In [4]:

```
#importing necessary libraries
import numpy as np
import pandas as pd
import matplotlib.pyplot as plt
import seaborn as sns
```

In [5]:

```
#reading the csv file
df=pd.read_csv(r"C:\\Users\\anitt\\Downloads\\API_SP.POP.TOTL_DS2_en_csv_v2
df
```

Out[5]:

	Country Name	Country Code	Indicator Name	Indicator Code	1960	1961	1962
0	Aruba	ABW	Population, total	SP.POP.TOTL	54608.0	55811.0	56682.0
1	Africa Eastern and Southern	AFE	Population, total	SP.POP.TOTL	130692579.0	134169237.0	137835590.0
2	Afghanistan	AFG	Population, total	SP.POP.TOTL	8622466.0	8790140.0	8969047.0
3	Africa Western and Central	AFW	Population, total	SP.POP.TOTL	97256290.0	99314028.0	101445032.0
4	Angola	AGO	Population, total	SP.POP.TOTL	5357195.0	5441333.0	5521400.0
...	...	...	...	...	...	...	...
261	Kosovo	XKX	Population, total	SP.POP.TOTL	947000.0	966000.0	994000.0
262	Yemen, Rep.	YEM	Population, total	SP.POP.TOTL	5542459.0	5646668.0	5753386.0
263	South Africa	ZAF	Population, total	SP.POP.TOTL	16520441.0	16989464.0	17503133.0
264	Zambia	ZMB	Population, total	SP.POP.TOTL	3119430.0	3219451.0	3323427.0
265	Zimbabwe	ZWE	Population, total	SP.POP.TOTL	3806310.0	3925952.0	4049778.0

266 rows × 67 columns

```
In [15]: df.info()
```

```
<class 'pandas.core.frame.DataFrame'>
RangeIndex: 266 entries, 0 to 265
Data columns (total 67 columns):
 #   Column          Non-Null Count  Dtype  
---  ------          --------------  -----  
 0   Country Name    266 non-null    object 
 1   Country Code    266 non-null    object 
 2   Indicator Name  266 non-null    object 
 3   Indicator Code  266 non-null    object 
 4   1960            264 non-null    float64
 5   1961            264 non-null    float64
 6   1962            264 non-null    float64
 7   1963            264 non-null    float64
 8   1964            264 non-null    float64
 9   1965            264 non-null    float64
 10  1966            264 non-null    float64
 11  1967            264 non-null    float64
 12  1968            264 non-null    float64
 13  1969            264 non-null    float64
 14  1970            264 non-null    float64
 15  1971            264 non-null    float64
 16  1972            264 non-null    float64
 17  1973            264 non-null    float64
 18  1974            264 non-null    float64
 19  1975            264 non-null    float64
 20  1976            264 non-null    float64
 21  1977            264 non-null    float64
 22  1978            264 non-null    float64
 23  1979            264 non-null    float64
 24  1980            264 non-null    float64
 25  1981            264 non-null    float64
 26  1982            264 non-null    float64
 27  1983            264 non-null    float64
 28  1984            264 non-null    float64
 29  1985            264 non-null    float64
 30  1986            264 non-null    float64
 31  1987            264 non-null    float64
 32  1988            264 non-null    float64
 33  1989            264 non-null    float64
 34  1990            265 non-null    float64
 35  1991            265 non-null    float64
 36  1992            265 non-null    float64
 37  1993            265 non-null    float64
 38  1994            265 non-null    float64
 39  1995            265 non-null    float64
 40  1996            265 non-null    float64
 41  1997            265 non-null    float64
 42  1998            265 non-null    float64
 43  1999            265 non-null    float64
 44  2000            265 non-null    float64
 45  2001            265 non-null    float64
 46  2002            265 non-null    float64
 47  2003            265 non-null    float64
 48  2004            265 non-null    float64
 49  2005            265 non-null    float64
 50  2006            265 non-null    float64
 51  2007            265 non-null    float64
 52  2008            265 non-null    float64
 53  2009            265 non-null    float64
 54  2010            265 non-null    float64
 55  2011            265 non-null    float64
 56  2012            265 non-null    float64
 57  2013            265 non-null    float64
 58  2014            265 non-null    float64
 59  2015            265 non-null    float64
 60  2016            265 non-null    float64
 61  2017            265 non-null    float64
 62  2018            265 non-null    float64
 63  2019            265 non-null    float64
 64  2020            265 non-null    float64
 65  2021            265 non-null    float64
 66  2022            265 non-null    float64
dtypes: float64(63), object(4)
memory usage: 139.4+ KB
```

In [16]:

```
df.describe()
```

Out[16]:

	1960	1961	1962	1963	1964	1965
count	2.640000e+02	2.640000e+02	2.640000e+02	2.640000e+02	2.640000e+02	2.640000e+02
mean	1.172860e+08	1.188956e+08	1.210661e+08	1.237484e+08	1.264530e+08	1.291965e+08
std	3.695500e+08	3.740958e+08	3.808121e+08	3.895098e+08	3.982497e+08	4.071209e+08
min	2.646000e+03	2.888000e+03	3.171000e+03	3.481000e+03	3.811000e+03	4.161000e+03
25%	5.132212e+05	5.231345e+05	5.337595e+05	5.449288e+05	5.566630e+05	5.651150e+05
50%	3.757486e+06	3.887144e+06	4.023896e+06	4.139356e+06	4.224612e+06	4.277636e+06
75%	2.670606e+07	2.748694e+07	2.830289e+07	2.914708e+07	3.001684e+07	3.084892e+07
max	3.031474e+09	3.072422e+09	3.126850e+09	3.193429e+09	3.260442e+09	3.328209e+09

8 rows × 63 columns

In [17]:

```
df.duplicated().sum()
```

Out[17]:

```
0
```

In [18]:
```
df = df.fillna(method = "ffill")
df.head()
```

Out[18]:

	Country Name	Country Code	Indicator Name	Indicator Code	1960	1961	1962	
0	Aruba	ABW	Population, total	SP.POP.TOTL	54608.0	55811.0	56682.0	
1	Africa Eastern and Southern	AFE	Population, total	SP.POP.TOTL	130692579.0	134169237.0	137835590.0	14
2	Afghanistan	AFG	Population, total	SP.POP.TOTL	8622466.0	8790140.0	8969047.0	
3	Africa Western and Central	AFW	Population, total	SP.POP.TOTL	97256290.0	99314028.0	101445032.0	10
4	Angola	AGO	Population, total	SP.POP.TOTL	5357195.0	5441333.0	5521400.0	

5 rows × 67 columns

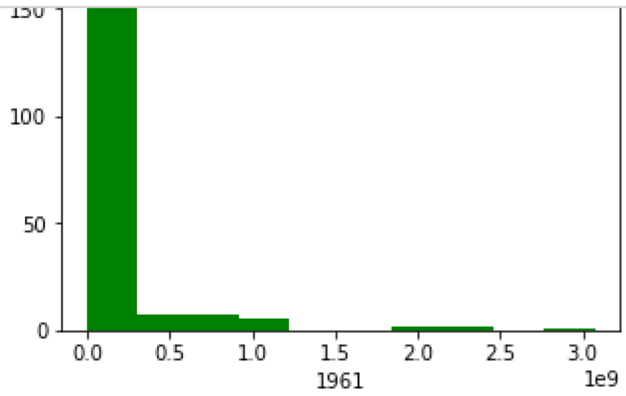
In [19]:
```
df.drop(['Indicator Name','Indicator Code','Country Code'],axis = 1, inplac
```

In [20]:
```
df.columns
```

Out[20]:
```
Index(['Country Name', '1960', '1961', '1962', '1963', '1964', '1965', '19
66',
       '1967', '1968', '1969', '1970', '1971', '1972', '1973', '1974', '19
75',
       '1976', '1977', '1978', '1979', '1980', '1981', '1982', '1983', '19
84',
       '1985', '1986', '1987', '1988', '1989', '1990', '1991', '1992', '19
93',
       '1994', '1995', '1996', '1997', '1998', '1999', '2000', '2001', '20
02',
       '2003', '2004', '2005', '2006', '2007', '2008', '2009', '2010', '20
11',
       '2012', '2013', '2014', '2015', '2016', '2017', '2018', '2019', '20
20',
       '2021', '2022'],
      dtype='object')
```

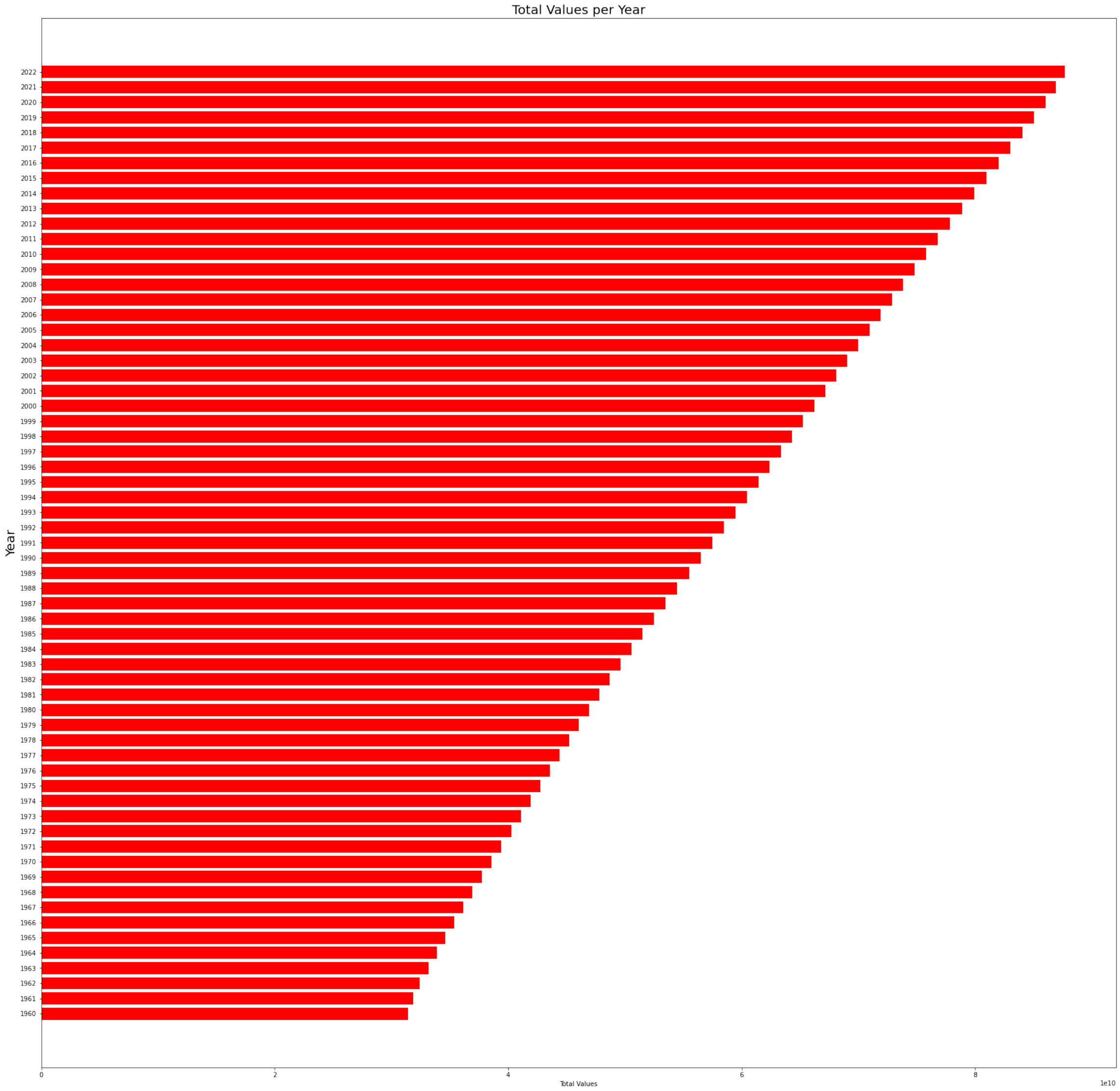
In [21]:
```
cols = ['1960', '1961', '1962', '1963', '1964', '1965', '1966',
        '1967', '1968', '1969', '1970', '1971', '1972', '1973', '1974', '197
        '1976', '1977', '1978', '1979', '1980', '1981', '1982', '1983', '198
        '1985', '1986', '1987', '1988', '1989', '1990', '1991', '1992', '199
        '1994', '1995', '1996', '1997', '1998', '1999', '2000','2001', '2002
        '2008', '2009', '2010', '2011', '2012', '2013', '2014', '2015', '201
        '2017', '2018', '2019', '2020', '2021', '2022']
```

In [22]:
```
#histogram for year based population
for i in cols:
        fig = plt.figure(figsize=(5,5))
        plt.hist(df[i],color='green',bins=10)
        plt.xlabel(i)
        plt.show()
```



In [25]:

```
#bar chart for year
years = df.columns[1:]

total_values = df[years].sum()

plt.figure(figsize=(30, 30))
plt.barh(years, total_values,color='red')
plt.xlabel('Total Values')
plt.ylabel('Year', size=20)
plt.title('Total Values per Year', size=20)
plt.show()
```

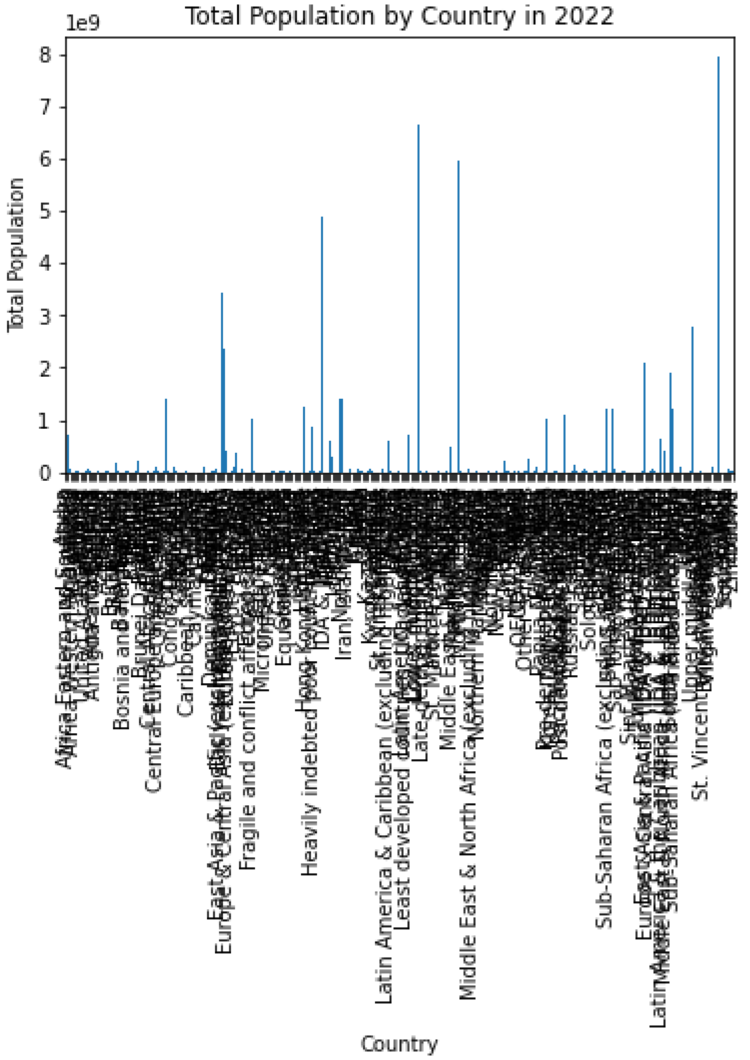


In [28]:
```
#bar chart for popluation based on countries
print(df.head())
plt.figure(figsize=(12, 8))
df.plot(kind='bar', x='Country Name', y='2022', legend=False)
plt.title('Total Population by Country in 2022')
plt.xlabel('Country')
plt.ylabel('Total Population')
plt.xticks(rotation=90)
plt.tight_layout()
plt.show()
```

```
                  Country Name         1960         1961         1962  \
0                        Aruba      54608.0      55811.0      56682.0   
1  Africa Eastern and Southern  130692579.0  134169237.0  137835590.0   
2                  Afghanistan    8622466.0    8790140.0    8969047.0   
3   Africa Western and Central   97256290.0   99314028.0  101445032.0   
4                       Angola    5357195.0    5441333.0    5521400.0   

          1963         1964         1965         1966         1967  \
0      57475.0      58178.0      58782.0      59291.0      59522.0   
1  141630546.0  145605995.0  149742351.0  153955516.0  158313235.0   
2    9157465.0    9355514.0    9565147.0    9783147.0   10010030.0   
3  103667517.0  105959979.0  108336203.0  110798486.0  113319950.0   
4    5599827.0    5673199.0    5736582.0    5787044.0    5827503.0   

          1968  ...         2013         2014         2015         2016  \
0      59471.0  ...     102880.0     103594.0     104257.0     104874.0   
1  162875171.0  ...  567892149.0  583651101.0  600008424.0  616377605.0   
2   10247780.0  ...   31541209.0   32716210.0   33753499.0   34636207.0   
3  115921723.0  ...  387204553.0  397855507.0  408690375.0  419778384.0   
4    5868203.0  ...   26147002.0   27128337.0   28127721.0   29154746.0   

          2017         2018         2019         2020         2021  \
0     105439.0     105962.0     106442.0     106585.0     106537.0   
1  632746570.0  649757148.0  667242986.0  685112979.0  702977106.0   
2   35643418.0   36686784.0   37769499.0   38972230.0   40099462.0   
3  431138704.0  442646825.0  454306063.0  466189102.0  478185907.0   
4   30208628.0   31273533.0   32353588.0   33428486.0   34503774.0   

          2022  
0     106445.0  
1  720859132.0  
2   41128771.0  
3  490330870.0  
4   35588987.0  

[5 rows x 64 columns]
```

```
C:\Users\anitt\AppData\Local\Temp\ipykernel_12412\2867586938.py:8: UserWar
ning: Tight layout not applied. The bottom and top margins cannot be made
large enough to accommodate all axes decorations.
  plt.tight_layout()
```

```
<Figure size 864x576 with 0 Axes>
```


Total Population by Country in 2022
1e9
8
7
6
5
4
3
2
1
0
Total Population
Bosnia and
Caribbean
Fragile and conflict affected
Heavily indebted poor
Latin America & Caribbean (excluding high
Least developed countries
Middle East & North Africa (excluding
Sub-Saharan Africa (excluding
St. Vincent
Country

In [ ]: