```
In [1]: import pandas as pd
        import numpy as np
        import seaborn as sns
        import matplotlib.pyplot as plt
```

```
In [2]: filepath=(r"C:\Users\Jhuvvi Sree\OneDrive\Desktop\ds1.csv")
        data=pd.read_csv(filepath)
        print(data)
```
```
        s.no                       country names  Total confirmed cases  \
0          1                               India              4,49,94,575
1          2                               china              9,92,92,081
2          3                               italy              2,58,97,801
3          4                                 USA             10,34,36,829
4          5                               spain              1,39,14,811
..       ...                                 ...                      ...
167      168                             Grenada                   19,693
168      169  Saint vincent and the grenalidies                    9,631
169      170                             Eritrea                   10,189
170      171                              Gambia                   12,626
171      172                          Mozambique                 2,33,417

     Recovered cases      Deaths Vaccinated people
0        4,44,61,208   5,31,913     2,20,67,37,729
1           3,79,053   1,21,490     3,51,58,72,818
2        2,55,93,568   1,90,868        15,03,17,622
3       10,55,25,088  11,27,152        66,88,82,018
4        1,37,62,417   1,21,760        11,28,37,406
..               ...        ...                ...
167           19,358        238             90,686
168            9,493        124             73,443
169           10,086        103               ----
170           12,189        372         14,44,492
171        2,28,805      2,243     3,49,48,793

[172 rows x 6 columns]
```

```
In [3]: data = data.loc[:, ~data.columns.str.contains('^Unnamed')]
```

```
In [4]: print(data)
```
```
        s.no                       country names  Total confirmed cases  \
0          1                               India              4,49,94,575
1          2                               china              9,92,92,081
2          3                               italy              2,58,97,801
3          4                                 USA             10,34,36,829
4          5                               spain              1,39,14,811
..       ...                                 ...                      ...
167      168                             Grenada                   19,693
168      169  Saint vincent and the grenalidies                    9,631
169      170                             Eritrea                   10,189
170      171                              Gambia                   12,626
171      172                          Mozambique                 2,33,417

     Recovered cases      Deaths Vaccinated people
0        4,44,61,208   5,31,913     2,20,67,37,729
1           3,79,053   1,21,490     3,51,58,72,818
2        2,55,93,568   1,90,868        15,03,17,622
3       10,55,25,088  11,27,152        66,88,82,018
4        1,37,62,417   1,21,760        11,28,37,406
..               ...        ...                ...
167           19,358        238             90,686
168            9,493        124             73,443
169           10,086        103               ----
170           12,189        372         14,44,492
171        2,28,805      2,243     3,49,48,793

[172 rows x 6 columns]
```

```
In [5]: data.head()
```

Out[5]:

	s.no	country names	Total confirmed cases	Recovered cases	Deaths	Vaccinated people
0	1	India	4,49,94,575	4,44,61,208	5,31,913	2,20,67,37,729
1	2	china	9,92,92,081	3,79,053	1,21,490	3,51,58,72,818
2	3	italy	2,58,97,801	2,55,93,568	1,90,868	15,03,17,622
3	4	USA	10,34,36,829	10,55,25,088	11,27,152	66,88,82,018
4	5	spain	1,39,14,811	1,37,62,417	1,21,760	11,28,37,406

```
In [6]: data.describe()
```

Out[6]:

	s.no
count	172.000000
mean	86.500000
std	49.796252
min	1.000000
25%	43.750000
50%	86.500000
75%	129.250000
max	172.000000

```
In [7]: data.tail()
```

Out[7]:

	s.no	country names	Total confirmed cases	Recovered cases	Deaths	Vaccinated people
167	168	Grenada	19,693	19,358	238	90,686
168	169	Saint vincent and the grenalidies	9,631	9,493	124	73,443
169	170	Eritrea	10,189	10,086	103	----
170	171	Gambia	12,626	12,189	372	14,44,492
171	172	Mozambique	2,33,417	2,28,805	2,243	3,49,48,793

```
In [8]: data.isnull().sum()
```

Out[8]:
```
s.no                     0
country names            0
Total confirmed cases    0
Recovered cases          1
Deaths                   0
Vaccinated people        0
dtype: int64
```

```
In [9]: data.columns
```

Out[9]:
```
Index(['    s.no', 'country names', 'Total confirmed cases',
       'Recovered cases', 'Deaths', 'Vaccinated people'],
      dtype='object')
```

```
In [10]: data.columns
```

