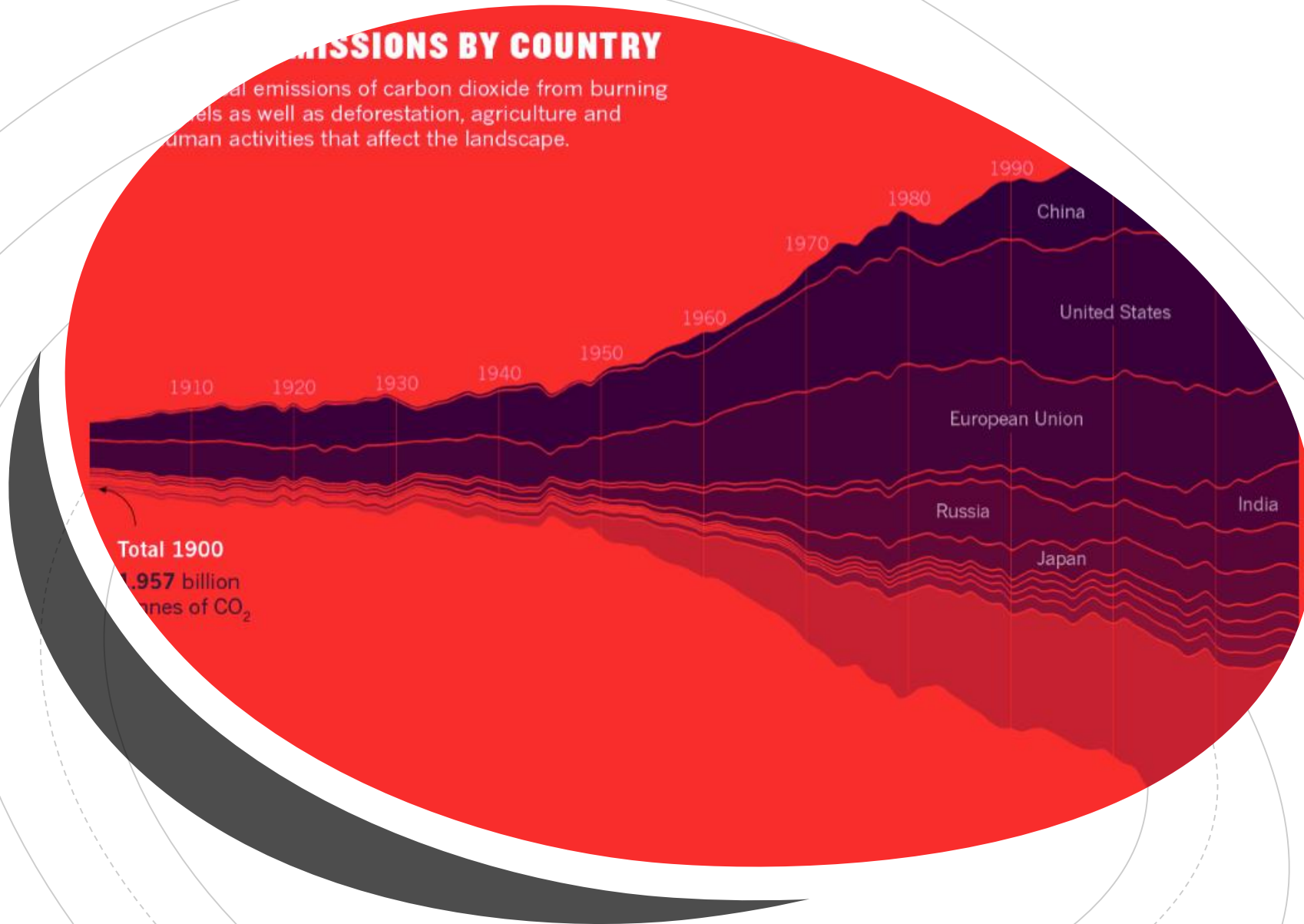


EMISSIONS BY COUNTRY

Global emissions of carbon dioxide from burning fossil fuels as well as deforestation, agriculture and other human activities that affect the landscape.



THE GLOBAL CARBON EMISSIONS

Team Members:

- Mayank Gangwar 12D
- Aheek Gupta 12A
- Bhavya Sharma 12B

CERTIFICATE

This project is the bona fide work of Mayank Gangwar, Aheek Gupta and Bhavya Sharma of class XII-D, session 2021-2022. Performed under the guidance of Mrs. Puja Gupta (PGT: Computer Science, Mount Carmel School, Dwarka)

Teacher's Signature

ACKNOWLEDGEMENT

We will always be grateful to Late Ms. Tejinder Kaur Oberoi for laying the foundation of the subject and helping us out of her ways to keep the interest constant.

We would also like to express our sincere gratitude to our IP teacher, Mrs. Puja Gupta, for her vital support, guidance and encouragement that has enabled us to complete the project.

We would also thank the Mount Carmel School for the amenities and opportunity to study the subject and our parents to provide us with the necessities during the COVID-19 Pandemic.

Aim of the project

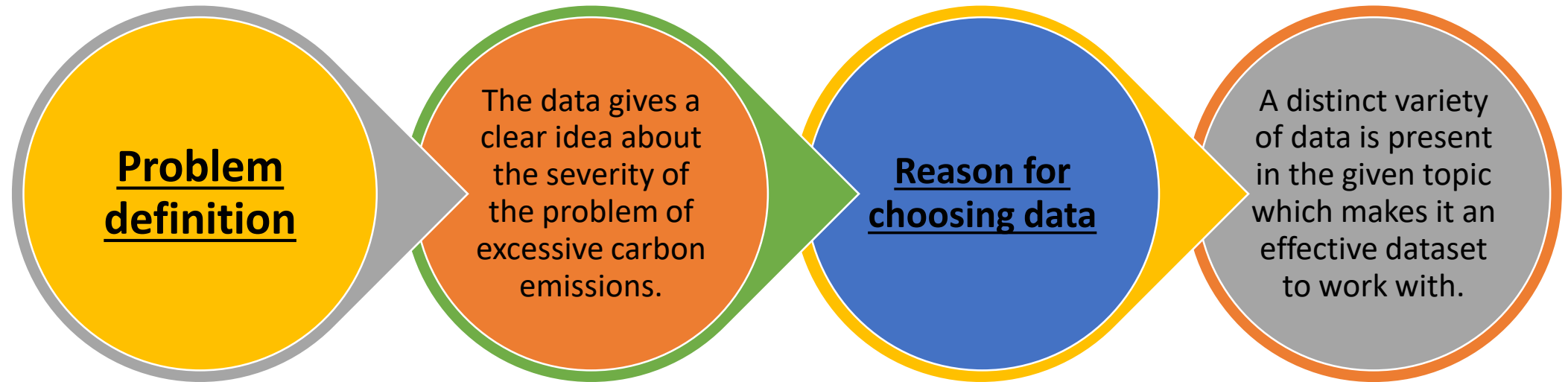
The aim of the project is:-

1.1. To study the global carbon emissions

2. To shed light on the carbon emission index and highlight the most polluting countries

3. To bring awareness about the various available alternatives and solutions

Project Overview



Data analysis

The aim of the project is to look at the total amount of global carbon emissions, the most carbon producing countries and study some countries that have a low carbon footprint and look at the reasons for the same.

