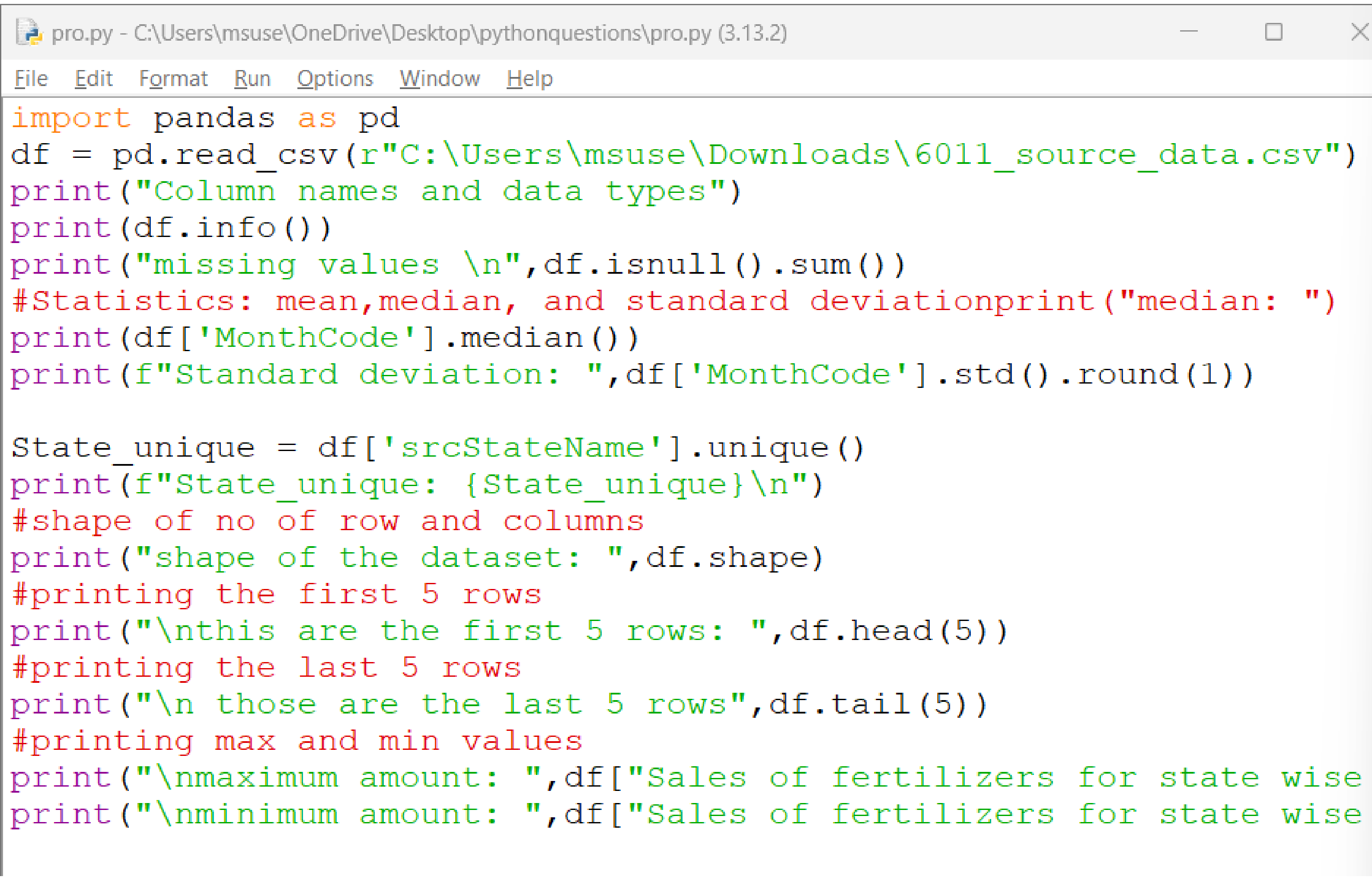
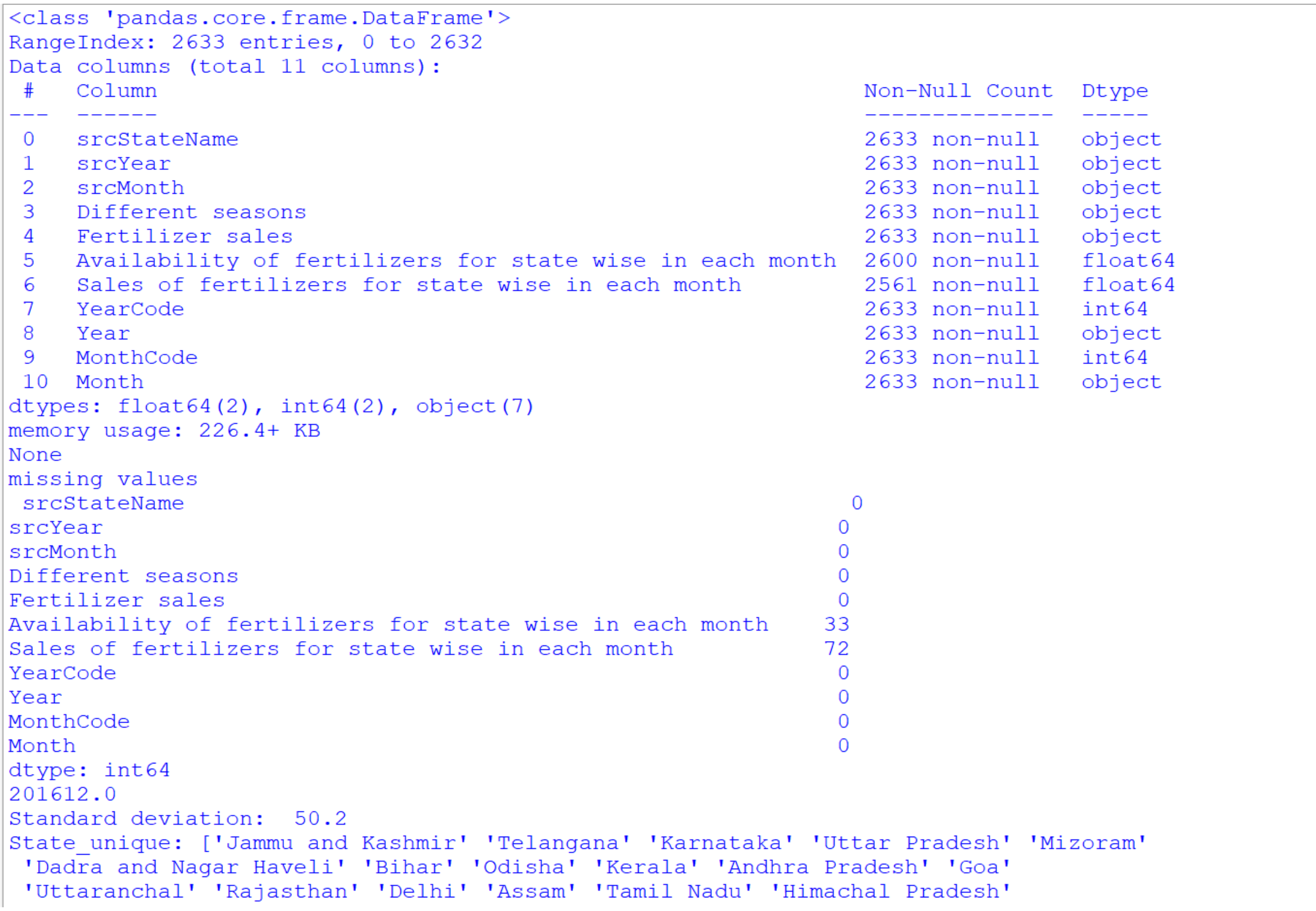
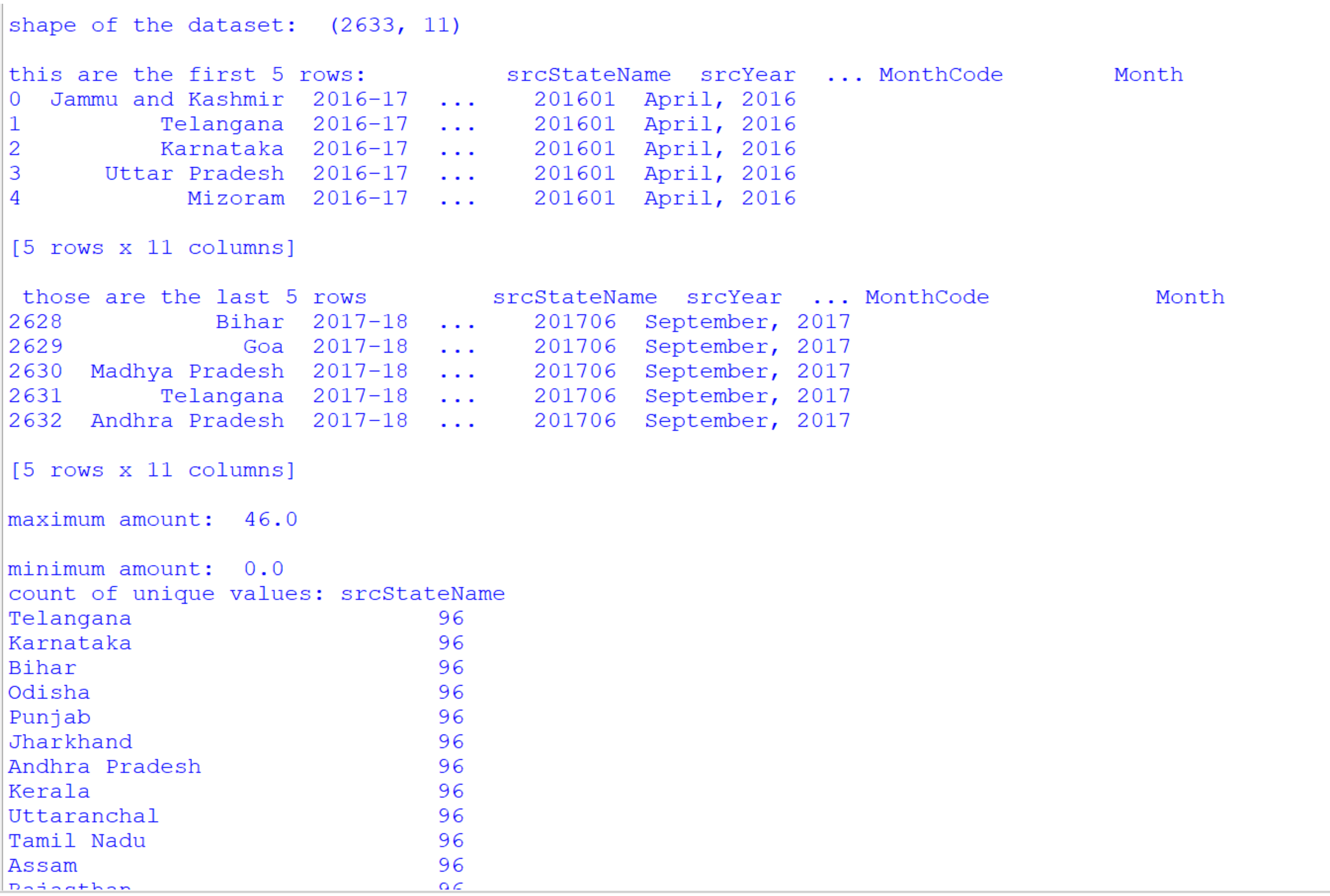

pro.py - C:\Users\msuse\OneDrive\Desktop\pythonquestions\pro.py (3.13.2)
File
Edit
Format
Run
Options
Window
Help

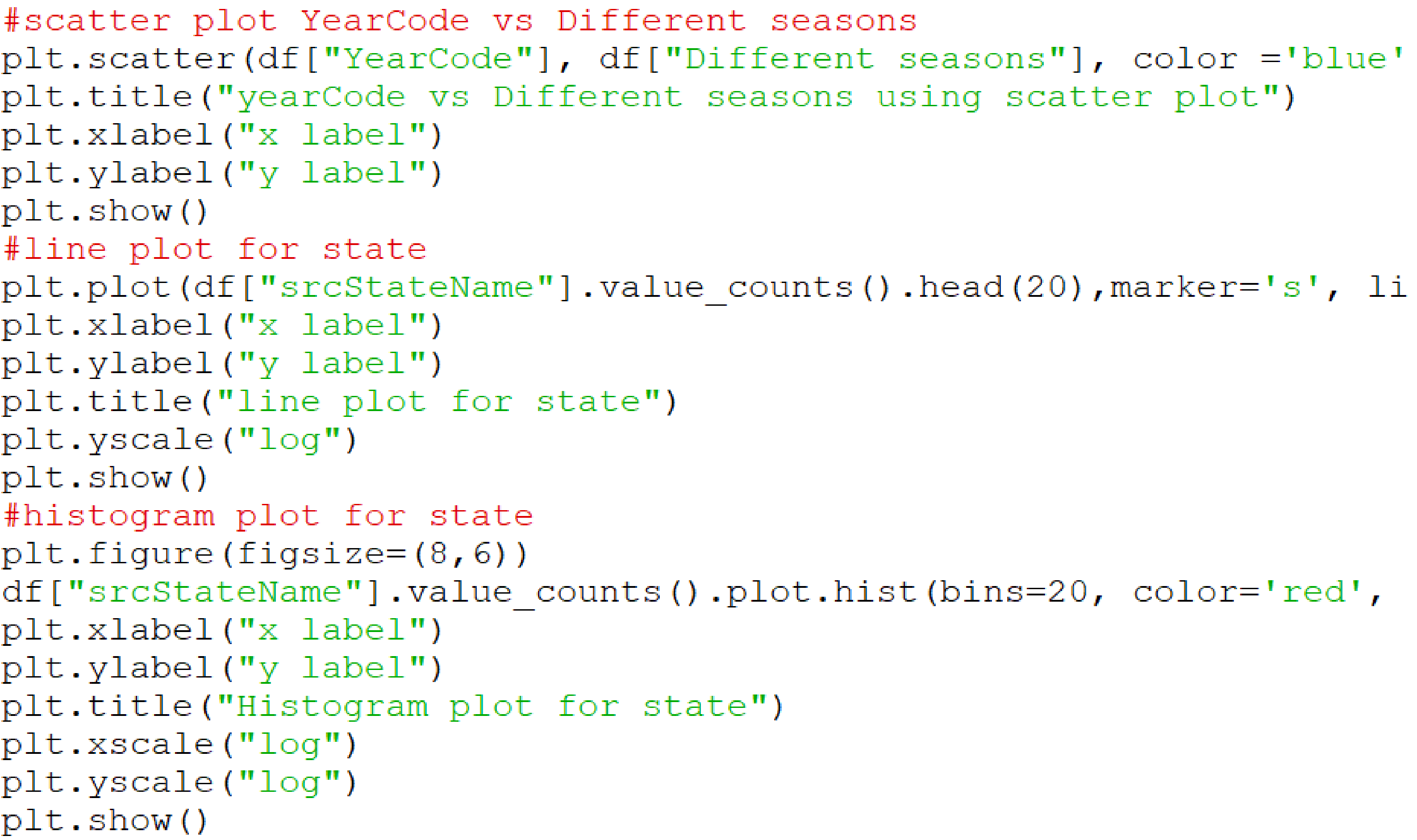
```
import pandas as pd
df = pd.read_csv(r"C:\Users\msuse\Downloads\6011_source_data.csv")
print("Column names and data types")
print(df.info())
print("missing values \n",df.isnull().sum())
#Statistics: mean,median, and standard deviationprint("median: ")
print(df['MonthCode'].median())
print(f"Standard deviation: ",df['MonthCode'].std().round(1))

State_unique = df['srcStateName'].unique()
print(f"State_unique: {State_unique}\n")
#shape of no of row and columns
print("shape of the dataset: ",df.shape)
#printing the first 5 rows
print("\nthis are the first 5 rows: ",df.head(5))
#printing the last 5 rows
print("\n those are the last 5 rows",df.tail(5))
#printing max and min values
print("\nmaximum amount: ",df["Sales of fertilizers for state wise
print("\nminimum amount: ",df["Sales of fertilizers for state wise
```



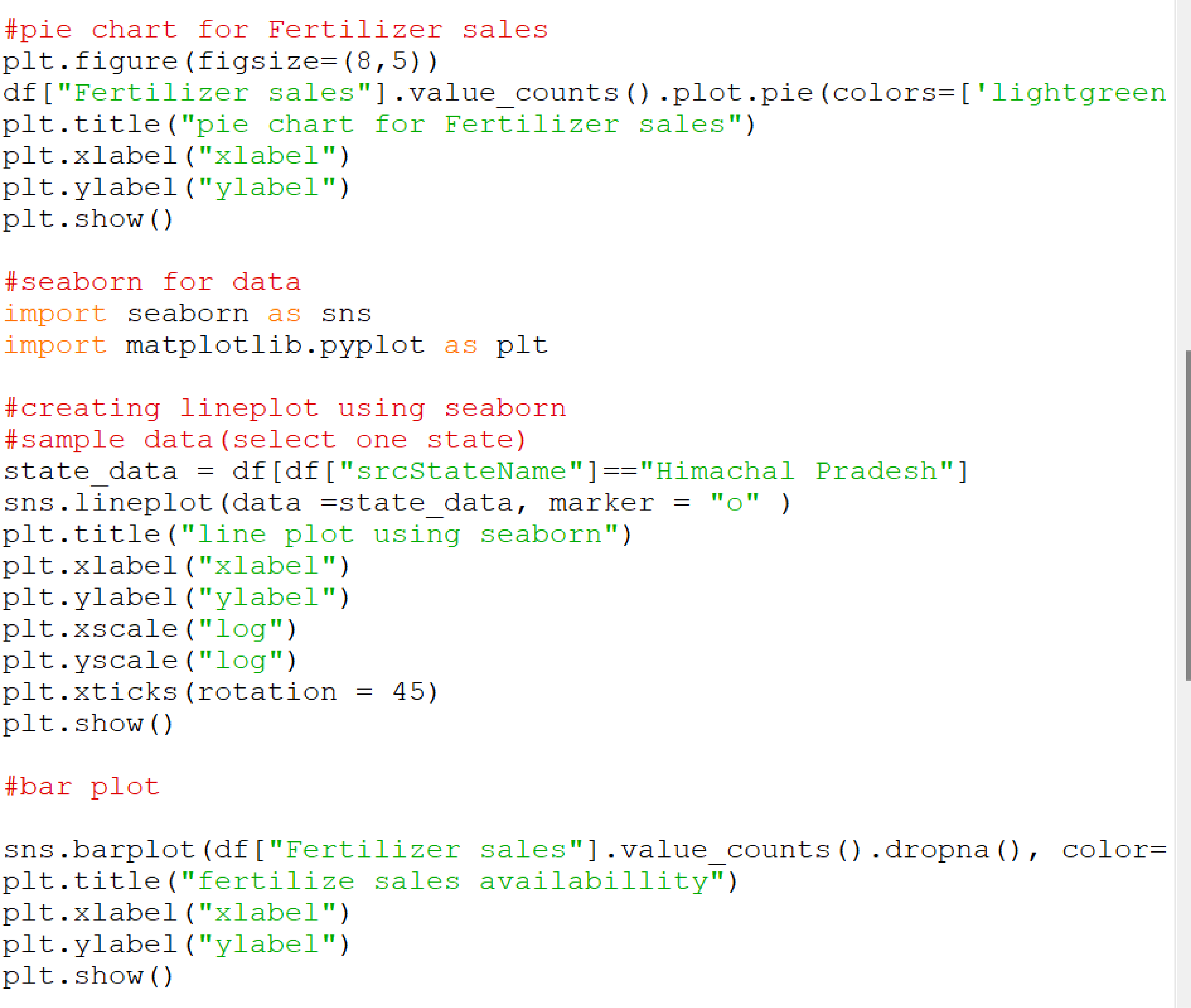
```
<class 'pandas.core.frame.DataFrame'>
RangeIndex: 2633 entries, 0 to 2632
Data columns (total 11 columns):
 #   Column                                                    Non-Null Count  Dtype  
---  ------                                                    --------------  -----  
 0   srcStateName                                              2633 non-null   object 
 1   srcYear                                                   2633 non-null   object 
 2   srcMonth                                                  2633 non-null   object 
 3   Different seasons                                         2633 non-null   object 
 4   Fertilizer sales                                          2633 non-null   object 
 5   Availability of fertilizers for state wise in each month  2600 non-null   float64
 6   Sales of fertilizers for state wise in each month         2561 non-null   float64
 7   YearCode                                                  2633 non-null   int64  
 8   Year                                                      2633 non-null   object 
 9   MonthCode                                                 2633 non-null   int64  
 10  Month                                                     2633 non-null   object 
dtypes: float64(2), int64(2), object(7)
memory usage: 226.4+ KB
None
missing values
 srcStateName                                                 0
srcYear                                                      0
srcMonth                                                     0
Different seasons                                            0
Fertilizer sales                                             0
Availability of fertilizers for state wise in each month    33
Sales of fertilizers for state wise in each month           72
YearCode                                                     0
Year                                                         0
MonthCode                                                    0
Month                                                        0
dtype: int64
201612.0
Standard deviation:  50.2
State_unique: ['Jammu and Kashmir' 'Telangana' 'Karnataka' 'Uttar Pradesh' 'Mizoram'
 'Dadra and Nagar Haveli' 'Bihar' 'Odisha' 'Kerala' 'Andhra Pradesh' 'Goa'
 'Uttaranchal' 'Rajasthan' 'Delhi' 'Assam' 'Tamil Nadu' 'Himachal Pradesh'
```



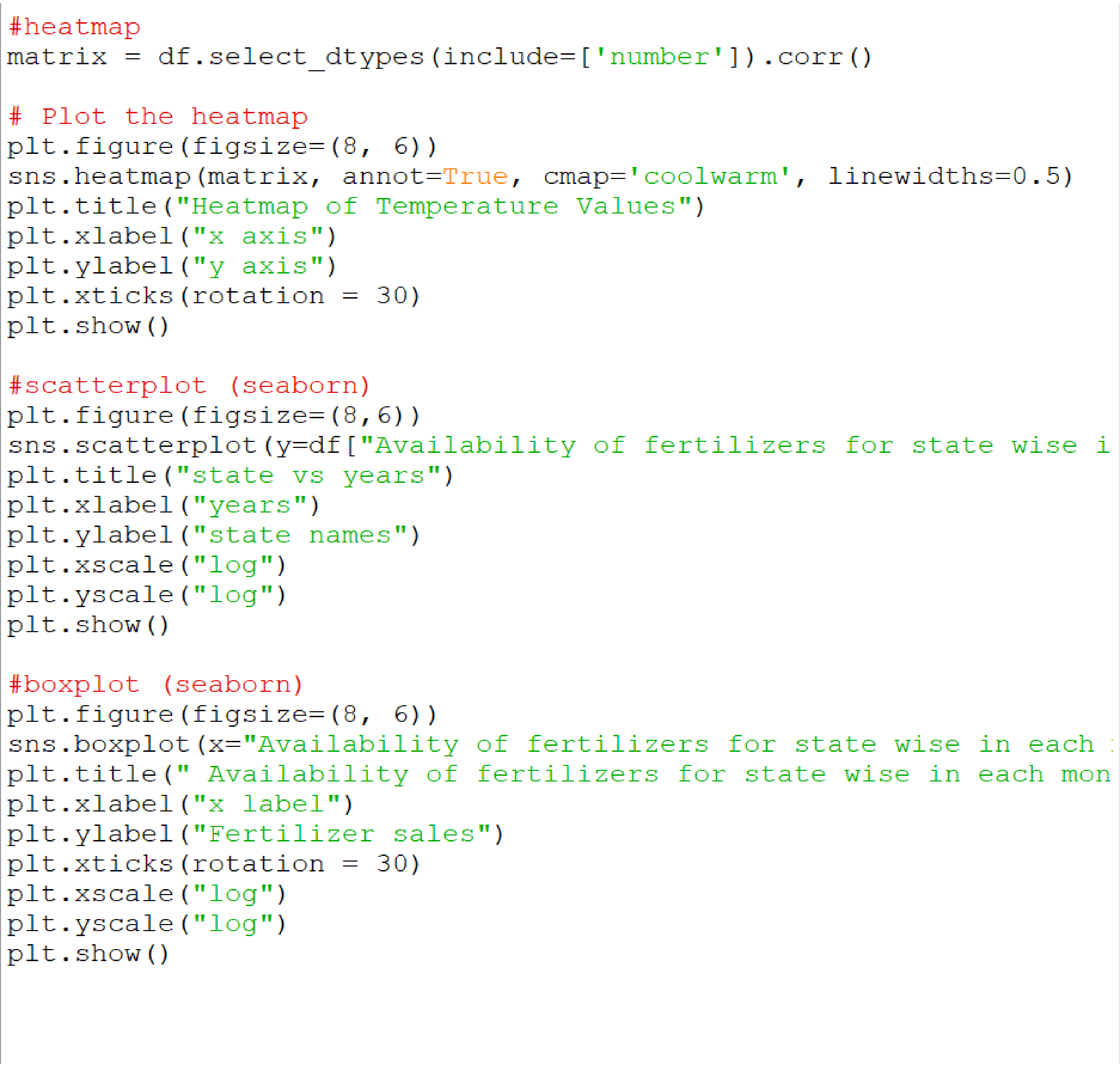
```
shape of the dataset:  (2633, 11)

this are the first 5 rows:          srcStateName  srcYear  ... MonthCode        Month
0  Jammu and Kashmir  2016-17  ...    201601  April, 2016
1          Telangana  2016-17  ...    201601  April, 2016
2          Karnataka  2016-17  ...    201601  April, 2016
3      Uttar Pradesh  2016-17  ...    201601  April, 2016
4            Mizoram  2016-17  ...    201601  April, 2016

[5 rows x 11 columns]

 those are the last 5 rows         srcStateName  srcYear  ... MonthCode            Month
2628           Bihar  2017-18  ...    201706  September, 2017
2629             Goa  2017-18  ...    201706  September, 2017
2630  Madhya Pradesh  2017-18  ...    201706  September, 2017
2631       Telangana  2017-18  ...    201706  September, 2017
2632  Andhra Pradesh  2017-18  ...    201706  September, 2017

[5 rows x 11 columns]

maximum amount:  46.0

minimum amount:  0.0
count of unique values: srcStateName
Telangana                      96
Karnataka                      96
Bihar                          96
Odisha                         96
Punjab                         96
Jharkhand                      96
Andhra Pradesh                 96
Kerala                         96
Uttaranchal                    96
Tamil Nadu                     96
Assam                          96
Rajasthan                      96
```



```
#scatter plot YearCode vs Different seasons
plt.scatter(df["YearCode"], df["Different seasons"], color ='blue'
plt.title("yearCode vs Different seasons using scatter plot")
plt.xlabel("x label")
plt.ylabel("y label")
plt.show()
#line plot for state
plt.plot(df["srcStateName"].value_counts().head(20),marker='s', li
plt.xlabel("x label")
plt.ylabel("y label")
plt.title("line plot for state")
plt.yscale("log")
plt.show()
#histogram plot for state
plt.figure(figsize=(8,6))
df["srcStateName"].value_counts().plot.hist(bins=20, color='red',
plt.xlabel("x label")
plt.ylabel("y label")
plt.title("Histogram plot for state")
plt.xscale("log")
plt.yscale("log")
plt.show()
```



```
#pie chart for Fertilizer sales
plt.figure(figsize=(8,5))
df["Fertilizer sales"].value_counts().plot.pie(colors=['lightgreen
plt.title("pie chart for Fertilizer sales")
plt.xlabel("xlabel")
plt.ylabel("ylabel")
plt.show()

#seaborn for data
import seaborn as sns
import matplotlib.pyplot as plt

#creating lineplot using seaborn
#sample data(select one state)
state_data = df[df["srcStateName"]=="Himachal Pradesh"]
sns.lineplot(data =state_data, marker = "o" )
plt.title("line plot using seaborn")
plt.xlabel("xlabel")
plt.ylabel("ylabel")
plt.xscale("log")
plt.yscale("log")
plt.xticks(rotation = 45)
plt.show()

#bar plot

sns.barplot(df["Fertilizer sales"].value_counts().dropna(), color=
plt.title("fertilize sales availabillity")
plt.xlabel("xlabel")
plt.ylabel("ylabel")
plt.show()
```



```
#heatmap
matrix = df.select_dtypes(include=['number']).corr()

# Plot the heatmap
plt.figure(figsize=(8, 6))
sns.heatmap(matrix, annot=True, cmap='coolwarm', linewidths=0.5)
plt.title("Heatmap of Temperature Values")
plt.xlabel("x axis")
plt.ylabel("y axis")
plt.xticks(rotation = 30)
plt.show()

#scatterplot (seaborn)
plt.figure(figsize=(8,6))
sns.scatterplot(y=df["Availability of fertilizers for state wise i
plt.title("state vs years")
plt.xlabel("years")
plt.ylabel("state names")
plt.xscale("log")
plt.yscale("log")
plt.show()

#boxplot (seaborn)
plt.figure(figsize=(8, 6))
sns.boxplot(x="Availability of fertilizers for state wise in each 
plt.title(" Availability of fertilizers for state wise in each mon
plt.xlabel("x label")
plt.ylabel("Fertilizer sales")
plt.xticks(rotation = 30)
plt.xscale("log")
plt.yscale("log")
plt.show()
```

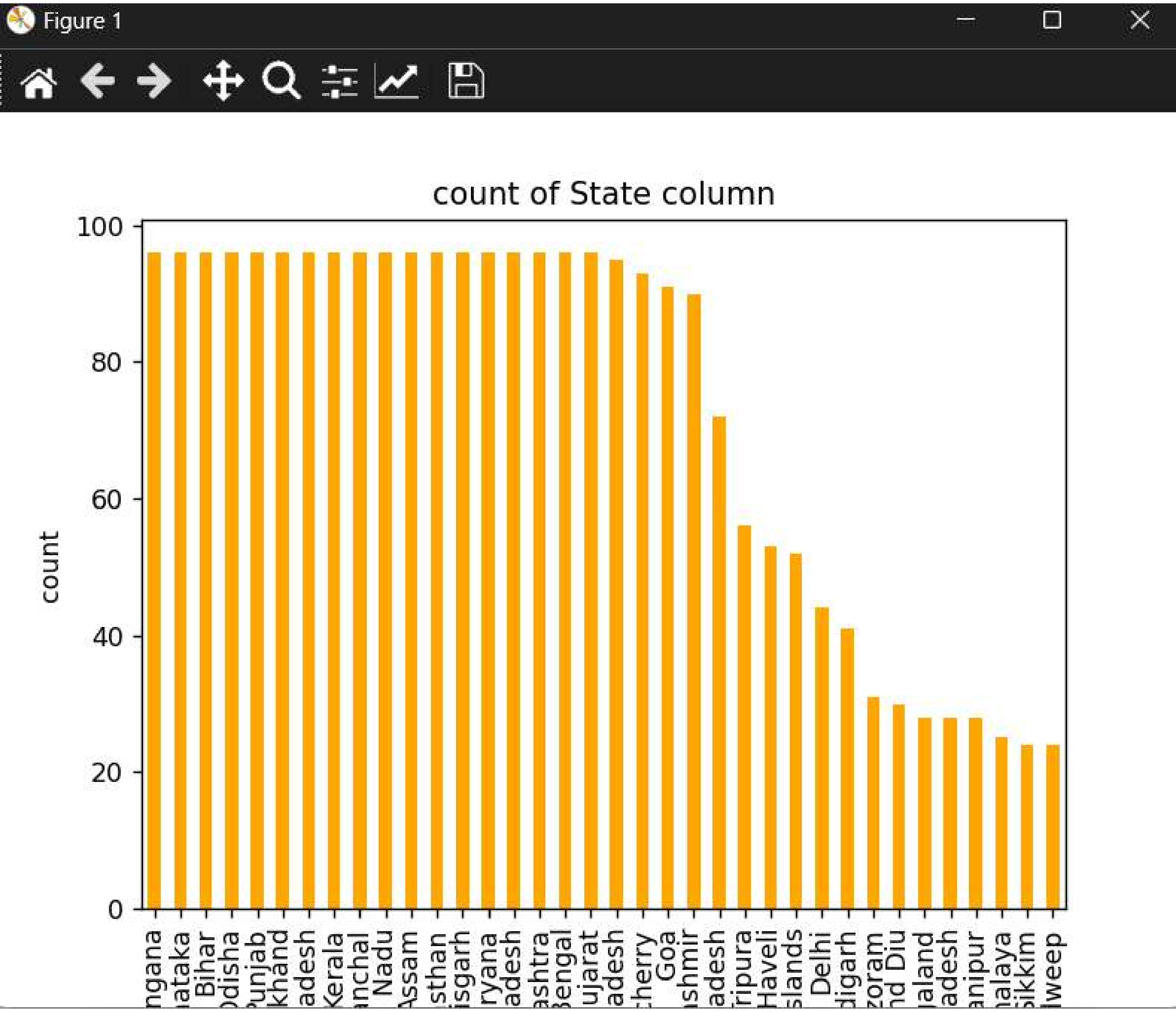


Figure 1
count of State column
count
100
80
60
40
20
0
ngana
nataka
Bihar
Odisha
Punjab
khand
adesh
Kerala
anchal
Nadu
Assam
sthan
isgarh
ryana
adesh
ashtra
Bengal
ujarat
adesh
cherry
Goa
ashmir
adesh
ripura
Haveli
slands
Delhi
digarh
zoram
nd Diu
aland
adesh
anipur
halaya
Sikkim
dweep

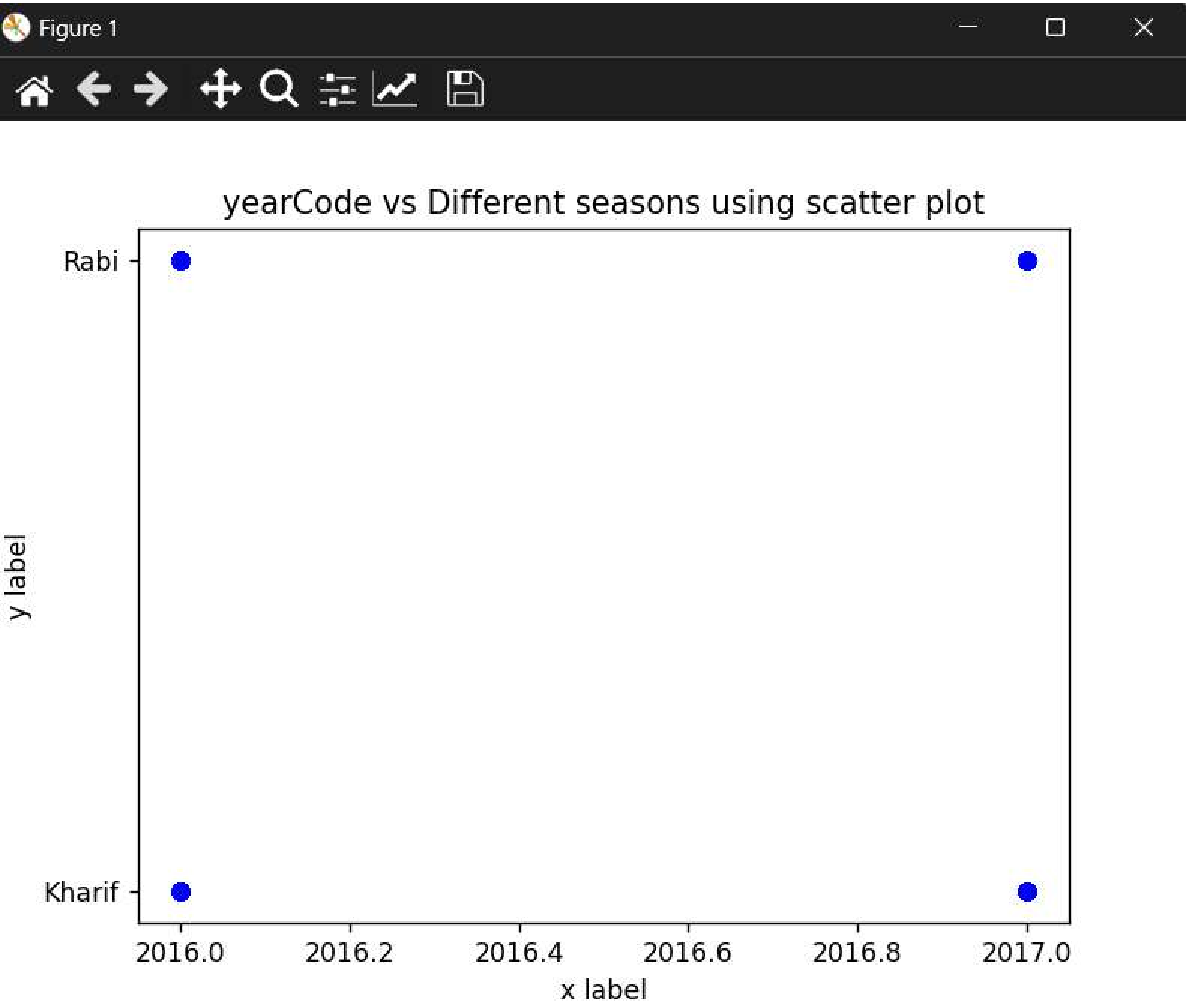


Figure 1
yearCode vs Different seasons using scatter plot
Rabi
Kharif
y label
2016.0
2016.2
2016.4
2016.6
2016.8
2017.0
x label

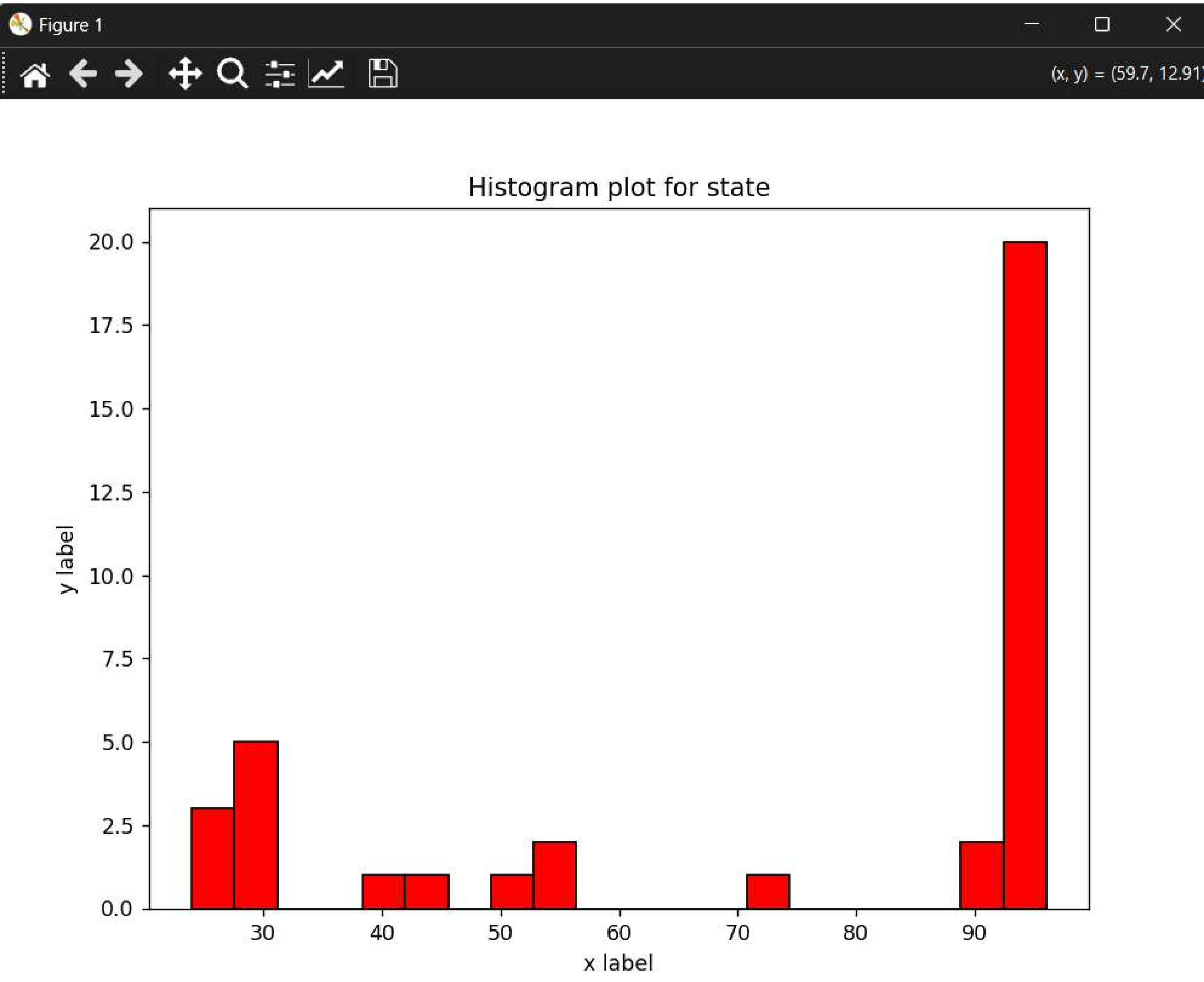


Figure 1
(x, y) = (59.7, 12.91)
Histogram plot for state
20.0
17.5
15.0
12.5
10.0
7.5
5.0
2.5
0.0
y label
30
40
50
60
70
80
90
x label

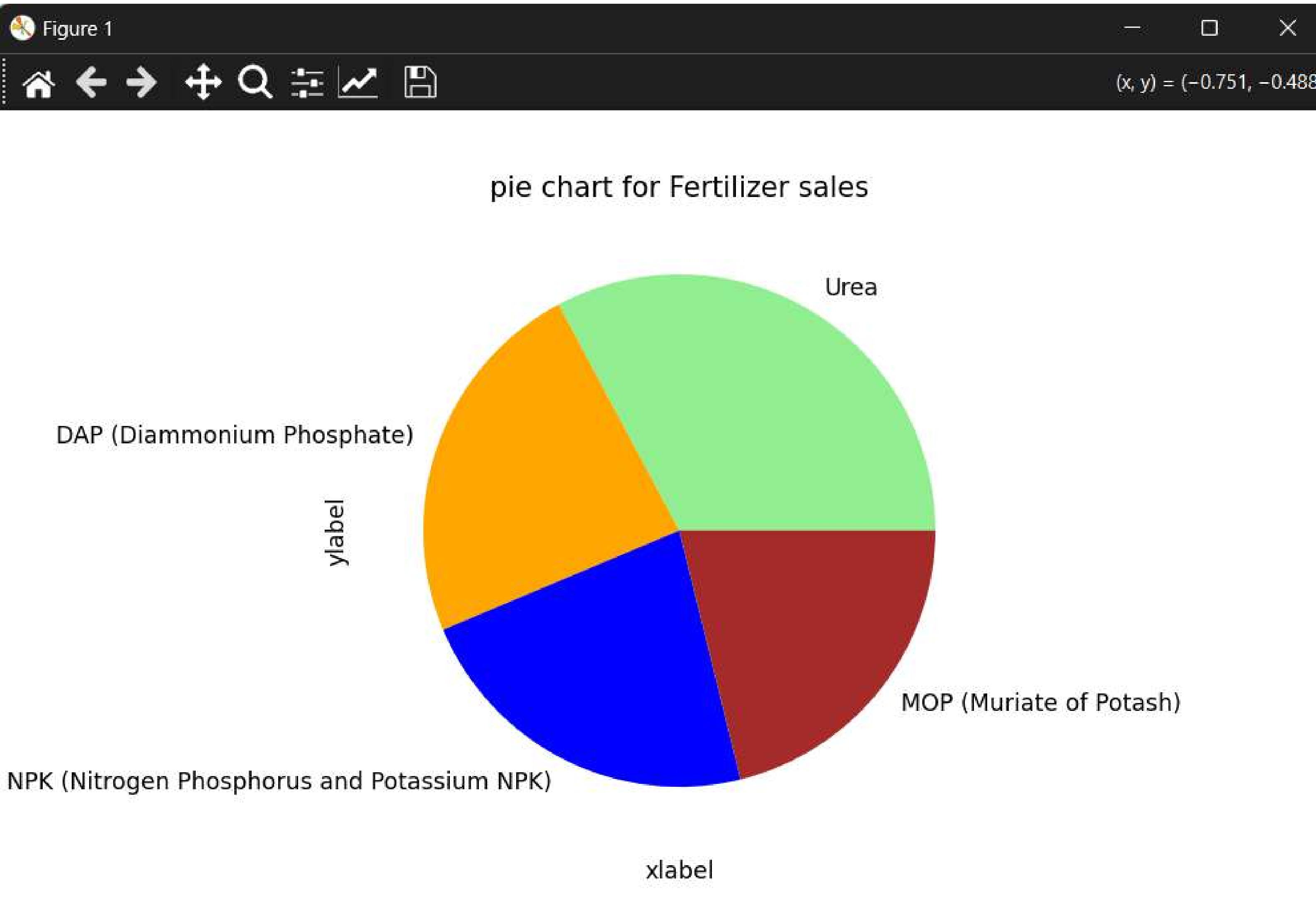


Figure 1
(x, y) = (−0.751, −0.488
pie chart for Fertilizer sales
Urea
DAP (Diammonium Phosphate)
ylabel
MOP (Muriate of Potash)
NPK (Nitrogen Phosphorus and Potassium NPK)
xlabel

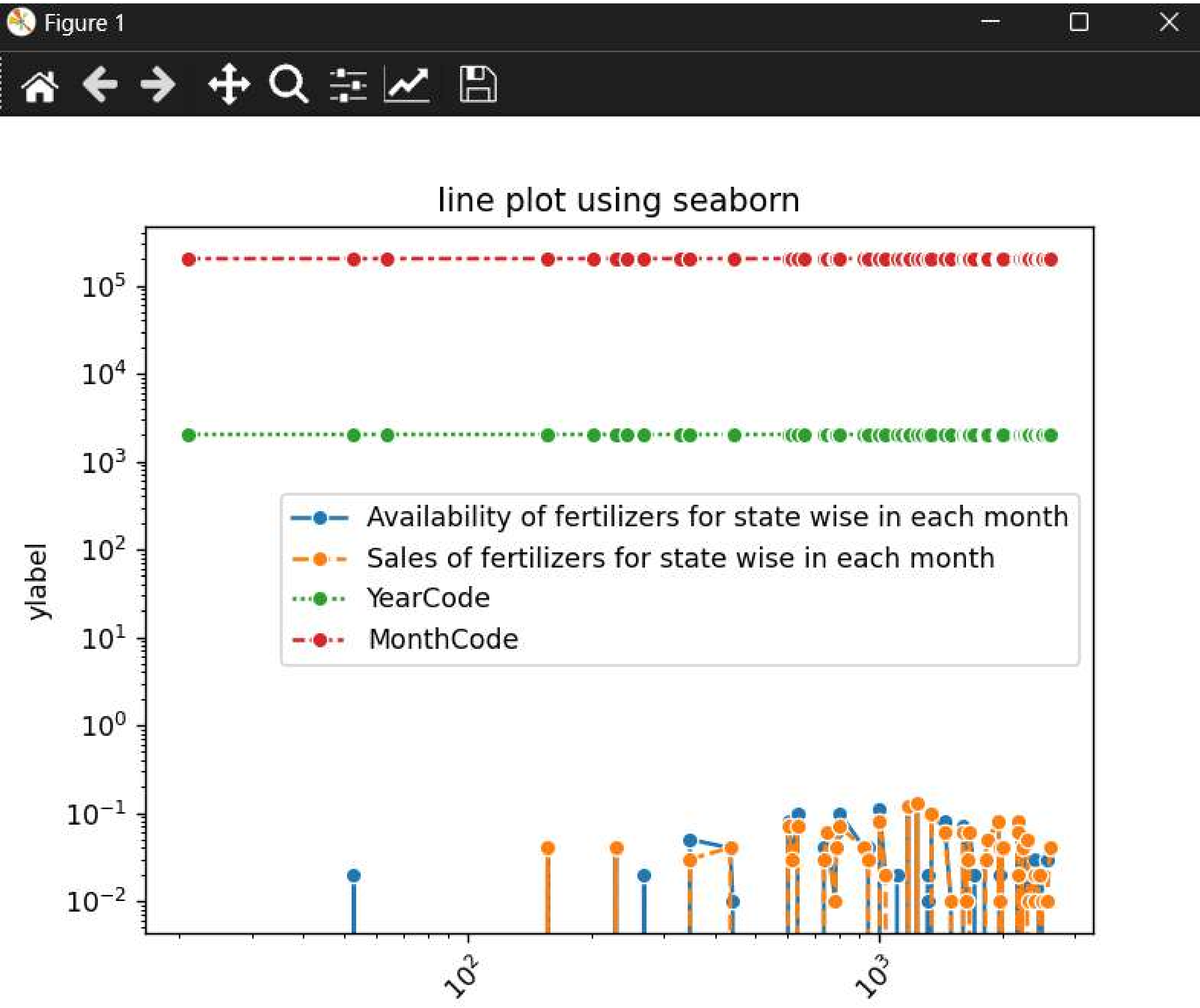


Figure 1
line plot using seaborn
ylabel
10^5
10^4
10^3
10^2
10^1
10^0
10^{-1}
10^{-2}
10^2
10^3
Availability of fertilizers for state wise in each month
Sales of fertilizers for state wise in each month
YearCode
MonthCode

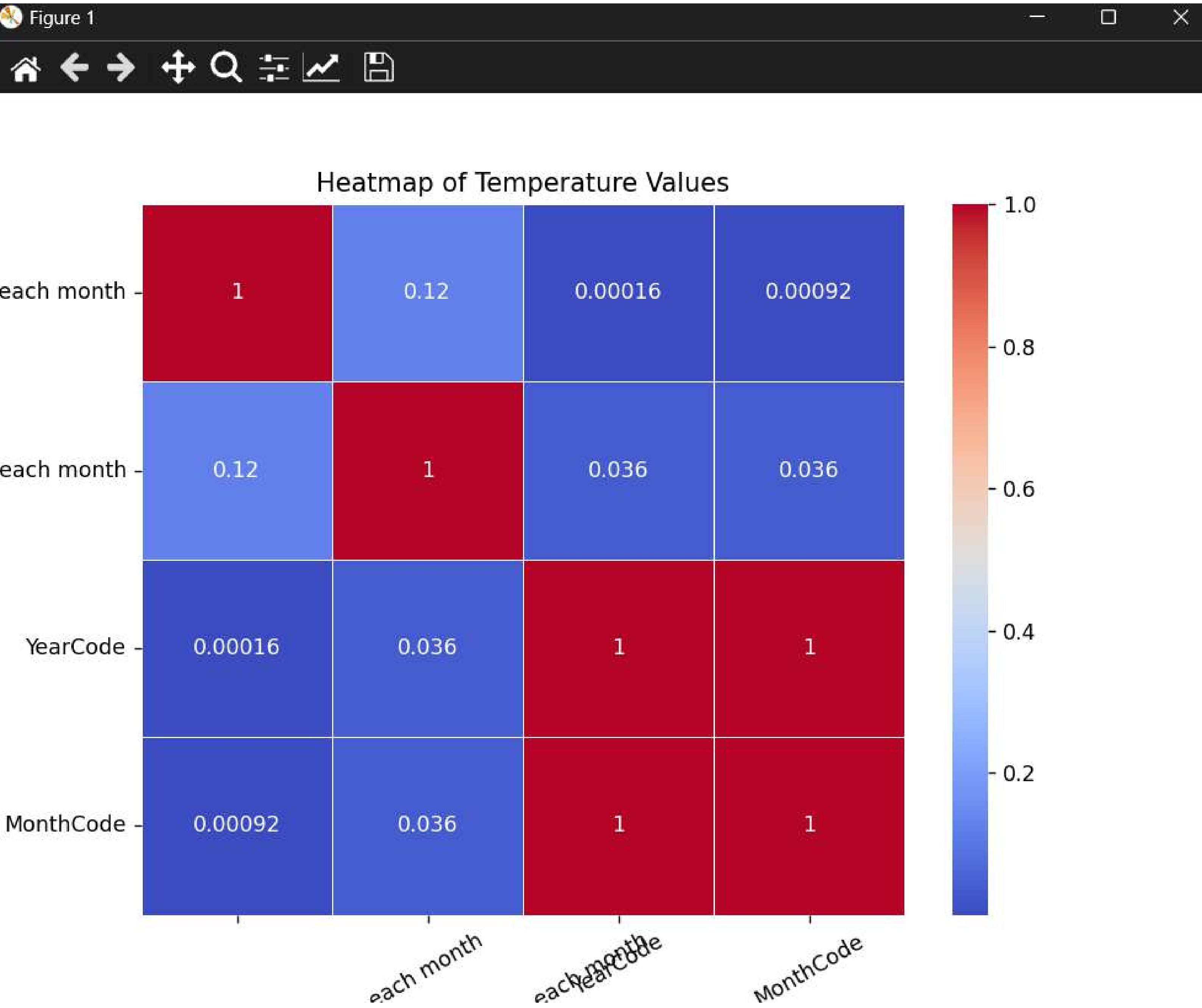


Figure 1
Heatmap of Temperature Values
each month
each month
YearCode
MonthCode
1
0.12
0.00016
0.00092
0.12
1
0.036
0.036
0.00016
0.036
1
1
0.00092
0.036
1
1
each month
each month
YearCode
MonthCode
1.0
0.8
0.6
0.4
0.2

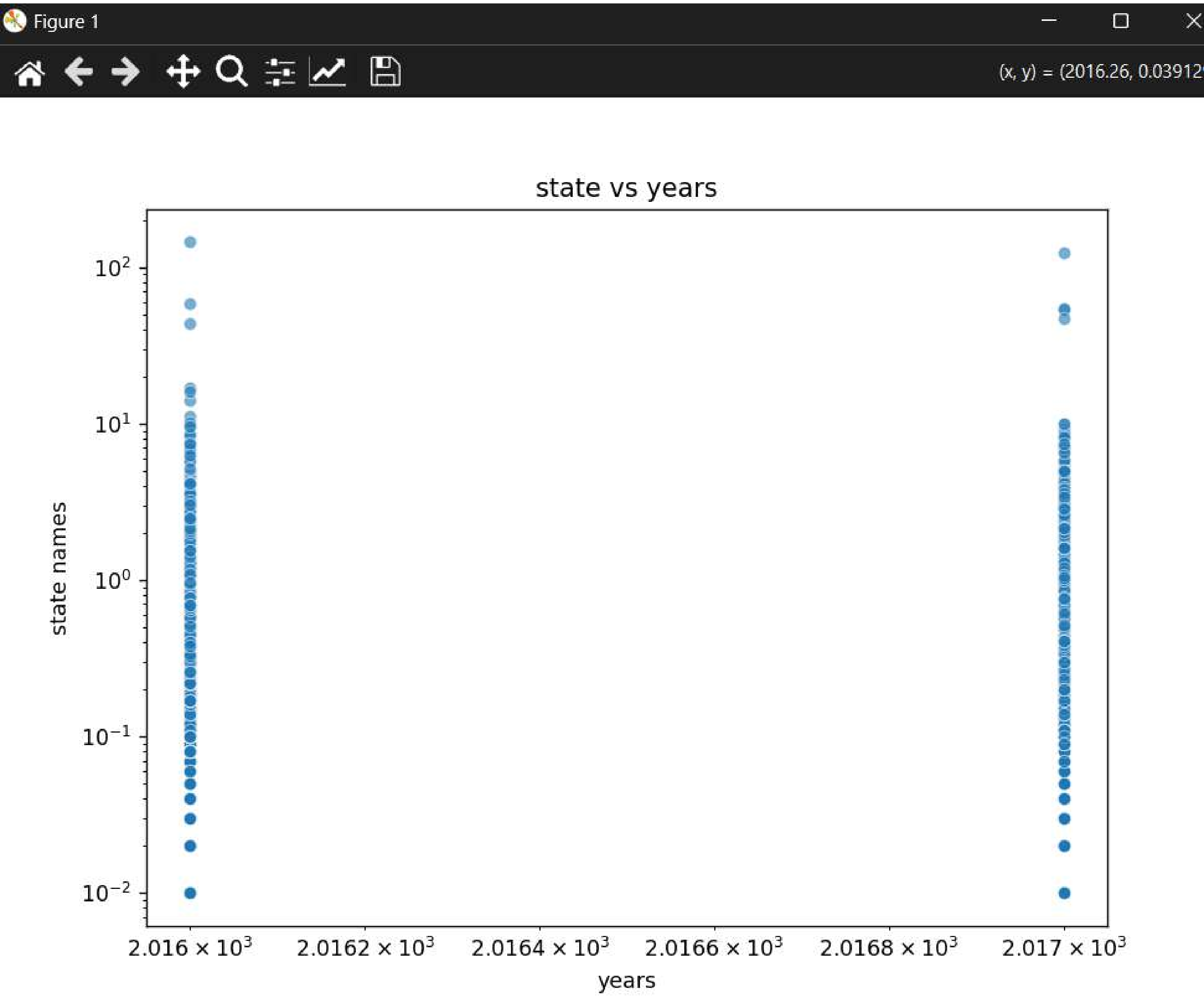


Figure 1
(x, y) = (2016.26, 0.03912
state vs years
state names
10^2
10^1
10^0
10^{-1}
10^{-2}
2.016×10^3
2.0162×10^3
2.0164×10^3
2.0166×10^3
2.0168×10^3
2.017×10^3
years

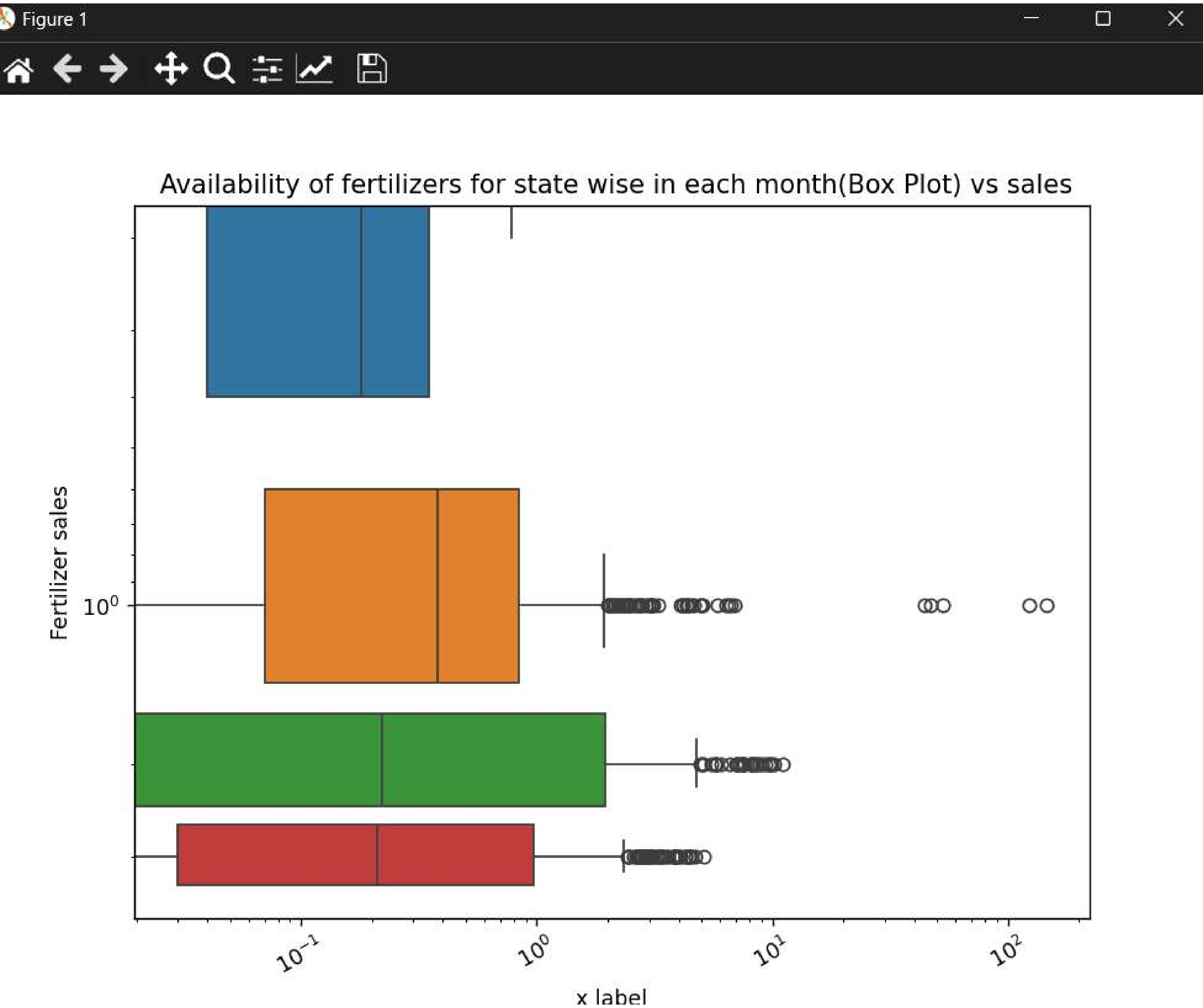


Figure 1
Availability of fertilizers for state wise in each month(Box Plot) vs sales
Fertilizer sales
10^0
10^{-1}
10^0
10^1
10^2
x label