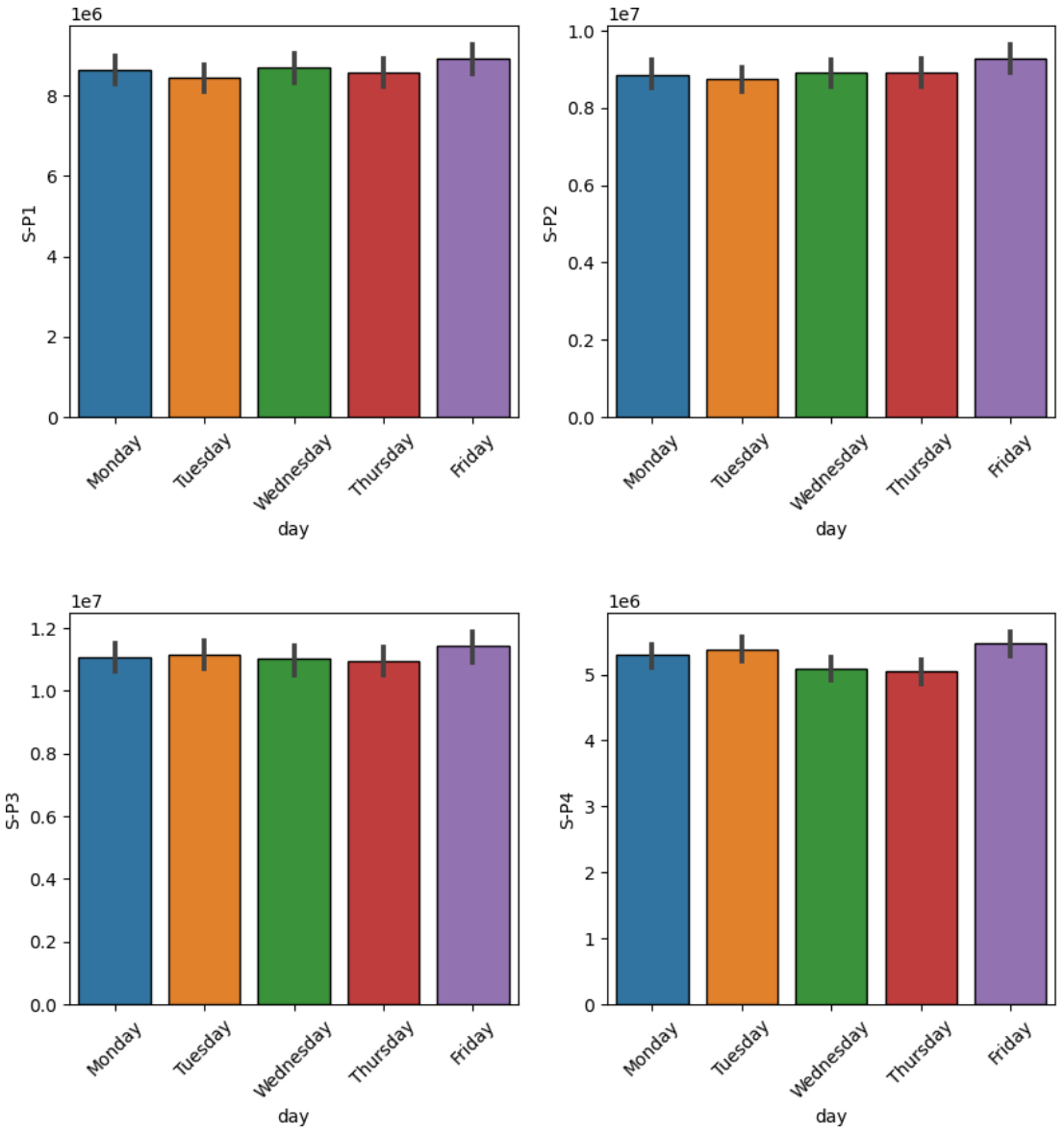
month	S-P1	S-P2	S-P3	S-P4
April	4994236.73	5074402.86	6218523.18	2970628.94
August	5032438.40	5327280.10	6545224.52	3058499.06
December	5140424.45	5218441.32	6457398.84	3102797.75
February	4576731.88	4561845.56	6042134.70	2613444.46
January	5048012.61	5360970.86	6693223.04	3228692.16
July	5205647.20	5199104.32	6732490.94	3142091.18
June	5251837.27	5226404.36	6574600.92	3142454.81

March	4786119.89	5332035.10	6440791.96	3098619.57
May	4983870.83	5207752.08	6722008.66	3006278.94
November	4813933.47	5119068.16	6508476.92	3168215.50
October	5454847.24	5472326.62	6840809.64	3221134.36
September	4816704.05	5027898.96	6653906.36	3095696.27

[ ]:
```
week_t=data[data["dayoftheweek"]<5]
weekend_t=data[data["dayoftheweek"]>=5]
print(week_t.groupby("day")[["S-P1","S-P2","S-P3","S-P4"]].sum())
```

day	S-P1	S-P2	S-P3	S-P4
Friday	8913637.41	9267831.02	11428877.58	5463169.99
Monday	8636791.80	8864347.08	11064892.06	5292577.61
Thursday	8577981.96	8909481.54	10951554.44	5043013.35
Tuesday	8433525.06	8738326.90	11156338.30	5384854.07
Wednesday	8693537.97	8908067.72	11017830.20	5086827.20

[ ]:
```
plt.figure(figsize=(10,10),dpi=100)
plt.subplot(2,2,1)
sns.barplot(x="day",y="S-P1",data=week_t,edgecolor="black",estimator=sum)
plt.xticks(rotation=45);
plt.subplot(2,2,2)
sns.barplot(x="day",y="S-P2",data=week_t,edgecolor="black",estimator=sum)
plt.xticks(rotation=45);
plt.subplot(2,2,3)
sns.barplot(x="day",y="S-P3",data=week_t,edgecolor="black",estimator=sum)
plt.xticks(rotation=45);
plt.subplot(2,2,4)
sns.barplot(x="day",y="S-P4",data=week_t,edgecolor="black",estimator=sum)
plt.xticks(rotation=45)
plt.subplots_adjust(hspace=0.5);
```

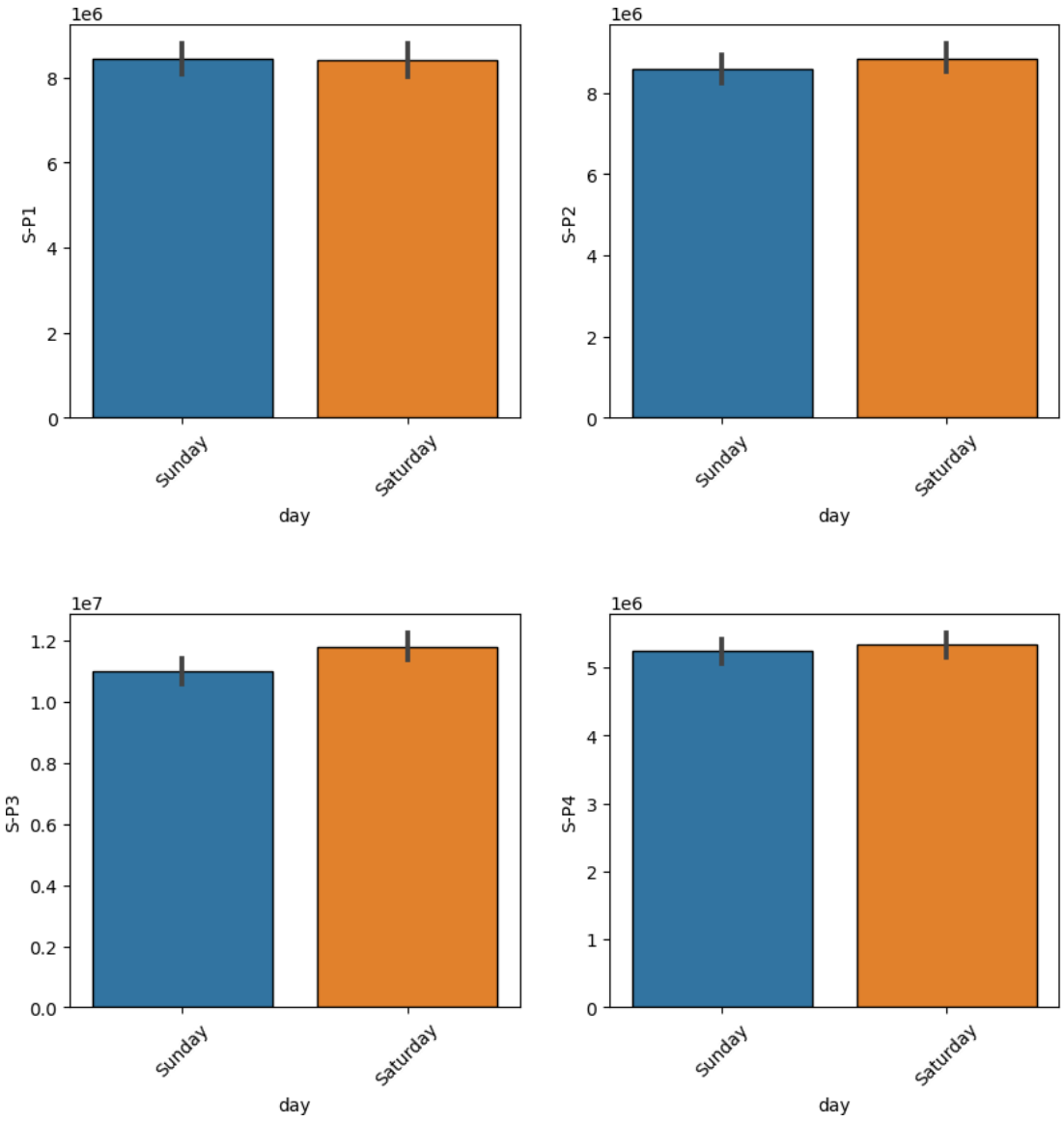


[]:
```
print(weekend_t.groupby("day")[["S-P1","S-P2","S-P3","S-P4"]].sum())
```

day	S-P1	S-P2	S-P3	S-P4
Saturday	8409578.88	8853201.36	11796375.26	5339977.85
Sunday	8439750.94	8586274.68	11013721.84	5238132.93

[]:
```
plt.figure(figsize=(10,10),dpi=100)
plt.subplot(2,2,1)
sns.barplot(x="day",y="S-P1",data=weekend_t,edgecolor="black",estimator=sum)
plt.xticks(rotation=45);
```

```
plt.subplot(2,2,2)
sns.barplot(x="day",y="S-P2",data=weekend_t,edgecolor="black",estimator=sum)
plt.xticks(rotation=45);
plt.subplot(2,2,3)
sns.barplot(x="day",y="S-P3",data=weekend_t,edgecolor="black",estimator=sum)
plt.xticks(rotation=45);
plt.subplot(2,2,4)
sns.barplot(x="day",y="S-P4",data=weekend_t,edgecolor="black",estimator=sum)
plt.xticks(rotation=45)
plt.subplots_adjust(hspace=0.5);
```

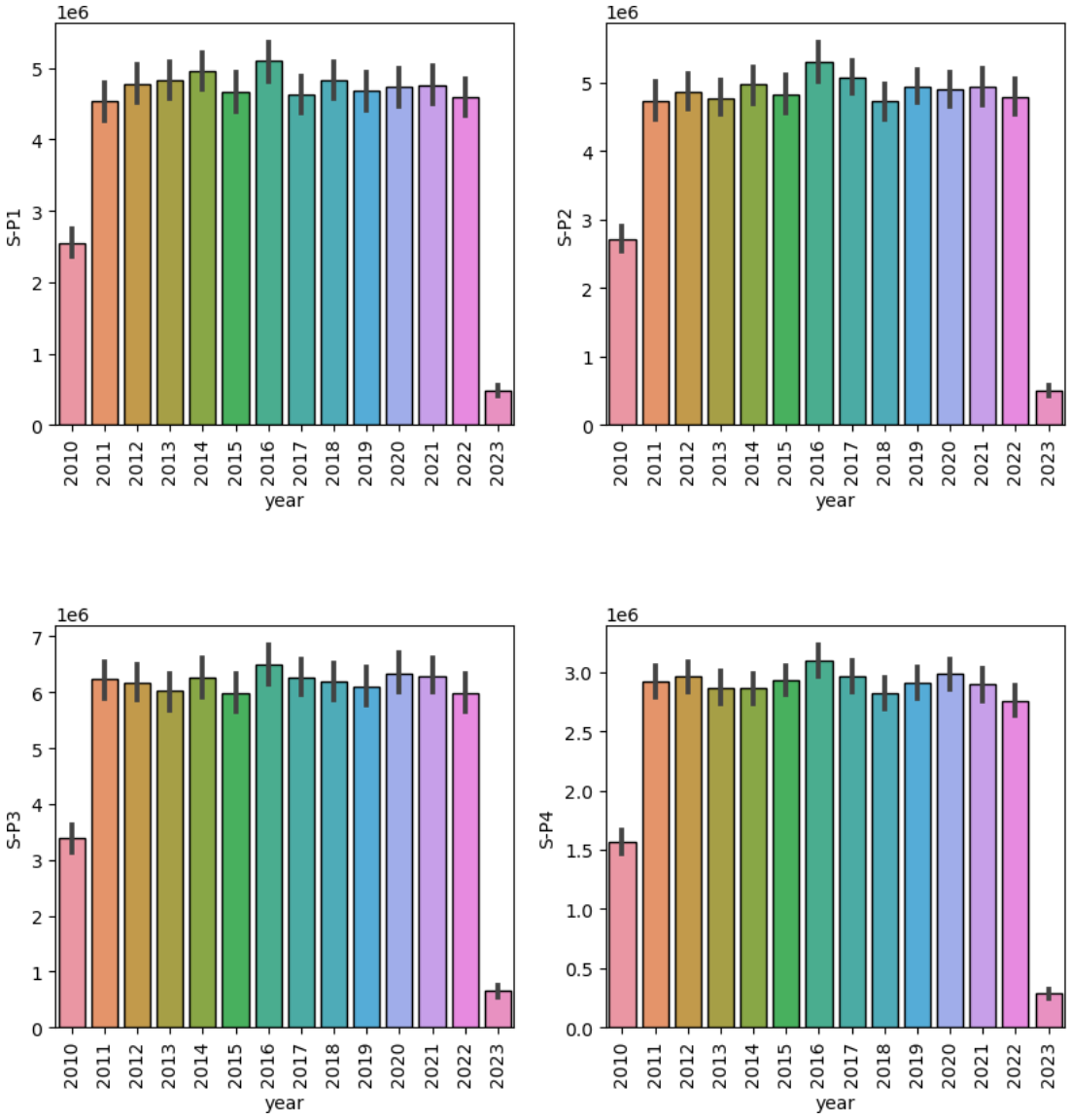


[]:
```
data.groupby("year")[["S-P1","S-P2","S-P3","S-P4"]].agg(["sum"])
```

[ ]:

	S-P1	S-P2	S-P3	S-P4
	sum	sum	sum	sum
year				
2010	2543459.01	2720100.92	3385462.08	1567523.37
2011	4542819.22	4741147.10	6235075.86	2921603.06
2012	4771163.83	4861987.50	6173911.16	2965210.14
2013	4833682.57	4771369.88	6017809.74	2868491.69
2014	4954522.97	4979797.38	6265406.18	2865119.20
2015	4669720.66	4833806.20	5987988.90	2933224.96
2016	5096066.64	5313116.54	6507718.12	3096444.92
2017	4628545.53	5085909.96	6269568.74	2969944.46
2018	4825792.44	4727313.22	6198517.96	2824392.64
2019	4681354.56	4946303.16	6106237.04	2912519.44
2020	4732093.58	4904826.88	6343643.88	2984618.00
2021	4758100.26	4948382.68	6294208.06	2894394.98
2022	4591000.05	4797040.54	5993479.36	2760400.89
2023	476482.70	496428.34	650562.60	284665.25

[]:
```
plt.figure(figsize=(10,10),dpi=100)
plt.subplot(2,2,1)
sns.barplot(x="year",y="S-P1",data=data,edgecolor="black",estimator=sum)
plt.xticks(rotation=90);
plt.subplot(2,2,2)
sns.barplot(x="year",y="S-P2",data=data,edgecolor="black",estimator=sum)
plt.xticks(rotation=90);
plt.subplot(2,2,3)
sns.barplot(x="year",y="S-P3",data=data,edgecolor="black",estimator=sum)
plt.xticks(rotation=90);
plt.subplot(2,2,4)
sns.barplot(x="year",y="S-P4",data=data,edgecolor="black",estimator=sum)
plt.xticks(rotation=90)
plt.subplots_adjust(hspace=0.5);
```

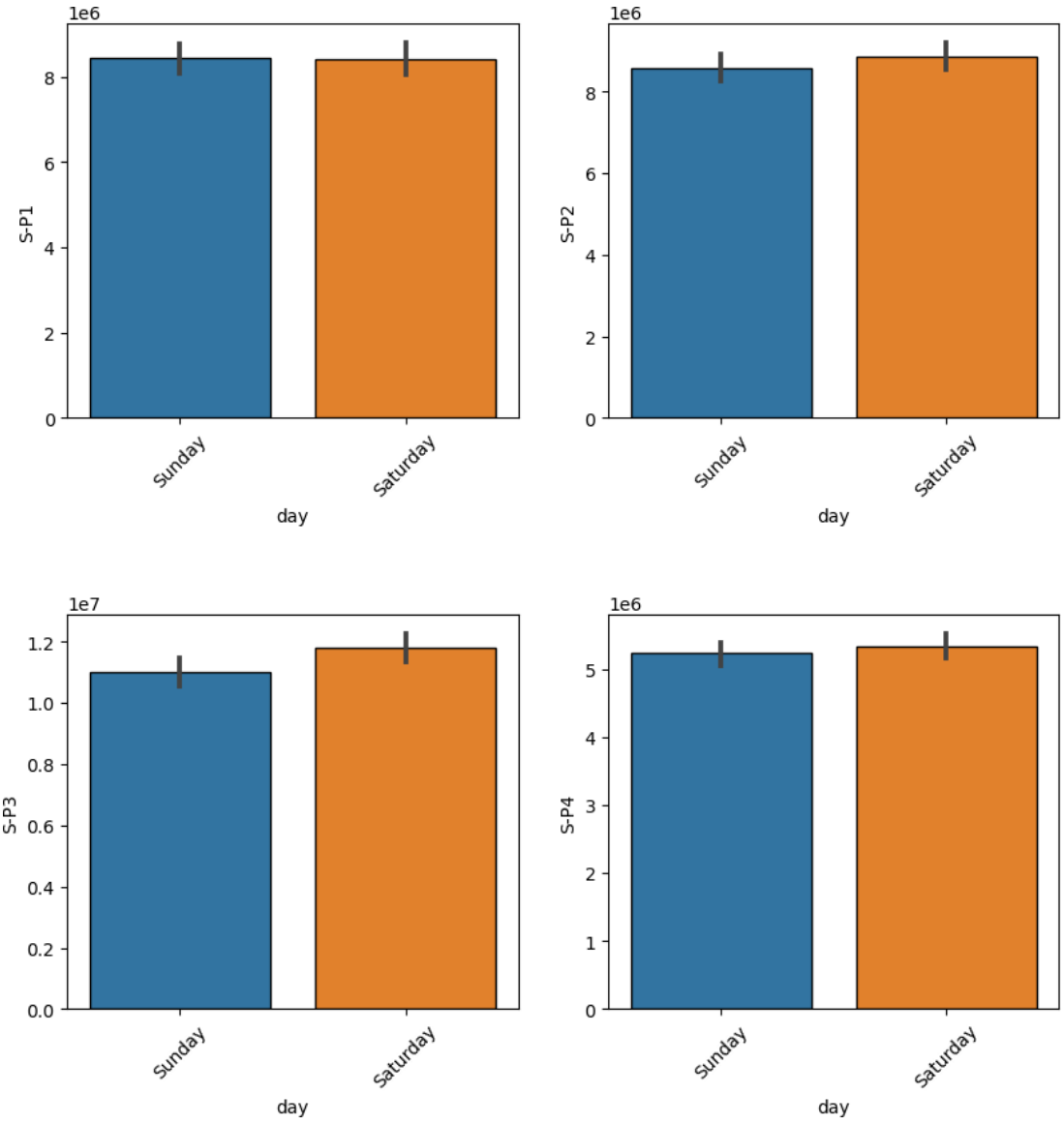


[]:
```
data[["S-P1","S-P2","S-P3","S-P4"]].agg(["sum","max","min","mean"])
```

[]:
```
             S-P1          S-P2          S-P3          S-
P4sum6.010480e+076.212753e+077.842959e+073.684855e+07max2.5
35366e+042.534732e+043.252000e+041.426000e+04min8.051800e+
021.591340e+031.355000e+031.782500e+03mean1.306626e+041.3
50598e+041.704991e+048.010555e+03
```

[]:
```
plt.figure(figsize=(10,10),dpi=100)
plt.subplot(2,2,1)
sns.barplot(x="day",y="S-P1",data=weekend_t,edgecolor="black",estimator=sum)
```

```
plt.xticks(rotation=45);
plt.subplot(2,2,2)
sns.barplot(x="day",y="S-P2",data=weekend_t,edgecolor="black",estimator=sum)
plt.xticks(rotation=45);
plt.subplot(2,2,3)
sns.barplot(x="day",y="S-P3",data=weekend_t,edgecolor="black",estimator=sum)
plt.xticks(rotation=45);
plt.subplot(2,2,4)
sns.barplot(x="day",y="S-P4",data=weekend_t,edgecolor="black",estimator=sum)
plt.xticks(rotation=45)
plt.subplots_adjust(hspace=0.5);
```

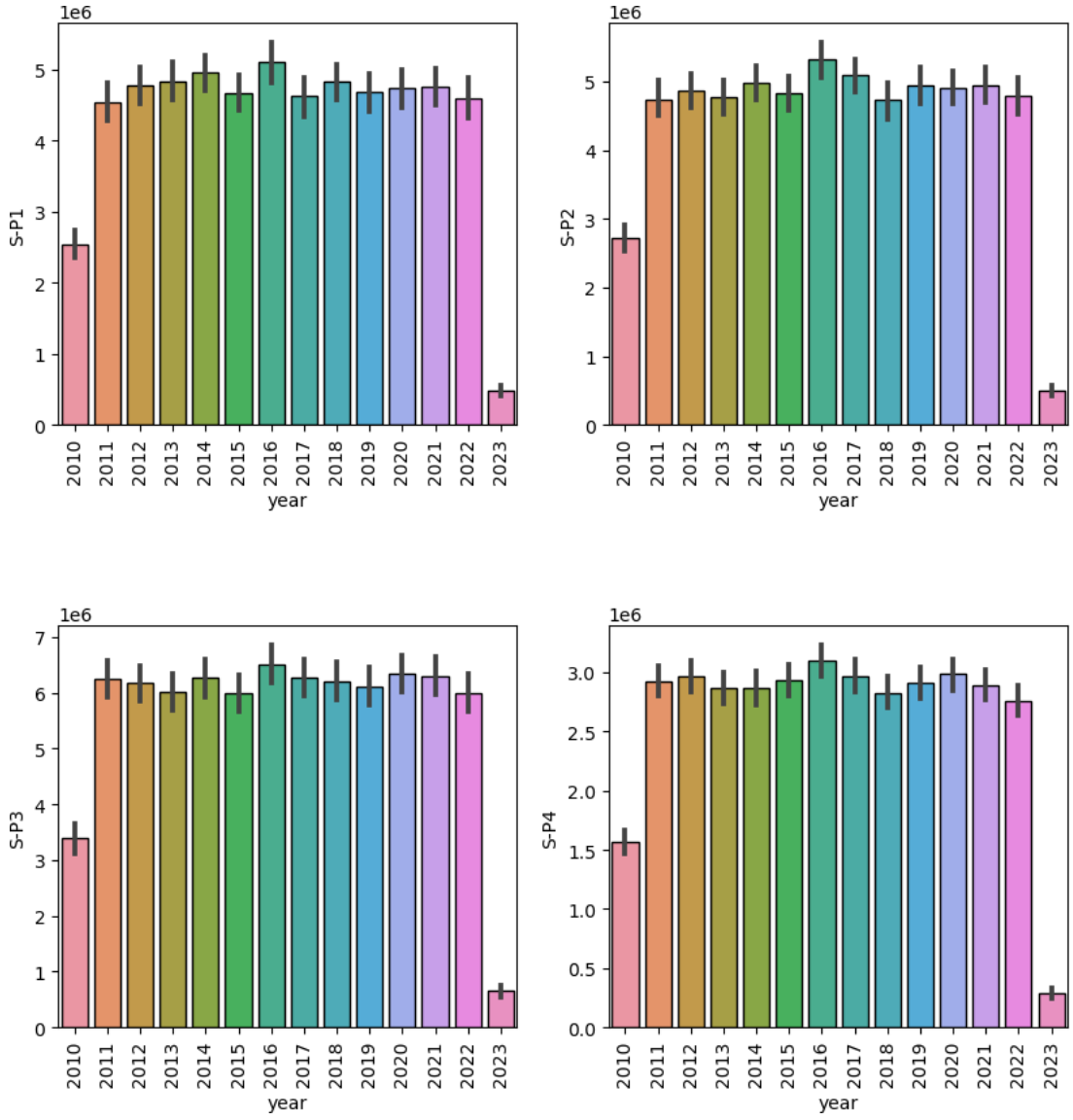


[]:
```
data.groupby("year")[["S-P1","S-P2","S-P3","S-P4"]].agg(["sum"])
```

[ ]:

	S-P1	S-P2	S-P3	S-P4
	sum	sum	sum	sum
year				
2010	2543459.01	2720100.92	3385462.08	1567523.37
2011	4542819.22	4741147.10	6235075.86	2921603.06
2012	4771163.83	4861987.50	6173911.16	2965210.14
2013	4833682.57	4771369.88	6017809.74	2868491.69
2014	4954522.97	4979797.38	6265406.18	2865119.20
2015	4669720.66	4833806.20	5987988.90	2933224.96
2016	5096066.64	5313116.54	6507718.12	3096444.92
2017	4628545.53	5085909.96	6269568.74	2969944.46
2018	4825792.44	4727313.22	6198517.96	2824392.64
2019	4681354.56	4946303.16	6106237.04	2912519.44
2020	4732093.58	4904826.88	6343643.88	2984618.00
2021	4758100.26	4948382.68	6294208.06	2894394.98
2022	4591000.05	4797040.54	5993479.36	2760400.89
2023	476482.70	496428.34	650562.60	284665.25

[]:
```
plt.figure(figsize=(10,10),dpi=100)
plt.subplot(2,2,1)
sns.barplot(x="year",y="S-P1",data=data,edgecolor="black",estimator=sum)
plt.xticks(rotation=90);
plt.subplot(2,2,2)
sns.barplot(x="year",y="S-P2",data=data,edgecolor="black",estimator=sum)
plt.xticks(rotation=90);
plt.subplot(2,2,3)
sns.barplot(x="year",y="S-P3",data=data,edgecolor="black",estimator=sum)
plt.xticks(rotation=90);
plt.subplot(2,2,4)
sns.barplot(x="year",y="S-P4",data=data,edgecolor="black",estimator=sum)
plt.xticks(rotation=90)
plt.subplots_adjust(hspace=0.5);
```