Hardware Requirements: Laptop (8GB RAM) with Windows 10 OS

Software Requirement: Python – pandas and matplotlib libraries. CSV

Front End:- Panda, Matplotlib, Python(as elaborated in the following slides)

Back End:-CSV files

PANDAS

- Pandas is a software library written for the Python programming language for data manipulation and analysis.
- It offers data structures and operations for manipulating numerical tables and time series. Its original author is Wes McKinney



Matplotlib

- Matplotlib is a cross-platform, data visualization and graphical plotting library for Python and its numerical extension NumPy.
- As such, it offers a viable open-source alternative to MATLAB. Its original author is John D. Hunter



Python

- Python is an interpreted high-level general-purpose programming language. Its design philosophy emphasizes code readability with its use of significant indentation.
- Its language constructs as well as its object-oriented approach aim to help programmers write clear, logical code for small and large-scale projects



Back-end->CSV files

- A comma-separated values file is a delimited text file that uses a comma to separate values.
- Each line of the file is a data record. Each record consists of one or more fields, separated by commas. The use of the comma as a field separator is the source of the name for this file format.



DATA FILES

CSV FILE

CSV files - A comma-separated values file is a delimited text file that uses a comma to separate values. Each line of the file is a data record. Each record consists of one or more fields, separated by commas. The use of the comma as a field separator is the source of the name for this file format.

FILES CREATED

1. CSV1.csv – This file stores all the data about the past, present and future predictions of carbon emissions of some major countries.

MODULES IMPORTED

Pandas Module - **Pandas** is a fast, powerful, flexible and easy to use open source data analysis and manipulation tool, built on top of the Python programming language.

Matplotlib.pyplot Module- Matplotlib is a cross-platform, data visualization and graphical plotting library for Python and its numerical extension NumPy.

NumPy- NumPy is a Python library used for working with arrays. It also has functions for working in domain of linear algebra, Fourier transform, and matrices. NumPy was created in 2005 by Travis Oliphant.

CODE

ip project(new).py - C:\Users\MP Gangwar\Desktop\Mayank\SCHOOL\IP Class 12\Project\ip project(new).py (3.8.1)

File Edit Format Run Options Window Help

```
#This is the IP project made by Mayank Gangwar , Aheek Gupta and Bhavya Sharma

import pandas as pd
import numpy as np
import matplotlib.pyplot as plt
import sys

#DataFrame used
csv1=pd.read_csv('C:/Users/MP Gangwar/Desktop/Mayank/SCHOOL/IP Class 12/Project/CSV1.csv')

#FUNCTION FOR THE MAIN MENU
def menu():
    while True :
        print('1-Data Visualization')
        print('2-Data Analysis')
        print('3-Data Manipulation')
        print('4-Exit')
        a1=int(input('Enter choice'))
        if a1==1:
            d_viz()
        elif a1==2:
            d_ana()
        elif a1==3:
            d_man()
        elif a1==4:
            break

def d_viz():
    while True :
        print('1- Line Chart- Countries vs. Past Emissions(Top "n")')
        print('2- Line Chart- Countries vs. Present Emissions(Top "n")')
        print('3- Line Chart- Countries vs. Future Emissions(Top "n")')
        print('4- Bar Chart- Countries vs. Past Emissions(Top "n")')
        print('5- Bar Chart- Countries vs. Present Emissions(Top "n")')
        print('6- Bar Chart- Countries vs. Future Emissions(Top "n")')
        print('7- Exit')
        a2= int(input('Enter choice'))
        if a2==1 :
```

```
print('1- Line Chart- Countries vs. Past Emissions(Top "n")')
print('2- Line Chart- Countries vs. Present Emissions(Top "n")')
print('3- Line Chart- Countries vs. Future Emissions(Top "n")')
print('4- Bar Chart- Countries vs. Past Emissions(Top "n")')
print('5- Bar Chart- Countries vs. Present Emissions(Top "n")')
print('6- Bar Chart- Countries vs. Future Emissions(Top "n")')
print('7- Exit')
a2= int(input('Enter choice'))
if a2==1 :
    lp1()
elif a2==2:
    lp2()
elif a2==3:
    lp3()
elif a2==4:
    bg1()
elif a2==5:
    bg2()
elif a2==6:
    bg3()
elif a2==7:
    break

def bg1():
    n=int(input('ENTER n '))
    a=csvl.sort_values(by=['PAST'], axis=0,ascending=False)
    graph_1=a.head(n).plot.bar(x='COUNTRIES',y='PAST')
    plt.show()

def bg2():
    n=int(input('ENTER n '))
    b=csvl.sort_values(by=['PRESENT'], axis=0,ascending=False)
    graph_2=b.head(n).plot.bar(x='COUNTRIES',y='PRESENT')
    plt.show()

def bg3():
    n=int(input('ENTER n '))
    c=csvl.sort_values(by=['FUTURE'], axis=0,ascending=False)
    graph_3=c.head(n).plot.bar(x='COUNTRIES',y='FUTURE')
    plt.show()

def lp1():
```

```
def lp1():
    n=int(input('ENTER n '))
    a=csv1.sort_values(by=['PAST'], axis=0,ascending=False)
    graph_4=a.head(n).plot(x='COUNTRIES',y='PAST')
    plt.show()

def lp2():
    n=int(input('ENTER n '))
    b=csv1.sort_values(by=['PRESENT'], axis=0,ascending=False)
    graph_5=b.head(n).plot(x='COUNTRIES',y='PRESENT')
    plt.show()

def lp3():
    n=int(input('ENTER n '))
    c=csv1.sort_values(by=['FUTURE'], axis=0,ascending=False)
    graph_6=c.head(n).plot(x='COUNTRIES',y='FUTURE')
    plt.show()

def d_ana():
    while True :
        print('1- Top Countries by Past Emissions')
        print('2-Top Countries by Present Emissions')
        print('3-Top Countries by Future Emissions')
        print('4-Bottom Countries by Past Emissions')
        print('5-Bottom Countries by Present Emissions')
        print('6-Bottom Countries by Future Emissions')
        print('7- Dataframe discription')
        print('8- Go back to main menu')
        a2=int(input('Enter choice'))
        if a2==1:
            a=csv1.sort_values(by=['PAST'], axis=0,ascending=False)
            print(a[['COUNTRIES','PAST']])
        elif a2==2:
            b=csv1.sort_values(by=['PRESENT'], axis=0,ascending=False)
            print(b[['COUNTRIES','PRESENT']])
        elif a2==3:
            c=csv1.sort_values(by=['FUTURE'], axis=0,ascending=False)
            print(c[['COUNTRIES','FUTURE']])
        elif a2==4:
            d= csv1.sort_values(by=['PAST'], axis=0 , ascending=True)
            print(d[['COUNTRIES','PAST']])
```

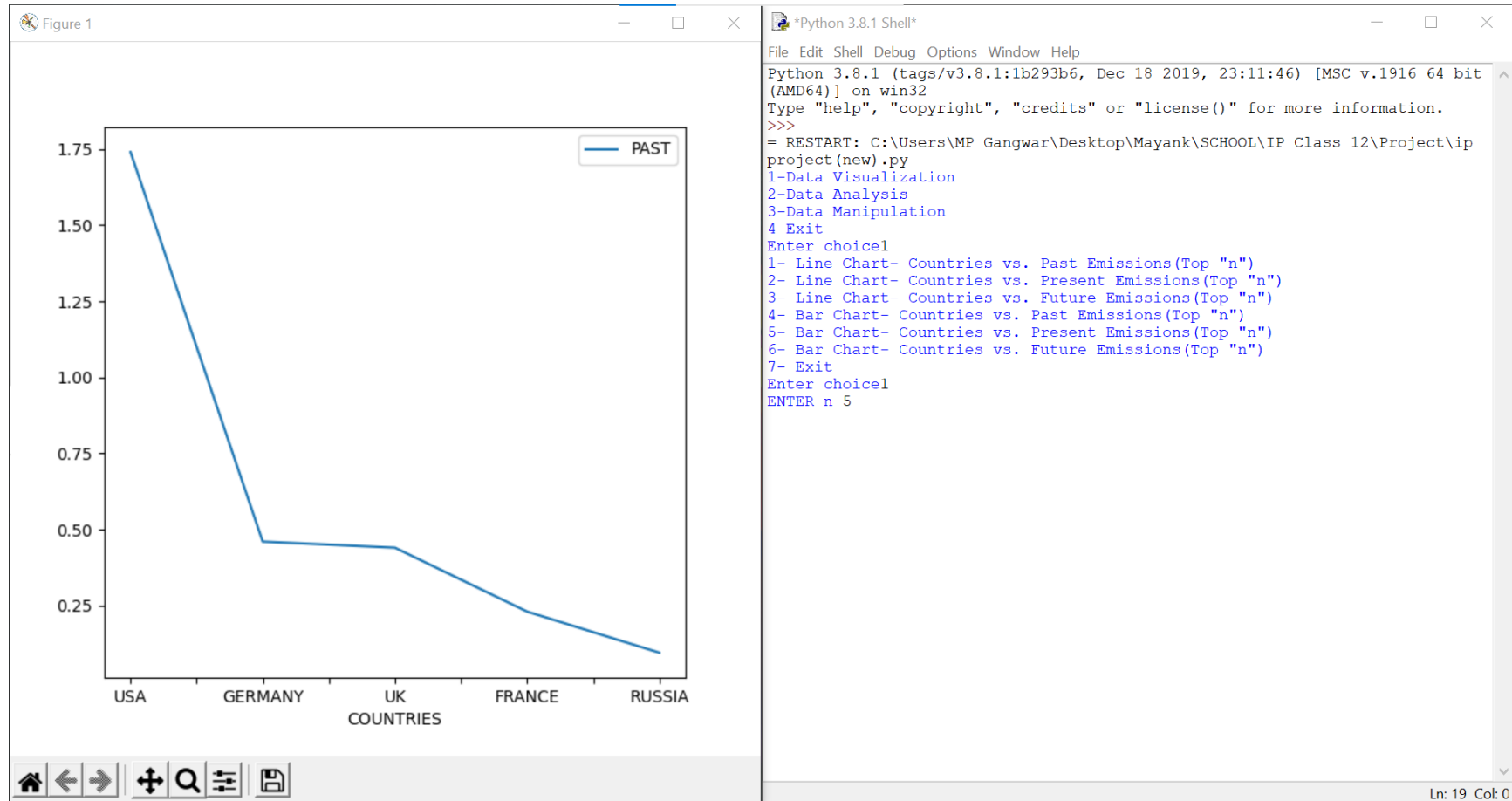
```
b=csv1.sort_values(by=['PRESENT'], axis=0,ascending=False)
print(b[['COUNTRIES','PRESENT']])
elif a2==3:
    c=csv1.sort_values(by=['FUTURE'], axis=0,ascending=False)
    print(c[['COUNTRIES','FUTURE']])
elif a2==4:
    d= csv1.sort_values(by=['PAST'], axis=0 , ascending=True)
    print(d[['COUNTRIES','PAST']])
elif a2==5:
    e= csv1.sort_values(by=['PRESENT'], axis=0 , ascending=True)
    print(e[['COUNTRIES','PRESENT']])
elif a2==6:
    f= csv1.sort_values(by=['FUTURE'], axis=0 , ascending=True)
    print(f[['COUNTRIES','FUTURE']])
elif a2==7:
    print(csv1.describe())
elif a2==8:
    break

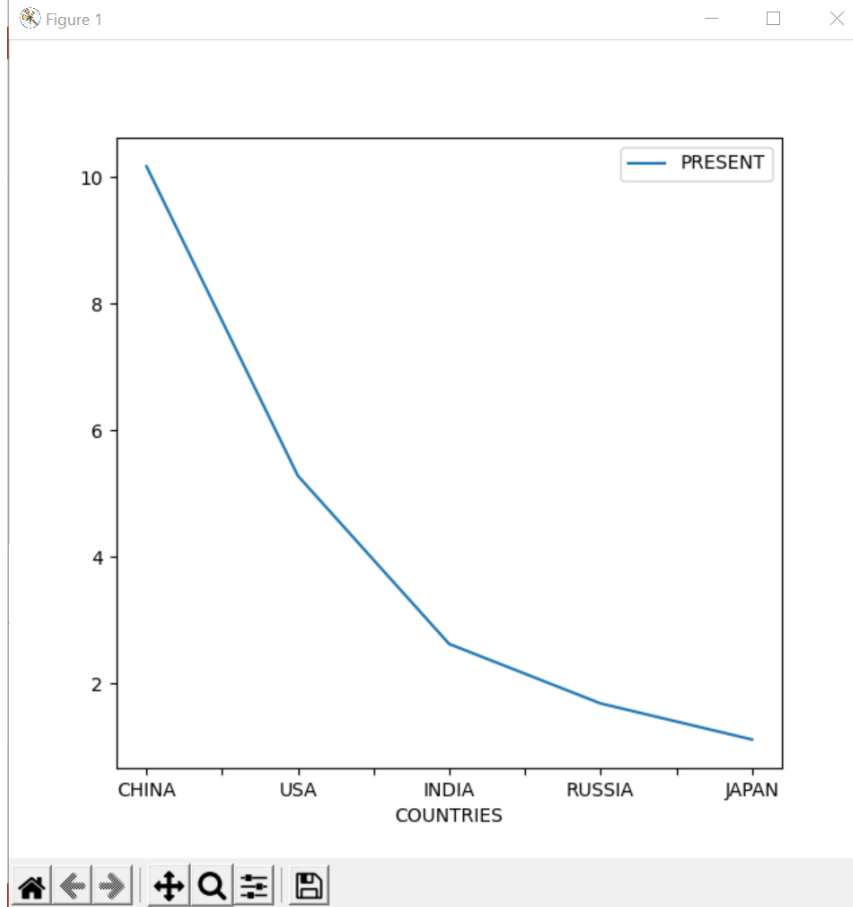
def d_man():
    csv1=pd.read_csv('C:/Users/MP Gangwar/Desktop/Mayank/SCHOOL/IP Class 12/Project/CSV1.csv')
    while True :
        print('1- Inserting Row')
        print('2- Deleting Row')
        print('3- Inserting Column')
        print('4- Deleting Column')
        print('5- Renaming Coulmn')
        print('6- Go back to main menu')
        a3= int(input('Enter choice'))
        if a3==1:
            x=len(csv1)
            x1=str(input('Enter Country name'))
            x2=float(input('Enter Past Emissions'))
            x3=float(input('Enter Present Emissions'))
            x4=float(input('Enter Future Emissions'))
            csv1.loc[x]=[x1,x2,x3,x4]
            csv1.to_csv('C:/Users/MP Gangwar/Desktop/Mayank/SCHOOL/IP Class 12/Project/CSV1.csv', index=False)
            csv1=csv1.read_csv('C:/Users/MP Gangwar/Desktop/Mayank/SCHOOL/IP Class 12/Project/CSV1.csv')
            print(csv1)
        elif a3==2:
```



```
if a3==1:
    x=len(csv1)
    x1=str(input('Enter Country name'))
    x2=float(input('Enter Past Emissions'))
    x3=float(input('Enter Present Emissions'))
    x4=float(input('Enter Future Emissions'))
    csv1.loc[x]=[x1,x2,x3,x4]
    csv1.to_csv('C:/Users/MP Gangwar/Desktop/Mayank/SCHOOL/IP Class 12/Project/CSV1.csv', index=False)
    csv1=csv1.read_csv('C:/Users/MP Gangwar/Desktop/Mayank/SCHOOL/IP Class 12/Project/CSV1.csv')
    print(csv1)
elif a3==2:
    x=int(input('enter which row axis'))
    csv1=csv1.drop(x,axis=0)
    csv1.to_csv('C:/Users/MP Gangwar/Desktop/Mayank/SCHOOL/IP Class 12/Project/CSV1.csv', index=False)
    csv1=csv1.read_csv('C:/Users/MP Gangwar/Desktop/Mayank/SCHOOL/IP Class 12/Project/CSV1.csv')
    print(csv1)
elif a3==3:
    x=str(input('enter new column name'))
    csv1[x]='NaN'
    csv1.to_csv('C:/Users/MP Gangwar/Desktop/Mayank/SCHOOL/IP Class 12/Project/CSV1.csv', index=False)
    csv1=csv1.read_csv('C:/Users/MP Gangwar/Desktop/Mayank/SCHOOL/IP Class 12/Project/CSV1.csv')
    print(csv1)
elif a3==4:
    x=input('Enter which column to delete')
    csv1=csv1.drop(x, axis=1)
    csv1.to_csv('C:/Users/MP Gangwar/Desktop/Mayank/SCHOOL/IP Class 12/Project/CSV1.csv', index=False)
    csv1=csv1.read_csv('C:/Users/MP Gangwar/Desktop/Mayank/SCHOOL/IP Class 12/Project/CSV1.csv')
    print(csv1)
elif a3==5:
    x1=input('Enter a column which has to be renamed
    ')
    x2=input('Enter new column name')
    csv1=csv1.rename(columns={x1:x2})
    csv1.to_csv('C:/Users/MP Gangwar/Desktop/Mayank/SCHOOL/IP Class 12/Project/CSV1.csv', index=False)
    csv1=csv1.read_csv('C:/Users/MP Gangwar/Desktop/Mayank/SCHOOL/IP Class 12/Project/CSV1.csv')
    print(csv1)
elif a3==6:
    break
```

OUTPUT

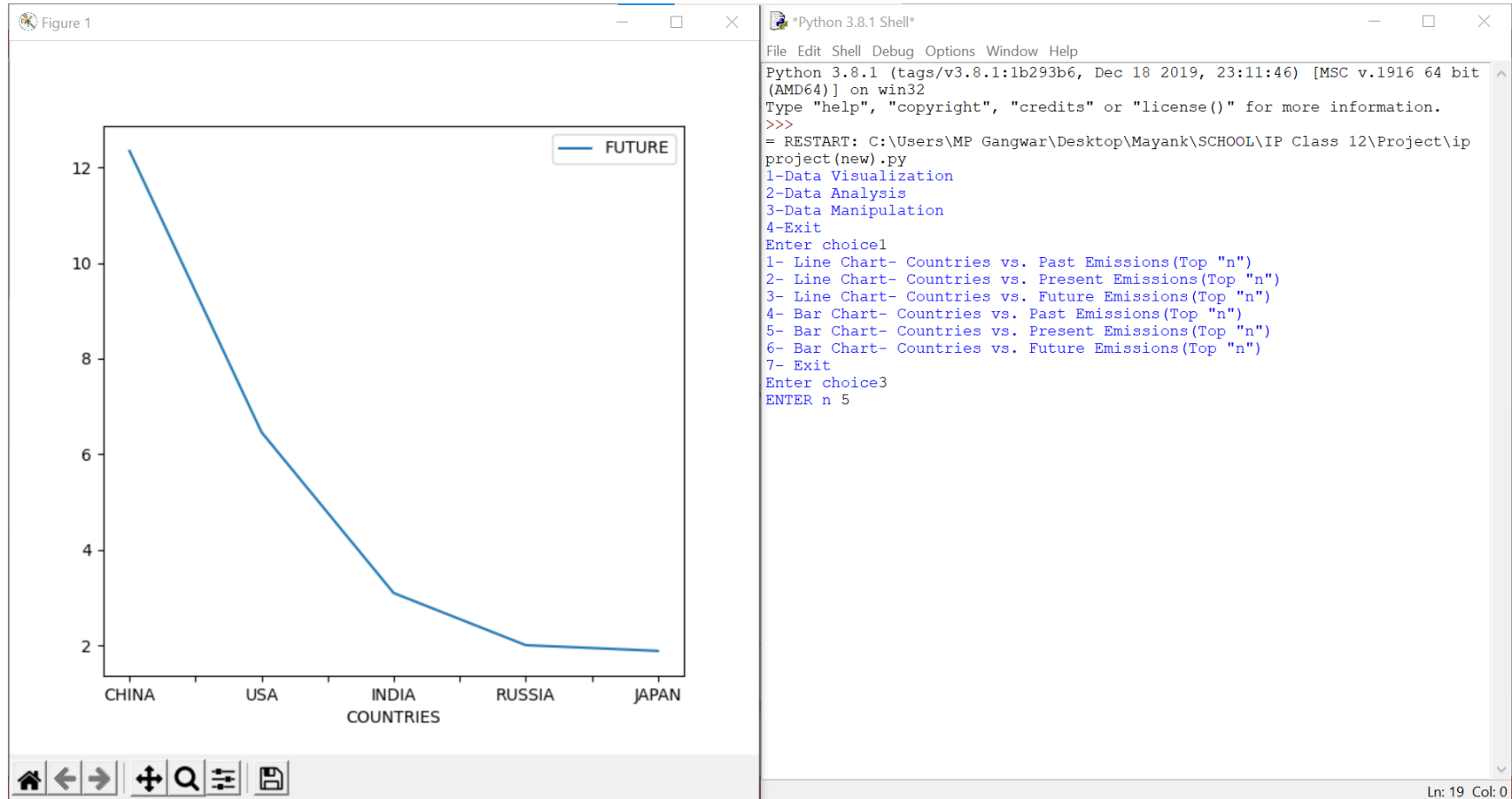


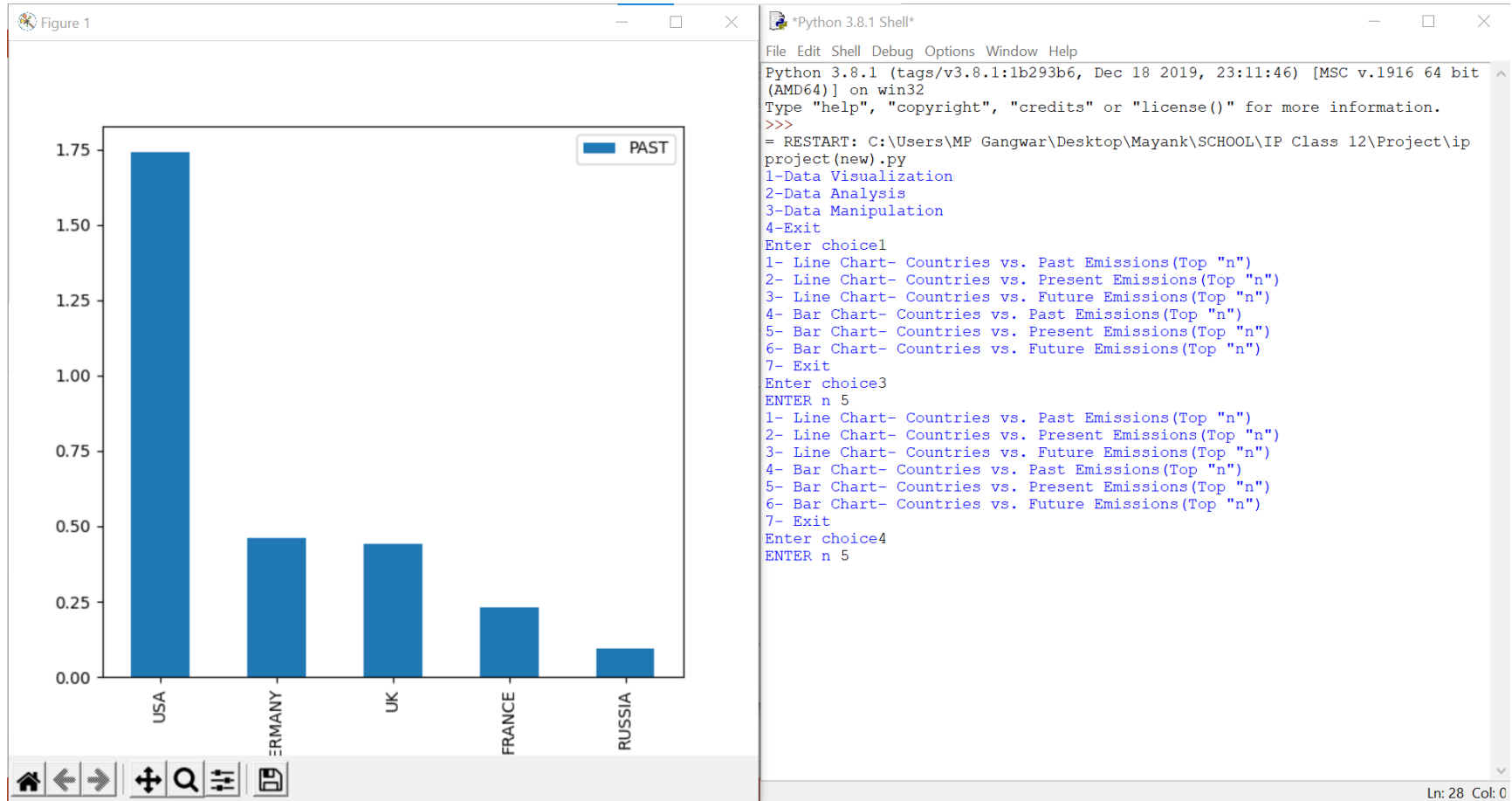


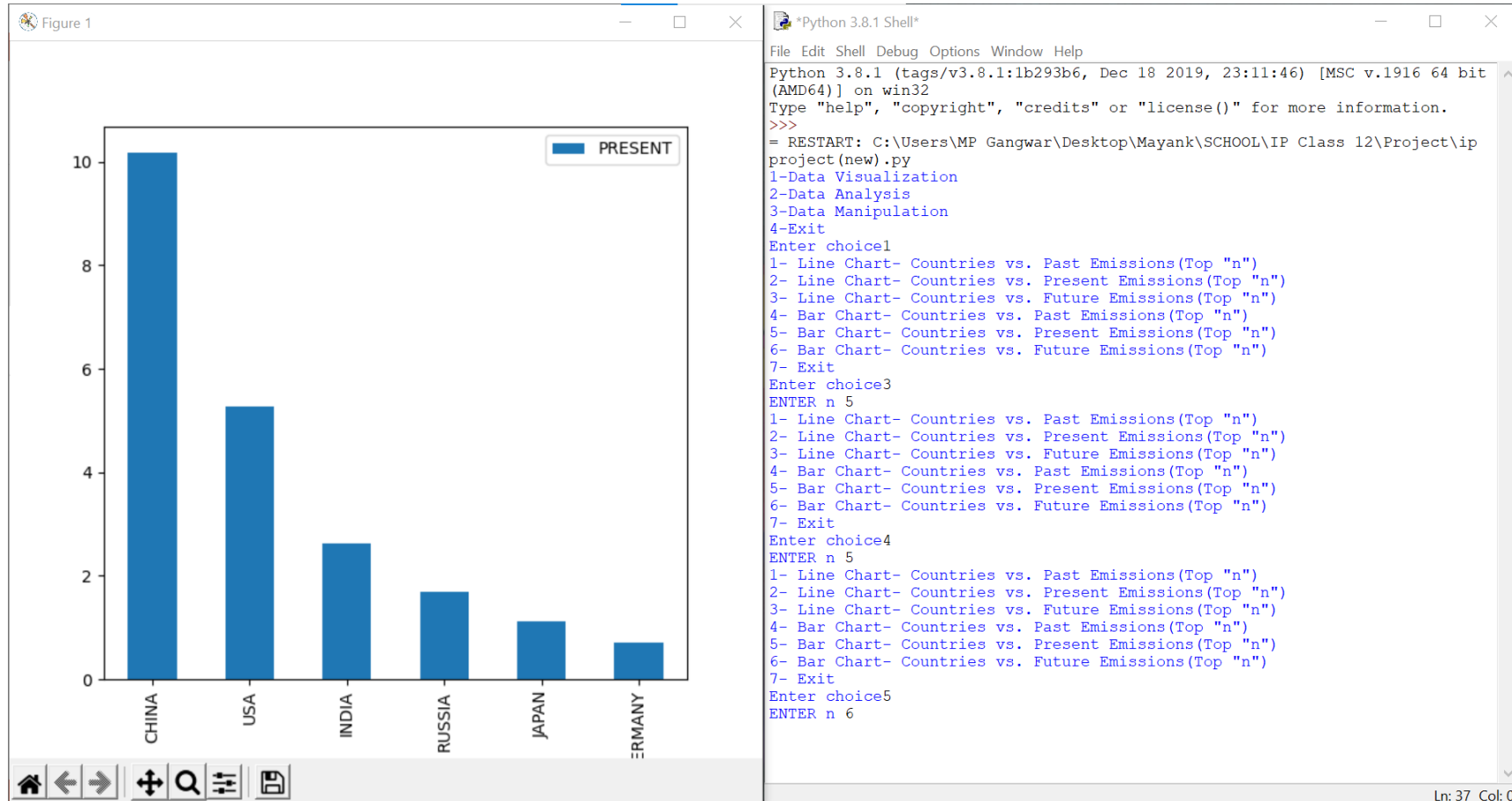
Python 3.8.1 Shell

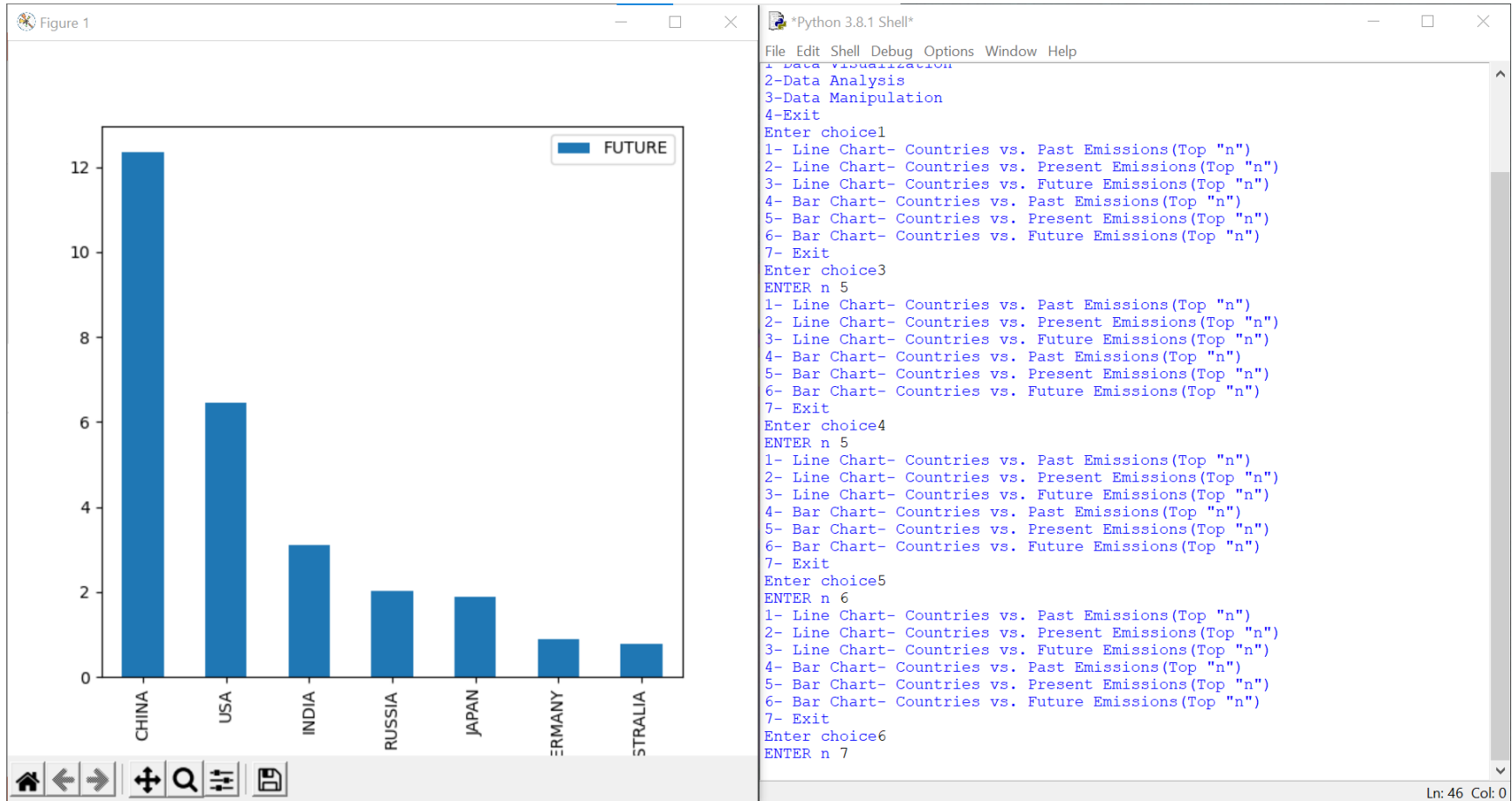
```
File Edit Shell Debug Options Window Help
Python 3.8.1 (tags/v3.8.1:1b293b6, Dec 18 2019, 23:11:46) [MSC v.1916 64 bit (AMD64)] on win32
Type "help", "copyright", "credits" or "license()" for more information.
>>>
= RESTART: C:\Users\MP Gangwar\Desktop\Mayank\SCHOOL\IP Class 12\Project\ip
project(new).py
1-Data Visualization
2-Data Analysis
3-Data Manipulation
4-Exit
Enter choice1
1- Line Chart- Countries vs. Past Emissions(Top "n")
2- Line Chart- Countries vs. Present Emissions(Top "n")
3- Line Chart- Countries vs. Future Emissions(Top "n")
4- Bar Chart- Countries vs. Past Emissions(Top "n")
5- Bar Chart- Countries vs. Present Emissions(Top "n")
6- Bar Chart- Countries vs. Future Emissions(Top "n")
7- Exit
Enter choice2
ENTER n 5
```

Ln: 19 Col: 0









```
*Python 3.8.1 Shell*
File Edit Shell Debug Options Window Help