Out[10]:
```
Index(['    s.no', 'country names', 'Total confirmed cases',
       'Recovered cases', 'Deaths', 'Vaccinated people'],
      dtype='object')
```

```
In [11]: data.size
```

Out[11]: 1032

```
In [12]: data.ndim
```

Out[12]: 2

```
In [13]: data.info()
```
```
<class 'pandas.core.frame.DataFrame'>
RangeIndex: 172 entries, 0 to 171
Data columns (total 6 columns):
 #   Column                 Non-Null Count  Dtype
---  ------                 --------------  -----
 0       s.no               172 non-null    int64
 1   country names          172 non-null    object
 2   Total confirmed cases  172 non-null    object
 3   Recovered cases        171 non-null    object
 4   Deaths                 172 non-null    object
 5   Vaccinated people      172 non-null    object
dtypes: int64(1), object(5)
memory usage: 8.2+ KB
```

```
In [14]: data.index
```

Out[14]: RangeIndex(start=0, stop=172, step=1)

```
In [15]: data.count
```

```
Out[15]:  <bound method DataFrame.count of        s.no                    country names Total confirmed cases  \
          0        1                            India      4,49,94,575
          1        2                            china      9,92,92,081
          2        3                            italy      2,58,97,801
          3        4                              USA     10,34,36,829
          4        5                            spain      1,39,14,811
          ..     ...                              ...              ...
          167    168                          Grenada           19,693
          168    169  Saint vincent and the grenalidies           9,631
          169    170                          Eritrea           10,189
          170    171                           Gambia           12,626