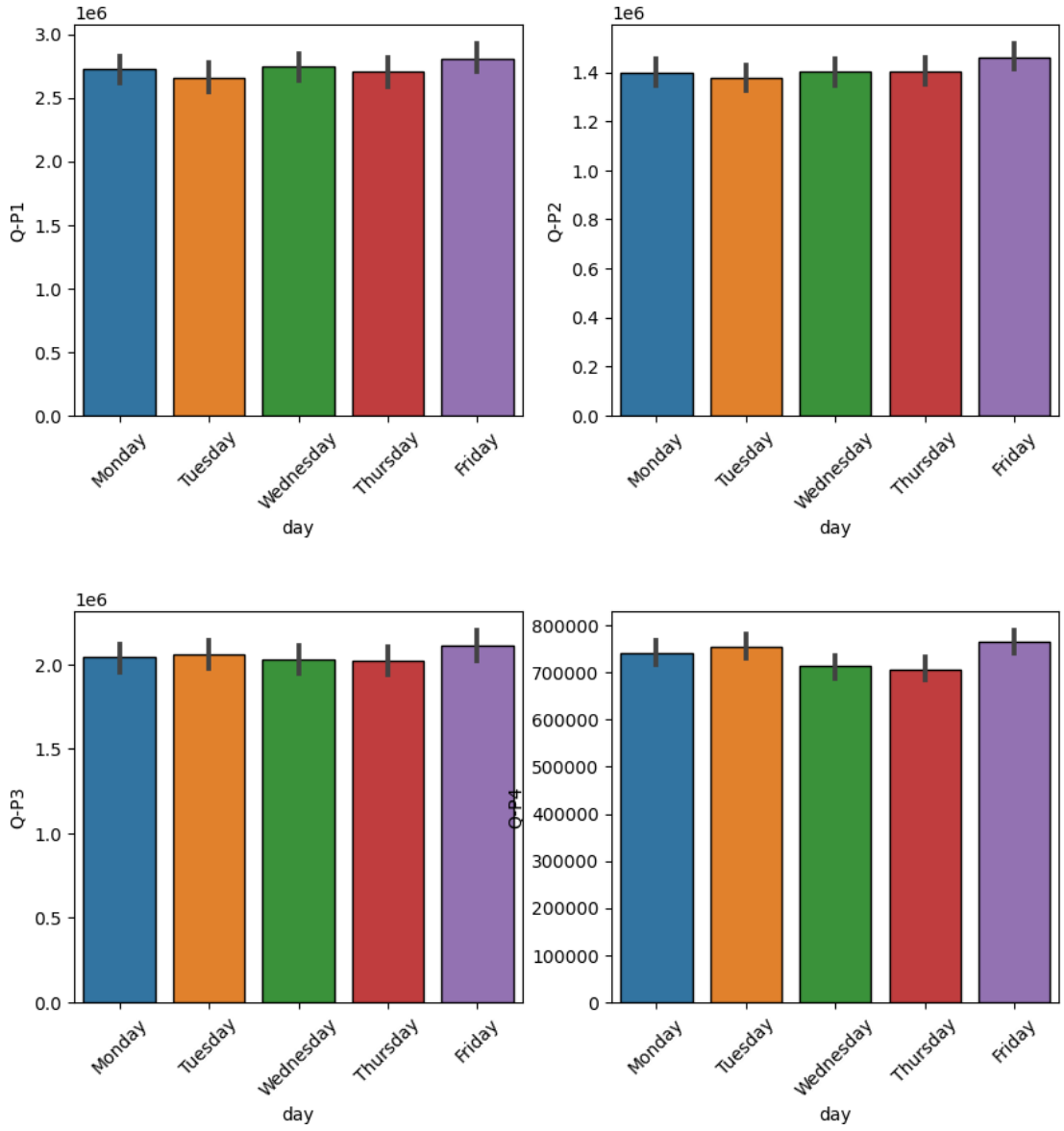


[]:
```
data[["S-P1","S-P2","S-P3","S-P4"]].agg(["sum","max","min","mean"])
```

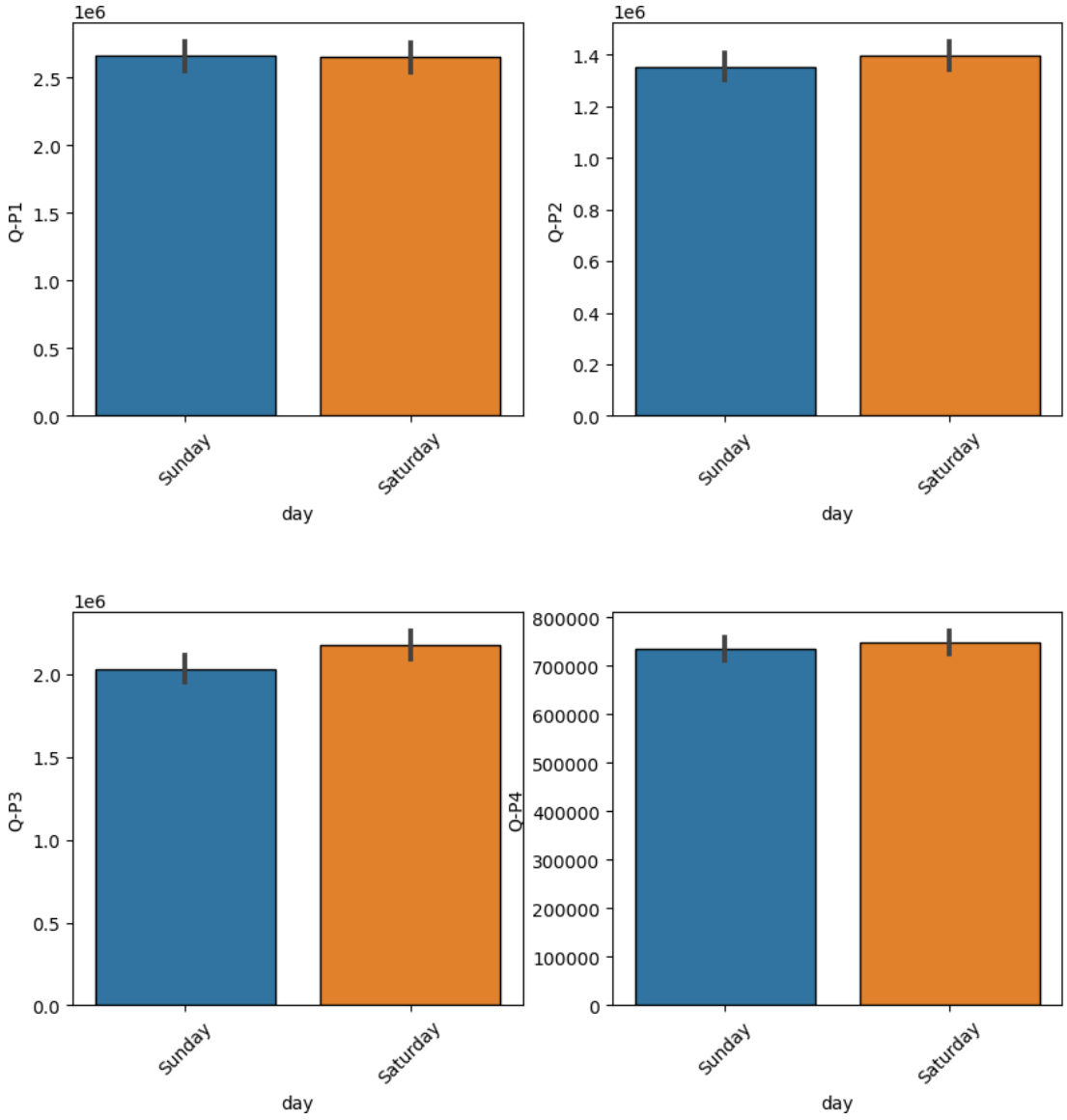
[]:
```
             S-P1          S-P2          S-P3          S-
P4sum6.010480e+076.212753e+077.842959e+073.684855e+07max2.5
35366e+042.534732e+043.252000e+041.426000e+04min8.051800e+
021.591340e+031.355000e+031.782500e+03mean1.306626e+041.3
50598e+041.704991e+048.010555e+03
```

[]:
```
plt.figure(figsize=(10,10),dpi=100)
plt.subplot(2,2,1)
sns.barplot(x="day",y="Q-P1",data=week_t,edgecolor="black",estimator=sum)
```

```
plt.xticks(rotation=45);
plt.subplot(2,2,2)
sns.barplot(x="day",y="Q-P2",data=week_t,edgecolor="black",estimator=sum)
plt.xticks(rotation=45);
plt.subplot(2,2,3)
sns.barplot(x="day",y="Q-P3",data=week_t,edgecolor="black",estimator=sum)
plt.xticks(rotation=45);
plt.subplot(2,2,4)
sns.barplot(x="day",y="Q-P4",data=week_t,edgecolor="black",estimator=sum)
plt.xticks(rotation=45)
plt.subplots_adjust(hspace=0.5);
```



[]:
```
plt.figure(figsize=(10,10),dpi=100)
plt.subplot(2,2,1)
sns.barplot(x="day",y="Q-P1",data=weekend_t,edgecolor="black",estimator=sum)
plt.xticks(rotation=45);
plt.subplot(2,2,2)
sns.barplot(x="day",y="Q-P2",data=weekend_t,edgecolor="black",estimator=sum)
plt.xticks(rotation=45);
plt.subplot(2,2,3)
sns.barplot(x="day",y="Q-P3",data=weekend_t,edgecolor="black",estimator=sum)
plt.xticks(rotation=45);
plt.subplot(2,2,4)
sns.barplot(x="day",y="Q-P4",data=weekend_t,edgecolor="black",estimator=sum)
plt.xticks(rotation=45)
plt.subplots_adjust(hspace=0.5);
```



[ ]:
```
data.head()
```

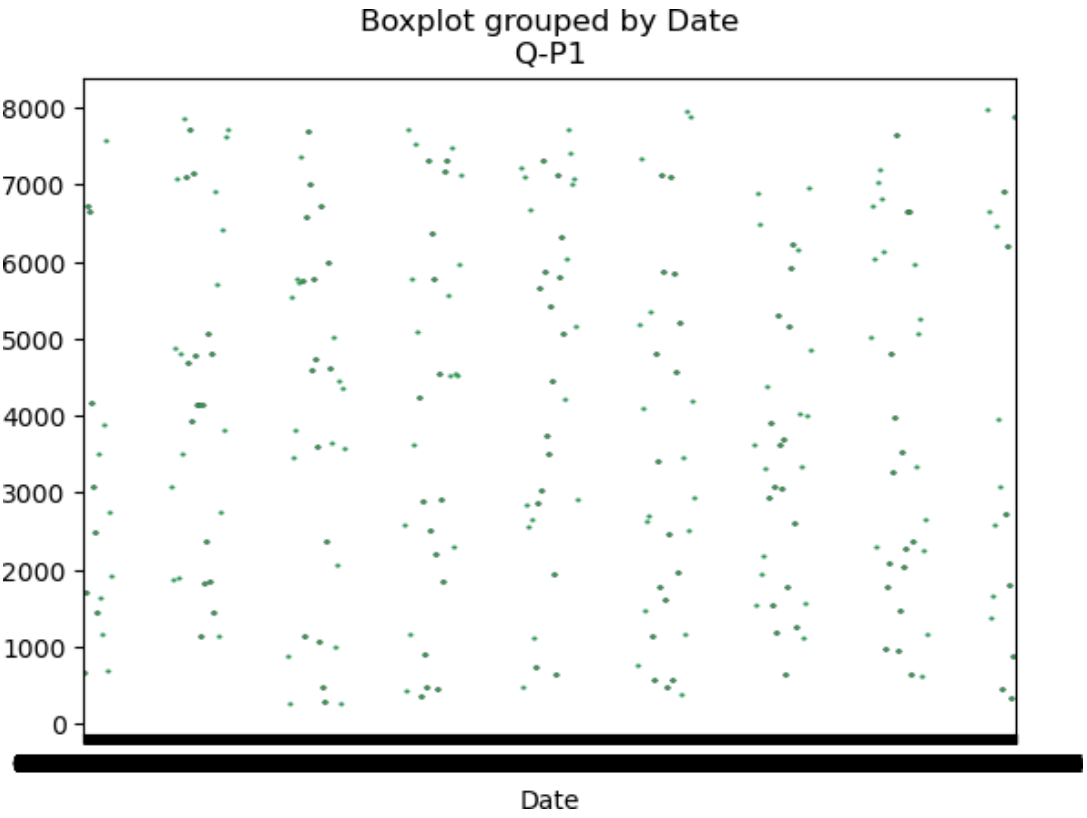
[ ]:

	Date	Q-P1	Q-P2	Q-P3	Q-P4	S-P1	S-P2	S-P3	S-P4	\
0	13-06-2010	5422	3725	576	907	17187.74	23616.50	3121.92	6466.91	
1	14-06-2010	7047	779	3578	1574	22338.99	4938.86	19392.76	11222.62	
2	15-06-2010	1572	2082	595	1145	4983.24	13199.88	3224.90	8163.85	
3	16-06-2010	5657	2399	3140	1672	17932.69	15209.66	17018.80	11921.36	
4	17-06-2010	3668	3207	2184	708	11627.56	20332.38	11837.28	5048.04	

	DayMonth	Year
0	13	06 2010
1	14	06 2010
2	15	06 2010
3	16	06 2010
4	17	06 2010

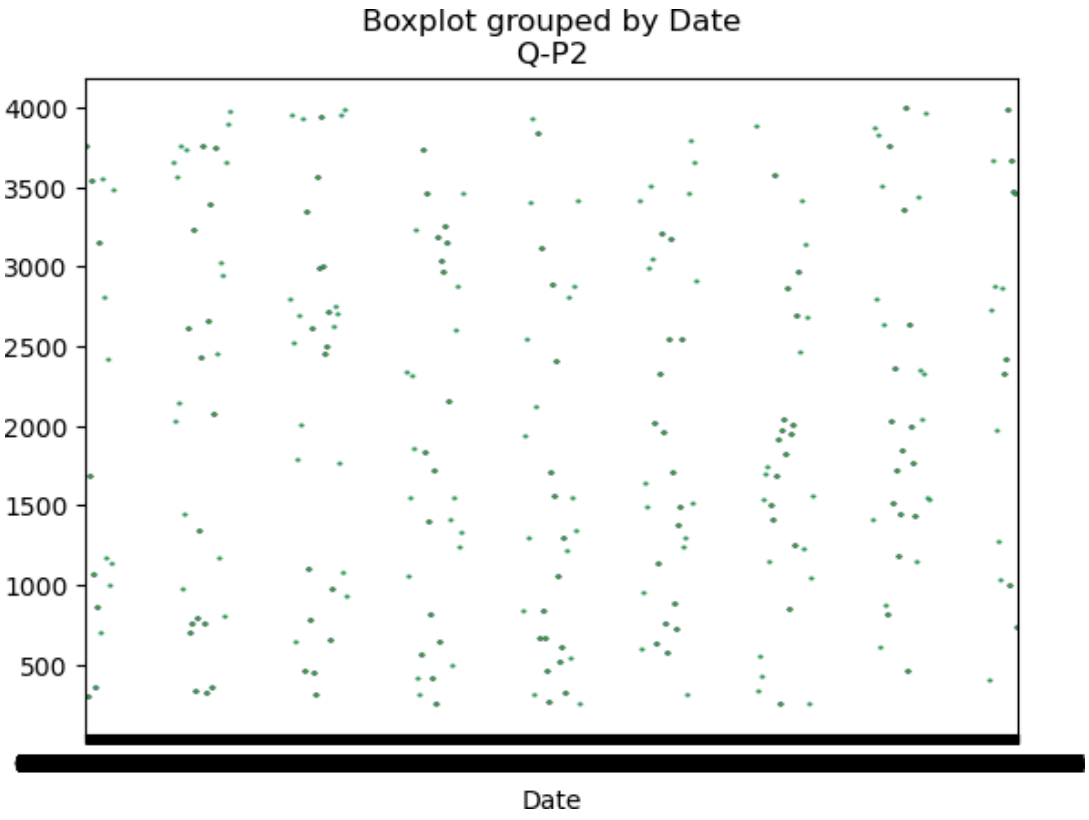
[ ]:
```
data.boxplot(by="Date",column=["Q-P1"],grid=False)
```

[]:<AxesSubplot:title={'center':'Q-P1'},xlabel='Date'>



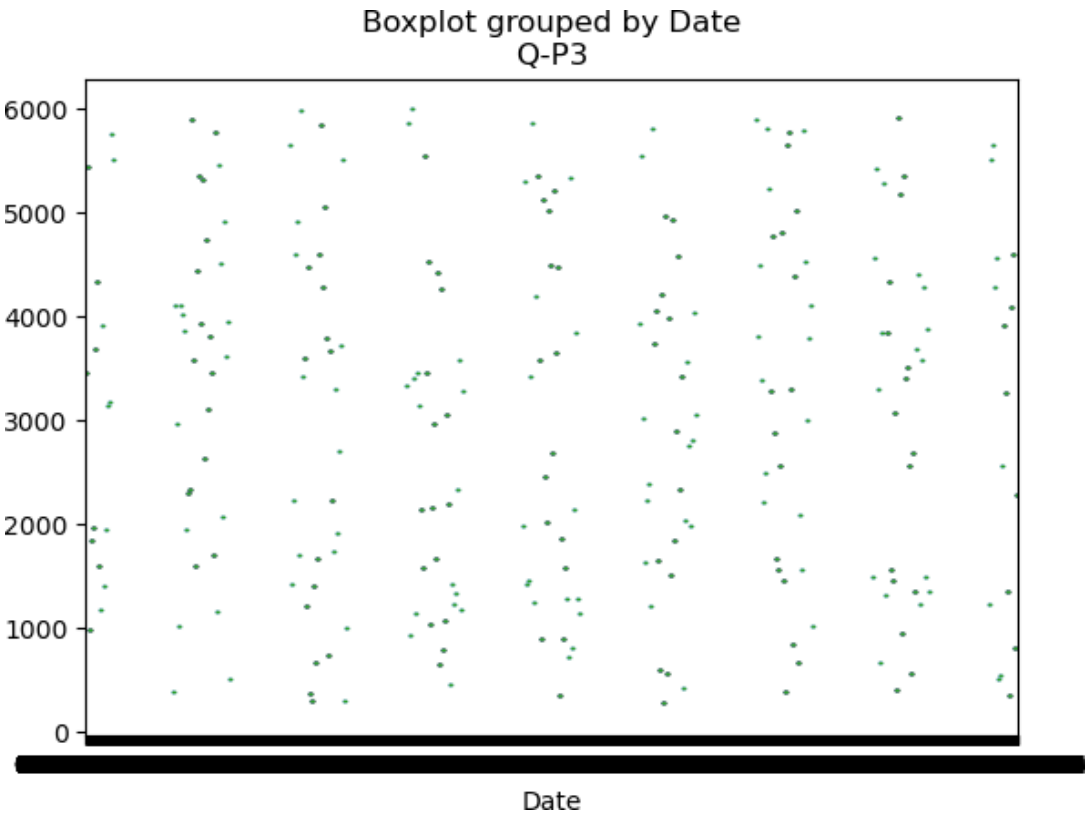
[]:
```
data.boxplot(by='Date',column=['Q-P2'],grid=False)
```

[]:<AxesSubplot:title={'center':'Q-P2'},xlabel='Date'>



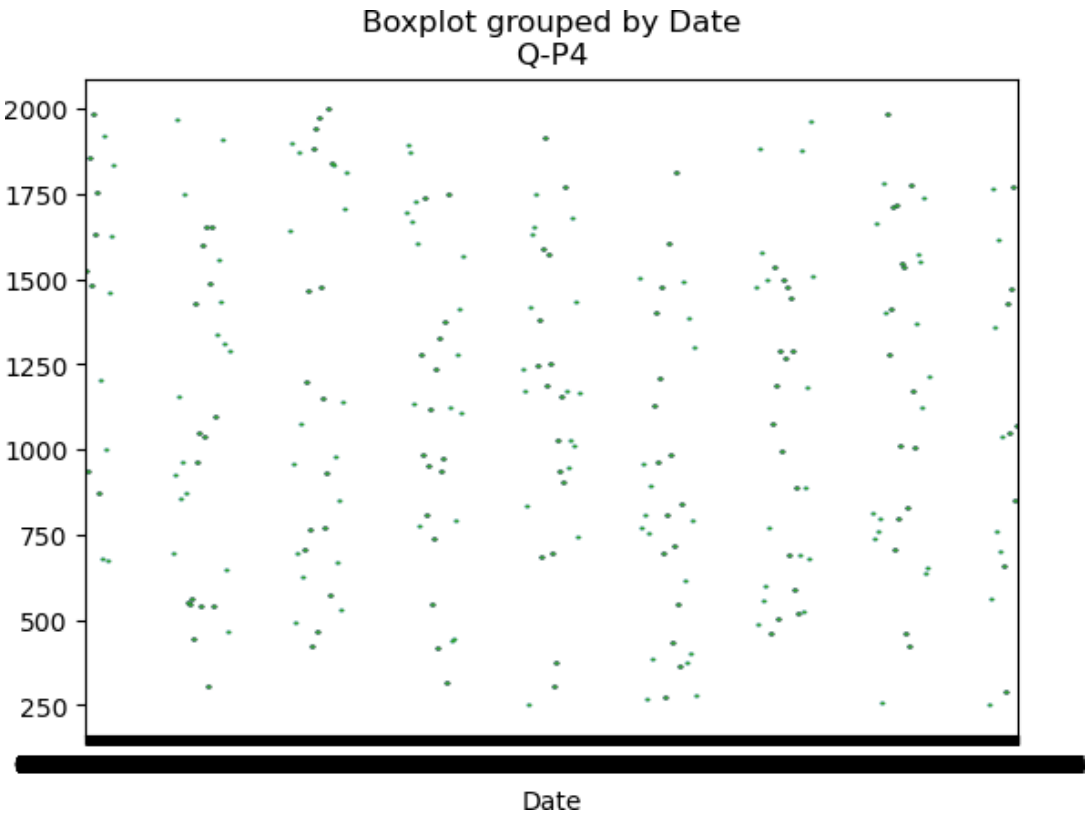
[]:
```
data.boxplot(by='Date',column=['Q-P3'],grid=False)
```