Python 3.8.1 (tags/v3.8.1:1b293b6, Dec 18 2019, 23:11:46) [MSC v.1916 64 bit (AMD64)] on win32
Type "help", "copyright", "credits" or "license()" for more information.
>>>
= RESTART: C:\Users\MP Gangwar\Desktop\Mayank\SCHOOL\IP Class 12\Project\ip project(new).py
1-Data Visualization
2-Data Analysis
3-Data Manipulation
4-Exit
Enter choice2
1- Top Countries by Past Emissions
2-Top Countries by Present Emissions
3-Top Countries by Future Emissions
4-Bottom Countries by Past Emissions
5-Bottom Countries by Present Emissions
6-Bottom Countries by Future Emissions
7- Dataframe discription
8- Go back to main menu
Enter choicel
  COUNTRIES    PAST
1      USA    1.740
5    GERMANY    0.460
3        UK    0.440
4    FRANCE    0.230
8    RUSSIA    0.095
2    CANADA    0.094
7     JAPAN    0.086
0     INDIA    0.042
6     CHINA    0.037
9 AUSTRALIA    0.022
10    SWEDEN    0.013
1- Top Countries by Past Emissions
2-Top Countries by Present Emissions
3-Top Countries by Future Emissions
4-Bottom Countries by Past Emissions
5-Bottom Countries by Present Emissions
6-Bottom Countries by Future Emissions
7- Dataframe discription
8- Go back to main menu
Enter choice
```

Ln: 39 Col: 12


```
*Python 3.8.1 Shell*
File Edit Shell Debug Options Window Help

COUNTRIES PAST
1 USA 1.740
5 GERMANY 0.460
3 UK 0.440
4 FRANCE 0.230
8 RUSSIA 0.095
2 CANADA 0.094
7 JAPAN 0.086
0 INDIA 0.042
6 CHINA 0.037
9 AUSTRALIA 0.022
10 SWEDEN 0.013
1- Top Countries by Past Emissions
2-Top Countries by Present Emissions
3-Top Countries by Future Emissions
4-Bottom Countries by Past Emissions
5-Bottom Countries by Present Emissions
6-Bottom Countries by Future Emissions
7- Dataframe discription
8- Go back to main menu
Enter choice2
COUNTRIES PRESENT
6 CHINA 10.170
1 USA 5.280
0 INDIA 2.620
8 RUSSIA 1.680
7 JAPAN 1.110
5 GERMANY 0.700
2 CANADA 0.570
9 AUSTRALIA 0.410
3 UK 0.380
4 FRANCE 0.320
10 SWEDEN 0.042
1- Top Countries by Past Emissions
2-Top Countries by Present Emissions
3-Top Countries by Future Emissions
4-Bottom Countries by Past Emissions
5-Bottom Countries by Present Emissions
6-Bottom Countries by Future Emissions
7- Dataframe discription
8- Go back to main menu
Enter choice
```

Ln: 57 Col: 0

```
*Python 3.8.1 Shell*
File Edit Shell Debug Options Window Help
COUNTRIES PRESENT
6 CHINA 10.170
1 USA 5.280
0 INDIA 2.620
8 RUSSIA 1.680
7 JAPAN 1.110
5 GERMANY 0.700
2 CANADA 0.570
9 AUSTRALIA 0.410
3 UK 0.380
4 FRANCE 0.320
10 SWEDEN 0.042
1- Top Countries by Past Emissions
2-Top Countries by Present Emissions
3-Top Countries by Future Emissions
4-Bottom Countries by Past Emissions
5-Bottom Countries by Present Emissions
6-Bottom Countries by Future Emissions
7- Dataframe discription
8- Go back to main menu
Enter choice3
COUNTRIES FUTURE
6 CHINA 12.340
1 USA 6.460
0 INDIA 3.100
8 RUSSIA 2.010
7 JAPAN 1.890
5 GERMANY 0.900
9 AUSTRALIA 0.780
2 CANADA 0.680
3 UK 0.540
4 FRANCE 0.470
10 SWEDEN 0.089
1- Top Countries by Past Emissions
2-Top Countries by Present Emissions
3-Top Countries by Future Emissions
4-Bottom Countries by Past Emissions
5-Bottom Countries by Present Emissions
6-Bottom Countries by Future Emissions
7- Dataframe discription
8- Go back to main menu
Enter choice
```

```
*Python 3.8.1 Shell*
File Edit Shell Debug Options Window Help
COUNTRIES FUTURE
6 CHINA 12.340
1 USA 6.460
0 INDIA 3.100
8 RUSSIA 2.010
7 JAPAN 1.890
5 GERMANY 0.900
9 AUSTRALIA 0.780
2 CANADA 0.680
3 UK 0.540
4 FRANCE 0.470
10 SWEDEN 0.089
1- Top Countries by Past Emissions
2-Top Countries by Present Emissions
3-Top Countries by Future Emissions
4-Bottom Countries by Past Emissions
5-Bottom Countries by Present Emissions
6-Bottom Countries by Future Emissions
7- Dataframe discription
8- Go back to main menu
Enter choice4
COUNTRIES PAST
10 SWEDEN 0.013
9 AUSTRALIA 0.022
6 CHINA 0.037
0 INDIA 0.042
7 JAPAN 0.086
2 CANADA 0.094
8 RUSSIA 0.095
4 FRANCE 0.230
3 UK 0.440
5 GERMANY 0.460
1 USA 1.740
1- Top Countries by Past Emissions
2-Top Countries by Present Emissions
3-Top Countries by Future Emissions
4-Bottom Countries by Past Emissions
5-Bottom Countries by Present Emissions
6-Bottom Countries by Future Emissions
7- Dataframe discription
8- Go back to main menu
Enter choice
```

Ln: 101 Col: 0

```
*Python 3.8.1 Shell*
File Edit Shell Debug Options Window Help
COUNTRIES PAST
10 SWEDEN 0.013
9 AUSTRALIA 0.022
6 CHINA 0.037
0 INDIA 0.042
7 JAPAN 0.086
2 CANADA 0.094
8 RUSSIA 0.095
4 FRANCE 0.230
3 UK 0.440
5 GERMANY 0.460
1 USA 1.740
1- Top Countries by Past Emissions
2-Top Countries by Present Emissions
3-Top Countries by Future Emissions
4-Bottom Countries by Past Emissions
5-Bottom Countries by Present Emissions
6-Bottom Countries by Future Emissions
7- Dataframe discription
8- Go back to main menu
Enter choice5
COUNTRIES PRESENT
10 SWEDEN 0.042
4 FRANCE 0.320
3 UK 0.380
9 AUSTRALIA 0.410
2 CANADA 0.570
5 GERMANY 0.700
7 JAPAN 1.110
8 RUSSIA 1.680
0 INDIA 2.620
1 USA 5.280
6 CHINA 10.170
1- Top Countries by Past Emissions
2-Top Countries by Present Emissions
3-Top Countries by Future Emissions
4-Bottom Countries by Past Emissions
5-Bottom Countries by Present Emissions
6-Bottom Countries by Future Emissions
7- Dataframe discription
8- Go back to main menu
Enter choice
```

Ln: 119 Col: 39

```
*Python 3.8.1 Shell*
File Edit Shell Debug Options Window Help
COUNTRIES PRESENT
10 SWEDEN 0.042
4 FRANCE 0.320
3 UK 0.380
9 AUSTRALIA 0.410
2 CANADA 0.570
5 GERMANY 0.700
7 JAPAN 1.110
8 RUSSIA 1.680
0 INDIA 2.620
1 USA 5.280
6 CHINA 10.170
1- Top Countries by Past Emissions
2-Top Countries by Present Emissions
3-Top Countries by Future Emissions
4-Bottom Countries by Past Emissions
5-Bottom Countries by Present Emissions
6-Bottom Countries by Future Emissions
7- Dataframe discription
8- Go back to main menu
Enter choice6
COUNTRIES FUTURE
10 SWEDEN 0.089
4 FRANCE 0.470
3 UK 0.540
2 CANADA 0.680
9 AUSTRALIA 0.780
5 GERMANY 0.900
7 JAPAN 1.890
8 RUSSIA 2.010
0 INDIA 3.100
1 USA 6.460
6 CHINA 12.340
1- Top Countries by Past Emissions
2-Top Countries by Present Emissions
3-Top Countries by Future Emissions
4-Bottom Countries by Past Emissions
5-Bottom Countries by Present Emissions
6-Bottom Countries by Future Emissions
7- Dataframe discription
8- Go back to main menu
Enter choice
```

Ln: 144 Col: 0

```
*Python 3.8.1 Shell*
File Edit Shell Debug Options Window Help
7- Dataframe discription
8- Go back to main menu
Enter choice6
  COUNTRIES  FUTURE
10  SWEDEN    0.089
4   FRANCE    0.470
3   UK        0.540
2   CANADA    0.680
9   AUSTRALIA 0.780
5   GERMANY   0.900
7   JAPAN     1.890
8   RUSSIA    2.010
0   INDIA     3.100
1   USA       6.460
6   CHINA     12.340
1- Top Countries by Past Emissions
2-Top Countries by Present Emissions
3-Top Countries by Future Emissions
4-Bottom Countries by Past Emissions
5-Bottom Countries by Present Emissions
6-Bottom Countries by Future Emissions
7- Dataframe discription
8- Go back to main menu
Enter choice7
      PAST      PRESENT      FUTURE
count  11.000000  11.000000  11.000000
mean    0.296273   2.116545   2.659909
std     0.504895   3.068882   3.685164
min     0.013000   0.042000   0.089000
25%     0.039500   0.395000   0.610000
50%     0.094000   0.700000   0.900000
75%     0.335000   2.150000   2.555000
max     1.740000  10.170000  12.340000
1- Top Countries by Past Emissions
2-Top Countries by Present Emissions
3-Top Countries by Future Emissions
4-Bottom Countries by Past Emissions
5-Bottom Countries by Present Emissions
6-Bottom Countries by Future Emissions
7- Dataframe discription
8- Go back to main menu
Enter choice
```

```
*Python 3.8.1 Shell*
File Edit Shell Debug Options Window Help
Python 3.8.1 (tags/v3.8.1:1b293b6, Dec 18 2019, 23:11:46) [MSC v.1916 64 bit (AMD64)] on win32
Type "help", "copyright", "credits" or "license()" for more information.
>>>
= RESTART: C:\Users\MP Gangwar\Desktop\Mayank\SCHOOL\IP Class 12\Project\ip project(new).py
1-Data Visualization
2-Data Analysis
3-Data Manipulation
4-Exit
Enter choice3
1- Inserting Row
2- Deleting Row
3- Inserting Column
4- Deleting Column
5- Renaming Coulmn
6- Go back to main menu
Enter choice1
Enter Country nameSOUTH KOREA
Enter Past Emissions0.073
Enter Present Emissions0.98
Enter Future Emissions1.63
   COUNTRIES   PAST   PRESENT   FUTURE
0      INDIA   0.042    2.620    3.100
1        USA   1.740    5.280    6.460
2     CANADA   0.094    0.570    0.680
3        UK   0.440    0.380    0.540
4     FRANCE   0.230    0.320    0.470
5     GERMANY   0.460    0.700    0.900
6      CHINA   0.037   10.170   12.340
7      JAPAN   0.086    1.110    1.890
8     RUSSIA   0.095    1.680    2.010
9 AUSTRALIA   0.022    0.410    0.780
10     SWEDEN   0.013    0.042    0.089
11 SOUTH KOREA 0.073    0.980    1.630
1- Inserting Row
2- Deleting Row
3- Inserting Column
4- Deleting Column
5- Renaming Coulmn
6- Go back to main menu
Enter choice
```

Ln: 40 Col: 12

```
*Python 3.8.1 Shell*
File Edit Shell Debug Options Window Help
Enter Present Emissions0.98
Enter Future Emissions1.63
COUNTRIES PAST PRESENT FUTURE
0 INDIA 0.042 2.620 3.100
1 USA 1.740 5.280 6.460
2 CANADA 0.094 0.570 0.680
3 UK 0.440 0.380 0.540
4 FRANCE 0.230 0.320 0.470
5 GERMANY 0.460 0.700 0.900
6 CHINA 0.037 10.170 12.340
7 JAPAN 0.086 1.110 1.890
8 RUSSIA 0.095 1.680 2.010
9 AUSTRALIA 0.022 0.410 0.780
10 SWEDEN 0.013 0.042 0.089
11 SOUTH KOREA 0.073 0.980 1.630
1- Inserting Row
2- Deleting Row
3- Inserting Column
4- Deleting Column
5- Renaming Coulmn
6- Go back to main menu
Enter choice2
enter which row axis11
COUNTRIES PAST PRESENT FUTURE
0 INDIA 0.042 2.620 3.100
1 USA 1.740 5.280 6.460
2 CANADA 0.094 0.570 0.680
3 UK 0.440 0.380 0.540
4 FRANCE 0.230 0.320 0.470
5 GERMANY 0.460 0.700 0.900
6 CHINA 0.037 10.170 12.340
7 JAPAN 0.086 1.110 1.890
8 RUSSIA 0.095 1.680 2.010
9 AUSTRALIA 0.022 0.410 0.780
10 SWEDEN 0.013 0.042 0.089
1- Inserting Row
2- Deleting Row
3- Inserting Column
4- Deleting Column
5- Renaming Coulmn
6- Go back to main menu
Enter choice
```

Ln: 59 Col: 0


```
*Python 3.8.1 Shell*
File Edit Shell Debug Options Window Help
6- Go back to main menu
Enter choice2
enter which row axis11
  COUNTRIES  PAST  PRESENT  FUTURE
0    INDIA   0.042   2.620   3.100
1     USA    1.740   5.280   6.460
2   CANADA   0.094   0.570   0.680
3     UK     0.440   0.380   0.540
4   FRANCE   0.230   0.320   0.470
5   GERMANY   0.460   0.700   0.900
6    CHINA   0.037  10.170  12.340
7    JAPAN   0.086   1.110   1.890
8   RUSSIA   0.095   1.680   2.010
9 AUSTRALIA  0.022   0.410   0.780
10  SWEDEN   0.013   0.042   0.089
1- Inserting Row
2- Deleting Row
3- Inserting Column
4- Deleting Column
5- Renaming Coulmn
6- Go back to main menu
Enter choice3
enter new column nameTOTAL
  COUNTRIES  PAST  PRESENT  FUTURE  TOTAL
0    INDIA   0.042   2.620   3.100   NaN
1     USA    1.740   5.280   6.460   NaN
2   CANADA   0.094   0.570   0.680   NaN
3     UK     0.440   0.380   0.540   NaN
4   FRANCE   0.230   0.320   0.470   NaN
5   GERMANY   0.460   0.700   0.900   NaN
6    CHINA   0.037  10.170  12.340   NaN
7    JAPAN   0.086   1.110   1.890   NaN
8   RUSSIA   0.095   1.680   2.010   NaN
9 AUSTRALIA  0.022   0.410   0.780   NaN
10  SWEDEN   0.013   0.042   0.089   NaN
1- Inserting Row
2- Deleting Row
3- Inserting Column
4- Deleting Column
5- Renaming Coulmn
6- Go back to main menu
Enter choice
```

Ln: 77 Col: 18

```
*Python 3.8.1 Shell*
File Edit Shell Debug Options Window Help
6- Go back to main menu
Enter choice3
enter new column nameTOTAL
  COUNTRIES  PAST  PRESENT  FUTURE  TOTAL
0    INDIA   0.042   2.620   3.100   NaN
1     USA    1.740   5.280   6.460   NaN
2   CANADA  0.094   0.570   0.680   NaN
3     UK     0.440   0.380   0.540   NaN
4   FRANCE  0.230   0.320   0.470   NaN
5   GERMANY 0.460   0.700   0.900   NaN
6    CHINA  0.037  10.170  12.340   NaN
7    JAPAN  0.086   1.110   1.890   NaN
8   RUSSIA  0.095   1.680   2.010   NaN
9 AUSTRALIA 0.022   0.410   0.780   NaN
10  SWEDEN  0.013   0.042   0.089   NaN
1- Inserting Row
2- Deleting Row
3- Inserting Column
4- Deleting Column
5- Renaming Coulmn
6- Go back to main menu
Enter choice4
Enter which column to deleteTOTAL
  COUNTRIES  PAST  PRESENT  FUTURE
0    INDIA   0.042   2.620   3.100
1     USA    1.740   5.280   6.460
2   CANADA  0.094   0.570   0.680
3     UK     0.440   0.380   0.540
4   FRANCE  0.230   0.320   0.470
5   GERMANY 0.460   0.700   0.900
6    CHINA  0.037  10.170  12.340
7    JAPAN  0.086   1.110   1.890
8   RUSSIA  0.095   1.680   2.010
9 AUSTRALIA 0.022   0.410   0.780
10  SWEDEN  0.013   0.042   0.089
1- Inserting Row
2- Deleting Row
3- Inserting Column
4- Deleting Column
5- Renaming Coulmn
6- Go back to main menu
Enter choice
```

Ln: 97 Col: 0

```
*Python 3.8.1 Shell*
File Edit Shell Debug Options Window Help
Python 3.8.1 (tags/v3.8.1:1b293b6, Dec 18 2019, 23:11:46) [MSC v.1916 64 bit (AMD64)] on win32
Type "help", "copyright", "credits" or "license()" for more information.
>>>
= RESTART: C:\Users\MP Gangwar\Desktop\Mayank\SCHOOL\IP Class 12\Project\ip project(new).py
1-Data Visualization
2-Data Analysis
3-Data Manipulation
4-Exit
Enter choice3
1- Inserting Row
2- Deleting Row
3- Inserting Column
4- Deleting Column
5- Renaming Coulmn
6- Go back to main menu
Enter choice5
Enter a column which has to be renamedFUTURE
Enter new column namePREDICTED
  COUNTRIES  PAST  PRESENT  PREDICTED
0      INDIA  0.042   2.620    3.100
1        USA  1.740   5.280    6.460
2      CANADA  0.094   0.570    0.680
3         UK  0.440   0.380    0.540
4      FRANCE  0.230   0.320    0.470
5      GERMANY  0.460   0.700    0.900
6        CHINA  0.037  10.170   12.340
7        JAPAN  0.086   1.110    1.890
8       RUSSIA  0.095   1.680    2.010
9  AUSTRALIA  0.022   0.410    0.780
10      SWEDEN  0.013   0.042    0.089
1- Inserting Row
2- Deleting Row
3- Inserting Column
4- Deleting Column
5- Renaming Coulmn
6- Go back to main menu
Enter choice
```

Ln: 37 Col: 12

1- Inserting Row
2- Deleting Row
3- Inserting Column
4- Deleting Column
5- Renaming Coulmn
6- Go back to main menu

Enter choice6

1-Data Visualization
2-Data Analysis
3-Data Manipulation
4-Exit

Enter choice4

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THANK YOU