          171    172                       Mozambique        2,33,417

               Recovered cases      Deaths Vaccinated people
          0          4,44,61,208    5,31,913    2,20,67,37,729
          1            3,79,053    1,21,490    3,51,58,72,818
          2          2,55,93,568    1,90,868      15,03,17,622
          3         10,55,25,088   11,27,152      66,88,82,018
          4          1,37,62,417    1,21,760      11,28,37,406
          ..               ...         ...              ...
          167           19,358         238           90,686
          168            9,493         124           73,443
          169           10,086         103            ----
          170           12,189         372        14,44,492
          171         2,28,805       2,243      3,49,48,793

          [172 rows x 6 columns]>
```
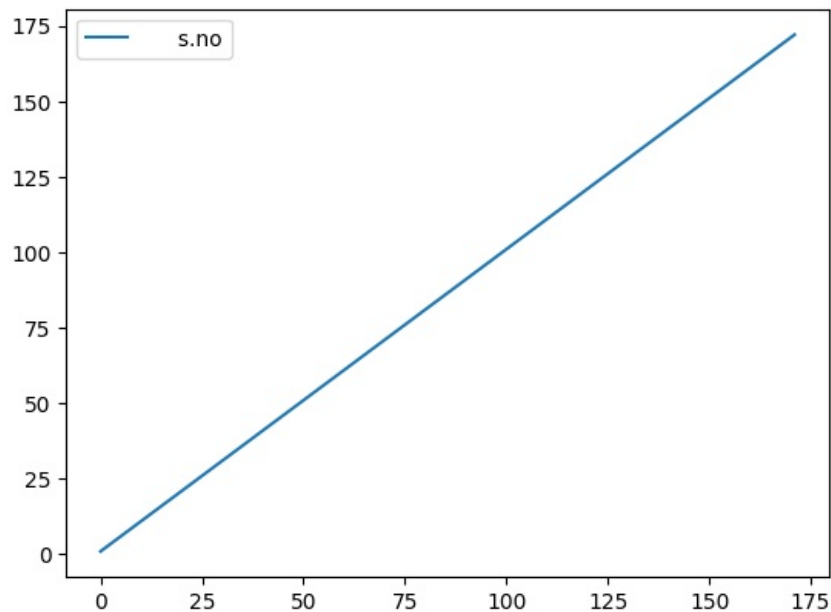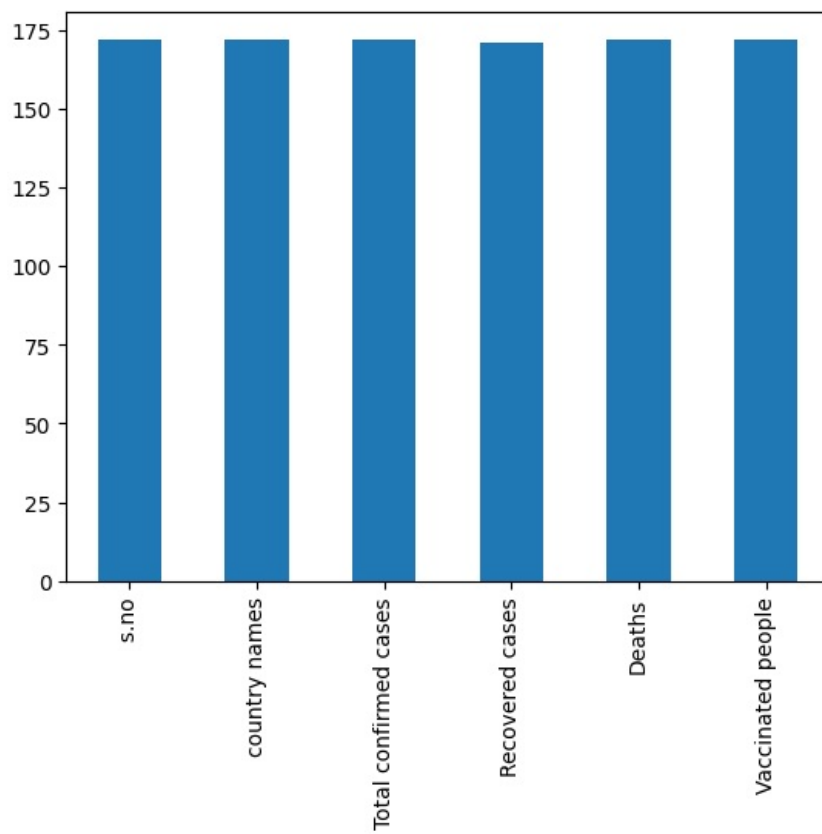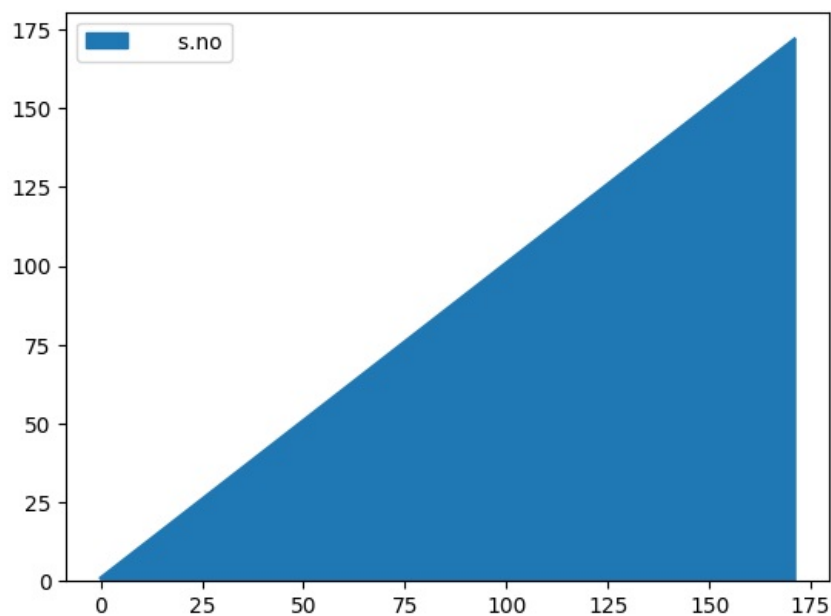
In [16]: `data.plot()`

Out[16]: <Axes: >

In [17]: `data.count().plot.bar()#barplot-all have equal entries`

Out[17]: <Axes: >

In [18]: `data.plot.area()`

Out[18]: <Axes: >

`data`

	s.no	country names	Total confirmed cases	Recovered cases	Deaths	Vaccinated people
0	1	India	4,49,94,575	4,44,61,208	5,31,913	2,20,67,37,729
1	2	china	9,92,92,081	3,79,053	1,21,490	3,51,58,72,818
2	3	italy	2,58,97,801	2,55,93,568	1,90,868	15,03,17,622
3	4	USA	10,34,36,829	10,55,25,088	11,27,152	66,88,82,018
4	5	spain	1,39,14,811	1,37,62,417	1,21,760	11,28,37,406
...	...	...	...	...	...	...
167	168	Grenada	19,693	19,358	238	90,686
168	169	Saint vincent and the grenalidies	9,631	9,493	124	73,443
169	170	Eritrea	10,189	10,086	103	----
170	171	Gambia	12,626	12,189	372	14,44,492
171	172	Mozambique	2,33,417	2,28,805	2,243	3,49,48,793

172 rows × 6 columns

```
x=data['Total confirmed cases']
x
```

```
Out[20]: 0         4,49,94,575
         1         9,92,92,081
         2         2,58,97,801
         3        10,34,36,829
         4         1,39,14,811
                      ...
         167           19,693
         168            9,631
         169           10,189
         170           12,626
         171          2,33,417
         Name: Total confirmed cases, Length: 172, dtype: object
```

In [21]:
```python
y=data['country names']
y
```

```
Out[21]: 0                              India
         1                              china
         2                              italy
         3                                USA
         4                              spain
                          ...
         167                          Grenada
         168    Saint vincent and the grenalidies
         169                          Eritrea
         170                           Gambia
         171                       Mozambique
         Name: country names, Length: 172, dtype: object
```

In [22]:
```python
data.info()
```

```
<class 'pandas.core.frame.DataFrame'>
RangeIndex: 172 entries, 0 to 171
Data columns (total 6 columns):
 #   Column                Non-Null Count  Dtype
---  ------                --------------  -----
 0   s.no                  172 non-null    int64
 1   country names         172 non-null    object
 2   Total confirmed cases 172 non-null    object
 3   Recovered cases       171 non-null    object
 4   Deaths                172 non-null    object
 5   Vaccinated people     172 non-null    object
dtypes: int64(1), object(5)
memory usage: 8.2+ KB
```

In [23]:
```python
df=pd.DataFrame(data)
```

In [24]:
```python
data
```

Out[24]:

	s.no	country names	Total confirmed cases	Recovered cases	Deaths	Vaccinated people
0	1	India	4,49,94,575	4,44,61,208	5,31,913	2,20,67,37,729
1	2	china	9,92,92,081	3,79,053	1,21,490	3,51,58,72,818
2	3	italy	2,58,97,801	2,55,93,568	1,90,868	15,03,17,622
3	4	USA	10,34,36,829	10,55,25,088	11,27,152	66,88,82,018
4	5	spain	1,39,14,811	1,37,62,417	1,21,760	11,28,37,406
...	...	...	...	...	...	...
167	168	Grenada	19,693	19,358	238	90,686
168	169	Saint vincent and the grenalidies	9,631	9,493	124	73,443
169	170	Eritrea	10,189	10,086	103	----
170	171	Gambia	12,626	12,189	372	14,44,492
171	172	Mozambique	2,33,417	2,28,805	2,243	3,49,48,793

172 rows × 6 columns

In [25]:
```python
df=pd.DataFrame(data)
```

In [26]:
```python
name = df['country names'].head(173)
num = df['Total confirmed cases'].head(173)
```
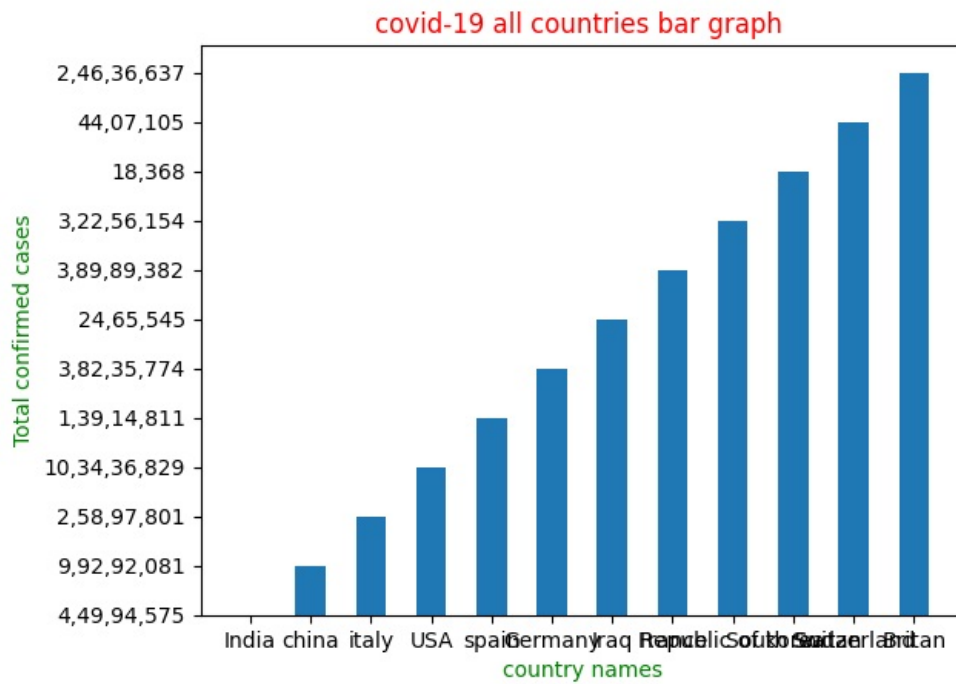
In [27]:
```python
fig = plt.figure(figsize =(150,150))
```

```
<Figure size 15000x15000 with 0 Axes>
```

In [28]:
```python
plt.bar(name[0:12], num[0:12],width=0.5)
plt.xlabel("country names",color="green")
```

```python
plt.ylabel("Total confirmed cases",color="green")
plt.title("covid-19 all countries bar graph ",color="red")
```

Out[28]: Text(0.5, 1.0, 'covid-19 all countries bar graph ')

In [29]: `data`

Out[29]:

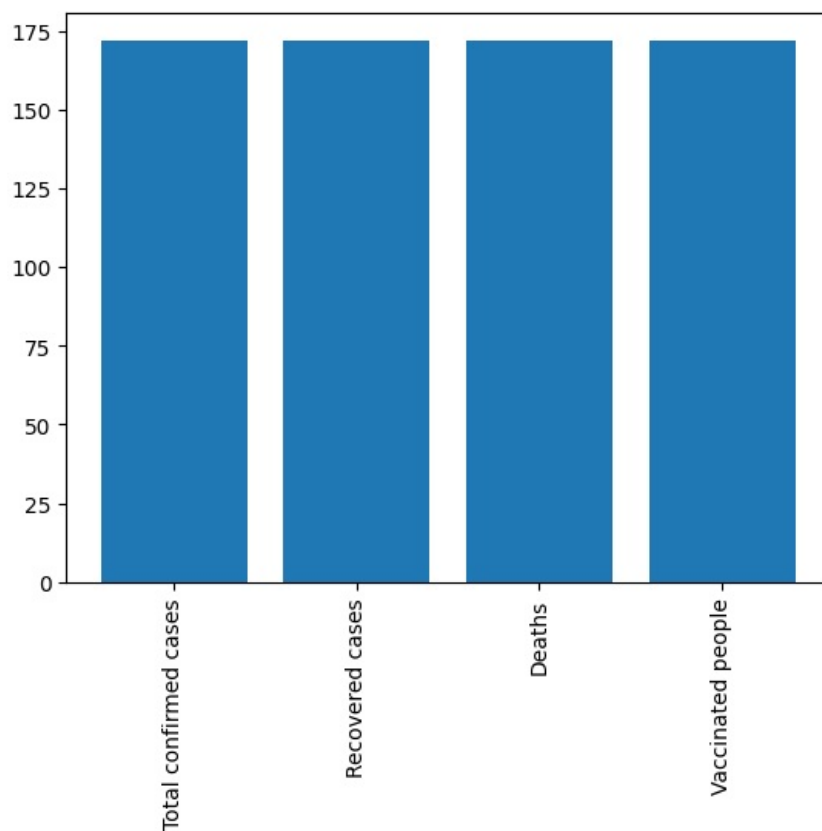|	s.no	country names	Total confirmed cases	Recovered cases	Deaths	Vaccinated people
0	1	India	4,49,94,575	4,44,61,208	5,31,913	2,20,67,37,729
1	2	china	9,92,92,081	3,79,053	1,21,490	3,51,58,72,818
2	3	italy	2,58,97,801	2,55,93,568	1,90,868	15,03,17,622
3	4	USA	10,34,36,829	10,55,25,088	11,27,152	66,88,82,018
4	5	spain	1,39,14,811	1,37,62,417	1,21,760	11,28,37,406
...	...	...	...	...	...	...
167	168	Grenada	19,693	19,358	238	90,686
168	169	Saint vincent and the grenalidies	9,631	9,493	124	73,443
169	170	Eritrea	10,189	10,086	103	----
170	171	Gambia	12,626	12,189	372	14,44,492
171	172	Mozambique	2,33,417	2,28,805	2,243	3,49,48,793

172 rows × 6 columns

In [30]:
```python
heights = [172, 172, 172,172]
bars = ['Total confirmed cases', 'Recovered cases', 'Deaths','Vaccinated people']
y_pos = range(len(bars))
plt.bar(y_pos, heights)
# Rotation of the bars names
plt.xticks(y_pos, bars, rotation=90)
```

Out[30]: ([<matplotlib.axis.XTick at 0x2910a835e70>,
        <matplotlib.axis.XTick at 0x2910a835e40>,
        <matplotlib.axis.XTick at 0x2910a835a50>,
        <matplotlib.axis.XTick at 0x2910a4d67a0>],
       [Text(0, 0, 'Total confirmed cases'),
        Text(1, 0, 'Recovered cases'),
        Text(2, 0, 'Deaths'),
        Text(3, 0, 'Vaccinated people')])

In [31]: `data.sample(10)`

Out[31]:

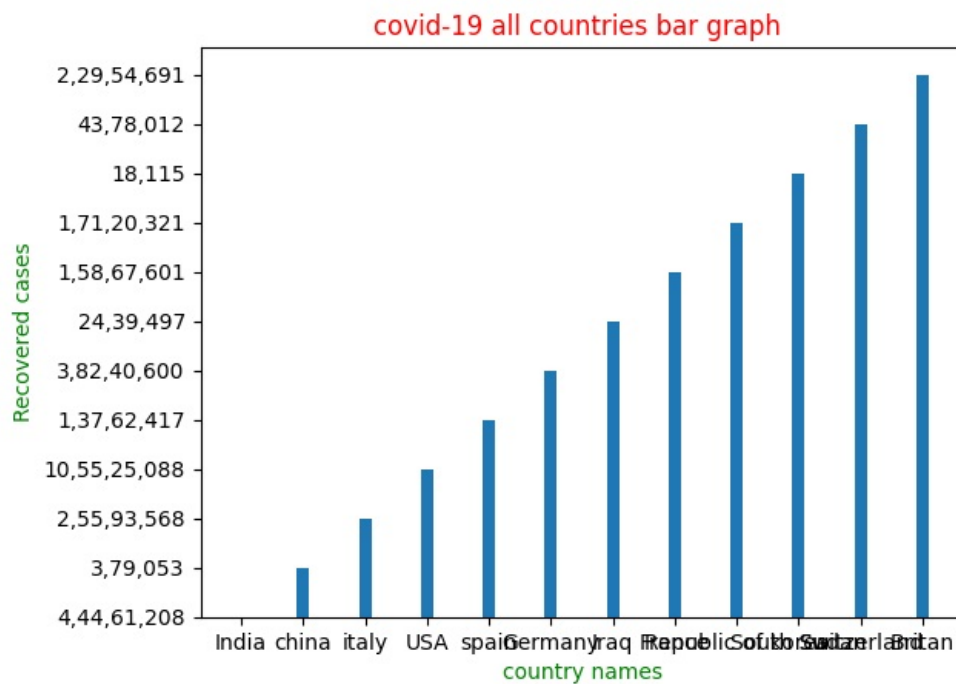|	s.no	country names	Total confirmed cases	Recovered cases	Deaths	Vaccinated people
142	143	Saint Barthelemy	5,507	------	6	----
24	25	Israel	48,29,214	47,98,473	12,568	1,79,15,305
144	145	Cabo Verde	64,149	63,663	414	8,59,940
37	38	Iceland	2,09,191	-----	229	8,69,976
103	104	Democratic republic of congo	97,644	84,489	1,468	1,88,08,671
127	128	Uganda	1,70,775	1,00,431	3,632	2,64,06,936
125	126	Mongolia	10,10,034	9,41,511	2,179	56,68,144
41	42	Qatar	5,14,524	5,13,687	690	76,09,178
83	84	Burkina Faso	22,056	21,596	396	66,74,010
54	55	Lebanon	12,38,552	10,87,587	10,936	58,14,699

In [32]:
```python
name1 = df['country names'].head(173)
num1 = df['Recovered cases'].head(173)
```

In [33]:
```python
fig = plt.figure(figsize =(150,150))
```

`<Figure size 15000x15000 with 0 Axes>`

In [34]:
```python
plt.bar(name1[0:12], num1[0:12],width=0.2)
plt.xlabel("country names",color="green")
plt.ylabel("Recovered cases",color="green")
plt.title("covid-19 all countries bar graph ",color="red")
```

Out[34]: `Text(0.5, 1.0, 'covid-19 all countries bar graph ')`

covid-19 all countries bar graph

(Y-axis labels, top to bottom:)
2,29,54,691
43,78,012
18,115
1,71,20,321
1,58,67,601
24,39,497
3,82,40,600
1,37,62,417
10,55,25,088
2,55,93,568
3,79,053
4,44,61,208

(Y-axis title) Recovered cases

(X-axis labels) India china italy USA spain Germany Iraq Republic France South korea Switzerland Britan

(X-axis title) country names

In [35]: `data`

Out[35]:

	s.no	country names	Total confirmed cases	Recovered cases	Deaths	Vaccinated people
0	1	India	4,49,94,575	4,44,61,208	5,31,913	2,20,67,37,729
1	2	china	9,92,92,081	3,79,053	1,21,490	3,51,58,72,818
2	3	italy	2,58,97,801	2,55,93,568	1,90,868	15,03,17,622
3	4	USA	10,34,36,829	10,55,25,088	11,27,152	66,88,82,018
4	5	spain	1,39,14,811	1,37,62,417	1,21,760	11,28,37,406
...	...	...	...	...	...	...
167	168	Grenada	19,693	19,358	238	90,686
168	169	Saint vincent and the grenalidies	9,631	9,493	124	73,443
169	170	Eritrea	10,189	10,086	103	----
170	171	Gambia	12,626	12,189	372	14,44,492
171	172	Mozambique	2,33,417	2,28,805	2,243	3,49,48,793

172 rows × 6 columns

In [36]:
```python
name2 = df['country names'].head(173)
num2 = df['Deaths'].head(173)
```

In [37]:
```python
fig = plt.figure(figsize =(150,150))
```
```
<Figure size 15000x15000 with 0 Axes>
```

In [38]:
```python
plt.bar(name1[0:12], num1[0:12],width=0.2)
plt.xlabel("country names",color="orange")
plt.ylabel("Deaths",color="orange")
plt.title("covid-19 all countries bar graph ",color="red")
```

Out[38]: `Text(0.5, 1.0, 'covid-19 all countries bar graph ')`

covid-19 all countries bar graph
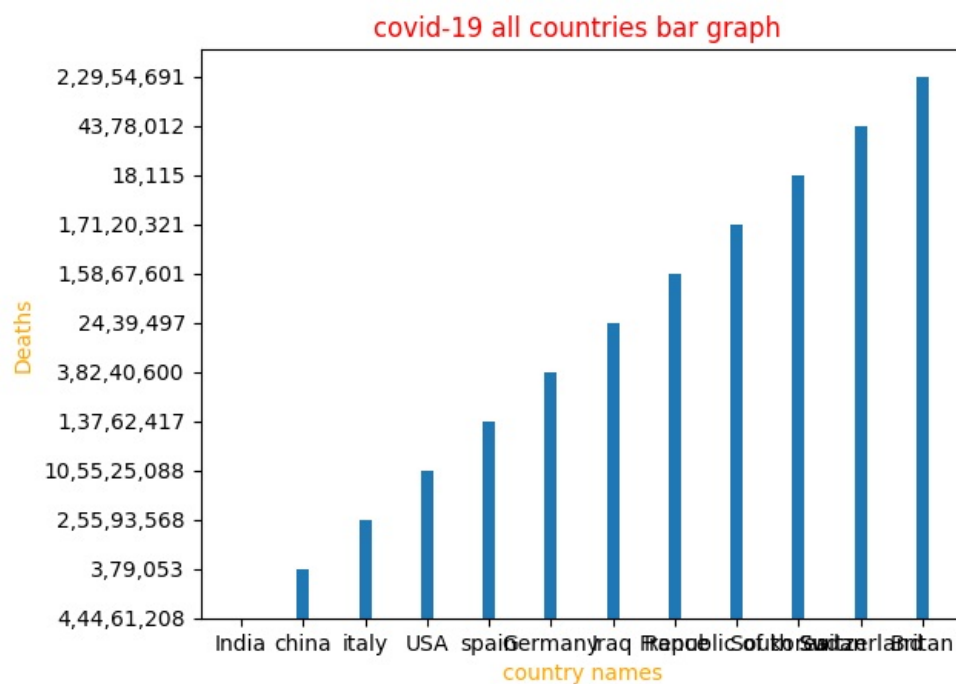
In [39]:
```python
name3 = df['country names'].head(173)
num3 = df['Vaccinated people'].head(173)
```

In [40]:
```python
fig = plt.figure(figsize =(150,150))
```

<Figure size 15000x15000 with 0 Axes>

In [41]:
```python
plt.bar(name1[0:12], num1[0:12],width=0.2)
plt.xlabel("country names",color="violet")
plt.ylabel("Vaccinated people",color="violet")
plt.title("covid-19 all countries bar graph ",color="green")
```

Out[41]: Text(0.5, 1.0, 'covid-19 all countries bar graph ')
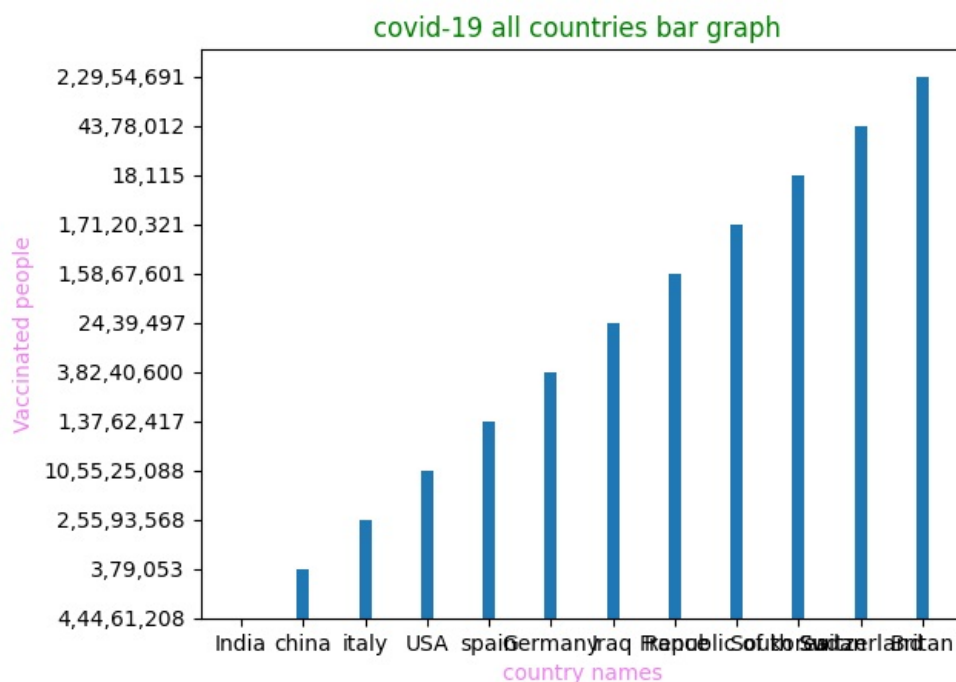
In [42]:
```python
data.isna().all()
```

```
        s.no                   False
    country names              False
    Total confirmed cases      False
    Recovered cases            False
    Deaths                     False
    Vaccinated people          False
    dtype: bool
```

In [43]: `data`

Out[43]:

	s.no	country names	Total confirmed cases	Recovered cases	Deaths	Vaccinated people
0	1	India	4,49,94,575	4,44,61,208	5,31,913	2,20,67,37,729
1	2	china	9,92,92,081	3,79,053	1,21,490	3,51,58,72,818
2	3	italy	2,58,97,801	2,55,93,568	1,90,868	15,03,17,622
3	4	USA	10,34,36,829	10,55,25,088	11,27,152	66,88,82,018
4	5	spain	1,39,14,811	1,37,62,417	1,21,760	11,28,37,406
...	...	...	...	...	...	...
167	168	Grenada	19,693	19,358	238	90,686
168	169	Saint vincent and the grenalidies	9,631	9,493	124	73,443
169	170	Eritrea	10,189	10,086	103	----
170	171	Gambia	12,626	12,189	372	14,44,492
171	172	Mozambique	2,33,417	2,28,805	2,243	3,49,48,793

172 rows × 6 columns

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