[]:<AxesSubplot:title={'center':'Q-P3'},xlabel='Date'>



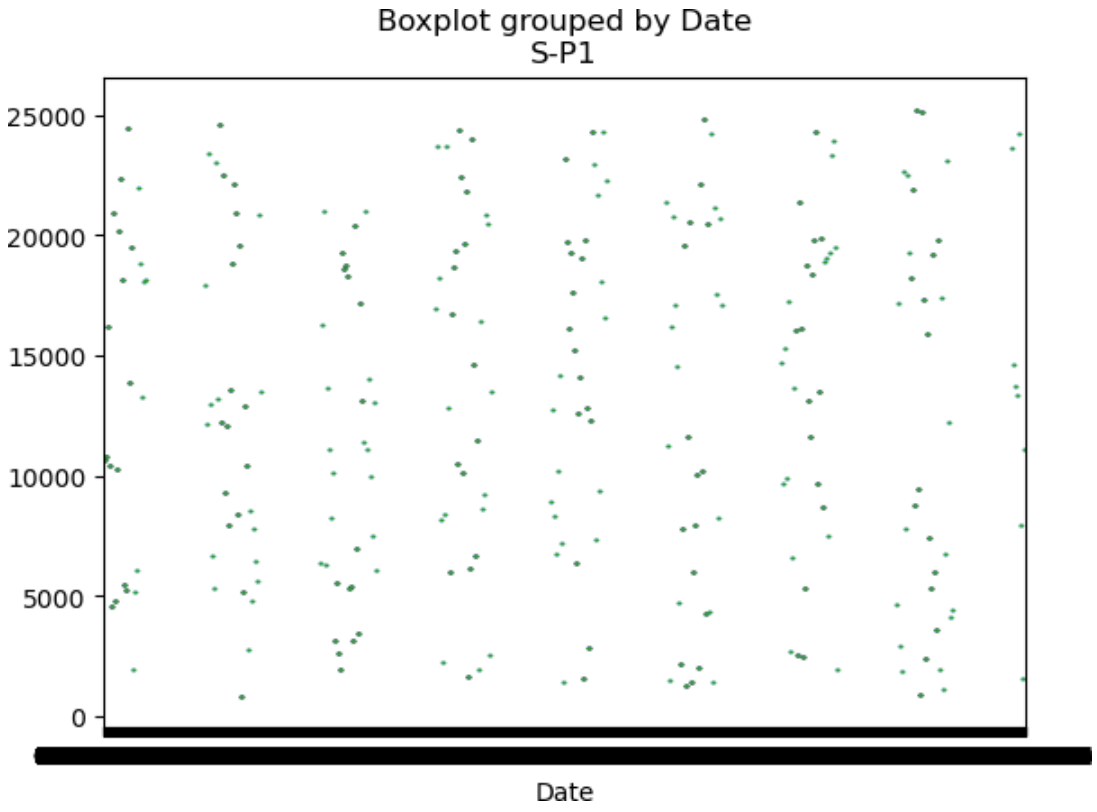
[]: `data.boxplot(by="Date",column=["Q-P4"],grid=False)`

[]:<AxesSubplot:title={'center':'Q-P4'},xlabel='Date'>



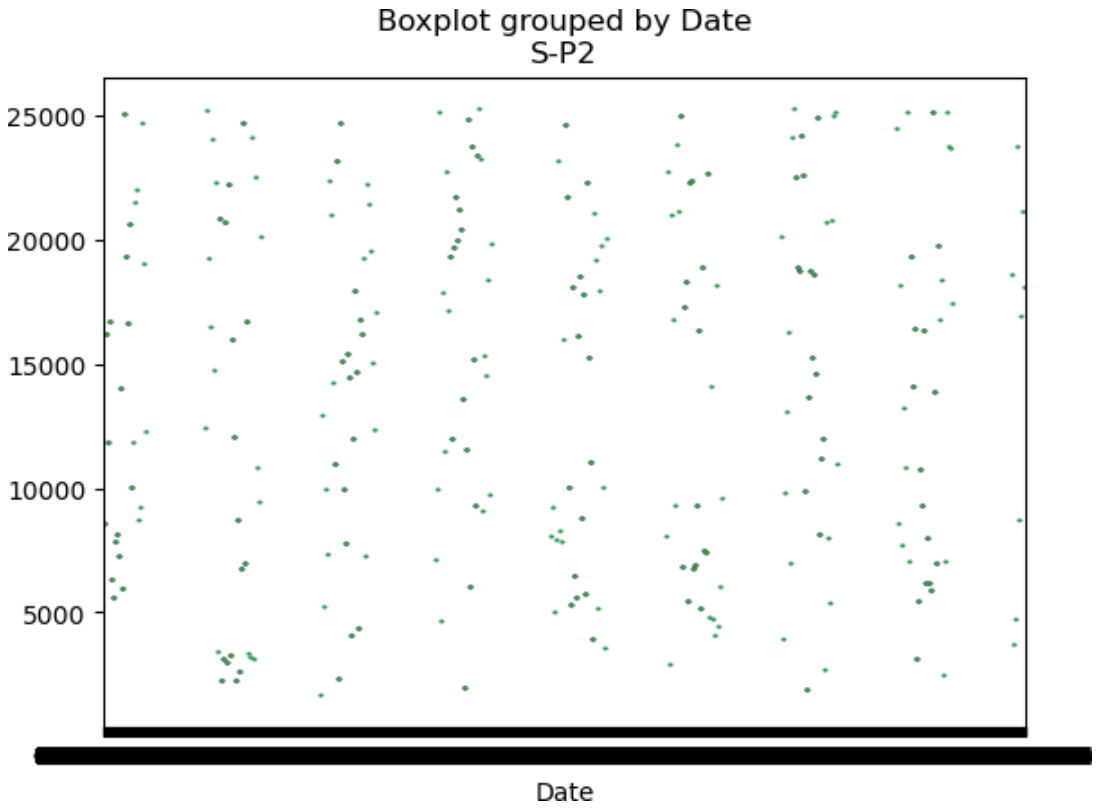
[]: `data.boxplot(by='Date',column=['S-P1'],grid=False)`

[]:<AxesSubplot:title={'center':'S-P1'},xlabel='Date'>



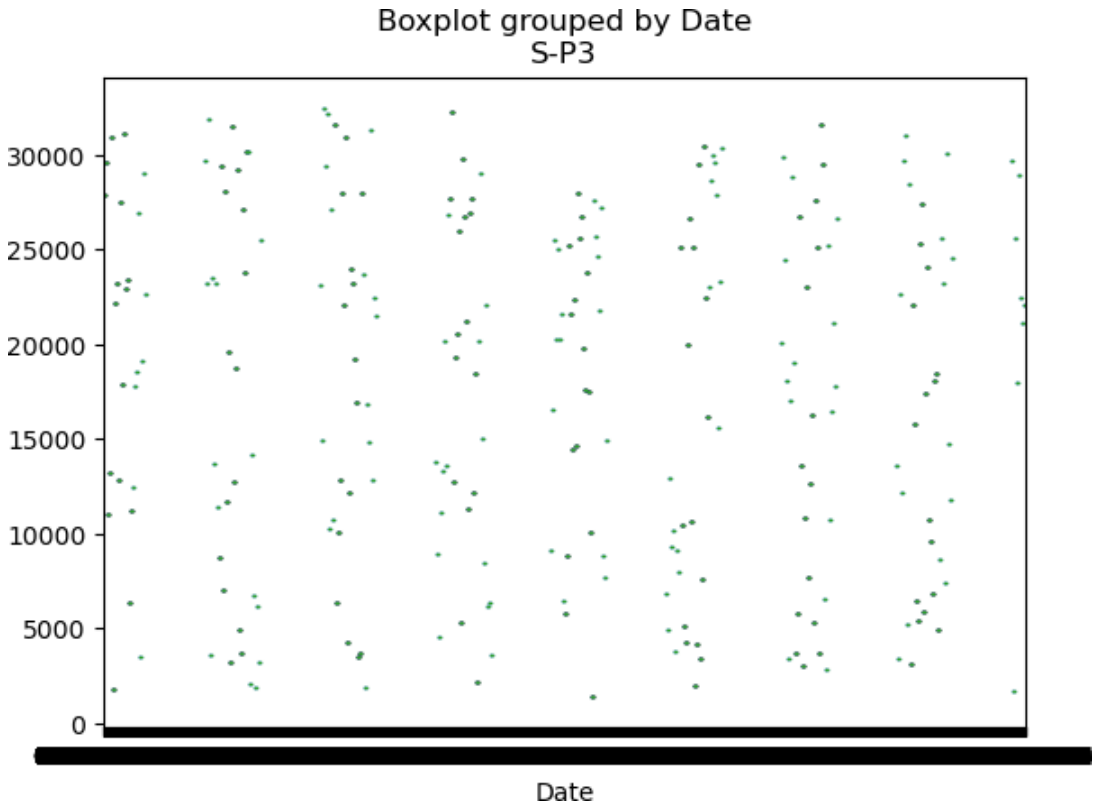
[]: `data.boxplot(by="Date",column=["S-P2"],grid=False)`

[]:<AxesSubplot:title={'center':'S-P2'},xlabel='Date'>



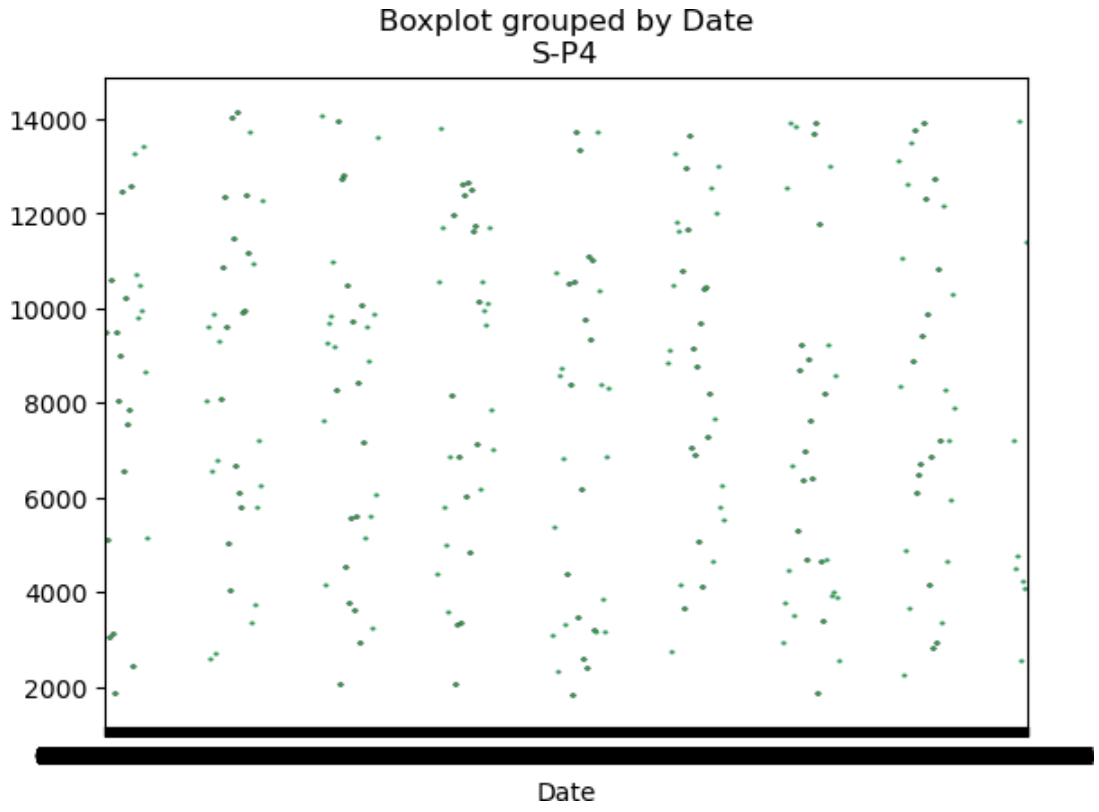
[]:
```
data.boxplot(by="Date",column=["S-P3"],grid=False)
```

[]:<AxesSubplot:title={'center':'S-P3'},xlabel='Date'>



[]:
```
data.boxplot(by="Date",column=["S-P4"],grid=False)
```

[]:<AxesSubplot:title={'center':'S-P4'},xlabel='Date'>



[ ]:
```
fig,axes= plt.subplots()
axes.stem(data['Date'],data['S-
P1'],use_line_collection=True,basefmt='')axes.set_ylim(10)
plt.title('Data')
plt.xlabel('Month')
plt.ylabel('Date')
plt.xticks(data['Q-P1'])
```

[]:([<matplotlib.axis.XTickat0x15fc5b83820>,
<matplotlib.axis.XTickat0x15fc5b837f0>,
<matplotlib.axis.XTickat0x15fc5b83460>,
<matplotlib.axis.XTickat0x15fc6ce8040>,
<matplotlib.axis.XTickat0x15fc6ce8790>,
<matplotlib.axis.XTickat0x15fc6ce8b50>,
<matplotlib.axis.XTickat0x15fc6cef040>,
<matplotlib.axis.XTickat0x15fc6cef700>,
<matplotlib.axis.XTickat0x15fc6cefe50>,
<matplotlib.axis.XTickat0x15fc6cf45e0>,
<matplotlib.axis.XTickat0x15fc6cf4d30>,
<matplotlib.axis.XTickat0x15fc6cfc4c0>,
<matplotlib.axis.XTickat0x15fc6cf45b0>,

<matplotlib.axis.XTickat0x15fc6cef340>,
<matplotlib.axis.XTickat0x15fc6cfc9d0>,
<matplotlib.axis.XTickat0x15fc6d04160>,
<matplotlib.axis.XTickat0x15fc6d048b0>,
<matplotlib.axis.XTickat0x15fc6d09040>,
<matplotlib.axis.XTickat0x15fc6d04c40>,
<matplotlib.axis.XTickat0x15fc6cfcdc0>,
<matplotlib.axis.XTickat0x15fc6d098b0>,
<matplotlib.axis.XTickat0x15fc6d09ca0>,
<matplotlib.axis.XTickat0x15fc6d11430>,
<matplotlib.axis.XTickat0x15fc6d11b80>,
<matplotlib.axis.XTickat0x15fc6d16310>,
<matplotlib.axis.XTickat0x15fc6d11940>,
<matplotlib.axis.XTickat0x15fc6d09f10>,
<matplotlib.axis.XTickat0x15fc6cfcee0>,
<matplotlib.axis.XTickat0x15fc6d16af0>,
<matplotlib.axis.XTickat0x15fc6d21280>,
<matplotlib.axis.XTickat0x15fc6d219d0>,
<matplotlib.axis.XTickat0x15fc6d26160>,
<matplotlib.axis.XTickat0x15fc6d21a00>,
<matplotlib.axis.XTickat0x15fc6ce8e50>,
<matplotlib.axis.XTickat0x15fc6d26130>,
<matplotlib.axis.XTickat0x15fc6d26ca0>,
<matplotlib.axis.XTickat0x15fc6d2d430>,
<matplotlib.axis.XTickat0x15fc6d2db80>,
<matplotlib.axis.XTickat0x15fc6d33310>,
<matplotlib.axis.XTickat0x15fc6d2d700>,
<matplotlib.axis.XTickat0x15fc6ce8fd0>,
<matplotlib.axis.XTickat0x15fc6d33700>,
<matplotlib.axis.XTickat0x15fc6d33e50>,
<matplotlib.axis.XTickat0x15fc6d3a5e0>,
<matplotlib.axis.XTickat0x15fc6d3ad30>,
<matplotlib.axis.XTickat0x15fc6d3aca0>,
<matplotlib.axis.XTickat0x15fc6d33eb0>,
<matplotlib.axis.XTickat0x15fc6d2d460>,
<matplotlib.axis.XTickat0x15fc6d41940>,
<matplotlib.axis.XTickat0x15fc6d490d0>,
<matplotlib.axis.XTickat0x15fc6d49820>,
<matplotlib.axis.XTickat0x15fc6d4c040>,
<matplotlib.axis.XTickat0x15fc6d498e0>,
<matplotlib.axis.XTickat0x15fc6d418b0>,
<matplotlib.axis.XTickat0x15fc6d4c5e0>,
<matplotlib.axis.XTickat0x15fc6d4cc10>,
<matplotlib.axis.XTickat0x15fc6d573a0>,
<matplotlib.axis.XTickat0x15fc6d57af0>,
<matplotlib.axis.XTickat0x15fc6d5d280>,
<matplotlib.axis.XTickat0x15fc6d57b50>,

<matplotlib.axis.XTickat0x15fc6d33730>,
<matplotlib.axis.XTickat0x15fc6d5d340>,
<matplotlib.axis.XTickat0x15fc6d5ddc0>,
<matplotlib.axis.XTickat0x15fc6d65550>,
<matplotlib.axis.XTickat0x15fc6d65ca0>,
<matplotlib.axis.XTickat0x15fc6d6a430>,
<matplotlib.axis.XTickat0x15fc6d65640>,
<matplotlib.axis.XTickat0x15fc6d4c760>,
<matplotlib.axis.XTickat0x15fc6d6a820>,
<matplotlib.axis.XTickat0x15fc6d72040>,
<matplotlib.axis.XTickat0x15fc6d72700>,
<matplotlib.axis.XTickat0x15fc6d72e50>,
<matplotlib.axis.XTickat0x15fc6d72eb0>,
<matplotlib.axis.XTickat0x15fc6d6ad00>,
<matplotlib.axis.XTickat0x15fc6d652b0>,
<matplotlib.axis.XTickat0x15fc6d79a60>,
<matplotlib.axis.XTickat0x15fc6d821f0>,
<matplotlib.axis.XTickat0x15fc6d82940>,
<matplotlib.axis.XTickat0x15fc6d850d0>,
<matplotlib.axis.XTickat0x15fc6d829a0>,
<matplotlib.axis.XTickat0x15fc6d797f0>,
<matplotlib.axis.XTickat0x15fc6d856d0>,
<matplotlib.axis.XTickat0x15fc6d85d30>,
<matplotlib.axis.XTickat0x15fc6d8f4c0>,
<matplotlib.axis.XTickat0x15fc6d8fc10>,
<matplotlib.axis.XTickat0x15fc6d963a0>,
<matplotlib.axis.XTickat0x15fc6d8f9d0>,
<matplotlib.axis.XTickat0x15fc6d6afa0>,
<matplotlib.axis.XTickat0x15fc6d963d0>,
<matplotlib.axis.XTickat0x15fc6d9d040>,
<matplotlib.axis.XTickat0x15fc6d9d670>,
<matplotlib.axis.XTickat0x15fc6d9ddc0>,
<matplotlib.axis.XTickat0x15fc6da4550>,
<matplotlib.axis.XTickat0x15fc6d9d6d0>,
<matplotlib.axis.XTickat0x15fc6d85040>,
<matplotlib.axis.XTickat0x15fc6da4940>,
<matplotlib.axis.XTickat0x15fc6dab0d0>,
<matplotlib.axis.XTickat0x15fc6dab820>,
<matplotlib.axis.XTickat0x15fc6db1040>,
<matplotlib.axis.XTickat0x15fc6dabd00>,
<matplotlib.axis.XTickat0x15fc6da4cd0>,
<matplotlib.axis.XTickat0x15fc6d9d760>,
<matplotlib.axis.XTickat0x15fc6db1b80>,
<matplotlib.axis.XTickat0x15fc6dba310>,
<matplotlib.axis.XTickat0x15fc6dbaa60>,
<matplotlib.axis.XTickat0x15fc6dc01f0>,
<matplotlib.axis.XTickat0x15fc6dbaac0>,

<matplotlib.axis.XTickat0x15fc6db1f40>,
<matplotlib.axis.XTickat0x15fc6d8fc70>,
<matplotlib.axis.XTickat0x15fc6d5d640>,
<matplotlib.axis.XTickat0x15fc6dc07f0>,
<matplotlib.axis.XTickat0x15fc6dc0dc0>,
<matplotlib.axis.XTickat0x15fc6dca550>,
<matplotlib.axis.XTickat0x15fc6dc0a30>,
<matplotlib.axis.XTickat0x15fc6db1670>,
<matplotlib.axis.XTickat0x15fc6dca190>,
<matplotlib.axis.XTickat0x15fc6dd00d0>,
<matplotlib.axis.XTickat0x15fc6dd0820>,
<matplotlib.axis.XTickat0x15fc6dd7040>,
<matplotlib.axis.XTickat0x15fc6dd7700>,
<matplotlib.axis.XTickat0x15fc6dd05b0>,
<matplotlib.axis.XTickat0x15fc6dab7f0>,
<matplotlib.axis.XTickat0x15fc6dd7af0>,
<matplotlib.axis.XTickat0x15fc6ddf280>,
<matplotlib.axis.XTickat0x15fc6ddf9d0>,
<matplotlib.axis.XTickat0x15fc6de4160>,
<matplotlib.axis.XTickat0x15fc6ddfdc0>,
<matplotlib.axis.XTickat0x15fc6dd7d90>,
<matplotlib.axis.XTickat0x15fc6de4790>,
<matplotlib.axis.XTickat0x15fc6de4d30>,
<matplotlib.axis.XTickat0x15fc6ded4c0>,
<matplotlib.axis.XTickat0x15fc6dedc10>,
<matplotlib.axis.XTickat0x15fc6df33a0>,
<matplotlib.axis.XTickat0x15fc6ded850>,
<matplotlib.axis.XTickat0x15fc6dd0fa0>,
<matplotlib.axis.XTickat0x15fc6df3490>,
<matplotlib.axis.XTickat0x15fc6dfc040>,
<matplotlib.axis.XTickat0x15fc6dfc790>,
<matplotlib.axis.XTickat0x15fc6dff040>,
<matplotlib.axis.XTickat0x15fc6dff670>,
<matplotlib.axis.XTickat0x15fc6dfca30>,
<matplotlib.axis.XTickat0x15fc6ddf250>,
<matplotlib.axis.XTickat0x15fc6dff2b0>,
<matplotlib.axis.XTickat0x15fc6e081f0>,
<matplotlib.axis.XTickat0x15fc6e08940>,
<matplotlib.axis.XTickat0x15fc6e0f0d0>,
<matplotlib.axis.XTickat0x15fc6e0f820>,
<matplotlib.axis.XTickat0x15fc6e085e0>,
<matplotlib.axis.XTickat0x15fc6dfc0a0>,
<matplotlib.axis.XTickat0x15fc6e0fc10>,
<matplotlib.axis.XTickat0x15fc6e153a0>,
<matplotlib.axis.XTickat0x15fc6e15af0>,
<matplotlib.axis.XTickat0x15fc6e1d280>,
<matplotlib.axis.XTickat0x15fc6e15d60>,

<matplotlib.axis.XTickat0x15fc6e0fee0>,
<matplotlib.axis.XTickat0x15fc6e1da60>,
<matplotlib.axis.XTickat0x15fc6e1de50>,
<matplotlib.axis.XTickat0x15fc6e255e0>,
<matplotlib.axis.XTickat0x15fc6e25d30>,
<matplotlib.axis.XTickat0x15fc6e2b4c0>,
<matplotlib.axis.XTickat0x15fc6e25850>,
<matplotlib.axis.XTickat0x15fc6dff430>,
<matplotlib.axis.XTickat0x15fc6e2b520>,
<matplotlib.axis.XTickat0x15fc6e34160>,
<matplotlib.axis.XTickat0x15fc6e348b0>,
<matplotlib.axis.XTickat0x15fc6e38040>,
<matplotlib.axis.XTickat0x15fc6e38790>,
<matplotlib.axis.XTickat0x15fc6e349a0>,
<matplotlib.axis.XTickat0x15fc6e1d520>,
<matplotlib.axis.XTickat0x15fc6e382e0>,
<matplotlib.axis.XTickat0x15fc6e42310>,
<matplotlib.axis.XTickat0x15fc6e42a60>,
<matplotlib.axis.XTickat0x15fc6e471f0>,
<matplotlib.axis.XTickat0x15fc6e47940>,
<matplotlib.axis.XTickat0x15fc6e42700>,
<matplotlib.axis.XTickat0x15fc6e34130>,
<matplotlib.axis.XTickat0x15fc6e47d30>,
<matplotlib.axis.XTickat0x15fc6e4f4c0>,
<matplotlib.axis.XTickat0x15fc6e4fc10>,
<matplotlib.axis.XTickat0x15fc6e563a0>,
<matplotlib.axis.XTickat0x15fc6e4fbe0>,
<matplotlib.axis.XTickat0x15fc6e47e20>,
<matplotlib.axis.XTickat0x15fc6e56b80>,
<matplotlib.axis.XTickat0x15fc6e5d040>,
<matplotlib.axis.XTickat0x15fc6e5d700>,
<matplotlib.axis.XTickat0x15fc6e5de50>,
<matplotlib.axis.XTickat0x15fc6e635e0>,
<matplotlib.axis.XTickat0x15fc6e5d9d0>,
<matplotlib.axis.XTickat0x15fc6e56fa0>,
<matplotlib.axis.XTickat0x15fc6e38760>,
<matplotlib.axis.XTickat0x15fc6df38b0>,
<matplotlib.axis.XTickat0x15fc6e63610>,
<matplotlib.axis.XTickat0x15fc6e6d1f0>,
<matplotlib.axis.XTickat0x15fc6e6d940>,
<matplotlib.axis.XTickat0x15fc6e63640>,
<matplotlib.axis.XTickat0x15fc6e56a90>,
<matplotlib.axis.XTickat0x15fc6e6d1c0>,
<matplotlib.axis.XTickat0x15fc6e764c0>,
<matplotlib.axis.XTickat0x15fc6e76c10>,
<matplotlib.axis.XTickat0x15fc6e7a3a0>,
<matplotlib.axis.XTickat0x15fc6e7aaf0>,

<matplotlib.axis.XTickat0x15fc6e76490>,
<matplotlib.axis.XTickat0x15fc6e636a0>,
<matplotlib.axis.XTickat0x15fc6e7f040>,
<matplotlib.axis.XTickat0x15fc6e7f670>,
<matplotlib.axis.XTickat0x15fc6e7fdc0>,
<matplotlib.axis.XTickat0x15fc6e89550>,
<matplotlib.axis.XTickat0x15fc6e7fe20>,
<matplotlib.axis.XTickat0x15fc6e7a640>,
<matplotlib.axis.XTickat0x15fc6e89dc0>,
<matplotlib.axis.XTickat0x15fc6e91160>,
<matplotlib.axis.XTickat0x15fc6e918b0>,
<matplotlib.axis.XTickat0x15fc6e97040>,
<matplotlib.axis.XTickat0x15fc6e97790>,
<matplotlib.axis.XTickat0x15fc6e91820>,
<matplotlib.axis.XTickat0x15fc6e898e0>,
<matplotlib.axis.XTickat0x15fc6e97430>,
<matplotlib.axis.XTickat0x15fc6ea0430>,
<matplotlib.axis.XTickat0x15fc6ea0b80>,
<matplotlib.axis.XTickat0x15fc6ea4310>,
<matplotlib.axis.XTickat0x15fc6ea4a60>,
<matplotlib.axis.XTickat0x15fc6ea0910>,
<matplotlib.axis.XTickat0x15fc6e6dfa0>,
<matplotlib.axis.XTickat0x15fc6ea4280>,
<matplotlib.axis.XTickat0x15fc6eae5e0>,
<matplotlib.axis.XTickat0x15fc6eaed30>,
<matplotlib.axis.XTickat0x15fc6eb44c0>,
<matplotlib.axis.XTickat0x15fc6eb4c10>,
<matplotlib.axis.XTickat0x15fc6eae550>,
<matplotlib.axis.XTickat0x15fc6ea0490>,
<matplotlib.axis.XTickat0x15fc6ebc040>,
<matplotlib.axis.XTickat0x15fc6ebc790>,
<matplotlib.axis.XTickat0x15fc6ec1040>,
<matplotlib.axis.XTickat0x15fc6ec1670>,
<matplotlib.axis.XTickat0x15fc6ebcf40>,
<matplotlib.axis.XTickat0x15fc6eb4580>,
<matplotlib.axis.XTickat0x15fc6ec1ee0>,
<matplotlib.axis.XTickat0x15fc6ec9280>,
<matplotlib.axis.XTickat0x15fc6ec99d0>,
<matplotlib.axis.XTickat0x15fc6ed0160>,
<matplotlib.axis.XTickat0x15fc6ed08b0>,
<matplotlib.axis.XTickat0x15fc6ec9a30>,
<matplotlib.axis.XTickat0x15fc6eae5b0>,
<matplotlib.axis.XTickat0x15fc6ed0400>,
<matplotlib.axis.XTickat0x15fc6ed8550>,
<matplotlib.axis.XTickat0x15fc6ed8ca0>,
<matplotlib.axis.XTickat0x15fc6edc430>,
<matplotlib.axis.XTickat0x15fc6edcb80>,

<matplotlib.axis.XTickat0x15fc6edc6d0>,
<matplotlib.axis.XTickat0x15fc6ed82e0>,
<matplotlib.axis.XTickat0x15fc6ee30d0>,
<matplotlib.axis.XTickat0x15fc6ee3700>,
<matplotlib.axis.XTickat0x15fc6ee3e50>,
<matplotlib.axis.XTickat0x15fc6eec5e0>,
<matplotlib.axis.XTickat0x15fc6eecd30>,
<matplotlib.axis.XTickat0x15fc6eec640>,
<matplotlib.axis.XTickat0x15fc6ee3280>,
<matplotlib.axis.XTickat0x15fc6ef2160>,
<matplotlib.axis.XTickat0x15fc6ef28b0>,
<matplotlib.axis.XTickat0x15fc6ef8040>,
<matplotlib.axis.XTickat0x15fc6ef8790>,
<matplotlib.axis.XTickat0x15fc6ef8ee0>,
<matplotlib.axis.XTickat0x15fc6ef2ca0>,
<matplotlib.axis.XTickat0x15fc6ee36d0>,
<matplotlib.axis.XTickat0x15fc6f013a0>,
<matplotlib.axis.XTickat0x15fc6f01af0>,
<matplotlib.axis.XTickat0x15fc6f07280>,
<matplotlib.axis.XTickat0x15fc6f079d0>,
<matplotlib.axis.XTickat0x15fc6f07520>,
<matplotlib.axis.XTickat0x15fc6f01370>,
<matplotlib.axis.XTickat0x15fc6ef2220>,
<matplotlib.axis.XTickat0x15fc6eb4e80>,
<matplotlib.axis.XTickat0x15fc6e6dcd0>,
<matplotlib.axis.XTickat0x15fc6f105e0>,
<matplotlib.axis.XTickat0x15fc6f10d30>,
<matplotlib.axis.XTickat0x15fc6f10880>,
<matplotlib.axis.XTickat0x15fc6edce20>,
<matplotlib.axis.XTickat0x15fc6f17280>,
<matplotlib.axis.XTickat0x15fc6f178b0>,
<matplotlib.axis.XTickat0x15fc6f1b040>,
<matplotlib.axis.XTickat0x15fc6f1b790>,
<matplotlib.axis.XTickat0x15fc6f23040>,
<matplotlib.axis.XTickat0x15fc6f1b7f0>,
<matplotlib.axis.XTickat0x15fc6f01400>,
<matplotlib.axis.XTickat0x15fc6f23310>,
<matplotlib.axis.XTickat0x15fc6f23a60>,
<matplotlib.axis.XTickat0x15fc6f2c1f0>,
<matplotlib.axis.XTickat0x15fc6f2c940>,
<matplotlib.axis.XTickat0x15fc6f2cbe0>,
<matplotlib.axis.XTickat0x15fc6f23d30>,
<matplotlib.axis.XTickat0x15fc6f1b7c0>,
<matplotlib.axis.XTickat0x15fc6f33550>,
<matplotlib.axis.XTickat0x15fc6f33ca0>,
<matplotlib.axis.XTickat0x15fc6f3a430>,
<matplotlib.axis.XTickat0x15fc6f3ab80>,

<matplotlib.axis.XTick at 0x15fc6f3a700>,
<matplotlib.axis.XTick at 0x15fc6f33610>,
<matplotlib.axis.XTick at 0x15fc7f111c0>,
<matplotlib.axis.XTick at 0x15fc7f11820>,
<matplotlib.axis.XTick at 0x15fc7f18040>,
<matplotlib.axis.XTick at 0x15fc7f18700>,
<matplotlib.axis.XTick at 0x15fc7f18e50>,
<matplotlib.axis.XTick at 0x15fc7f189a0>,
<matplotlib.axis.XTick at 0x15fc7f115b0>,
<matplotlib.axis.XTick at 0x15fc7f203a0>,
<matplotlib.axis.XTick at 0x15fc7f209d0>,
<matplotlib.axis.XTick at 0x15fc7f26160>,
<matplotlib.axis.XTick at 0x15fc7f268b0>,
<matplotlib.axis.XTick at 0x15fc7f2c040>,
<matplotlib.axis.XTick at 0x15fc7f264f0>,
<matplotlib.axis.XTick at 0x15fc6f3a190>,
<matplotlib.axis.XTick at 0x15fc7f2c430>,
<matplotlib.axis.XTick at 0x15fc7f2cb80>,
<matplotlib.axis.XTick at 0x15fc7f36310>,
<matplotlib.axis.XTick at 0x15fc7f36a60>,
<matplotlib.axis.XTick at 0x15fc7f36d30>,
<matplotlib.axis.XTick at 0x15fc7f2cc40>,
<matplotlib.axis.XTick at 0x15fc7f26400>,
<matplotlib.axis.XTick at 0x15fc7f3b670>,
<matplotlib.axis.XTick at 0x15fc7f3bdc0>,
<matplotlib.axis.XTick at 0x15fc7f41550>,
<matplotlib.axis.XTick at 0x15fc7f41ca0>,
<matplotlib.axis.XTick at 0x15fc7f41820>,
<matplotlib.axis.XTick at 0x15fc7f3b730>,
<matplotlib.axis.XTick at 0x15fc7f482e0>,
<matplotlib.axis.XTick at 0x15fc7f48940>,
<matplotlib.axis.XTick at 0x15fc7f4c0d0>,
<matplotlib.axis.XTick at 0x15fc7f4c820>,
<matplotlib.axis.XTick at 0x15fc7f57040>,
<matplotlib.axis.XTick at 0x15fc7f4c7f0>,
<matplotlib.axis.XTick at 0x15fc7f36700>,
<matplotlib.axis.XTick at 0x15fc7f57490>,
<matplotlib.axis.XTick at 0x15fc7f57af0>,
<matplotlib.axis.XTick at 0x15fc7f5d280>,
<matplotlib.axis.XTick at 0x15fc7f5d9d0>,
<matplotlib.axis.XTick at 0x15fc7f65160>,
<matplotlib.axis.XTick at 0x15fc7f5d670>,
<matplotlib.axis.XTick at 0x15fc7f2c700>,
<matplotlib.axis.XTick at 0x15fc7f65550>,
<matplotlib.axis.XTick at 0x15fc7f65ca0>,
<matplotlib.axis.XTick at 0x15fc7f6d430>,
<matplotlib.axis.XTick at 0x15fc7f6db80>,

<matplotlib.axis.XTickat0x15fc7f6de50>,
<matplotlib.axis.XTickat0x15fc7f65d60>,
<matplotlib.axis.XTickat0x15fc7f5d250>,
<matplotlib.axis.XTickat0x15fc7f73790>,
<matplotlib.axis.XTickat0x15fc7f7b040>,
<matplotlib.axis.XTickat0x15fc7f7b670>,
<matplotlib.axis.XTickat0x15fc7f7bdc0>,
<matplotlib.axis.XTickat0x15fc7f7b940>,
<matplotlib.axis.XTickat0x15fc7f73e50>,
<matplotlib.axis.XTickat0x15fc7f4caf0>,
<matplotlib.axis.XTickat0x15fc7f3b220>,
<matplotlib.axis.XTickat0x15fc6f10df0>,
<matplotlib.axis.XTickat0x15fc7f819d0>,
<matplotlib.axis.XTickat0x15fc7f8c160>,
<matplotlib.axis.XTickat0x15fc7f81a00>,
<matplotlib.axis.XTickat0x15fc7f57be0>,
<matplotlib.axis.XTickat0x15fc7f8c130>,
<matplotlib.axis.XTickat0x15fc7f8cca0>,
<matplotlib.axis.XTickat0x15fc7f93430>,
<matplotlib.axis.XTickat0x15fc7f93b80>,
<matplotlib.axis.XTickat0x15fc7f99310>,
<matplotlib.axis.XTickat0x15fc7f93700>,
<matplotlib.axis.XTickat0x15fc7f57880>,
<matplotlib.axis.XTickat0x15fc7f99700>,
<matplotlib.axis.XTickat0x15fc7f99e50>,
<matplotlib.axis.XTickat0x15fc7fa05e0>,
<matplotlib.axis.XTickat0x15fc7fa0d30>,
<matplotlib.axis.XTickat0x15fc7fa0ca0>,
<matplotlib.axis.XTickat0x15fc7f99eb0>,
<matplotlib.axis.XTickat0x15fc7f93460>,
<matplotlib.axis.XTickat0x15fc7fa6940>,
<matplotlib.axis.XTickat0x15fc7faf0d0>,
<matplotlib.axis.XTickat0x15fc7faf820>,
<matplotlib.axis.XTickat0x15fc7fb4040>,
<matplotlib.axis.XTickat0x15fc7faf8e0>,
<matplotlib.axis.XTickat0x15fc7fa68b0>,
<matplotlib.axis.XTickat0x15fc7fb45e0>,
<matplotlib.axis.XTickat0x15fc7fb4c10>,
<matplotlib.axis.XTickat0x15fc7fbd3a0>,
<matplotlib.axis.XTickat0x15fc7fbdaf0>,
<matplotlib.axis.XTickat0x15fc7fc3280>,
<matplotlib.axis.XTickat0x15fc7fbdb50>,
<matplotlib.axis.XTickat0x15fc7f99730>,
<matplotlib.axis.XTickat0x15fc7fc3340>,
<matplotlib.axis.XTickat0x15fc7fc3dc0>,
<matplotlib.axis.XTickat0x15fc7fca550>,
<matplotlib.axis.XTickat0x15fc7fcaca0>,

<matplotlib.axis.XTickat0x15fc7fd1430>,
<matplotlib.axis.XTickat0x15fc7fca640>,
<matplotlib.axis.XTickat0x15fc7fb4760>,
<matplotlib.axis.XTickat0x15fc7fd1820>,
<matplotlib.axis.XTickat0x15fc7fd7040>,
<matplotlib.axis.XTickat0x15fc7fd7700>,
<matplotlib.axis.XTickat0x15fc7fd7e50>,
<matplotlib.axis.XTickat0x15fc7fd7eb0>,
<matplotlib.axis.XTickat0x15fc7fd1d00>,
<matplotlib.axis.XTickat0x15fc7fca2b0>,
<matplotlib.axis.XTickat0x15fc7fdfa60>,
<matplotlib.axis.XTickat0x15fc7fe71f0>,
<matplotlib.axis.XTickat0x15fc7fe7940>,
<matplotlib.axis.XTickat0x15fc7fea0d0>,
<matplotlib.axis.XTickat0x15fc7fe79a0>,
<matplotlib.axis.XTickat0x15fc7fdf7f0>,
<matplotlib.axis.XTickat0x15fc7fea6d0>,
<matplotlib.axis.XTickat0x15fc7fead30>,
<matplotlib.axis.XTickat0x15fc7ff74c0>,
<matplotlib.axis.XTickat0x15fc7ff7c10>,
<matplotlib.axis.XTickat0x15fc7ffc3a0>,
<matplotlib.axis.XTickat0x15fc7ff79d0>,
<matplotlib.axis.XTickat0x15fc7fd1fa0>,
<matplotlib.axis.XTickat0x15fc7ffc3d0>,
<matplotlib.axis.XTickat0x15fc8003040>,
<matplotlib.axis.XTickat0x15fc8003670>,
<matplotlib.axis.XTickat0x15fc8003dc0>,
<matplotlib.axis.XTickat0x15fc8009550>,
<matplotlib.axis.XTickat0x15fc80036d0>,
<matplotlib.axis.XTickat0x15fc7fea040>,
<matplotlib.axis.XTickat0x15fc8009940>,
<matplotlib.axis.XTickat0x15fc80110d0>,
<matplotlib.axis.XTickat0x15fc8011820>,
<matplotlib.axis.XTickat0x15fc8017040>,
<matplotlib.axis.XTickat0x15fc8011d00>,
<matplotlib.axis.XTickat0x15fc8009cd0>,
<matplotlib.axis.XTickat0x15fc8003760>,
<matplotlib.axis.XTickat0x15fc8017b80>,
<matplotlib.axis.XTickat0x15fc801f310>,
<matplotlib.axis.XTickat0x15fc801fa60>,
<matplotlib.axis.XTickat0x15fc80251f0>,
<matplotlib.axis.XTickat0x15fc801fac0>,
<matplotlib.axis.XTickat0x15fc8017f40>,
<matplotlib.axis.XTickat0x15fc7ff7c70>,
<matplotlib.axis.XTickat0x15fc7fc3640>,
<matplotlib.axis.XTickat0x15fc80257f0>,
<matplotlib.axis.XTickat0x15fc8025dc0>,

<matplotlib.axis.XTickat0x15fc8030550>,
<matplotlib.axis.XTickat0x15fc8025a30>,
<matplotlib.axis.XTickat0x15fc8017670>,
<matplotlib.axis.XTickat0x15fc8030190>,
<matplotlib.axis.XTickat0x15fc80360d0>,
<matplotlib.axis.XTickat0x15fc8036820>,
<matplotlib.axis.XTickat0x15fc803b040>,
<matplotlib.axis.XTickat0x15fc803b700>,
<matplotlib.axis.XTickat0x15fc80365b0>,
<matplotlib.axis.XTickat0x15fc80117f0>,
<matplotlib.axis.XTickat0x15fc803baf0>,
<matplotlib.axis.XTickat0x15fc8044280>,
<matplotlib.axis.XTickat0x15fc80449d0>,
<matplotlib.axis.XTickat0x15fc804a160>,
<matplotlib.axis.XTickat0x15fc8044dc0>,
<matplotlib.axis.XTickat0x15fc803bd90>,
<matplotlib.axis.XTickat0x15fc804a790>,
<matplotlib.axis.XTickat0x15fc804ad30>,
<matplotlib.axis.XTickat0x15fc80534c0>,
<matplotlib.axis.XTickat0x15fc8053c10>,
<matplotlib.axis.XTickat0x15fc80593a0>,
<matplotlib.axis.XTickat0x15fc8053850>,
<matplotlib.axis.XTickat0x15fc8036fa0>,
<matplotlib.axis.XTickat0x15fc8059490>,
<matplotlib.axis.XTickat0x15fc8061040>,
<matplotlib.axis.XTickat0x15fc8061790>,
<matplotlib.axis.XTickat0x15fc8066040>,
<matplotlib.axis.XTickat0x15fc8066670>,
<matplotlib.axis.XTickat0x15fc8061a30>,
<matplotlib.axis.XTickat0x15fc8044250>,
<matplotlib.axis.XTickat0x15fc80662b0>,
<matplotlib.axis.XTickat0x15fc80701f0>,
<matplotlib.axis.XTickat0x15fc8070940>,
<matplotlib.axis.XTickat0x15fc80750d0>,
<matplotlib.axis.XTickat0x15fc8075820>,
<matplotlib.axis.XTickat0x15fc80705e0>,
<matplotlib.axis.XTickat0x15fc80610a0>,
<matplotlib.axis.XTickat0x15fc8075c10>,
<matplotlib.axis.XTickat0x15fc807d3a0>,
<matplotlib.axis.XTickat0x15fc807daf0>,
<matplotlib.axis.XTickat0x15fc8083280>,
<matplotlib.axis.XTickat0x15fc807dd60>,
<matplotlib.axis.XTickat0x15fc8075ee0>,
<matplotlib.axis.XTickat0x15fc8083a60>,
<matplotlib.axis.XTickat0x15fc8083e50>,
<matplotlib.axis.XTickat0x15fc808c5e0>,
<matplotlib.axis.XTickat0x15fc808cd30>,

<matplotlib.axis.XTickat0x15fc80914c0>,
<matplotlib.axis.XTickat0x15fc808c850>,
<matplotlib.axis.XTickat0x15fc8066430>,
<matplotlib.axis.XTickat0x15fc8091520>,
<matplotlib.axis.XTickat0x15fc8099160>,
<matplotlib.axis.XTickat0x15fc80998b0>,
<matplotlib.axis.XTickat0x15fc809e040>,
<matplotlib.axis.XTickat0x15fc809e790>,
<matplotlib.axis.XTickat0x15fc80999a0>,
<matplotlib.axis.XTickat0x15fc8083520>,
<matplotlib.axis.XTickat0x15fc809e2e0>,
<matplotlib.axis.XTickat0x15fc80a7310>,
<matplotlib.axis.XTickat0x15fc80a7a60>,
<matplotlib.axis.XTickat0x15fc80ae1f0>,
<matplotlib.axis.XTickat0x15fc80ae940>,
<matplotlib.axis.XTickat0x15fc80a7700>,
<matplotlib.axis.XTickat0x15fc8099130>,
<matplotlib.axis.XTickat0x15fc80aed30>,
<matplotlib.axis.XTickat0x15fc80b54c0>,
<matplotlib.axis.XTickat0x15fc80b5c10>,
<matplotlib.axis.XTickat0x15fc80bb3a0>,
<matplotlib.axis.XTickat0x15fc80b5be0>,
<matplotlib.axis.XTickat0x15fc80aee20>,
<matplotlib.axis.XTickat0x15fc80bbb80>,
<matplotlib.axis.XTickat0x15fc80c1040>,
<matplotlib.axis.XTickat0x15fc80c1700>,
<matplotlib.axis.XTickat0x15fc80c1e50>,
<matplotlib.axis.XTickat0x15fc80c95e0>,
<matplotlib.axis.XTickat0x15fc80c19d0>,
<matplotlib.axis.XTickat0x15fc80bbfa0>,
<matplotlib.axis.XTickat0x15fc809e760>,
<matplotlib.axis.XTickat0x15fc80598b0>,
<matplotlib.axis.XTickat0x15fc80c9610>,
<matplotlib.axis.XTickat0x15fc80d31f0>,
<matplotlib.axis.XTickat0x15fc80d3940>,
<matplotlib.axis.XTickat0x15fc80c9640>,
<matplotlib.axis.XTickat0x15fc80bba90>,
<matplotlib.axis.XTickat0x15fc80d31c0>,
<matplotlib.axis.XTickat0x15fc80db4c0>,
<matplotlib.axis.XTickat0x15fc80dbc10>,
<matplotlib.axis.XTickat0x15fc80e13a0>,
<matplotlib.axis.XTickat0x15fc80e1af0>,
<matplotlib.axis.XTickat0x15fc80db490>,
<matplotlib.axis.XTickat0x15fc80c96a0>,
<matplotlib.axis.XTickat0x15fc80e8040>,
<matplotlib.axis.XTickat0x15fc80e8670>,
<matplotlib.axis.XTickat0x15fc80e8dc0>,

<matplotlib.axis.XTickat0x15fc80ef550>,
<matplotlib.axis.XTickat0x15fc80e8e20>,
<matplotlib.axis.XTickat0x15fc80e1640>,
<matplotlib.axis.XTickat0x15fc80efdc0>,
<matplotlib.axis.XTickat0x15fc80f7160>,
<matplotlib.axis.XTickat0x15fc80f78b0>,
<matplotlib.axis.XTickat0x15fc80fd040>,
<matplotlib.axis.XTickat0x15fc80fd790>,
<matplotlib.axis.XTickat0x15fc80f7820>,
<matplotlib.axis.XTickat0x15fc80ef8e0>,
<matplotlib.axis.XTickat0x15fc80fd430>,
<matplotlib.axis.XTickat0x15fc8106430>,
<matplotlib.axis.XTickat0x15fc8106b80>,
<matplotlib.axis.XTickat0x15fc810a310>,
<matplotlib.axis.XTickat0x15fc810aa60>,
<matplotlib.axis.XTickat0x15fc8106910>,
<matplotlib.axis.XTickat0x15fc80d3fa0>,
<matplotlib.axis.XTickat0x15fc810a280>,
<matplotlib.axis.XTickat0x15fc81135e0>,
<matplotlib.axis.XTickat0x15fc8113d30>,
<matplotlib.axis.XTickat0x15fc811a4c0>,
<matplotlib.axis.XTickat0x15fc811ac10>,
<matplotlib.axis.XTickat0x15fc8113550>,
<matplotlib.axis.XTickat0x15fc8106490>,
<matplotlib.axis.XTickat0x15fc8118040>,
<matplotlib.axis.XTickat0x15fc8118790>,
<matplotlib.axis.XTickat0x15fc8127040>,
<matplotlib.axis.XTickat0x15fc8127670>,
<matplotlib.axis.XTickat0x15fc8118f40>,
<matplotlib.axis.XTickat0x15fc811a580>,
<matplotlib.axis.XTickat0x15fc8127ee0>,
<matplotlib.axis.XTickat0x15fc812e280>,
<matplotlib.axis.XTickat0x15fc812e9d0>,
<matplotlib.axis.XTickat0x15fc8136160>,
<matplotlib.axis.XTickat0x15fc81368b0>,
<matplotlib.axis.XTickat0x15fc812ea30>,
<matplotlib.axis.XTickat0x15fc81135b0>,
<matplotlib.axis.XTickat0x15fc8136400>,
<matplotlib.axis.XTickat0x15fc813d550>,
<matplotlib.axis.XTickat0x15fc813dca0>,
<matplotlib.axis.XTickat0x15fc8142430>,
<matplotlib.axis.XTickat0x15fc8142b80>,
<matplotlib.axis.XTickat0x15fc81426d0>,
<matplotlib.axis.XTickat0x15fc813d2e0>,
<matplotlib.axis.XTickat0x15fc81470d0>,
<matplotlib.axis.XTickat0x15fc8147700>,
<matplotlib.axis.XTickat0x15fc8147e50>,

<matplotlib.axis.XTickat0x15fc81515e0>,
<matplotlib.axis.XTickat0x15fc8151d30>,
<matplotlib.axis.XTickat0x15fc8151640>,
<matplotlib.axis.XTickat0x15fc8147280>,
<matplotlib.axis.XTickat0x15fc8156160>,
<matplotlib.axis.XTickat0x15fc81568b0>,
<matplotlib.axis.XTickat0x15fc815f040>,
<matplotlib.axis.XTickat0x15fc815f790>,
<matplotlib.axis.XTickat0x15fc815fee0>,
<matplotlib.axis.XTickat0x15fc8156ca0>,
<matplotlib.axis.XTickat0x15fc81476d0>,
<matplotlib.axis.XTickat0x15fc81663a0>,
<matplotlib.axis.XTickat0x15fc8166af0>,
<matplotlib.axis.XTickat0x15fc816d280>,
<matplotlib.axis.XTickat0x15fc816d9d0>,
<matplotlib.axis.XTickat0x15fc816d520>,
<matplotlib.axis.XTickat0x15fc8166370>,
<matplotlib.axis.XTickat0x15fc8156220>,
<matplotlib.axis.XTickat0x15fc811ae80>,
<matplotlib.axis.XTickat0x15fc80d3cd0>,
<matplotlib.axis.XTickat0x15fc81765e0>,
<matplotlib.axis.XTickat0x15fc8176d30>,
<matplotlib.axis.XTickat0x15fc8176880>,
<matplotlib.axis.XTickat0x15fc8142e20>,
<matplotlib.axis.XTickat0x15fc817e280>,
<matplotlib.axis.XTickat0x15fc817e8b0>,
<matplotlib.axis.XTickat0x15fc8184040>,
<matplotlib.axis.XTickat0x15fc8184790>,
<matplotlib.axis.XTickat0x15fc8185040>,
<matplotlib.axis.XTickat0x15fc81847f0>,
<matplotlib.axis.XTickat0x15fc8166400>,
<matplotlib.axis.XTickat0x15fc8185310>,
<matplotlib.axis.XTickat0x15fc8185a60>,
<matplotlib.axis.XTickat0x15fc81921f0>,
<matplotlib.axis.XTickat0x15fc8192940>,
<matplotlib.axis.XTickat0x15fc8192be0>,
<matplotlib.axis.XTickat0x15fc8185d30>,
<matplotlib.axis.XTickat0x15fc81847c0>,
<matplotlib.axis.XTickat0x15fc8199550>,
<matplotlib.axis.XTickat0x15fc8199ca0>,
<matplotlib.axis.XTickat0x15fc81a1430>,
<matplotlib.axis.XTickat0x15fc81a1b80>,
<matplotlib.axis.XTickat0x15fc81a1700>,
<matplotlib.axis.XTickat0x15fc8199610>,
<matplotlib.axis.XTickat0x15fc81a61c0>,
<matplotlib.axis.XTickat0x15fc81a6820>,
<matplotlib.axis.XTickat0x15fc81ae040>,

<matplotlib.axis.XTickat0x15fc81ae700>,
<matplotlib.axis.XTickat0x15fc81aee50>,
<matplotlib.axis.XTickat0x15fc81ae9a0>,
<matplotlib.axis.XTickat0x15fc81a65b0>,
<matplotlib.axis.XTickat0x15fc81b63a0>,
<matplotlib.axis.XTickat0x15fc81b69d0>,
<matplotlib.axis.XTickat0x15fc81bc160>,
<matplotlib.axis.XTickat0x15fc81bc8b0>,
<matplotlib.axis.XTickat0x15fc81ba040>,
<matplotlib.axis.XTickat0x15fc81bc4f0>,
<matplotlib.axis.XTickat0x15fc81a1190>,
<matplotlib.axis.XTickat0x15fc81ba430>,
<matplotlib.axis.XTickat0x15fc81bab80>,
<matplotlib.axis.XTickat0x15fc81ca310>,
<matplotlib.axis.XTickat0x15fc81caa60>,
<matplotlib.axis.XTickat0x15fc81cad30>,
<matplotlib.axis.XTickat0x15fc81bac40>,
<matplotlib.axis.XTickat0x15fc81bc400>,
<matplotlib.axis.XTickat0x15fc81d1670>,
<matplotlib.axis.XTickat0x15fc81d1dc0>,
<matplotlib.axis.XTickat0x15fc81d8550>,
<matplotlib.axis.XTickat0x15fc81d8ca0>,
<matplotlib.axis.XTickat0x15fc81d8820>,
<matplotlib.axis.XTickat0x15fc81d1730>,
<matplotlib.axis.XTickat0x15fc81dd2e0>,
<matplotlib.axis.XTickat0x15fc81dd940>,
<matplotlib.axis.XTickat0x15fc81e50d0>,
<matplotlib.axis.XTickat0x15fc81e5820>,
<matplotlib.axis.XTickat0x15fc81eb040>,
<matplotlib.axis.XTickat0x15fc81e57f0>,
<matplotlib.axis.XTickat0x15fc81ca700>,
<matplotlib.axis.XTickat0x15fc81eb490>,
<matplotlib.axis.XTickat0x15fc81ebaf0>,
<matplotlib.axis.XTickat0x15fc81f5280>,
<matplotlib.axis.XTickat0x15fc81f59d0>,
<matplotlib.axis.XTickat0x15fc81fc160>,
<matplotlib.axis.XTickat0x15fc81f5670>,
<matplotlib.axis.XTickat0x15fc81ba700>,
<matplotlib.axis.XTickat0x15fc81fc550>,
<matplotlib.axis.XTickat0x15fc81fcca0>,
<matplotlib.axis.XTickat0x15fc8203430>,
<matplotlib.axis.XTickat0x15fc8203b80>,
<matplotlib.axis.XTickat0x15fc8203e50>,
<matplotlib.axis.XTickat0x15fc81fcd60>,
<matplotlib.axis.XTickat0x15fc81f5250>,
<matplotlib.axis.XTickat0x15fc8209790>,
<matplotlib.axis.XTickat0x15fc8210040>,

<matplotlib.axis.XTickat0x15fc8210670>,
<matplotlib.axis.XTickat0x15fc8210dc0>,
<matplotlib.axis.XTickat0x15fc8210940>,
<matplotlib.axis.XTickat0x15fc8209e50>,
<matplotlib.axis.XTickat0x15fc81e5af0>,
<matplotlib.axis.XTickat0x15fc81d1220>,
<matplotlib.axis.XTickat0x15fc8176df0>,
<matplotlib.axis.XTickat0x15fc82189d0>,
<matplotlib.axis.XTickat0x15fc8221160>,
<matplotlib.axis.XTickat0x15fc8218a00>,
<matplotlib.axis.XTickat0x15fc81ebbe0>,
<matplotlib.axis.XTickat0x15fc8221130>,
<matplotlib.axis.XTickat0x15fc8221ca0>,
<matplotlib.axis.XTickat0x15fc8229430>,
<matplotlib.axis.XTickat0x15fc8229b80>,
<matplotlib.axis.XTickat0x15fc822f310>,
<matplotlib.axis.XTickat0x15fc8229700>,
<matplotlib.axis.XTickat0x15fc81eb880>,
<matplotlib.axis.XTickat0x15fc822f700>,
<matplotlib.axis.XTickat0x15fc822fe50>,
<matplotlib.axis.XTickat0x15fc82375e0>,
<matplotlib.axis.XTickat0x15fc8237d30>,
<matplotlib.axis.XTickat0x15fc8237ca0>,
<matplotlib.axis.XTickat0x15fc822feb0>,
<matplotlib.axis.XTickat0x15fc8229460>,
<matplotlib.axis.XTickat0x15fc823c940>,
<matplotlib.axis.XTickat0x15fc82440d0>,
<matplotlib.axis.XTickat0x15fc8244820>,
<matplotlib.axis.XTickat0x15fc8249040>,
<matplotlib.axis.XTickat0x15fc82448e0>,
<matplotlib.axis.XTickat0x15fc823c8b0>,
<matplotlib.axis.XTickat0x15fc82495e0>,
<matplotlib.axis.XTickat0x15fc8249c10>,
<matplotlib.axis.XTickat0x15fc82533a0>,
<matplotlib.axis.XTickat0x15fc8253af0>,
<matplotlib.axis.XTickat0x15fc8258280>,
<matplotlib.axis.XTickat0x15fc8253b50>,
<matplotlib.axis.XTickat0x15fc822f730>,
<matplotlib.axis.XTickat0x15fc8258340>,
<matplotlib.axis.XTickat0x15fc8258dc0>,
<matplotlib.axis.XTickat0x15fc8260550>,
<matplotlib.axis.XTickat0x15fc8260ca0>,
<matplotlib.axis.XTickat0x15fc8265430>,
<matplotlib.axis.XTickat0x15fc8260640>,
<matplotlib.axis.XTickat0x15fc8249760>,
<matplotlib.axis.XTickat0x15fc8265820>,
<matplotlib.axis.XTickat0x15fc826e040>,

<matplotlib.axis.XTick at 0x15fc826e700>,
<matplotlib.axis.XTick at 0x15fc826ee50>,
<matplotlib.axis.XTick at 0x15fc826eeb0>,
<matplotlib.axis.XTick at 0x15fc8265d00>,
<matplotlib.axis.XTick at 0x15fc82602b0>,
<matplotlib.axis.XTick at 0x15fc8275a60>,
<matplotlib.axis.XTick at 0x15fc827d1f0>,
<matplotlib.axis.XTick at 0x15fc827d940>,
<matplotlib.axis.XTick at 0x15fc827f0d0>,
<matplotlib.axis.XTick at 0x15fc827d9a0>,
<matplotlib.axis.XTick at 0x15fc82757f0>,
<matplotlib.axis.XTick at 0x15fc827f6d0>,
<matplotlib.axis.XTick at 0x15fc827fd30>,
<matplotlib.axis.XTick at 0x15fc828c4c0>,
<matplotlib.axis.XTick at 0x15fc828cc10>,
<matplotlib.axis.XTick at 0x15fc82923a0>,
<matplotlib.axis.XTick at 0x15fc828c9d0>,
<matplotlib.axis.XTick at 0x15fc8265fa0>,
<matplotlib.axis.XTick at 0x15fc82923d0>,
<matplotlib.axis.XTick at 0x15fc8298040>,
<matplotlib.axis.XTick at 0x15fc8298670>,
<matplotlib.axis.XTick at 0x15fc8298dc0>,
<matplotlib.axis.XTick at 0x15fc829e550>,
<matplotlib.axis.XTick at 0x15fc82986d0>,
<matplotlib.axis.XTick at 0x15fc827f040>,
<matplotlib.axis.XTick at 0x15fc829e940>,
<matplotlib.axis.XTick at 0x15fc82a70d0>,
<matplotlib.axis.XTick at 0x15fc82a7820>,
<matplotlib.axis.XTick at 0x15fc82ac040>,
<matplotlib.axis.XTick at 0x15fc82a7d00>,
<matplotlib.axis.XTick at 0x15fc829ecd0>,
<matplotlib.axis.XTick at 0x15fc8298760>,
<matplotlib.axis.XTick at 0x15fc82acb80>,
<matplotlib.axis.XTick at 0x15fc82b6310>,
<matplotlib.axis.XTick at 0x15fc82b6a60>,
<matplotlib.axis.XTick at 0x15fc82b91f0>,
<matplotlib.axis.XTick at 0x15fc82b6ac0>,
<matplotlib.axis.XTick at 0x15fc82acf40>,
<matplotlib.axis.XTick at 0x15fc828cc70>,
<matplotlib.axis.XTick at 0x15fc8258640>,
<matplotlib.axis.XTick at 0x15fc82b97f0>,
<matplotlib.axis.XTick at 0x15fc82b9dc0>,
<matplotlib.axis.XTick at 0x15fc82c6550>,
<matplotlib.axis.XTick at 0x15fc82b9a30>,
<matplotlib.axis.XTick at 0x15fc82ac670>,
<matplotlib.axis.XTick at 0x15fc82c6190>,
<matplotlib.axis.XTick at 0x15fc82cc0d0>,

<matplotlib.axis.XTickat0x15fc82cc820>,
<matplotlib.axis.XTickat0x15fc82d1040>,
<matplotlib.axis.XTickat0x15fc82d1700>,
<matplotlib.axis.XTickat0x15fc82cc5b0>,
<matplotlib.axis.XTickat0x15fc82a77f0>,
<matplotlib.axis.XTickat0x15fc82d1af0>,
<matplotlib.axis.XTickat0x15fc82da280>,
<matplotlib.axis.XTickat0x15fc82da9d0>,
<matplotlib.axis.XTickat0x15fc82e0160>,
<matplotlib.axis.XTickat0x15fc82dadc0>,
<matplotlib.axis.XTickat0x15fc82d1d90>,
<matplotlib.axis.XTickat0x15fc82e0790>,
<matplotlib.axis.XTickat0x15fc82e0d30>,
<matplotlib.axis.XTickat0x15fc82e84c0>,
<matplotlib.axis.XTickat0x15fc82e8c10>,
<matplotlib.axis.XTickat0x15fc82ee3a0>,
<matplotlib.axis.XTickat0x15fc82e8850>,
<matplotlib.axis.XTickat0x15fc82ccfa0>,
<matplotlib.axis.XTickat0x15fc82ee490>,
<matplotlib.axis.XTickat0x15fc82f7040>,
<matplotlib.axis.XTickat0x15fc82f7790>,
<matplotlib.axis.XTickat0x15fc82fc040>,
<matplotlib.axis.XTickat0x15fc82fc670>,
<matplotlib.axis.XTickat0x15fc82f7a30>,
<matplotlib.axis.XTickat0x15fc82da250>,
<matplotlib.axis.XTickat0x15fc82fc2b0>,
<matplotlib.axis.XTickat0x15fc83061f0>,
<matplotlib.axis.XTickat0x15fc8306940>,
<matplotlib.axis.XTickat0x15fc830b0d0>,
<matplotlib.axis.XTickat0x15fc830b820>,
<matplotlib.axis.XTickat0x15fc83065e0>,
<matplotlib.axis.XTickat0x15fc82f70a0>,
<matplotlib.axis.XTickat0x15fc830bc10>,
<matplotlib.axis.XTickat0x15fc83123a0>,
<matplotlib.axis.XTickat0x15fc8312af0>,
<matplotlib.axis.XTickat0x15fc8319280>,
<matplotlib.axis.XTickat0x15fc8312d60>,
<matplotlib.axis.XTickat0x15fc830bee0>,
<matplotlib.axis.XTickat0x15fc8319a60>,
<matplotlib.axis.XTickat0x15fc8319e50>,
<matplotlib.axis.XTickat0x15fc83205e0>,
<matplotlib.axis.XTickat0x15fc8320d30>,
<matplotlib.axis.XTickat0x15fc83274c0>,
<matplotlib.axis.XTickat0x15fc8320850>,
<matplotlib.axis.XTickat0x15fc82fc430>,
<matplotlib.axis.XTickat0x15fc8327520>,
<matplotlib.axis.XTickat0x15fc832f160>,

<matplotlib.axis.XTickat0x15fc832f8b0>,
<matplotlib.axis.XTickat0x15fc8333040>,
<matplotlib.axis.XTickat0x15fc8333790>,
<matplotlib.axis.XTickat0x15fc832f9a0>,
<matplotlib.axis.XTickat0x15fc8319520>,
<matplotlib.axis.XTickat0x15fc83332e0>,
<matplotlib.axis.XTickat0x15fc833d310>,
<matplotlib.axis.XTickat0x15fc833da60>,
<matplotlib.axis.XTickat0x15fc83431f0>,
<matplotlib.axis.XTickat0x15fc8343940>,
<matplotlib.axis.XTickat0x15fc833d700>,
<matplotlib.axis.XTickat0x15fc832f130>,
<matplotlib.axis.XTickat0x15fc8343d30>,
<matplotlib.axis.XTickat0x15fc834b4c0>,
<matplotlib.axis.XTickat0x15fc834bc10>,
<matplotlib.axis.XTickat0x15fc83513a0>,
<matplotlib.axis.XTickat0x15fc834bbe0>,
<matplotlib.axis.XTickat0x15fc8343e20>,
<matplotlib.axis.XTickat0x15fc8351b80>,
<matplotlib.axis.XTickat0x15fc8354040>,
<matplotlib.axis.XTickat0x15fc8354700>,
<matplotlib.axis.XTickat0x15fc8354e50>,
<matplotlib.axis.XTickat0x15fc835f5e0>,
<matplotlib.axis.XTickat0x15fc83549d0>,
<matplotlib.axis.XTickat0x15fc8351fa0>,
<matplotlib.axis.XTickat0x15fc8333760>,
<matplotlib.axis.XTickat0x15fc82ee8b0>,
<matplotlib.axis.XTickat0x15fc835f610>,
<matplotlib.axis.XTickat0x15fc83681f0>,
<matplotlib.axis.XTickat0x15fc8368940>,
<matplotlib.axis.XTickat0x15fc835f640>,
<matplotlib.axis.XTickat0x15fc8351a90>,
<matplotlib.axis.XTickat0x15fc83681c0>,
<matplotlib.axis.XTickat0x15fc83704c0>,
<matplotlib.axis.XTickat0x15fc8370c10>,
<matplotlib.axis.XTickat0x15fc83773a0>,
<matplotlib.axis.XTickat0x15fc8377af0>,
<matplotlib.axis.XTickat0x15fc8370490>,
<matplotlib.axis.XTickat0x15fc835f6a0>,
<matplotlib.axis.XTickat0x15fc837b040>,
<matplotlib.axis.XTickat0x15fc837b670>,
<matplotlib.axis.XTickat0x15fc837bdc0>,
<matplotlib.axis.XTickat0x15fc8386550>,
<matplotlib.axis.XTickat0x15fc837be20>,
<matplotlib.axis.XTickat0x15fc8377640>,
<matplotlib.axis.XTickat0x15fc8386dc0>,
<matplotlib.axis.XTickat0x15fc838d160>,

<matplotlib.axis.XTickat0x15fc838d8b0>,
<matplotlib.axis.XTickat0x15fc8392040>,
<matplotlib.axis.XTickat0x15fc8392790>,
<matplotlib.axis.XTickat0x15fc838d820>,
<matplotlib.axis.XTickat0x15fc83868e0>,
<matplotlib.axis.XTickat0x15fc8392430>,
<matplotlib.axis.XTickat0x15fc839b430>,
<matplotlib.axis.XTickat0x15fc839bb80>,
<matplotlib.axis.XTickat0x15fc83a1310>,
<matplotlib.axis.XTickat0x15fc83a1a60>,
<matplotlib.axis.XTickat0x15fc839b910>,
<matplotlib.axis.XTickat0x15fc8368fa0>,
<matplotlib.axis.XTickat0x15fc83a1280>,
<matplotlib.axis.XTickat0x15fc83a85e0>,
<matplotlib.axis.XTickat0x15fc83a8d30>,
<matplotlib.axis.XTickat0x15fc83ae4c0>,
<matplotlib.axis.XTickat0x15fc83aec10>,
<matplotlib.axis.XTickat0x15fc83a8550>,
<matplotlib.axis.XTickat0x15fc839b490>,
<matplotlib.axis.XTickat0x15fc83b4040>,
<matplotlib.axis.XTickat0x15fc83b4790>,
<matplotlib.axis.XTickat0x15fc83b9040>,
<matplotlib.axis.XTickat0x15fc83b9670>,
<matplotlib.axis.XTickat0x15fc83b4f40>,
<matplotlib.axis.XTickat0x15fc83ae580>,
<matplotlib.axis.XTickat0x15fc83b9ee0>,
<matplotlib.axis.XTickat0x15fc83c5280>,
<matplotlib.axis.XTickat0x15fc83c59d0>,
<matplotlib.axis.XTickat0x15fc83ca160>,
<matplotlib.axis.XTickat0x15fc83ca8b0>,
<matplotlib.axis.XTickat0x15fc83c5a30>,
<matplotlib.axis.XTickat0x15fc83a85b0>,
<matplotlib.axis.XTickat0x15fc83ca400>,
<matplotlib.axis.XTickat0x15fc83d3550>,
<matplotlib.axis.XTickat0x15fc83d3ca0>,
<matplotlib.axis.XTickat0x15fc83d7430>,
<matplotlib.axis.XTickat0x15fc83d7b80>,
<matplotlib.axis.XTickat0x15fc83d76d0>,
<matplotlib.axis.XTickat0x15fc83d32e0>,
<matplotlib.axis.XTickat0x15fc83dd0d0>,
<matplotlib.axis.XTickat0x15fc83dd700>,
<matplotlib.axis.XTickat0x15fc83dde50>,
<matplotlib.axis.XTickat0x15fc83e75e0>,
<matplotlib.axis.XTickat0x15fc83e7d30>,
<matplotlib.axis.XTickat0x15fc83e7640>,
<matplotlib.axis.XTickat0x15fc83dd280>,
<matplotlib.axis.XTickat0x15fc83ec160>,

<matplotlib.axis.XTickat0x15fc83ec8b0>,
<matplotlib.axis.XTickat0x15fc83f1040>,
<matplotlib.axis.XTickat0x15fc83f1790>,
<matplotlib.axis.XTickat0x15fc83f1ee0>,
<matplotlib.axis.XTickat0x15fc83ecca0>,
<matplotlib.axis.XTickat0x15fc83dd6d0>,
<matplotlib.axis.XTickat0x15fc83fe3a0>,
<matplotlib.axis.XTickat0x15fc83feaf0>,
<matplotlib.axis.XTickat0x15fc8403280>,
<matplotlib.axis.XTickat0x15fc84039d0>,
<matplotlib.axis.XTickat0x15fc8403520>,
<matplotlib.axis.XTickat0x15fc83fe370>,
<matplotlib.axis.XTickat0x15fc83ec220>,
<matplotlib.axis.XTickat0x15fc83aee80>,
<matplotlib.axis.XTickat0x15fc8368cd0>,
<matplotlib.axis.XTickat0x15fc840c5e0>,
<matplotlib.axis.XTickat0x15fc840cd30>,
<matplotlib.axis.XTickat0x15fc840c880>,
<matplotlib.axis.XTickat0x15fc83d7e20>,
<matplotlib.axis.XTickat0x15fc8412280>,
<matplotlib.axis.XTickat0x15fc84128b0>,
<matplotlib.axis.XTickat0x15fc8419040>,
<matplotlib.axis.XTickat0x15fc8419790>,
<matplotlib.axis.XTickat0x15fc8420040>,
<matplotlib.axis.XTickat0x15fc84197f0>,
<matplotlib.axis.XTickat0x15fc83fe400>,
<matplotlib.axis.XTickat0x15fc8420310>,
<matplotlib.axis.XTickat0x15fc8420a60>,
<matplotlib.axis.XTickat0x15fc84281f0>,
<matplotlib.axis.XTickat0x15fc8428940>,
<matplotlib.axis.XTickat0x15fc8428be0>,
<matplotlib.axis.XTickat0x15fc8420d30>,
<matplotlib.axis.XTickat0x15fc84197c0>,
<matplotlib.axis.XTickat0x15fc842e550>,
<matplotlib.axis.XTickat0x15fc842eca0>,
<matplotlib.axis.XTickat0x15fc8436430>,
<matplotlib.axis.XTickat0x15fc8436b80>,
<matplotlib.axis.XTickat0x15fc8436700>,
<matplotlib.axis.XTickat0x15fc842e610>,
<matplotlib.axis.XTickat0x15fc843d1c0>,
<matplotlib.axis.XTickat0x15fc843d820>,
<matplotlib.axis.XTickat0x15fc8443040>,
<matplotlib.axis.XTickat0x15fc8443700>,
<matplotlib.axis.XTickat0x15fc8443e50>,
<matplotlib.axis.XTickat0x15fc84439a0>,
<matplotlib.axis.XTickat0x15fc843d5b0>,
<matplotlib.axis.XTickat0x15fc844b3a0>,

<matplotlib.axis.XTickat0x15fc844b9d0>,
<matplotlib.axis.XTickat0x15fc8452160>,
<matplotlib.axis.XTickat0x15fc84528b0>,
<matplotlib.axis.XTickat0x15fc8455040>,
<matplotlib.axis.XTickat0x15fc84524f0>,
<matplotlib.axis.XTickat0x15fc8436190>,
<matplotlib.axis.XTickat0x15fc8455430>,
<matplotlib.axis.XTickat0x15fc8455b80>,
<matplotlib.axis.XTickat0x15fc8461310>,
<matplotlib.axis.XTickat0x15fc8461a60>,
<matplotlib.axis.XTickat0x15fc8461d30>,
<matplotlib.axis.XTickat0x15fc8455c40>,
<matplotlib.axis.XTickat0x15fc8452400>,
<matplotlib.axis.XTickat0x15fc8466670>,
<matplotlib.axis.XTickat0x15fc8466dc0>,
<matplotlib.axis.XTickat0x15fc846e550>,
<matplotlib.axis.XTickat0x15fc846eca0>,
<matplotlib.axis.XTickat0x15fc846e820>,
<matplotlib.axis.XTickat0x15fc8466730>,
<matplotlib.axis.XTickat0x15fc84742e0>,
<matplotlib.axis.XTickat0x15fc8474940>,
<matplotlib.axis.XTickat0x15fc847c0d0>,
<matplotlib.axis.XTickat0x15fc847c820>,
<matplotlib.axis.XTickat0x15fc847d040>,
<matplotlib.axis.XTickat0x15fc847c7f0>,
<matplotlib.axis.XTickat0x15fc8461700>,
<matplotlib.axis.XTickat0x15fc847d490>,
<matplotlib.axis.XTickat0x15fc847daf0>,
<matplotlib.axis.XTickat0x15fc848a280>,
<matplotlib.axis.XTickat0x15fc848a9d0>,
<matplotlib.axis.XTickat0x15fc8492160>,
<matplotlib.axis.XTickat0x15fc848a670>,
<matplotlib.axis.XTickat0x15fc8455700>,
<matplotlib.axis.XTickat0x15fc8492550>,
<matplotlib.axis.XTickat0x15fc8492ca0>,
<matplotlib.axis.XTickat0x15fc8499430>,
<matplotlib.axis.XTickat0x15fc8499b80>,
<matplotlib.axis.XTickat0x15fc8499e50>,
<matplotlib.axis.XTickat0x15fc8492d60>,
<matplotlib.axis.XTickat0x15fc848a250>,
<matplotlib.axis.XTickat0x15fc849e790>,
<matplotlib.axis.XTickat0x15fc84a6040>,
<matplotlib.axis.XTickat0x15fc84a6670>,
<matplotlib.axis.XTickat0x15fc84a6dc0>,
<matplotlib.axis.XTickat0x15fc84a6940>,
<matplotlib.axis.XTickat0x15fc849ee50>,
<matplotlib.axis.XTickat0x15fc847caf0>,

```
 ...],
[Text(0, 0, ''),
 Text(0, 0, ''),
 Text(0, 0, ''),
 Text(0, 0, ''),
 Text(0, 0, ''),
 Text(0, 0, ''),
 Text(0, 0, ''),
 Text(0, 0, ''),
 Text(0, 0, ''),
 Text(0, 0, ''),
 Text(0, 0, ''),
 Text(0, 0, ''),
 Text(0, 0, ''),
 Text(0, 0, ''),
 Text(0, 0, ''),
 Text(0, 0, ''),
 Text(0, 0, ''),
 Text(0, 0, ''),
 Text(0, 0, ''),
 Text(0, 0, ''),
 Text(0, 0, ''),
 Text(0, 0, ''),
 Text(0, 0, ''),
 Text(0, 0, ''),
 Text(0, 0, ''),
 Text(0, 0, ''),
 Text(0, 0, ''),
 Text(0, 0, ''),
 Text(0, 0, ''),
 Text(0, 0, ''),
 Text(0, 0, ''),
 Text(0, 0, ''),
 Text(0, 0, ''),
 Text(0, 0, ''),
 Text(0, 0, ''),
 Text(0, 0, ''),
 Text(0, 0, ''),
 Text(0, 0, ''),
 Text(0, 0, ''),
 Text(0, 0, ''),
 Text(0, 0, ''),
 Text(0, 0, ''),
 Text(0, 0, ''),
 Text(0, 0, ''),
 Text(0, 0, ''),
 Text(0, 0, ''),
```

```
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
```

```
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
```

```
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
```

```
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
```

```
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
```

```
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
```

```
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
```

```
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
```

```
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
```

```
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
```

```
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
```

```
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
```

```
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
```

```
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
```

```
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
```

```
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
```

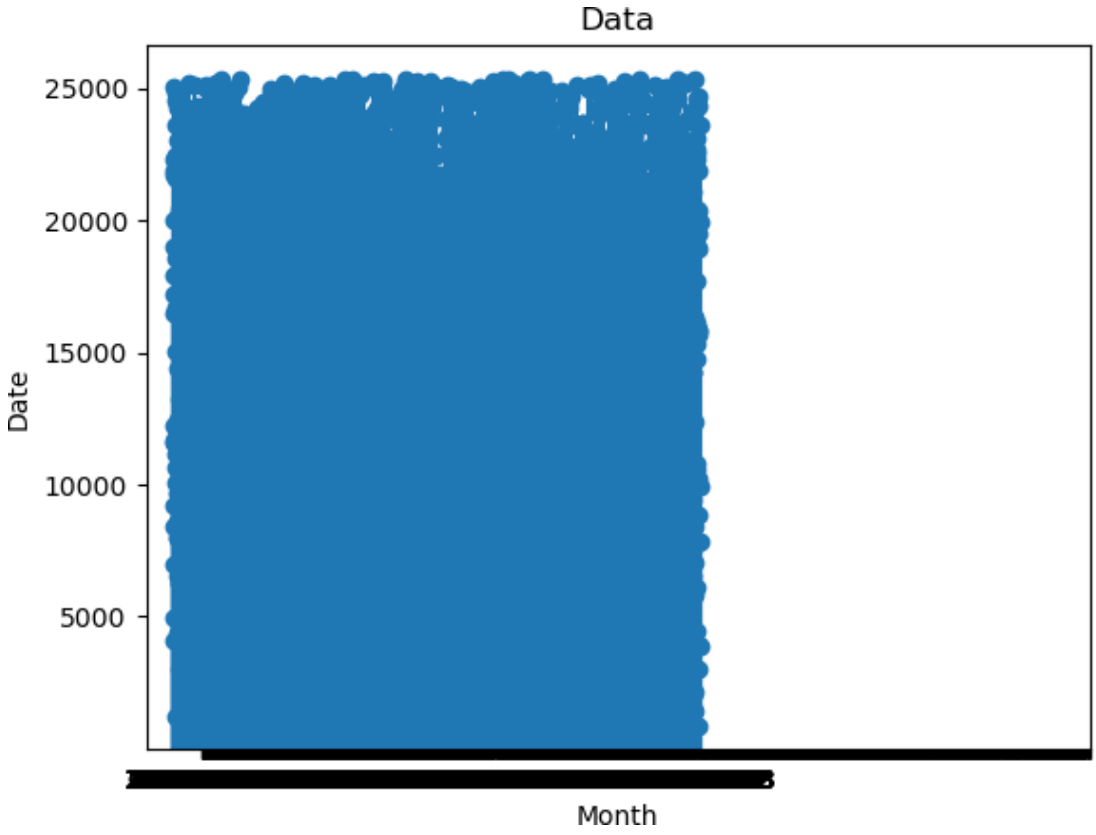
```
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
```

```
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
```

```
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
```

```
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
```

Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
Text(0, 0, ''),
…])



8.1 Conclusion

Thisprojectappliesadesignthinkingapproachtoanalyzeproductsalesdataforoptimizi

[]: