

TASK:- Create a bar chart or histogram to visualize the distribution of a categorical or continuous variable, such as the distribution of ages or genders in a population.

Dataset Link:-

<https://data.worldbank.org/indicator/SP.POP.TOTL>

Importing Libraries.

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

Reading CSV file.

```
In [2]: df=pd.read_csv("population4.csv")
```

```
In [3]: df.head()
```

```
Out[3]:
```

	Country Name	Country Code	Indicator Name	Indicator Code	1998	1999	2000	2001
0	Aruba	ABW	Population, total	SP.POP.TOTL	84355.0	86867.0	89101.0	90691.0
1	Afghanistan	AFG	Population, total	SP.POP.TOTL	18493132.0	19262847.0	19542982.0	19688632.0
2	Angola	AGO	Population, total	SP.POP.TOTL	15366864.0	15870753.0	16394062.0	16941587.0
3	Albania	ALB	Population, total	SP.POP.TOTL	3128530.0	3108778.0	3089027.0	3060173.0
4	Andorra	AND	Population, total	SP.POP.TOTL	65186.0	65655.0	66097.0	67820.0

5 rows × 9 columns

```
In [4]: df.tail()
```

Out[4]:

	Country Name	Country Code	Indicator Name	Indicator Code	1998	1999	2000	2001	
853	Kosovo	XKX	Population ages 65 and above, total	SP.POP.65UP.TO	106084.0	104419.0	106791.0	110245.0	113
854	Yemen, Rep.	YEM	Population ages 65 and above, total	SP.POP.65UP.TO	472439.0	485380.0	498835.0	513045.0	528
855	South Africa	ZAF	Population ages 65 and above, total	SP.POP.65UP.TO	1893579.0	1918653.0	1946010.0	1979149.0	2018
856	Zambia	ZMB	Population ages 65 and above, total	SP.POP.65UP.TO	219768.0	220208.0	220577.0	221096.0	227
857	Zimbabwe	ZWE	Population ages 65 and above, total	SP.POP.65UP.TO	366295.0	365880.0	363998.0	360892.0	357

5 rows × 29 columns



Checking for null values in Data.

```
In [5]: df.isnull()
```

Out[5]:

	Country Name	Country Code	Indicator Name	Indicator Code	1998	1999	2000	2001	2002	2003	...	2013	2014
0	False	False	False	False	False	False	False	False	False	False	...	False	False
1	False	False	False	False	False	False	False	False	False	False	...	False	False
2	False	False	False	False	False	False	False	False	False	False	...	False	False
3	False	False	False	False	False	False	False	False	False	False	...	False	False
4	False	False	False	False	False	False	False	False	False	False	...	False	False
...
853	False	False	False	False	False	False	False	False	False	False	...	False	False
854	False	False	False	False	False	False	False	False	False	False	...	False	False
855	False	False	False	False	False	False	False	False	False	False	...	False	False
856	False	False	False	False	False	False	False	False	False	False	...	False	False
857	False	False	False	False	False	False	False	False	False	False	...	False	False

858 rows × 29 columns



Sum of null values.

In [7]: `df.isnull().sum()`

```
Out[7]: Country Name      0
Country Code      0
Indicator Name     0
Indicator Code     0
1998              0
1999              0
2000              0
2001              0
2002              0
2003              0
2004              0
2005              0
2006              0
2007              0
2008              0
2009              0
2010              0
2011              0
2012              0
2013              0
2014              0
2015              0
2016              0
2017              0
2018              0
2019              0
2020              0
2021              0
2022              0
dtype: int64
```

Calculating all mathematical statistics terms.

```
In [8]: df.describe()
```

```
Out[8]:
```

	1998	1999	2000	2001	2002	2003	
count	8.580000e+02	8.580000e+02	8.580000e+02	8.580000e+02	8.580000e+02	8.580000e+02	8.580000e+02
mean	7.217174e+06	7.325646e+06	7.433923e+06	7.542808e+06	7.651828e+06	7.760121e+06	7.868291e+06
std	5.776580e+07	5.851594e+07	5.924764e+07	5.996767e+07	6.067058e+07	6.135438e+07	6.202771e+07
min	3.197441e+01	3.181801e+01	3.168365e+01	3.156689e+01	3.146521e+01	3.137472e+01	3.129133e+01
25%	4.998354e+01	4.999884e+01	4.999881e+01	4.999920e+01	4.999112e+01	4.999557e+01	4.999908e+01
50%	6.742751e+01	6.759519e+01	6.773846e+01	6.786232e+01	6.795594e+01	6.803154e+01	6.794980e+01
75%	7.840075e+05	7.848652e+05	7.897010e+05	7.993768e+05	8.158555e+05	8.339645e+05	8.564272e+05
max	1.241935e+09	1.252735e+09	1.262645e+09	1.271850e+09	1.280400e+09	1.288400e+09	1.296075e+09

8 rows × 25 columns

```
In [9]: df.value_counts
```

Out[9]: <bound method DataFrame.value_counts of Country Name Country Code

Indicator Name \			
0	Aruba	ABW	Population, total
1	Afghanistan	AFG	Population, total
2	Angola	AGO	Population, total
3	Albania	ALB	Population, total
4	Andorra	AND	Population, total
..
853	Kosovo	XKX	Population ages 65 and above, total
854	Yemen, Rep.	YEM	Population ages 65 and above, total
855	South Africa	ZAF	Population ages 65 and above, total
856	Zambia	ZMB	Population ages 65 and above, total
857	Zimbabwe	ZWE	Population ages 65 and above, total

Indicator Code	1998	1999	2000	2001 \
0 SP.POP.TOTL	84355.0	86867.0	89101.0	90691.0
1 SP.POP.TOTL	18493132.0	19262847.0	19542982.0	19688632.0
2 SP.POP.TOTL	15366864.0	15870753.0	16394062.0	16941587.0
3 SP.POP.TOTL	3128530.0	3108778.0	3089027.0	3060173.0
4 SP.POP.TOTL	65186.0	65655.0	66097.0	67820.0
..
853 SP.POP.65UP.TO	106084.0	104419.0	106791.0	110245.0
854 SP.POP.65UP.TO	472439.0	485380.0	498835.0	513045.0
855 SP.POP.65UP.TO	1893579.0	1918653.0	1946010.0	1979149.0
856 SP.POP.65UP.TO	219768.0	220208.0	220577.0	221096.0
857 SP.POP.65UP.TO	366295.0	365880.0	363998.0	360892.0

	2002	2003	...	2013	2014	2015 \
0	91781.0	92701.0	...	102880.0	103594.0	104257.0
1	21000256.0	22645130.0	...	31541209.0	32716210.0	33753499.0
2	17516139.0	18124342.0	...	26147002.0	27128337.0	28127721.0
3	3051010.0	3039616.0	...	2895092.0	2889104.0	2880703.0
4	70849.0	73907.0	...	71367.0	71621.0	71746.0
..
853	113200.0	115510.0	...	136939.0	141869.0	145154.0
854	528336.0	544549.0	...	754358.0	776036.0	794578.0
855	2018814.0	2064761.0	...	2818948.0	2926780.0	3035329.0
856	221894.0	222964.0	...	257693.0	264052.0	271859.0
857	357491.0	355101.0	...	405926.0	419578.0	438467.0

	2016	2017	2018	2019	2020	2021 \
0	104874.0	105439.0	105962.0	106442.0	106585.0	106537.0
1	34636207.0	35643418.0	36686784.0	37769499.0	38972230.0	40099462.0
2	29154746.0	30208628.0	31273533.0	32353588.0	33428486.0	34503774.0
3	2876101.0	2873457.0	2866376.0	2854191.0	2837849.0	2811666.0
4	72540.0	73837.0	75013.0	76343.0	77700.0	79034.0
..
853	149013.0	155582.0	162044.0	167970.0	173450.0	177017.0
854	811022.0	828051.0	845418.0	863349.0	877605.0	886889.0
855	3142859.0	3249695.0	3356734.0	3456202.0	3528430.0	3546983.0
856	280813.0	290841.0	302103.0	314716.0	327423.0	338624.0
857	457777.0	476921.0	495723.0	513732.0	529049.0	537917.0

	2022
0	106445.0
1	41128771.0
2	35588987.0
3	2775634.0
4	79824.0
..	...

```
853    179589.0
854    897081.0
855   3529541.0
856   349807.0
857   542143.0
```

```
[858 rows x 29 columns]>
```

- Data Visualization

Extracting data from total population from 1998-2022.

Top 15 countries having maximum population.

```
In [10]: total=df[df['Indicator Code'] == 'SP.POP.TOTL' ]
```

```
In [11]: sort=total.sort_values(by='2022' , ascending = False)
```

```
In [12]: top15=sort.head(15)
print(top15)
```

	Country Name	Country Code	Indicator Name	Indicator Code	\
88	India	IND	Population, total	SP.POP.TOTL	
36	China	CHN	Population, total	SP.POP.TOTL	
200	United States	USA	Population, total	SP.POP.TOTL	
86	Indonesia	IDN	Population, total	SP.POP.TOTL	
149	Pakistan	PAK	Population, total	SP.POP.TOTL	
141	Nigeria	NGA	Population, total	SP.POP.TOTL	
26	Brazil	BRA	Population, total	SP.POP.TOTL	
17	Bangladesh	BGD	Population, total	SP.POP.TOTL	
124	Mexico	MEX	Population, total	SP.POP.TOTL	
97	Japan	JPN	Population, total	SP.POP.TOTL	
61	Ethiopia	ETH	Population, total	SP.POP.TOTL	
152	Philippines	PHL	Population, total	SP.POP.TOTL	
57	Egypt, Arab Rep.	EGY	Population, total	SP.POP.TOTL	
39	Congo, Dem. Rep.	COD	Population, total	SP.POP.TOTL	
206	Vietnam	VNM	Population, total	SP.POP.TOTL	
	1998	1999	2000	2001	2002 \
88	1.021435e+09	1.040500e+09	1.059634e+09	1.078971e+09	1.098313e+09
36	1.241935e+09	1.252735e+09	1.262645e+09	1.271850e+09	1.280400e+09
200	2.758540e+08	2.790400e+08	2.821624e+08	2.849690e+08	2.876252e+08
86	2.078555e+08	2.109969e+08	2.140724e+08	2.171124e+08	2.201151e+08
149	1.454761e+08	1.496945e+08	1.543699e+08	1.592177e+08	1.632628e+08
141	1.166905e+08	1.196956e+08	1.228520e+08	1.261527e+08	1.295830e+08
26	1.710398e+08	1.734863e+08	1.758737e+08	1.782119e+08	1.804767e+08
17	1.243505e+08	1.267548e+08	1.291933e+08	1.316705e+08	1.341398e+08
124	9.476728e+07	9.633481e+07	9.787344e+07	9.939429e+07	1.009171e+08
97	1.264000e+08	1.266310e+08	1.268430e+08	1.271490e+08	1.274450e+08
61	6.313649e+07	6.507758e+07	6.703187e+07	6.901893e+07	7.107322e+07
152	7.449192e+07	7.624906e+07	7.795822e+07	7.962609e+07	8.128557e+07
57	6.844601e+07	6.990789e+07	7.137137e+07	7.285426e+07	7.439376e+07
39	4.589552e+07	4.722724e+07	4.861632e+07	5.010666e+07	5.166207e+07
206	7.712842e+07	7.812371e+07	7.900114e+07	7.981778e+07	8.064231e+07
	2003	...	2013	2014	2015 \
88	1.117415e+09	...	1.291132e+09	1.307247e+09	1.322867e+09
36	1.288400e+09	...	1.363240e+09	1.371860e+09	1.379860e+09
200	2.901079e+08	...	3.160599e+08	3.183863e+08	3.207390e+08
86	2.230801e+08	...	2.532759e+08	2.562298e+08	2.590920e+08
149	1.668767e+08	...	2.053376e+08	2.082516e+08	2.109693e+08
141	1.331198e+08	...	1.747261e+08	1.793790e+08	1.839958e+08
26	1.826293e+08	...	2.017218e+08	2.034596e+08	2.051882e+08
17	1.365032e+08	...	1.540301e+08	1.559613e+08	1.578300e+08
124	1.024293e+08	...	1.172907e+08	1.187559e+08	1.201499e+08
97	1.277180e+08	...	1.274450e+08	1.272760e+08	1.271410e+08
61	7.316884e+07	...	9.708437e+07	9.974677e+07	1.024719e+08
152	8.294284e+07	...	9.970011e+07	1.013252e+08	1.030314e+08
57	7.596332e+07	...	9.337789e+07	9.559232e+07	9.772380e+07
39	5.320564e+07	...	7.346002e+07	7.603559e+07	7.865690e+07
206	8.147582e+07	...	9.026774e+07	9.123550e+07	9.219140e+07
	2016	2017	2018	2019	2020 \
88	1.338636e+09	1.354196e+09	1.369003e+09	1.383112e+09	1.396387e+09
36	1.387790e+09	1.396215e+09	1.402760e+09	1.407745e+09	1.411100e+09
200	3.230718e+08	3.251221e+08	3.268382e+08	3.283300e+08	3.315115e+08
86	2.618502e+08	2.644989e+08	2.670668e+08	2.695829e+08	2.718580e+08
149	2.135248e+08	2.163797e+08	2.197315e+08	2.232933e+08	2.271967e+08
141	1.886669e+08	1.934959e+08	1.983876e+08	2.033045e+08	2.083274e+08
26	2.068596e+08	2.085050e+08	2.101666e+08	2.117829e+08	2.131963e+08
17	1.597846e+08	1.617940e+08	1.636840e+08	1.655162e+08	1.674210e+08

124	1.215192e+08	1.228393e+08	1.240139e+08	1.250853e+08	1.259983e+08
97	1.270760e+08	1.269720e+08	1.268110e+08	1.266330e+08	1.262610e+08
61	1.052932e+08	1.081980e+08	1.111294e+08	1.141206e+08	1.171909e+08
152	1.048753e+08	1.067385e+08	1.085688e+08	1.103808e+08	1.121910e+08
57	9.978403e+07	1.017894e+08	1.037408e+08	1.056187e+08	1.074651e+08
39	8.143098e+07	8.428327e+07	8.708736e+07	8.990689e+07	9.285316e+07
206	9.312653e+07	9.403305e+07	9.491433e+07	9.577672e+07	9.664868e+07

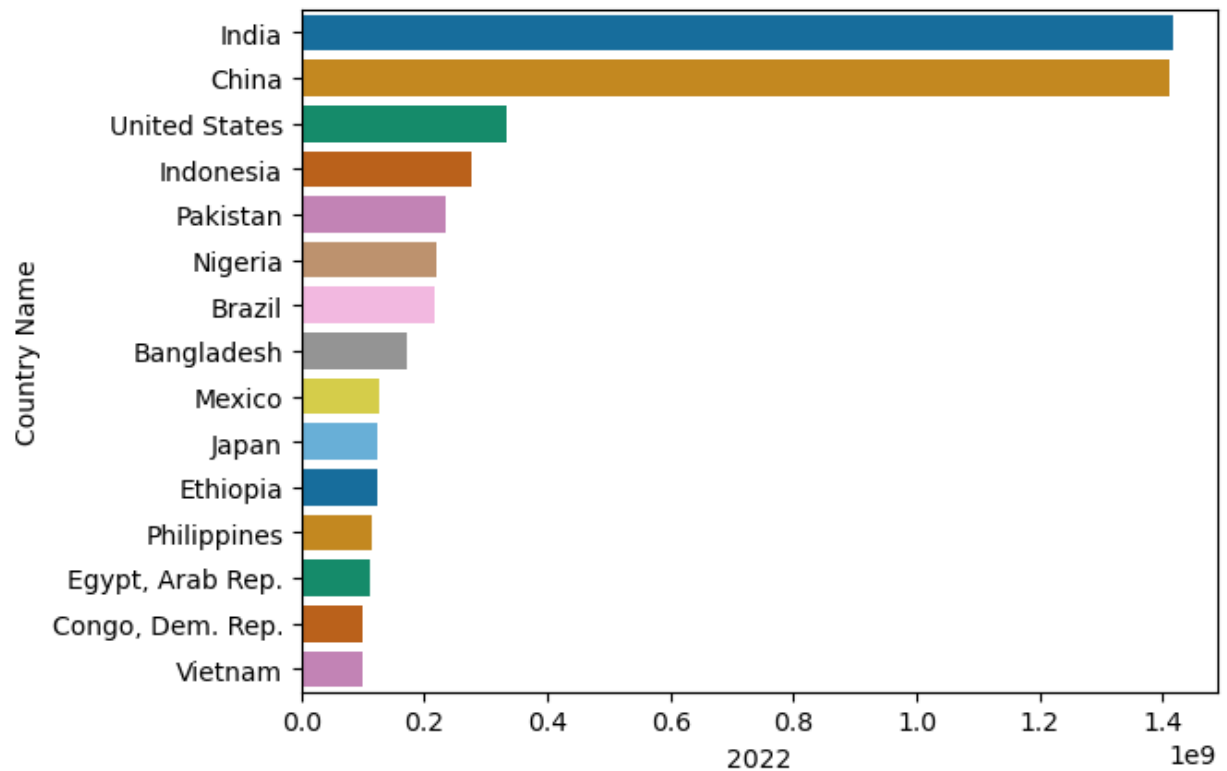
	2021	2022
88	1.407564e+09	1.417173e+09
36	1.412360e+09	1.412175e+09
200	3.320316e+08	3.332876e+08
86	2.737532e+08	2.755013e+08
149	2.314021e+08	2.358249e+08
141	2.134013e+08	2.185412e+08
26	2.143262e+08	2.153135e+08
17	1.693563e+08	1.711864e+08
124	1.267051e+08	1.275041e+08
97	1.256816e+08	1.251250e+08
61	1.202830e+08	1.233799e+08
152	1.138803e+08	1.155590e+08
57	1.092622e+08	1.109901e+08
39	9.589412e+07	9.901021e+07
206	9.746803e+07	9.818686e+07

[15 rows x 29 columns]

Top 15 countries having maximum population in 2022.

```
In [13]: sns.barplot(x='2022' , y='Country Name' , data=top15 , palette = 'colorblind')
```

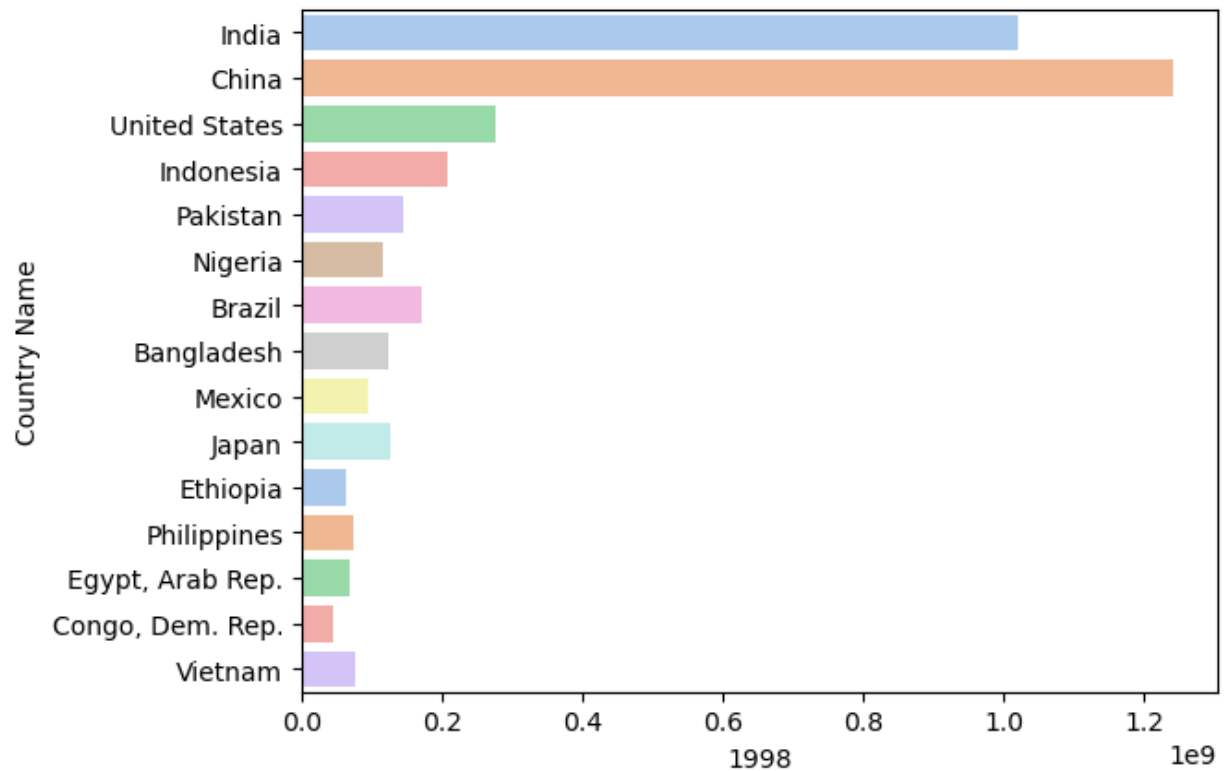
```
Out[13]: <Axes: xlabel='2022', ylabel='Country Name'>
```

Top 15 countries having maximum population in 1998.

```
In [14]: sns.barplot(x='1998' , y='Country Name' , data=top15 , palette = 'pastel')
```

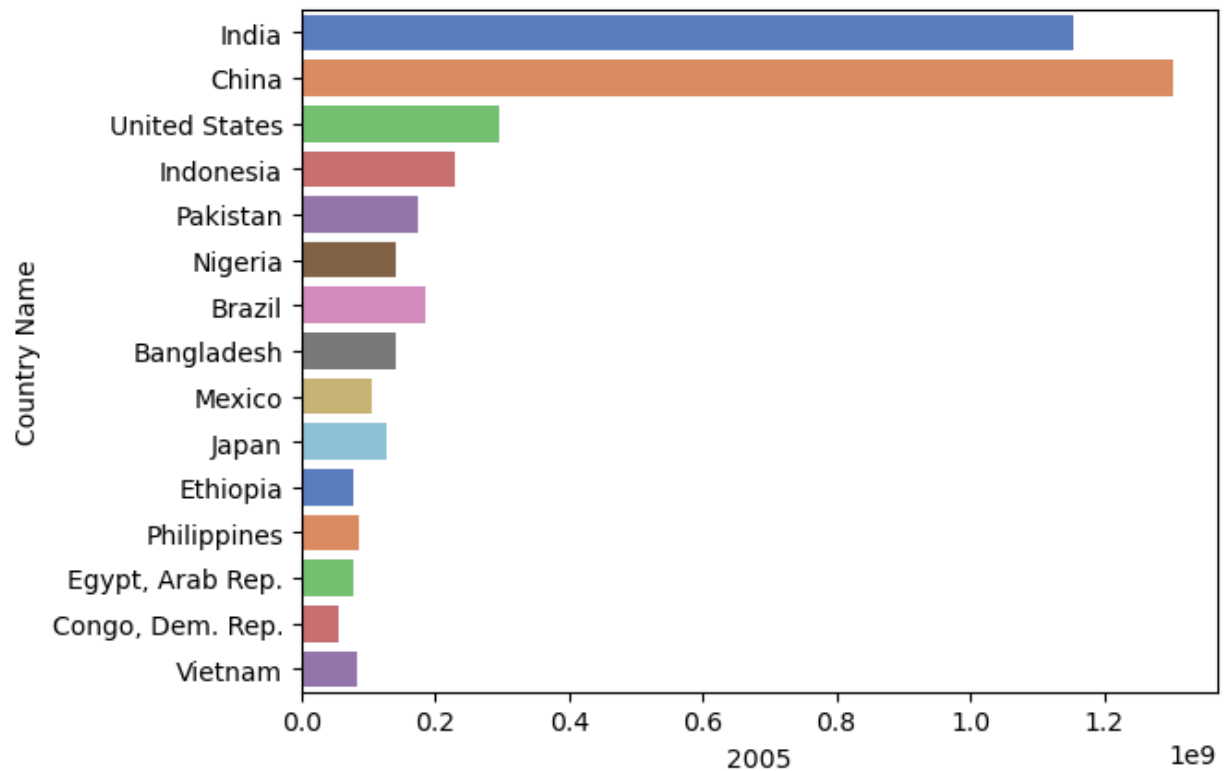
```
Out[14]: <Axes: xlabel='1998', ylabel='Country Name'>
```



Top 15 countries having maximum population in 2005.

```
In [15]: sns.barplot(x='2005' , y='Country Name' , data=top15 , palette = 'muted')
```

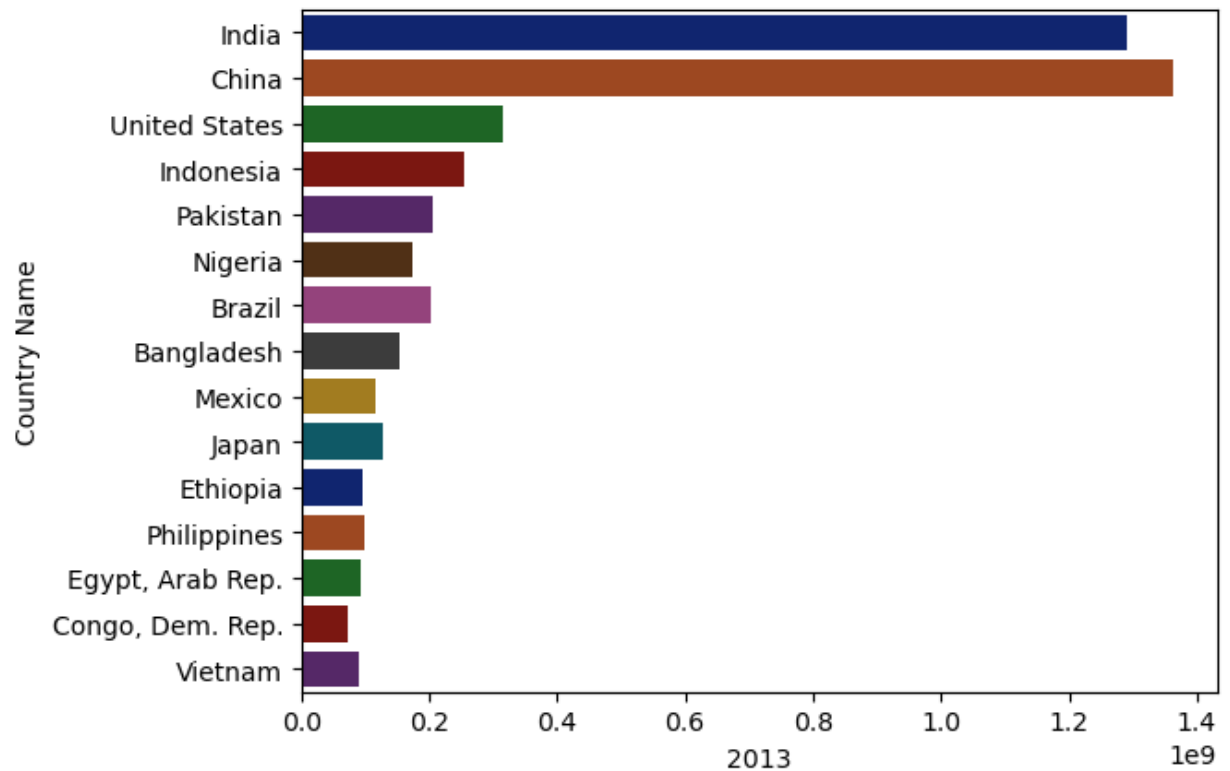
```
Out[15]: <Axes: xlabel='2005', ylabel='Country Name'>
```



Top 15 countries having maximum population in 2013.

```
In [16]: sns.barplot(x='2013' , y='Country Name' , data=top15 , palette = 'dark')
```

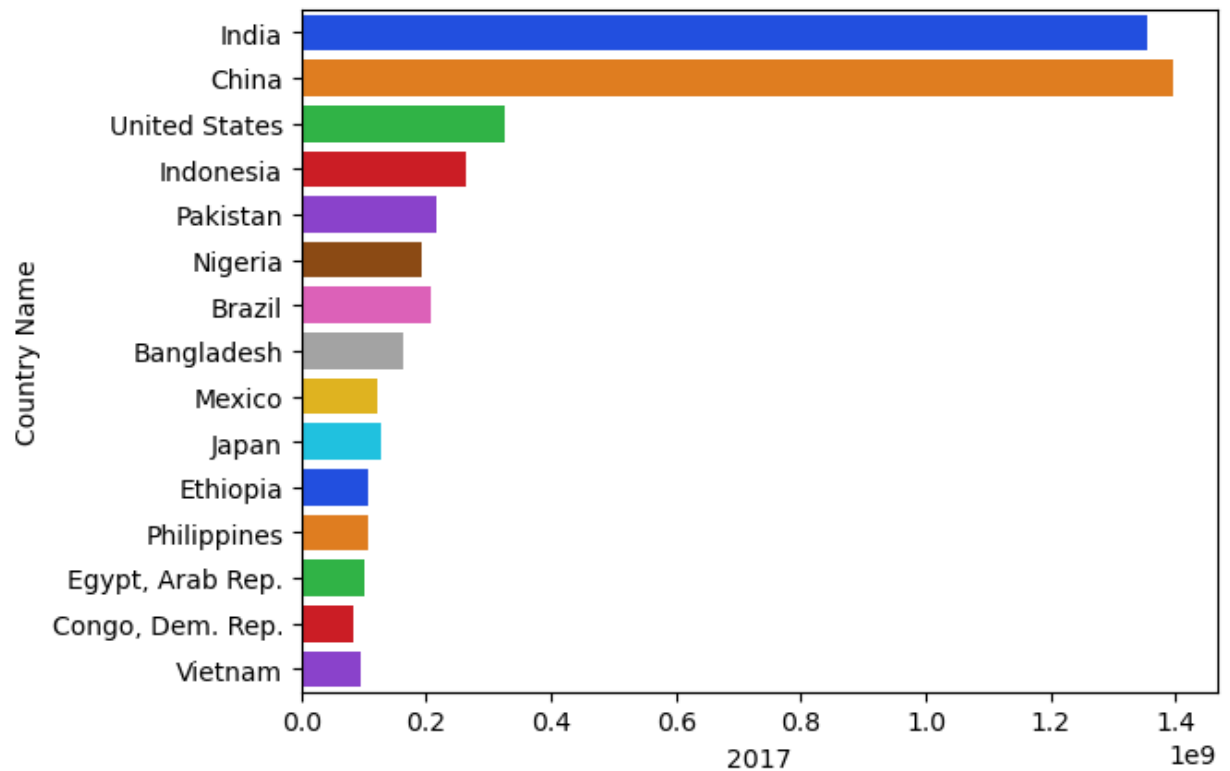
```
Out[16]: <Axes: xlabel='2013', ylabel='Country Name'>
```



Top 15 countries having maximum population in 2017.

```
In [17]: sns.barplot(x='2017' , y='Country Name' , data=top15 , palette = 'bright')
```

```
Out[17]: <Axes: xlabel='2017', ylabel='Country Name'>
```



Top 15 countries having minimum population from 1998-2022.

```
In [18]: total=df[df['Indicator Code'] == 'SP.POP.TOTL' ]
sort=total.sort_values(by='2022' , ascending =True)
bottom15=sort.head(15)
print(bottom15)
```

	Country Name	Country Code	Indicator Name	Indicator Code	\
195	Tuvalu	TUV	Population, total	SP.POP.TOTL	
146	Nauru	NRU	Population, total	SP.POP.TOTL	
153	Palau	PLW	Population, total	SP.POP.TOTL	
204	British Virgin Islands	VGB	Population, total	SP.POP.TOTL	
118	St. Martin (French part)	MAF	Population, total	SP.POP.TOTL	
70	Gibraltar	GIB	Population, total	SP.POP.TOTL	
172	San Marino	SMR	Population, total	SP.POP.TOTL	
120	Monaco	MCO	Population, total	SP.POP.TOTL	
111	Liechtenstein	LIE	Population, total	SP.POP.TOTL	
125	Marshall Islands	MHL	Population, total	SP.POP.TOTL	
8	American Samoa	ASM	Population, total	SP.POP.TOTL	
184	Turks and Caicos Islands	TCA	Population, total	SP.POP.TOTL	
103	St. Kitts and Nevis	KNA	Population, total	SP.POP.TOTL	
132	Northern Mariana Islands	MNP	Population, total	SP.POP.TOTL	
65	Faroe Islands	FRO	Population, total	SP.POP.TOTL	

	1998	1999	2000	2001	2002	2003	...	2013	\
195	9634.0	9640.0	9638.0	9621.0	9609.0	9668.0	...	10918.0	
146	10377.0	10383.0	10377.0	10363.0	10351.0	10344.0	...	10694.0	
153	18852.0	19380.0	19726.0	19828.0	19851.0	19880.0	...	17805.0	
204	19079.0	19586.0	20104.0	20657.0	21288.0	21982.0	...	28657.0	
118	29102.0	29099.0	29610.0	30387.0	31160.0	31929.0	...	35639.0	
70	27636.0	27695.0	27741.0	27721.0	27892.0	28301.0	...	32411.0	
172	25997.0	26404.0	26823.0	27335.0	27969.0	28601.0	...	33285.0	
120	32209.0	32394.0	32465.0	32444.0	32386.0	32316.0	...	35425.0	
111	32190.0	32615.0	33026.0	33376.0	33693.0	34000.0	...	36806.0	
125	53164.0	53834.0	54224.0	54413.0	54496.0	54493.0	...	51352.0	
8	56603.0	57594.0	58230.0	58324.0	58177.0	57941.0	...	52995.0	
184	17239.0	17984.0	18744.0	19578.0	20598.0	21739.0	...	33594.0	
103	44230.0	44825.0	45461.0	45986.0	46264.0	46431.0	...	47767.0	
132	68501.0	76237.0	80338.0	79479.0	77162.0	74623.0	...	52141.0	
65	44865.0	45203.0	45660.0	46245.0	46813.0	47392.0	...	48418.0	

	2014	2015	2016	2017	2018	2019	2020	2021	\
195	10899.0	10877.0	10852.0	10828.0	10865.0	10956.0	11069.0	11204.0	
146	10940.0	11185.0	11437.0	11682.0	11924.0	12132.0	12315.0	12511.0	
153	17796.0	17794.0	17816.0	17837.0	17864.0	17916.0	17972.0	18024.0	
204	28971.0	29366.0	29739.0	30060.0	30335.0	30610.0	30910.0	31122.0	
118	35261.0	35020.0	34811.0	34496.0	33852.0	33121.0	32553.0	31948.0	
70	32452.0	32520.0	32565.0	32602.0	32648.0	32685.0	32709.0	32669.0	
172	33389.0	33570.0	33834.0	34056.0	34156.0	34178.0	34007.0	33745.0	
120	36110.0	36760.0	37071.0	37044.0	37029.0	37034.0	36922.0	36686.0	
111	37096.0	37355.0	37609.0	37889.0	38181.0	38482.0	38756.0	39039.0	
125	50419.0	49410.0	48329.0	47187.0	45989.0	44728.0	43413.0	42050.0	
8	52217.0	51368.0	50448.0	49463.0	48424.0	47321.0	46189.0	45035.0	
184	34985.0	36538.0	38246.0	39844.0	41487.0	43080.0	44276.0	45114.0	
103	47789.0	47790.0	47788.0	47785.0	47761.0	47712.0	47642.0	47606.0	
132	51856.0	51514.0	51133.0	50729.0	50304.0	49858.0	49587.0	49481.0	
65	48465.0	48816.0	49500.0	50230.0	50955.0	51681.0	52415.0	52889.0	

	2022
195	11312.0
146	12668.0
153	18055.0
204	31305.0
118	31791.0
70	32649.0
172	33660.0
120	36469.0

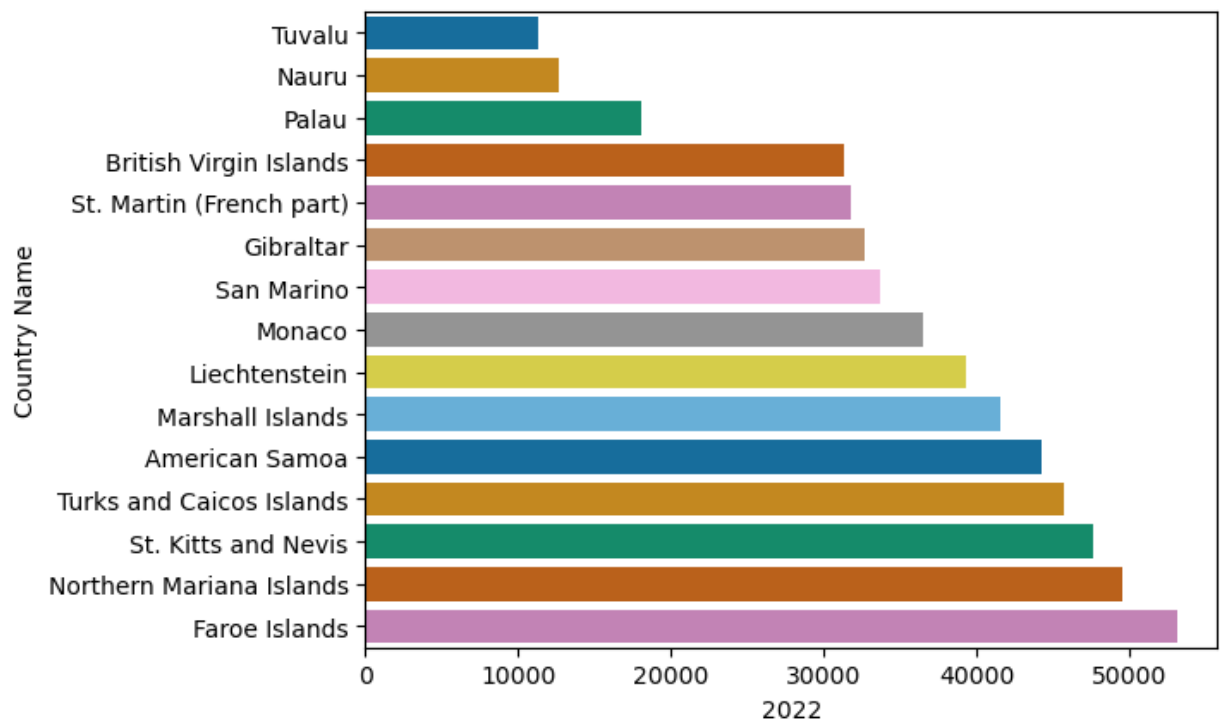
```
111 39327.0
125 41569.0
8 44273.0
184 45703.0
103 47657.0
132 49551.0
65 53090.0
```

```
[15 rows x 29 columns]
```

Top 15 countries having minimum population in 2022.

```
In [19]: sns.barplot(x='2022' , y='Country Name' , data=bottom15, palette = 'colorblind')
```

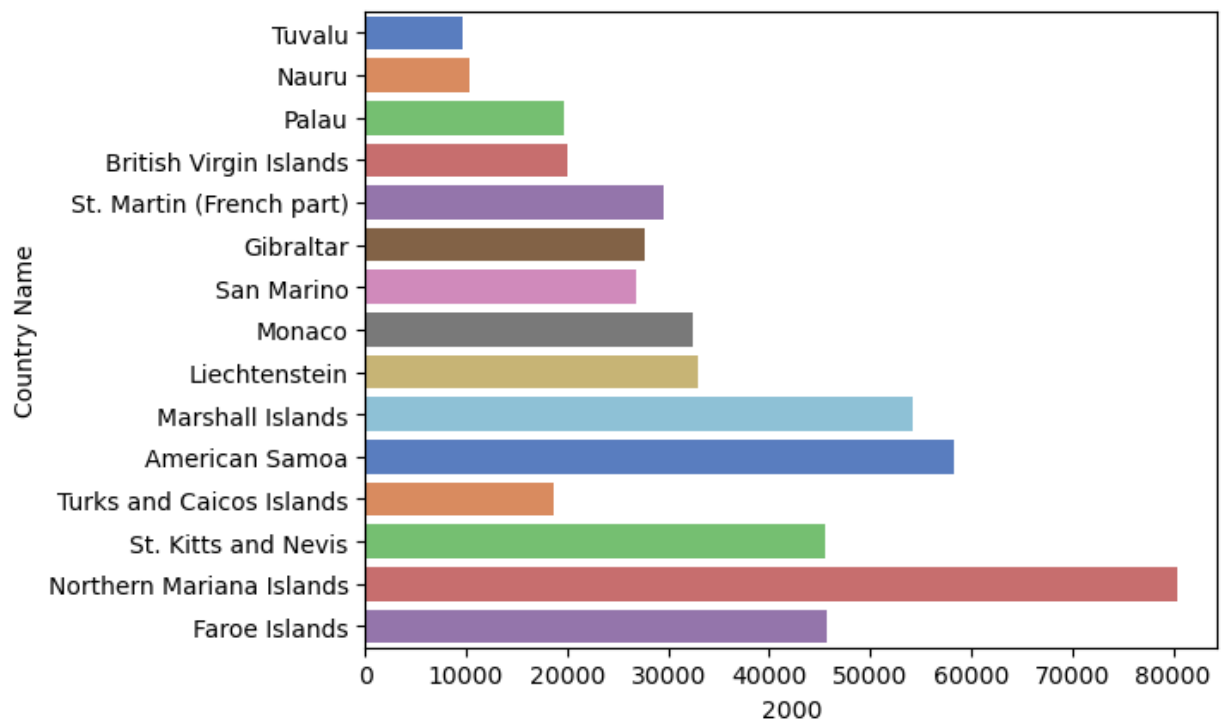
```
Out[19]: <Axes: xlabel='2022', ylabel='Country Name'>
```



Top 15 countries having minimum population in 2000.

```
In [20]: sns.barplot(x='2000' , y='Country Name' , data=bottom15 , palette = 'muted')
```

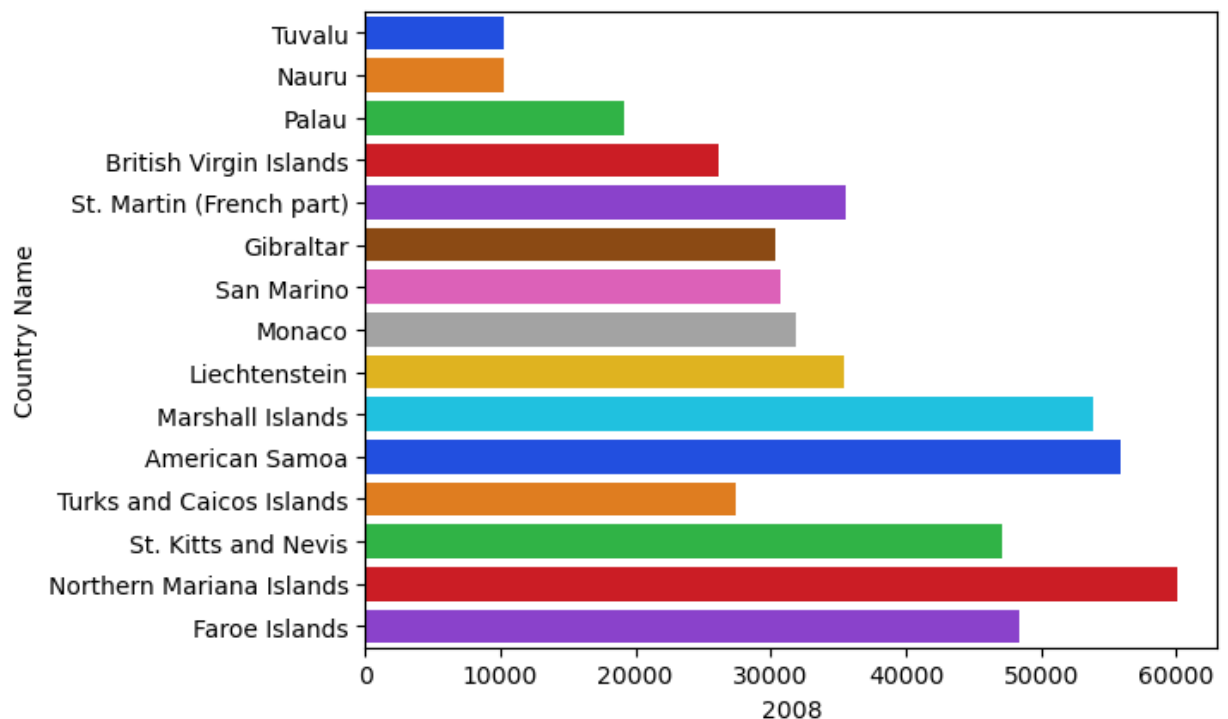
```
Out[20]: <Axes: xlabel='2000', ylabel='Country Name'>
```



Top 15 countries having minimum population in 2008.

In [21]: `sns.barplot(x='2008', y='Country Name', data=bottom15, palette = 'bright')`

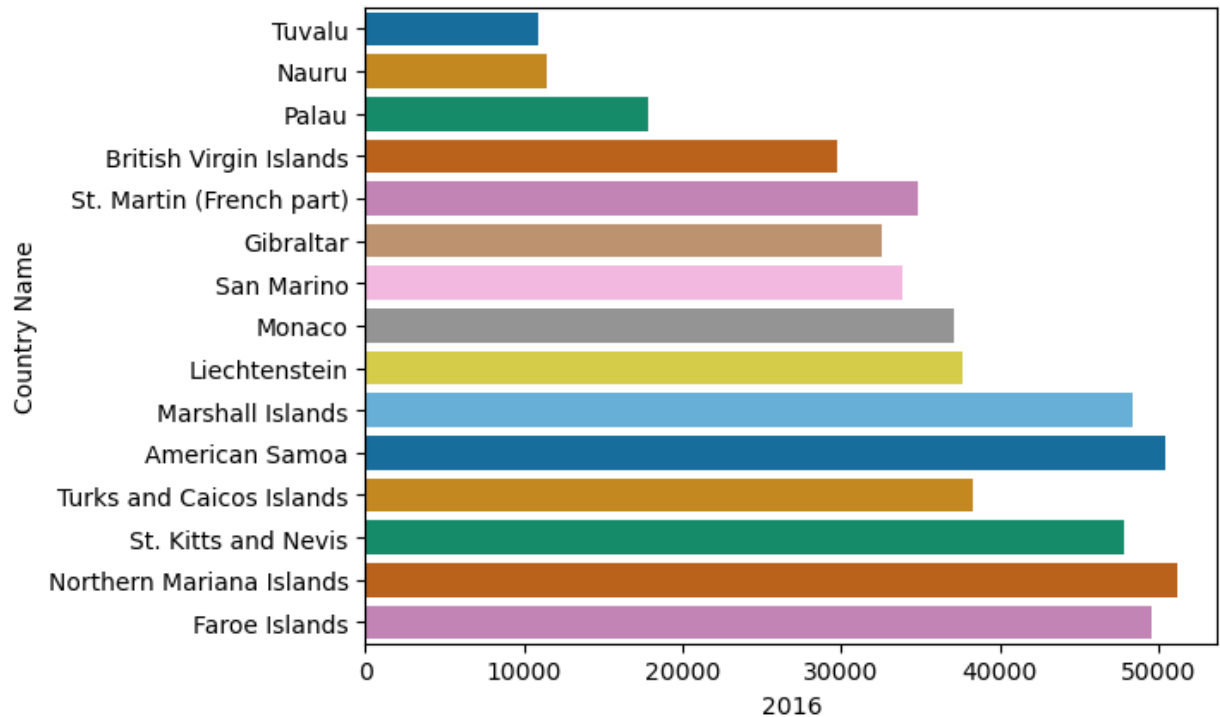
Out[21]: `<Axes: xlabel='2008', ylabel='Country Name'>`



Top 15 countries having minimum population in 2016.

```
In [22]: sns.barplot(x='2016' , y='Country Name' , data=bottom15, palette = 'colorblind')
```

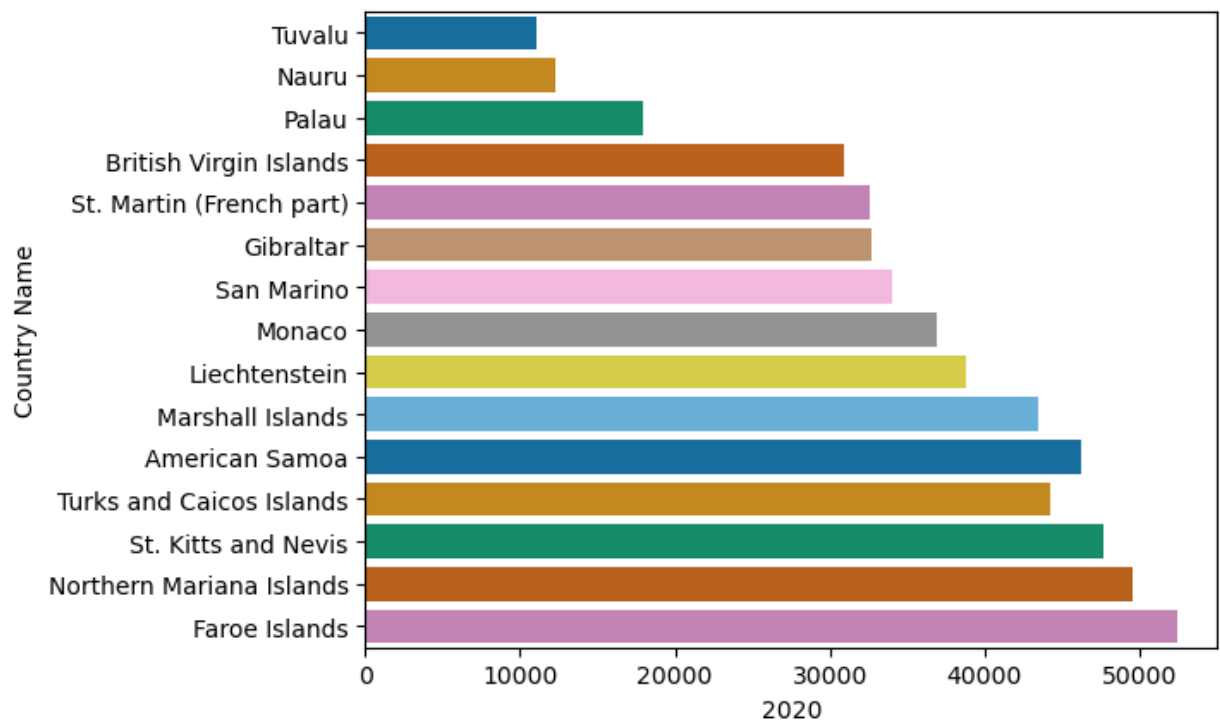
```
Out[22]: <Axes: xlabel='2016', ylabel='Country Name'>
```



Top 15 countries having minimum population in 2020.

```
In [23]: sns.barplot(x='2020' , y='Country Name' , data=bottom15, palette = 'colorblind')
```

```
Out[23]: <Axes: xlabel='2020', ylabel='Country Name'>
```



Top 15 Countries having age above 65 from 1998-2022.

```
In [24]: total=df[df['Indicator Code'] == 'SP.POP.65UP.TO' ]
sort=total.sort_values(by='2022' , ascending =False)
age=sort.head(15)
print(age)
```

	Country Name	Country Code	Indicator Name \
679	China	CHN	Population ages 65 and above, total
732	India	IND	Population ages 65 and above, total
844	United States	USA	Population ages 65 and above, total
741	Japan	JPN	Population ages 65 and above, total
670	Brazil	BRA	Population ages 65 and above, total
730	Indonesia	IDN	Population ages 65 and above, total
693	Germany	DEU	Population ages 65 and above, total
707	France	FRA	Population ages 65 and above, total
738	Italy	ITA	Population ages 65 and above, total
711	United Kingdom	GBR	Population ages 65 and above, total
831	Thailand	THA	Population ages 65 and above, total
767	Mexico	MEX	Population ages 65 and above, total
661	Bangladesh	BGD	Population ages 65 and above, total
792	Pakistan	PAK	Population ages 65 and above, total
702	Spain	ESP	Population ages 65 and above, total

	Indicator Code	1998	1999	2000	2001 \
679	SP.POP.65UP.TO	80883133.0	84193687.0	87382979.0	90569395.0
732	SP.POP.65UP.TO	44774513.0	46173856.0	47616579.0	49113495.0
844	SP.POP.65UP.TO	34375471.0	34590275.0	34755721.0	35042477.0
741	SP.POP.65UP.TO	21054517.0	21810613.0	22584255.0	23420079.0
670	SP.POP.65UP.TO	9053344.0	9366429.0	9679708.0	10005125.0
730	SP.POP.65UP.TO	9965979.0	10342415.0	10727782.0	11121705.0
693	SP.POP.65UP.TO	13001027.0	13188032.0	13509223.0	13885440.0
707	SP.POP.65UP.TO	9559110.0	9697928.0	9841925.0	9979617.0
738	SP.POP.65UP.TO	10083244.0	10248789.0	10423840.0	10594476.0
711	SP.POP.65UP.TO	9223088.0	9232359.0	9257268.0	9302522.0
831	SP.POP.65UP.TO	3443583.0	3642224.0	3847442.0	4054261.0
767	SP.POP.65UP.TO	4526749.0	4710741.0	4897885.0	5094643.0
661	SP.POP.65UP.TO	4471046.0	4660081.0	4858863.0	5047659.0
792	SP.POP.65UP.TO	5023711.0	5175522.0	5343828.0	5520270.0
702	SP.POP.65UP.TO	6514121.0	6652161.0	6781703.0	6934884.0

	2002	2003	...	2013	2014	2015 \
679	93692315.0	96660764.0	...	127059111.0	132153818.0	138262713.0
732	50676067.0	52269470.0	...	68634509.0	71341897.0	74613573.0
844	35341824.0	35619261.0	...	43904126.0	45005701.0	45954694.0
741	24245889.0	24992848.0	...	32602328.0	33762485.0	34745347.0
670	10346447.0	10699609.0	...	14989905.0	15579806.0	16222681.0
730	11523935.0	11929452.0	...	15402436.0	15707148.0	16026201.0
693	14281833.0	14692082.0	...	16587745.0	16798918.0	17113731.0
707	10110486.0	10225450.0	...	11995907.0	12366153.0	12714090.0
738	10767132.0	10960629.0	...	12844504.0	13183650.0	13364281.0
711	9358045.0	9417734.0	...	11094552.0	11357917.0	11589815.0
831	4262231.0	4477102.0	...	6952140.0	7319426.0	7706937.0
767	5303000.0	5513284.0	...	7750137.0	8058072.0	8391070.0
661	5238885.0	5430907.0	...	7184539.0	7363770.0	7587423.0
792	5680462.0	5837001.0	...	7886524.0	8068890.0	8240680.0
702	7075364.0	7155615.0	...	8337877.0	8503113.0	8632527.0

	2016	2017	2018	2019	2020 \
679	145118407.0	152834660.0	161037596.0	169240734.0	177774074.0
732	78116348.0	81804197.0	85618417.0	89515357.0	93171419.0
844	47402094.0	48983844.0	50325557.0	51849212.0	53782439.0
741	35512557.0	36141302.0	36650477.0	37077906.0	37352017.0
670	16883570.0	17573065.0	18296251.0	19050736.0	19807547.0
730	16378367.0	16782627.0	17248206.0	17775805.0	18240362.0
693	17405321.0	17614700.0	17824018.0	18056342.0	18265233.0
707	13029325.0	13335680.0	13640015.0	13933362.0	14196384.0

738	13508310.0	13635254.0	13753249.0	13775244.0	13892091.0
711	11793001.0	11985373.0	12176955.0	12385241.0	12559292.0
831	8110757.0	8529513.0	8964090.0	9418578.0	9899641.0
767	8747777.0	9120471.0	9509632.0	9859108.0	10106622.0
661	7871137.0	8204441.0	8587684.0	9010488.0	9430760.0
792	8420708.0	8639038.0	8899128.0	9189768.0	9483599.0
702	8750078.0	8884124.0	9028327.0	9184044.0	9318013.0

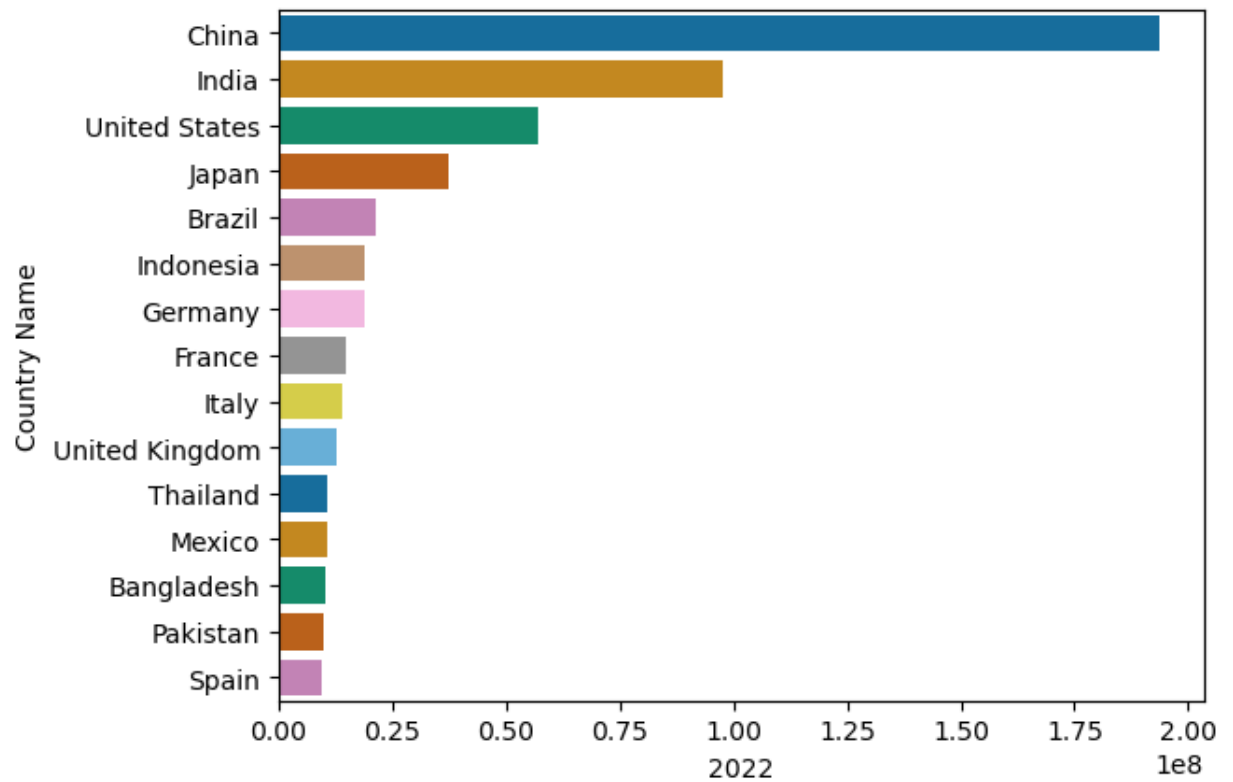
	2021	2022
679	185721855.0	193783391.0
732	95749032.0	97734540.0
844	55379196.0	57085895.0
741	37436889.0	37443104.0
670	20534735.0	21265888.0
730	18559457.0	18891582.0
693	18444791.0	18844997.0
707	14446427.0	14713791.0
738	13997392.0	14157178.0
711	12678761.0	12838342.0
831	10390449.0	10906792.0
767	10305738.0	10612344.0
661	9868578.0	10347220.0
792	9768442.0	10078443.0
702	9437101.0	9649205.0

[15 rows x 29 columns]

Top 15 Countries having age above 65 in 2022.

```
In [25]: sns.barplot(x='2022' , y='Country Name' , data=age, palette = 'colorblind')
```

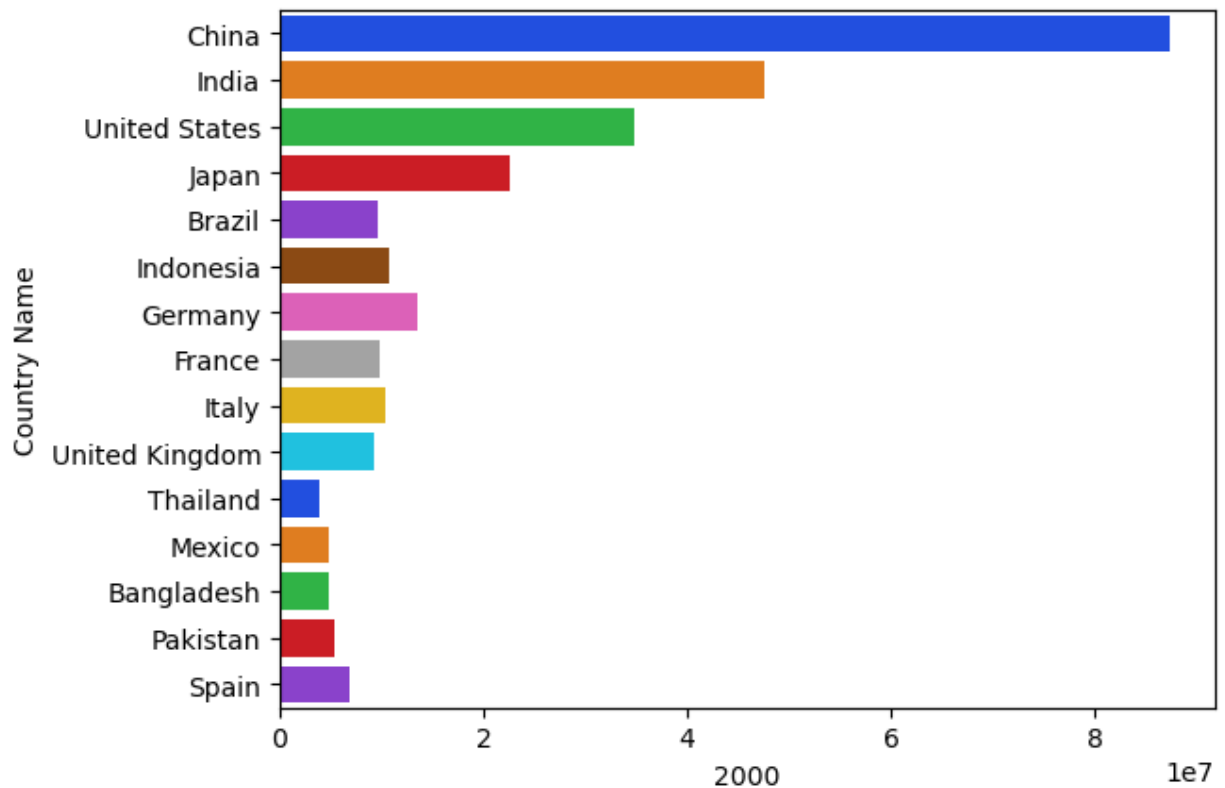
```
Out[25]: <Axes: xlabel='2022', ylabel='Country Name'>
```



Top 15 Countries having age above 65 in 2000.

```
In [26]: sns.barplot(x='2000', y='Country Name', data=age, palette = 'bright')
```

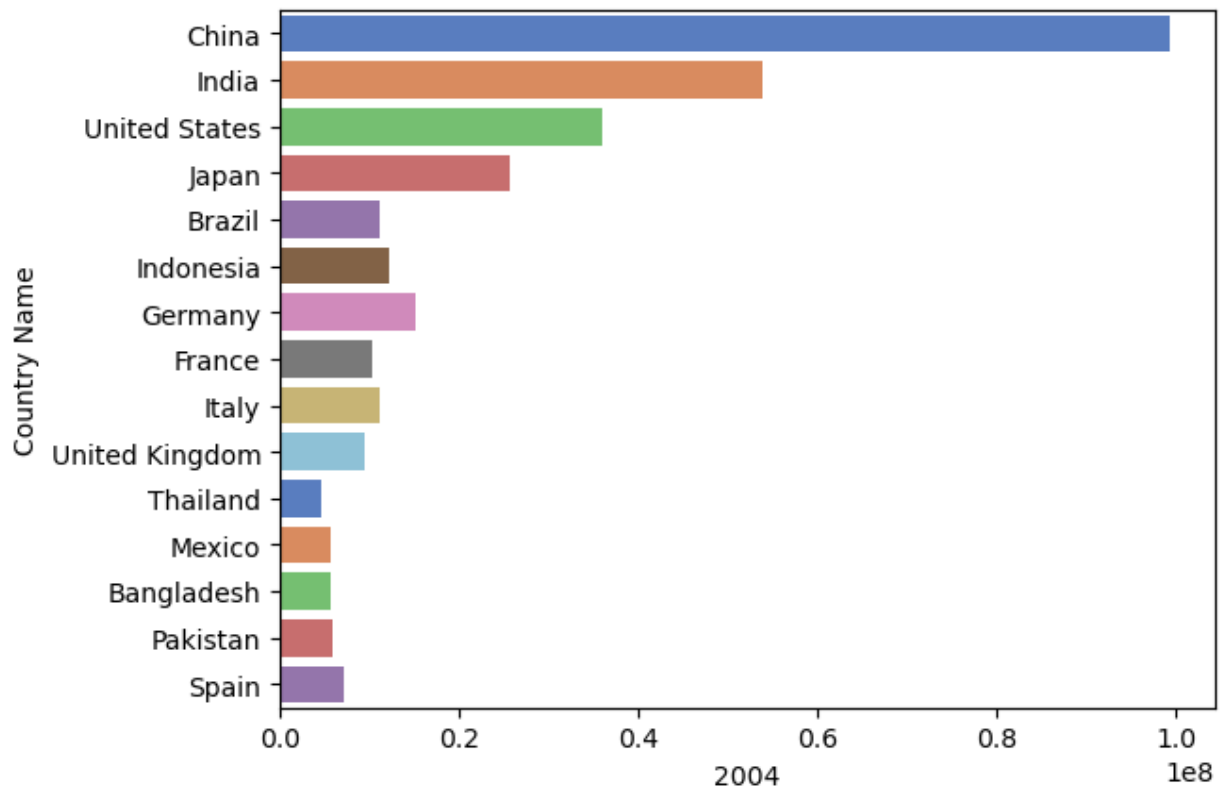
```
Out[26]: <Axes: xlabel='2000', ylabel='Country Name'>
```



Top 15 Countries having age above 65 in 2004.

```
In [27]: sns.barplot(x='2004' , y='Country Name' , data=age, palette = 'muted')
```

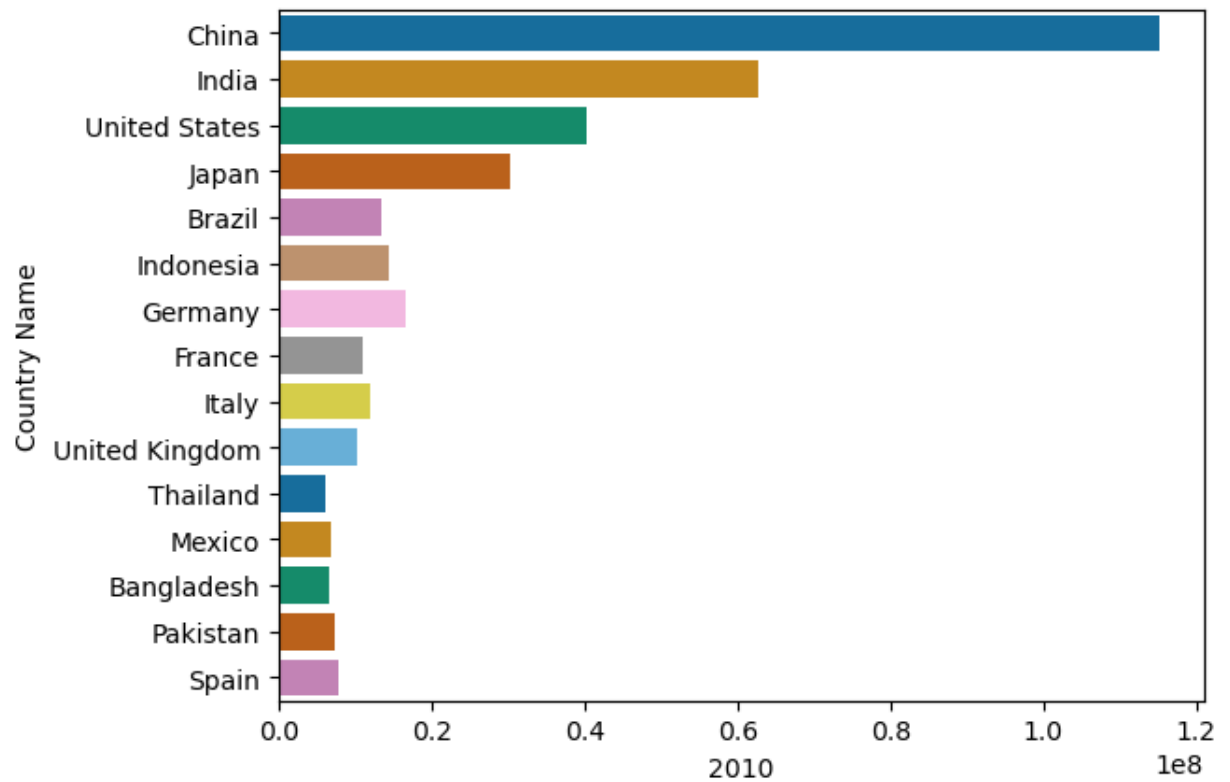
```
Out[27]: <Axes: xlabel='2004', ylabel='Country Name'>
```



Top 15 Countries having age above 65 in 2010.

```
In [28]: sns.barplot(x='2010' , y='Country Name' , data=age, palette = 'colorblind')
```

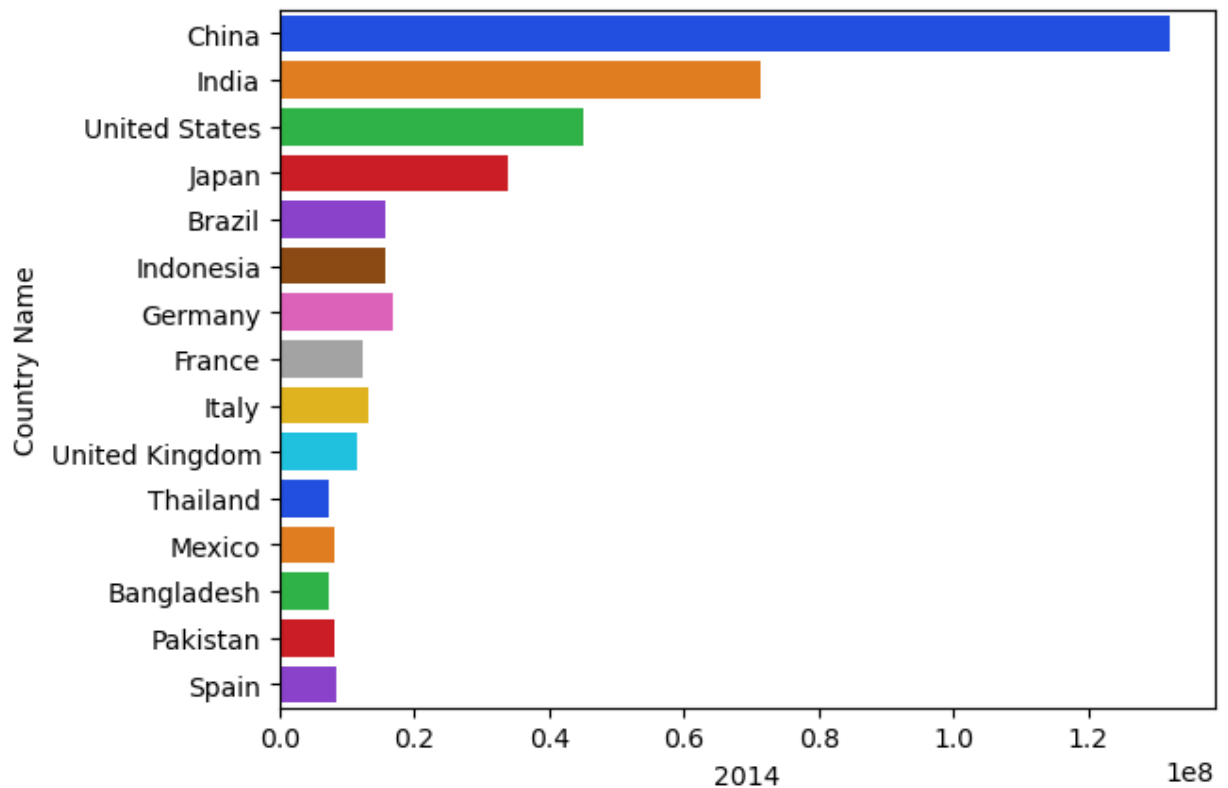
```
Out[28]: <Axes: xlabel='2010', ylabel='Country Name'>
```



Top 15 Countries having age above 65 in 2014.

```
In [29]: sns.barplot(x='2014', y='Country Name', data=age, palette = 'bright')
```

```
Out[29]: <Axes: xlabel='2014', ylabel='Country Name'>
```

Bottom 15 countries having age above 65 from 1998-2022.

```
In [30]: total=df[df['Indicator Code'] == 'SP.POP.65UP.TO' ]  
sort=total.sort_values(by='2022' , ascending =True)  
age=sort.head(15)  
print(age)
```

	Country Name	Country Code	\
789	Nauru	NRU	
839	Tuvalu	TUV	
796	Palau	PLW	
768	Marshall Islands	MHL	
848	British Virgin Islands	VGB	
652	American Samoa	ASM	
761	St. Martin (French part)	MAF	
825	Sint Maarten (Dutch part)	SXM	
828	Turks and Caicos Islands	TCA	
747	St. Kitts and Nevis	KNA	
746	Kiribati	KIR	
775	Northern Mariana Islands	MNP	
690	Cayman Islands	CYM	
721	Greenland	GRL	
835	Tonga	TON	

	Indicator Name	Indicator Code	1998	1999	\
789	Population ages 65 and above, total	SP.POP.65UP.TO	182.0	172.0	
839	Population ages 65 and above, total	SP.POP.65UP.TO	593.0	587.0	
796	Population ages 65 and above, total	SP.POP.65UP.TO	981.0	995.0	
768	Population ages 65 and above, total	SP.POP.65UP.TO	1159.0	1146.0	
848	Population ages 65 and above, total	SP.POP.65UP.TO	940.0	945.0	
652	Population ages 65 and above, total	SP.POP.65UP.TO	1793.0	1808.0	
761	Population ages 65 and above, total	SP.POP.65UP.TO	1054.0	1100.0	
825	Population ages 65 and above, total	SP.POP.65UP.TO	934.0	933.0	
828	Population ages 65 and above, total	SP.POP.65UP.TO	666.0	710.0	
747	Population ages 65 and above, total	SP.POP.65UP.TO	3587.0	3570.0	
746	Population ages 65 and above, total	SP.POP.65UP.TO	2840.0	2861.0	
775	Population ages 65 and above, total	SP.POP.65UP.TO	979.0	1014.0	
690	Population ages 65 and above, total	SP.POP.65UP.TO	2033.0	2117.0	
721	Population ages 65 and above, total	SP.POP.65UP.TO	2710.0	2769.0	
835	Population ages 65 and above, total	SP.POP.65UP.TO	5369.0	5458.0	

	2000	2001	2002	2003	...	2013	2014	2015	2016	\
789	164.0	152.0	142.0	141.0	...	153.0	166.0	180.0	198.0	
839	579.0	561.0	546.0	546.0	...	583.0	591.0	596.0	594.0	
796	1009.0	1026.0	1046.0	1072.0	...	1215.0	1265.0	1312.0	1370.0	
768	1157.0	1168.0	1175.0	1174.0	...	1159.0	1236.0	1311.0	1368.0	
848	961.0	980.0	1008.0	1051.0	...	1913.0	2014.0	2126.0	2241.0	
652	1852.0	1916.0	1978.0	2043.0	...	2393.0	2465.0	2542.0	2627.0	
761	1138.0	1173.0	1215.0	1265.0	...	2270.0	2372.0	2493.0	2654.0	
825	924.0	935.0	961.0	1020.0	...	1896.0	2063.0	2284.0	2542.0	
828	747.0	779.0	837.0	922.0	...	2543.0	2758.0	3020.0	3318.0	
747	3573.0	3568.0	3527.0	3489.0	...	3558.0	3583.0	3633.0	3720.0	
746	2884.0	2930.0	2998.0	3073.0	...	3775.0	3850.0	3950.0	4074.0	
775	1067.0	1149.0	1231.0	1303.0	...	2178.0	2412.0	2663.0	2937.0	
690	2191.0	2258.0	2319.0	2380.0	...	3362.0	3549.0	3779.0	4024.0	
721	2830.0	2898.0	2966.0	3034.0	...	4220.0	4285.0	4378.0	4509.0	
835	5538.0	5614.0	5697.0	5791.0	...	6384.0	6376.0	6353.0	6350.0	

	2017	2018	2019	2020	2021	2022
789	212.0	224.0	240.0	261.0	286.0	311.0
839	598.0	616.0	638.0	664.0	697.0	728.0
796	1434.0	1502.0	1575.0	1645.0	1715.0	1784.0
768	1428.0	1506.0	1597.0	1698.0	1793.0	1889.0
848	2364.0	2496.0	2648.0	2805.0	2946.0	3111.0
652	2714.0	2802.0	2889.0	2981.0	3082.0	3216.0
761	2809.0	2940.0	3067.0	3208.0	3351.0	3536.0
825	2825.0	3114.0	3438.0	3782.0	4138.0	4584.0

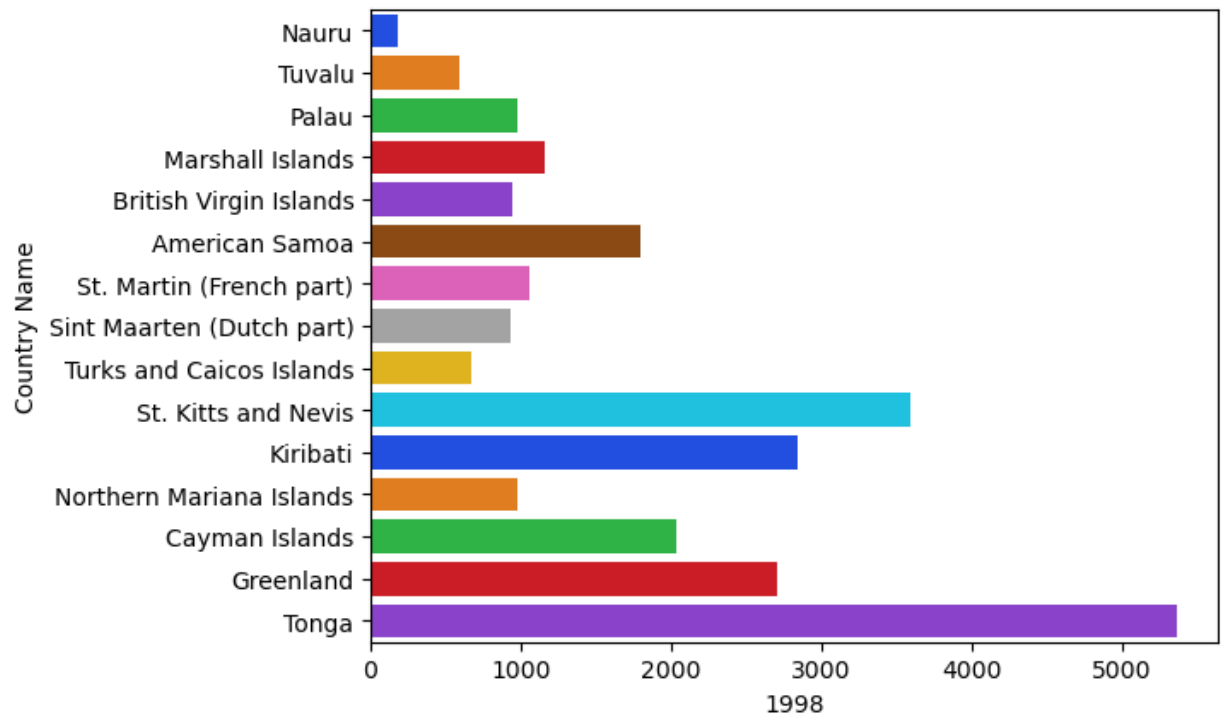
828	3617.0	3925.0	4208.0	4416.0	4579.0	4720.0
747	3852.0	4009.0	4183.0	4380.0	4597.0	4822.0
746	4214.0	4357.0	4503.0	4661.0	4824.0	5001.0
775	3239.0	3578.0	3949.0	4370.0	4843.0	5349.0
690	4272.0	4530.0	4796.0	5067.0	5332.0	5608.0
721	4639.0	4746.0	4874.0	5066.0	5358.0	5674.0
835	6366.0	6408.0	6452.0	6507.0	6575.0	6639.0

[15 rows x 29 columns]

Bottom 15 countries having age above 65 in 1998.

```
In [31]: sns.barplot(x='1998' , y='Country Name' , data=age, palette = 'bright')
```

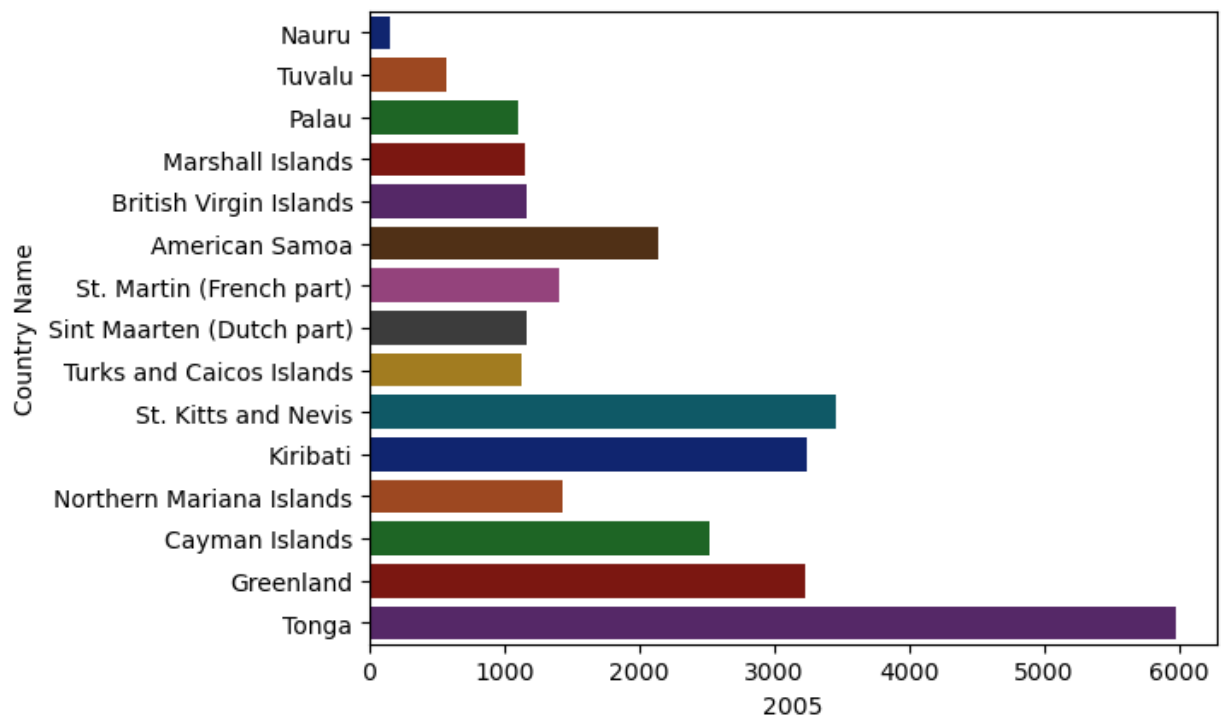
```
Out[31]: <Axes: xlabel='1998', ylabel='Country Name'>
```



Bottom 15 countries having age above 65 in 2005.

```
In [32]: sns.barplot(x='2005' , y='Country Name' , data=age, palette = 'dark')
```

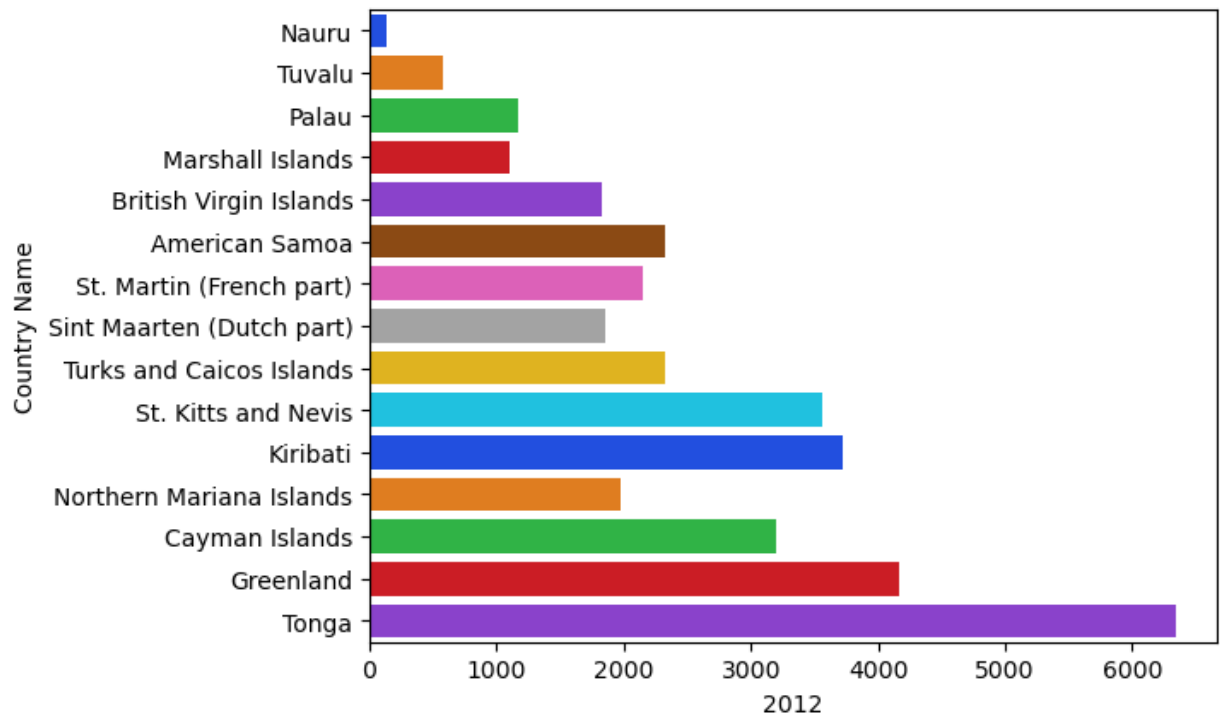
```
Out[32]: <Axes: xlabel='2005', ylabel='Country Name'>
```



Bottom 15 countries having age above 65 in 2012.

```
In [33]: sns.barplot(x='2012' , y='Country Name' , data=age, palette = 'bright')
```

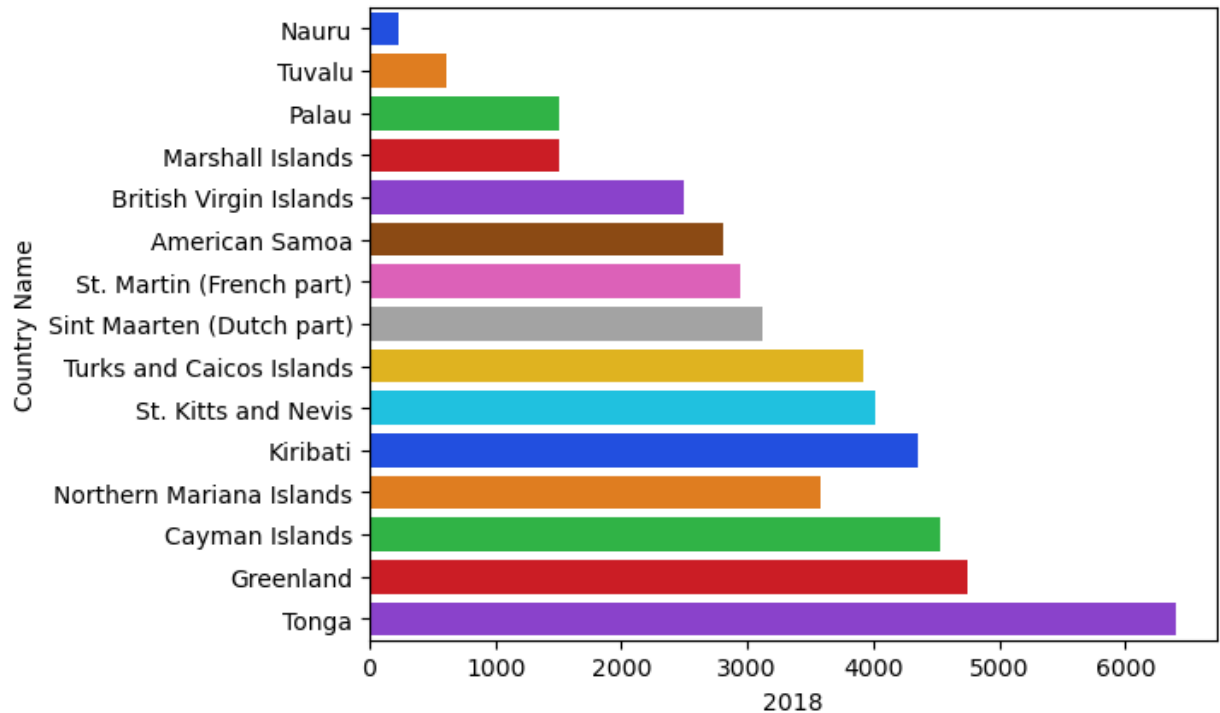
```
Out[33]: <Axes: xlabel='2012', ylabel='Country Name'>
```



Bottom 15 countries having age above 65 in 2018.

```
In [34]: sns.barplot(x='2018' , y='Country Name' , data=age, palette = 'bright')
```

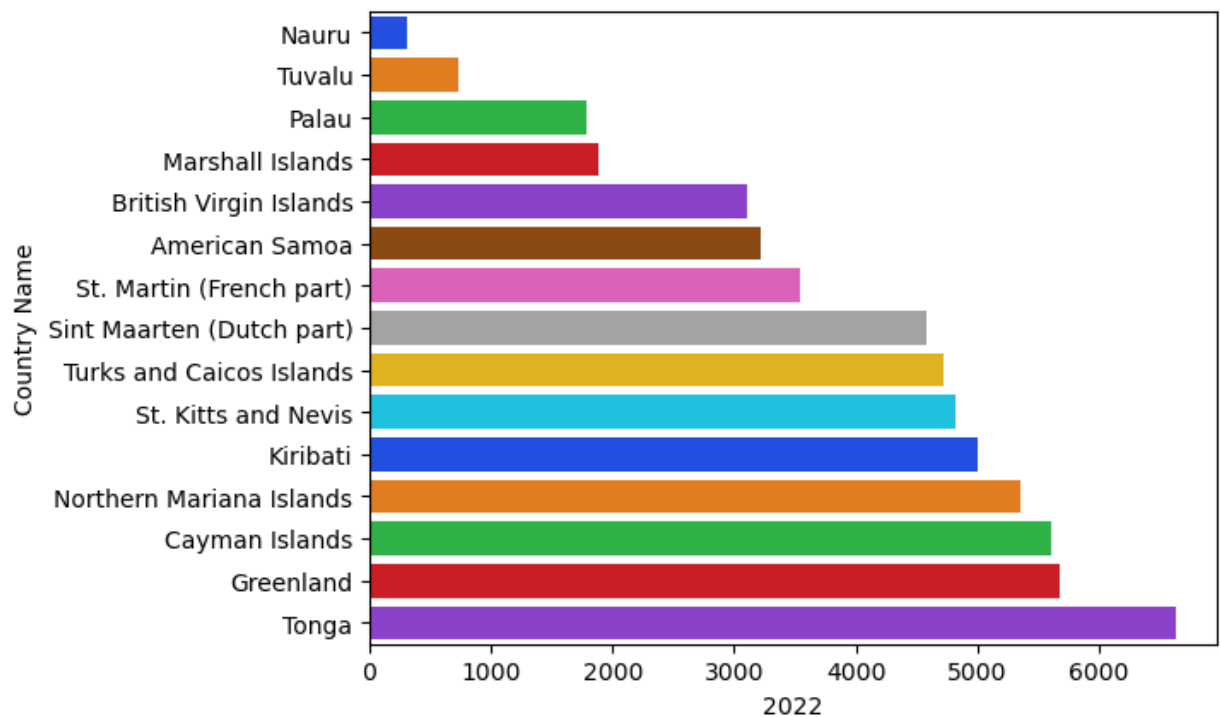
```
Out[34]: <Axes: xlabel='2018', ylabel='Country Name'>
```



Bottom 15 countries having age above 65 in 2022.

```
In [35]: sns.barplot(x='2022' , y='Country Name' , data=age, palette = 'bright')
```

```
Out[35]: <Axes: xlabel='2022', ylabel='Country Name'>
```



Top 15 countries having maximum male(% of total population) from 1998-2022.

```
In [36]: total2=df[df['Indicator Code'] == 'SP.POP.TOTL.MA.ZS' ]
sort=total.sort_values(by='2022' , ascending =False)
male=sort.head(15)
print(male)
```

	Country Name	Country Code	Indicator Name \
679	China	CHN	Population ages 65 and above, total
732	India	IND	Population ages 65 and above, total
844	United States	USA	Population ages 65 and above, total
741	Japan	JPN	Population ages 65 and above, total
670	Brazil	BRA	Population ages 65 and above, total
730	Indonesia	IDN	Population ages 65 and above, total
693	Germany	DEU	Population ages 65 and above, total
707	France	FRA	Population ages 65 and above, total
738	Italy	ITA	Population ages 65 and above, total
711	United Kingdom	GBR	Population ages 65 and above, total
831	Thailand	THA	Population ages 65 and above, total
767	Mexico	MEX	Population ages 65 and above, total
661	Bangladesh	BGD	Population ages 65 and above, total
792	Pakistan	PAK	Population ages 65 and above, total
702	Spain	ESP	Population ages 65 and above, total

	Indicator Code	1998	1999	2000	2001 \
679	SP.POP.65UP.TO	80883133.0	84193687.0	87382979.0	90569395.0
732	SP.POP.65UP.TO	44774513.0	46173856.0	47616579.0	49113495.0
844	SP.POP.65UP.TO	34375471.0	34590275.0	34755721.0	35042477.0
741	SP.POP.65UP.TO	21054517.0	21810613.0	22584255.0	23420079.0
670	SP.POP.65UP.TO	9053344.0	9366429.0	9679708.0	10005125.0
730	SP.POP.65UP.TO	9965979.0	10342415.0	10727782.0	11121705.0
693	SP.POP.65UP.TO	13001027.0	13188032.0	13509223.0	13885440.0
707	SP.POP.65UP.TO	9559110.0	9697928.0	9841925.0	9979617.0
738	SP.POP.65UP.TO	10083244.0	10248789.0	10423840.0	10594476.0
711	SP.POP.65UP.TO	9223088.0	9232359.0	9257268.0	9302522.0
831	SP.POP.65UP.TO	3443583.0	3642224.0	3847442.0	4054261.0
767	SP.POP.65UP.TO	4526749.0	4710741.0	4897885.0	5094643.0
661	SP.POP.65UP.TO	4471046.0	4660081.0	4858863.0	5047659.0
792	SP.POP.65UP.TO	5023711.0	5175522.0	5343828.0	5520270.0
702	SP.POP.65UP.TO	6514121.0	6652161.0	6781703.0	6934884.0

	2002	2003	...	2013	2014	2015 \
679	93692315.0	96660764.0	...	127059111.0	132153818.0	138262713.0
732	50676067.0	52269470.0	...	68634509.0	71341897.0	74613573.0
844	35341824.0	35619261.0	...	43904126.0	45005701.0	45954694.0
741	24245889.0	24992848.0	...	32602328.0	33762485.0	34745347.0
670	10346447.0	10699609.0	...	14989905.0	15579806.0	16222681.0
730	11523935.0	11929452.0	...	15402436.0	15707148.0	16026201.0
693	14281833.0	14692082.0	...	16587745.0	16798918.0	17113731.0
707	10110486.0	10225450.0	...	11995907.0	12366153.0	12714090.0
738	10767132.0	10960629.0	...	12844504.0	13183650.0	13364281.0
711	9358045.0	9417734.0	...	11094552.0	11357917.0	11589815.0
831	4262231.0	4477102.0	...	6952140.0	7319426.0	7706937.0
767	5303000.0	5513284.0	...	7750137.0	8058072.0	8391070.0
661	5238885.0	5430907.0	...	7184539.0	7363770.0	7587423.0
792	5680462.0	5837001.0	...	7886524.0	8068890.0	8240680.0
702	7075364.0	7155615.0	...	8337877.0	8503113.0	8632527.0

	2016	2017	2018	2019	2020 \
679	145118407.0	152834660.0	161037596.0	169240734.0	177774074.0
732	78116348.0	81804197.0	85618417.0	89515357.0	93171419.0
844	47402094.0	48983844.0	50325557.0	51849212.0	53782439.0
741	35512557.0	36141302.0	36650477.0	37077906.0	37352017.0
670	16883570.0	17573065.0	18296251.0	19050736.0	19807547.0
730	16378367.0	16782627.0	17248206.0	17775805.0	18240362.0
693	17405321.0	17614700.0	17824018.0	18056342.0	18265233.0
707	13029325.0	13335680.0	13640015.0	13933362.0	14196384.0

738	13508310.0	13635254.0	13753249.0	13775244.0	13892091.0
711	11793001.0	11985373.0	12176955.0	12385241.0	12559292.0
831	8110757.0	8529513.0	8964090.0	9418578.0	9899641.0
767	8747777.0	9120471.0	9509632.0	9859108.0	10106622.0
661	7871137.0	8204441.0	8587684.0	9010488.0	9430760.0
792	8420708.0	8639038.0	8899128.0	9189768.0	9483599.0
702	8750078.0	8884124.0	9028327.0	9184044.0	9318013.0

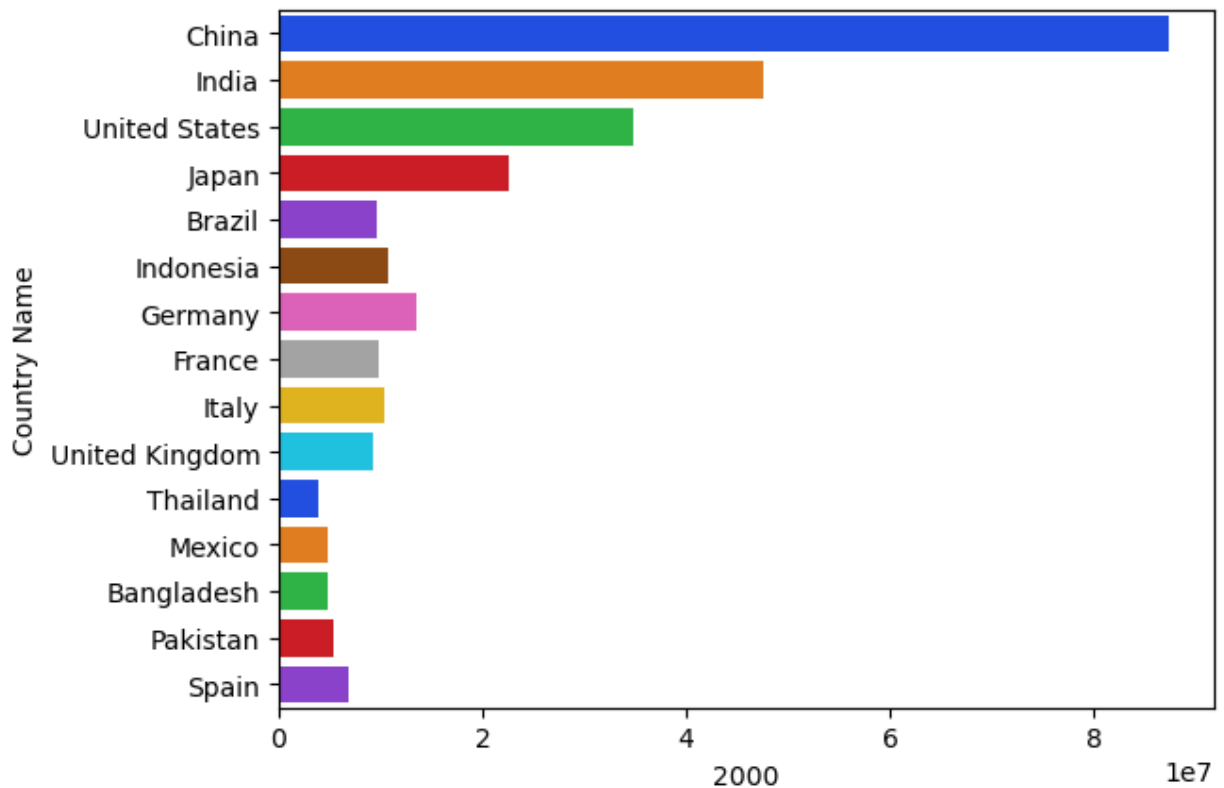
	2021	2022
679	185721855.0	193783391.0
732	95749032.0	97734540.0
844	55379196.0	57085895.0
741	37436889.0	37443104.0
670	20534735.0	21265888.0
730	18559457.0	18891582.0
693	18444791.0	18844997.0
707	14446427.0	14713791.0
738	13997392.0	14157178.0
711	12678761.0	12838342.0
831	10390449.0	10906792.0
767	10305738.0	10612344.0
661	9868578.0	10347220.0
792	9768442.0	10078443.0
702	9437101.0	9649205.0

[15 rows x 29 columns]

Top 15 countries having maximum male(% of total population) in 2000.

```
In [37]: sns.barplot(x='2000' , y='Country Name' , data=male, palette = 'bright')
```

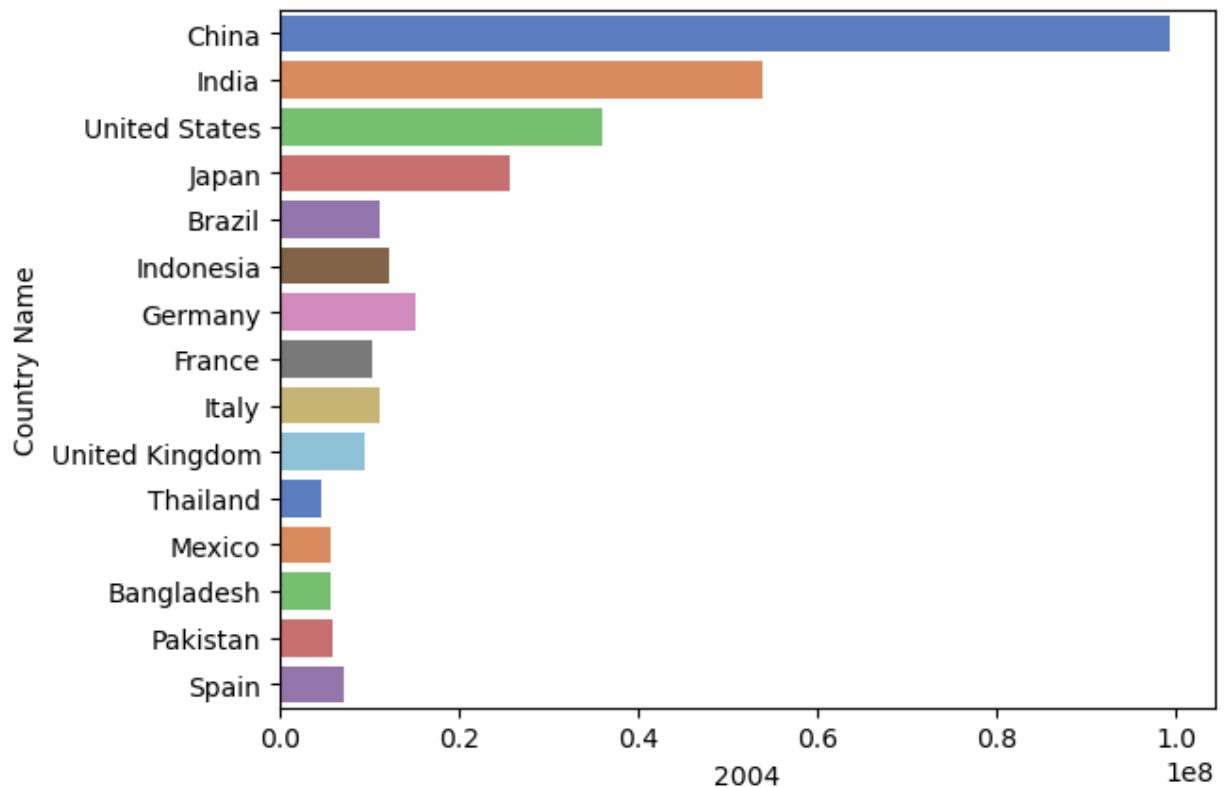
```
Out[37]: <Axes: xlabel='2000', ylabel='Country Name'>
```

Top 15 countries having maximum male(% of total population) in 2004.

```
In [38]: sns.barplot(x='2004' , y='Country Name' , data=male, palette = 'muted')
```

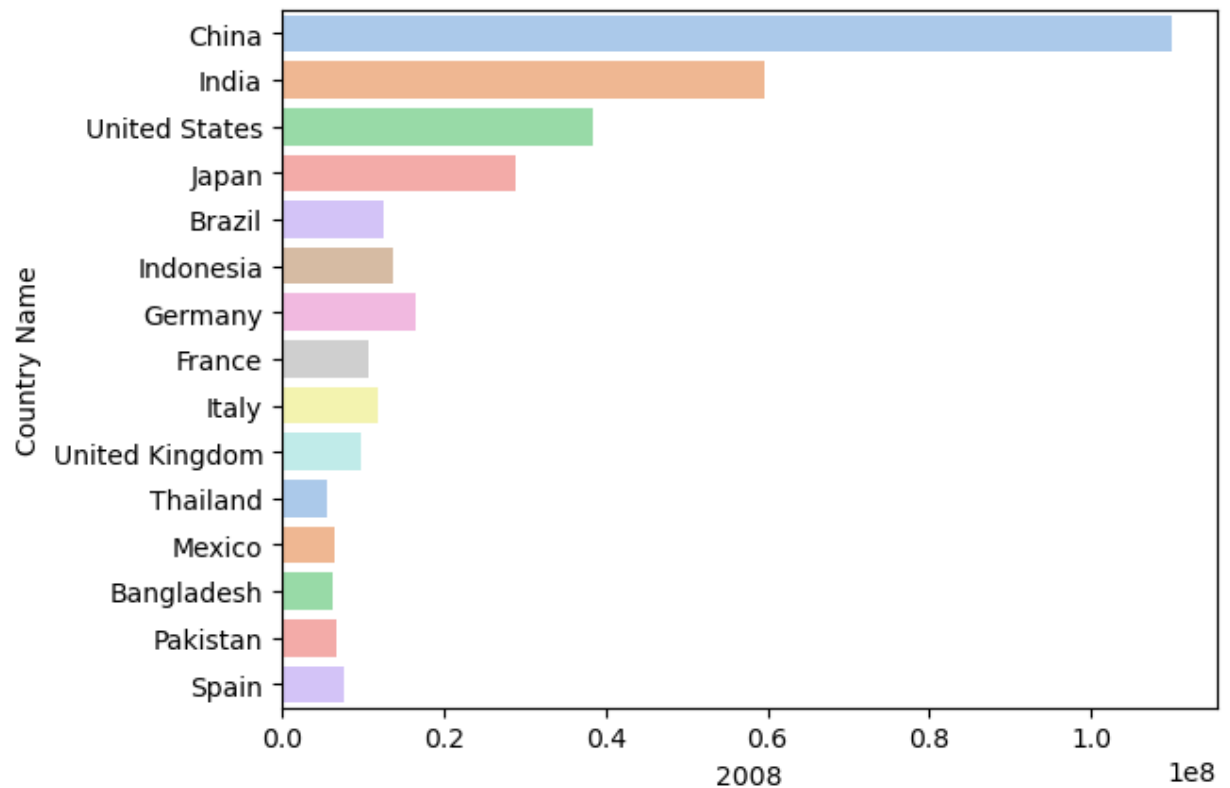
```
Out[38]: <Axes: xlabel='2004', ylabel='Country Name'>
```



Top 15 countries having maximum male(% of total population) in 2008.

```
In [39]: sns.barplot(x='2008' , y='Country Name' , data=male, palette = 'pastel')
```

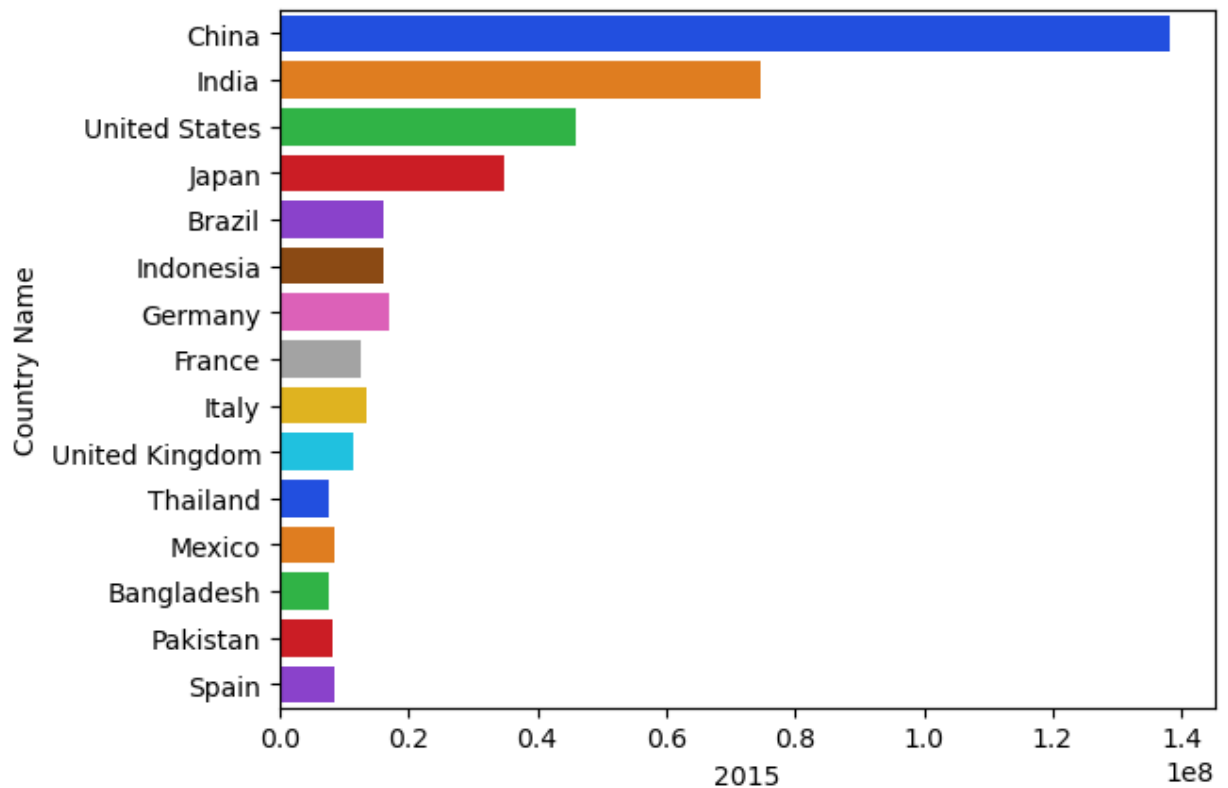
```
Out[39]: <Axes: xlabel='2008', ylabel='Country Name'>
```



Top 15 countries having maximum male(% of total population) in 2015.

```
In [40]: sns.barplot(x='2015' , y='Country Name' , data=male, palette = 'bright')
```

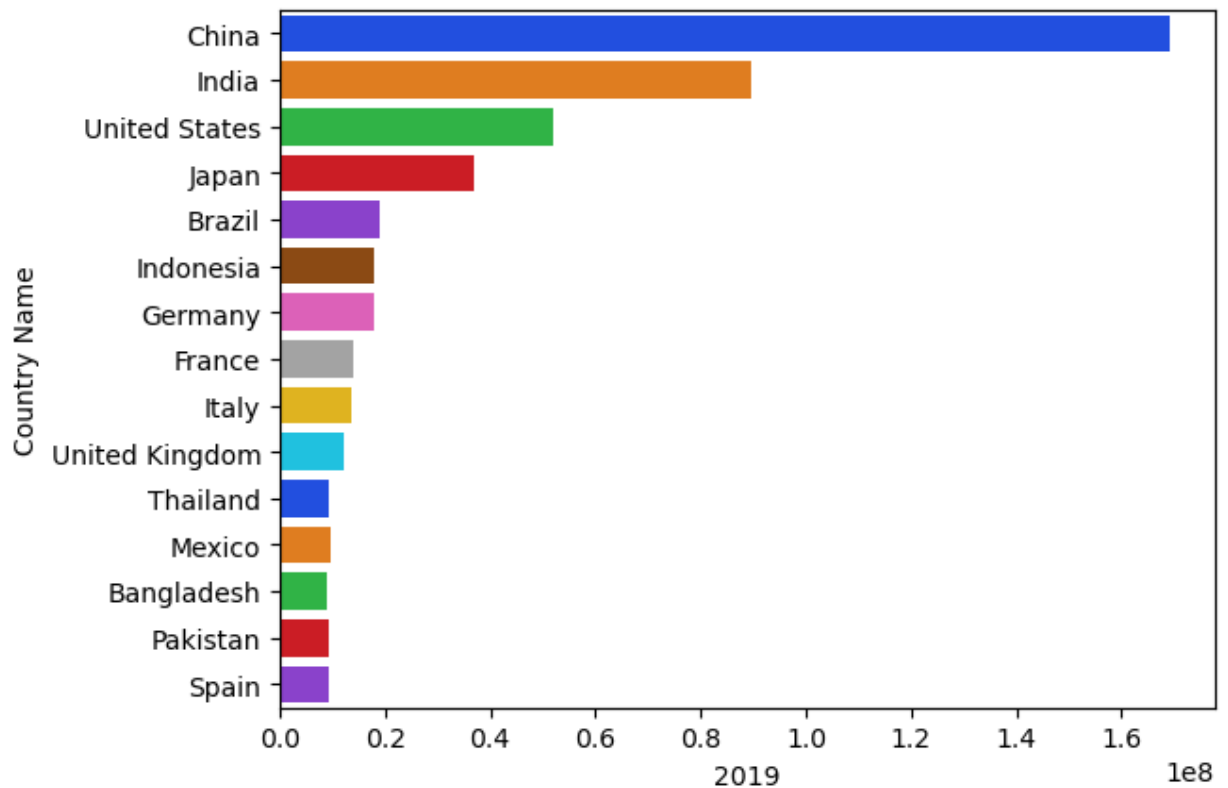
```
Out[40]: <Axes: xlabel='2015', ylabel='Country Name'>
```



Top 15 countries having maximum male(% of total population) in 2019.

```
In [41]: sns.barplot(x='2019' , y='Country Name' , data=male, palette = 'bright')
```

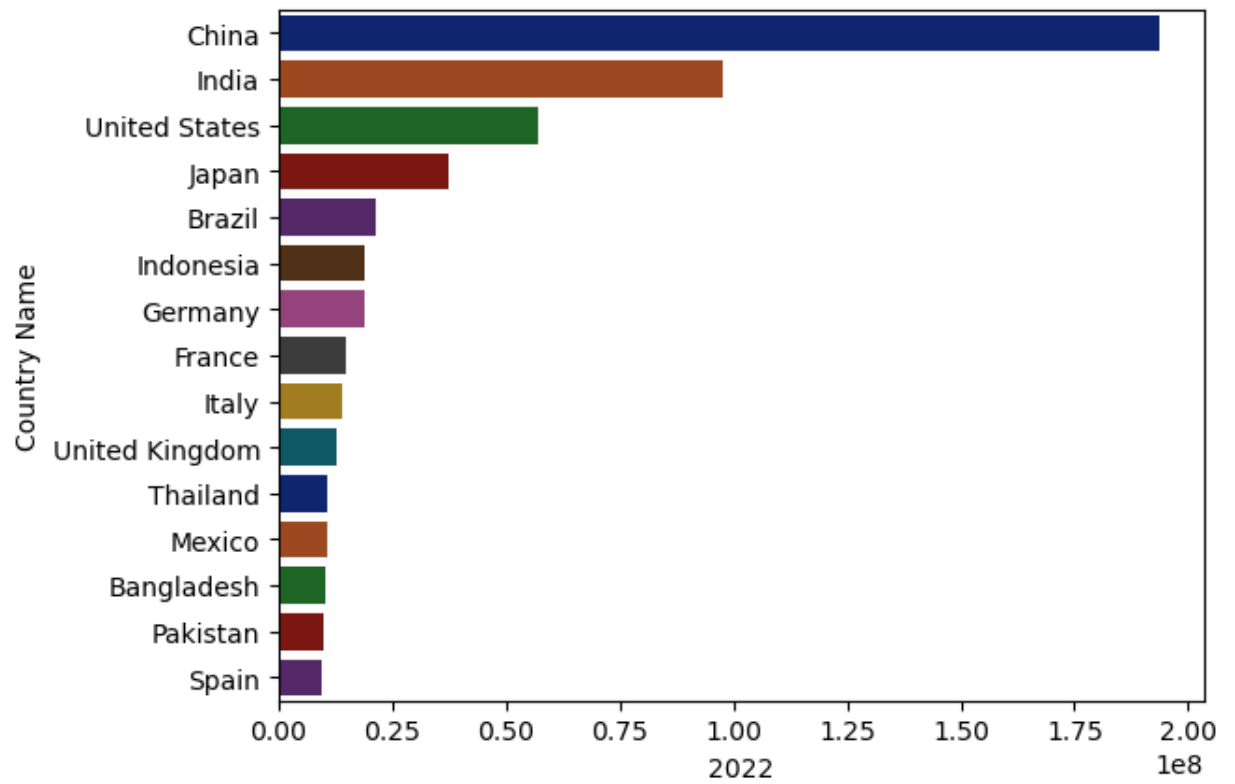
```
Out[41]: <Axes: xlabel='2019', ylabel='Country Name'>
```



Top 15 countries having maximum male(% of total population) in 2022.

```
In [42]: sns.barplot(x='2022' , y='Country Name' , data=male, palette = 'dark')
```

```
Out[42]: <Axes: xlabel='2022', ylabel='Country Name'>
```



```
In [43]: total2=df[df['Indicator Code'] == 'SP.POP.TOTL.FE.ZS' ]
sort=total.sort_values(by='2022' , ascending =False)
female=sort.head(15)
print(female)
```

	Country Name	Country Code	Indicator Name \
679	China	CHN	Population ages 65 and above, total
732	India	IND	Population ages 65 and above, total
844	United States	USA	Population ages 65 and above, total
741	Japan	JPN	Population ages 65 and above, total
670	Brazil	BRA	Population ages 65 and above, total
730	Indonesia	IDN	Population ages 65 and above, total
693	Germany	DEU	Population ages 65 and above, total
707	France	FRA	Population ages 65 and above, total
738	Italy	ITA	Population ages 65 and above, total
711	United Kingdom	GBR	Population ages 65 and above, total
831	Thailand	THA	Population ages 65 and above, total
767	Mexico	MEX	Population ages 65 and above, total
661	Bangladesh	BGD	Population ages 65 and above, total
792	Pakistan	PAK	Population ages 65 and above, total
702	Spain	ESP	Population ages 65 and above, total

	Indicator Code	1998	1999	2000	2001 \
679	SP.POP.65UP.TO	80883133.0	84193687.0	87382979.0	90569395.0
732	SP.POP.65UP.TO	44774513.0	46173856.0	47616579.0	49113495.0
844	SP.POP.65UP.TO	34375471.0	34590275.0	34755721.0	35042477.0
741	SP.POP.65UP.TO	21054517.0	21810613.0	22584255.0	23420079.0
670	SP.POP.65UP.TO	9053344.0	9366429.0	9679708.0	10005125.0
730	SP.POP.65UP.TO	9965979.0	10342415.0	10727782.0	11121705.0
693	SP.POP.65UP.TO	13001027.0	13188032.0	13509223.0	13885440.0
707	SP.POP.65UP.TO	9559110.0	9697928.0	9841925.0	9979617.0
738	SP.POP.65UP.TO	10083244.0	10248789.0	10423840.0	10594476.0
711	SP.POP.65UP.TO	9223088.0	9232359.0	9257268.0	9302522.0
831	SP.POP.65UP.TO	3443583.0	3642224.0	3847442.0	4054261.0
767	SP.POP.65UP.TO	4526749.0	4710741.0	4897885.0	5094643.0
661	SP.POP.65UP.TO	4471046.0	4660081.0	4858863.0	5047659.0
792	SP.POP.65UP.TO	5023711.0	5175522.0	5343828.0	5520270.0
702	SP.POP.65UP.TO	6514121.0	6652161.0	6781703.0	6934884.0

	2002	2003	...	2013	2014	2015 \
679	93692315.0	96660764.0	...	127059111.0	132153818.0	138262713.0
732	50676067.0	52269470.0	...	68634509.0	71341897.0	74613573.0
844	35341824.0	35619261.0	...	43904126.0	45005701.0	45954694.0
741	24245889.0	24992848.0	...	32602328.0	33762485.0	34745347.0
670	10346447.0	10699609.0	...	14989905.0	15579806.0	16222681.0
730	11523935.0	11929452.0	...	15402436.0	15707148.0	16026201.0
693	14281833.0	14692082.0	...	16587745.0	16798918.0	17113731.0
707	10110486.0	10225450.0	...	11995907.0	12366153.0	12714090.0
738	10767132.0	10960629.0	...	12844504.0	13183650.0	13364281.0
711	9358045.0	9417734.0	...	11094552.0	11357917.0	11589815.0
831	4262231.0	4477102.0	...	6952140.0	7319426.0	7706937.0
767	5303000.0	5513284.0	...	7750137.0	8058072.0	8391070.0
661	5238885.0	5430907.0	...	7184539.0	7363770.0	7587423.0
792	5680462.0	5837001.0	...	7886524.0	8068890.0	8240680.0
702	7075364.0	7155615.0	...	8337877.0	8503113.0	8632527.0

	2016	2017	2018	2019	2020 \
679	145118407.0	152834660.0	161037596.0	169240734.0	177774074.0
732	78116348.0	81804197.0	85618417.0	89515357.0	93171419.0
844	47402094.0	48983844.0	50325557.0	51849212.0	53782439.0
741	35512557.0	36141302.0	36650477.0	37077906.0	37352017.0
670	16883570.0	17573065.0	18296251.0	19050736.0	19807547.0
730	16378367.0	16782627.0	17248206.0	17775805.0	18240362.0
693	17405321.0	17614700.0	17824018.0	18056342.0	18265233.0
707	13029325.0	13335680.0	13640015.0	13933362.0	14196384.0

738	13508310.0	13635254.0	13753249.0	13775244.0	13892091.0
711	11793001.0	11985373.0	12176955.0	12385241.0	12559292.0
831	8110757.0	8529513.0	8964090.0	9418578.0	9899641.0
767	8747777.0	9120471.0	9509632.0	9859108.0	10106622.0
661	7871137.0	8204441.0	8587684.0	9010488.0	9430760.0
792	8420708.0	8639038.0	8899128.0	9189768.0	9483599.0
702	8750078.0	8884124.0	9028327.0	9184044.0	9318013.0

	2021	2022
679	185721855.0	193783391.0
732	95749032.0	97734540.0
844	55379196.0	57085895.0
741	37436889.0	37443104.0
670	20534735.0	21265888.0
730	18559457.0	18891582.0
693	18444791.0	18844997.0
707	14446427.0	14713791.0
738	13997392.0	14157178.0
711	12678761.0	12838342.0
831	10390449.0	10906792.0
767	10305738.0	10612344.0
661	9868578.0	10347220.0
792	9768442.0	10078443.0
702	9437101.0	9649205.0

[15 rows x 29 columns]

Bottom 15 countries having male(% of total population) from 1998-2022.

```
In [44]: total=df[df['Indicator Code'] == 'SP.POP.TOTL.MA.ZS' ]
sort=total.sort_values(by='2022' , ascending =True)
male=sort.head(15)
print(male)
```


	Country Name	Country Code	\
221	Armenia	ARM	
413	Ukraine	UKR	
236	Belarus	BLR	
295	Hong Kong SAR, China	HKG	
329	Latvia	LVA	
420	Virgin Islands (U.S.)	VIR	
330	Macao SAR, China	MAC	
327	Lithuania	LTU	
282	Georgia	GEO	
214	Aruba	ABW	
370	Puerto Rico	PRI	
372	Portugal	PRT	
428	Zimbabwe	ZWE	
274	Estonia	EST	
331	St. Martin (French part)	MAF	

	Indicator Name	Indicator Code	1998	\
221	Population, male (% of total population)	SP.POP.TOTL.MA.ZS	47.381340	
413	Population, male (% of total population)	SP.POP.TOTL.MA.ZS	46.345639	
236	Population, male (% of total population)	SP.POP.TOTL.MA.ZS	46.640723	
295	Population, male (% of total population)	SP.POP.TOTL.MA.ZS	49.680701	
329	Population, male (% of total population)	SP.POP.TOTL.MA.ZS	45.703127	
420	Population, male (% of total population)	SP.POP.TOTL.MA.ZS	47.954486	
330	Population, male (% of total population)	SP.POP.TOTL.MA.ZS	48.184949	
327	Population, male (% of total population)	SP.POP.TOTL.MA.ZS	46.588005	
282	Population, male (% of total population)	SP.POP.TOTL.MA.ZS	46.603370	
214	Population, male (% of total population)	SP.POP.TOTL.MA.ZS	48.209353	
370	Population, male (% of total population)	SP.POP.TOTL.MA.ZS	48.187485	
372	Population, male (% of total population)	SP.POP.TOTL.MA.ZS	48.181050	
428	Population, male (% of total population)	SP.POP.TOTL.MA.ZS	47.562529	
274	Population, male (% of total population)	SP.POP.TOTL.MA.ZS	46.549438	
331	Population, male (% of total population)	SP.POP.TOTL.MA.ZS	49.182187	

	1999	2000	2001	2002	2003	...	2013	\
221	47.305234	47.223675	47.143195	47.047716	46.938234	...	45.812328	
413	46.333992	46.309776	46.274873	46.241737	46.219563	...	46.216903	
236	46.608897	46.583356	46.564265	46.541731	46.512624	...	46.240560	
295	49.481276	49.284310	49.071358	48.836249	48.594655	...	46.595267	
329	45.670062	45.640431	45.613329	45.585312	45.570974	...	45.681683	
420	47.856288	47.759856	47.725126	47.754932	47.789128	...	47.693594	
330	48.119939	48.053467	47.999189	47.974381	47.970631	...	47.726560	
327	46.532115	46.467797	46.395003	46.319713	46.250182	...	46.120041	
282	46.568746	46.524454	46.474577	46.435005	46.458793	...	47.166116	
214	48.137958	48.072412	47.979403	47.885728	47.817176	...	47.557348	
370	48.165449	48.146094	48.127687	48.108254	48.087896	...	47.791436	
372	48.199777	48.226457	48.249367	48.224710	48.172799	...	47.588001	
428	47.547082	47.501131	47.460469	47.428426	47.387633	...	46.941674	
274	46.586671	46.609114	46.589937	46.555277	46.525980	...	46.702914	
331	48.967318	48.794326	48.629348	48.472401	48.313445	...	47.464856	

	2014	2015	2016	2017	2018	2019	\
221	45.715606	45.617046	45.514414	45.408800	45.301223	45.194856	
413	46.255700	46.288633	46.308093	46.324258	46.336854	46.324723	
236	46.234750	46.231726	46.230749	46.223664	46.210044	46.182607	
295	46.447320	46.297243	46.220397	46.213070	46.198711	46.182226	
329	45.743867	45.815292	45.898709	45.982479	46.066397	46.150567	
420	47.629688	47.541414	47.433441	47.314214	47.185912	47.057307	
330	47.598098	47.476509	47.362483	47.257085	47.159638	47.066163	
327	46.201627	46.297227	46.400298	46.513075	46.633703	46.747848	

282	47.175573	47.143139	47.116022	47.097723	47.084782	47.065446
214	47.484410	47.411685	47.342525	47.275676	47.211264	47.150561
370	47.746607	47.694173	47.632795	47.564496	47.485154	47.397770
372	47.498869	47.423142	47.373648	47.325470	47.255782	47.208517
428	46.971291	47.000110	47.026895	47.051613	47.076238	47.099796
274	46.757234	46.822099	46.898534	47.007588	47.150546	47.285272
331	47.528431	47.569960	47.579788	47.576531	47.559967	47.549893

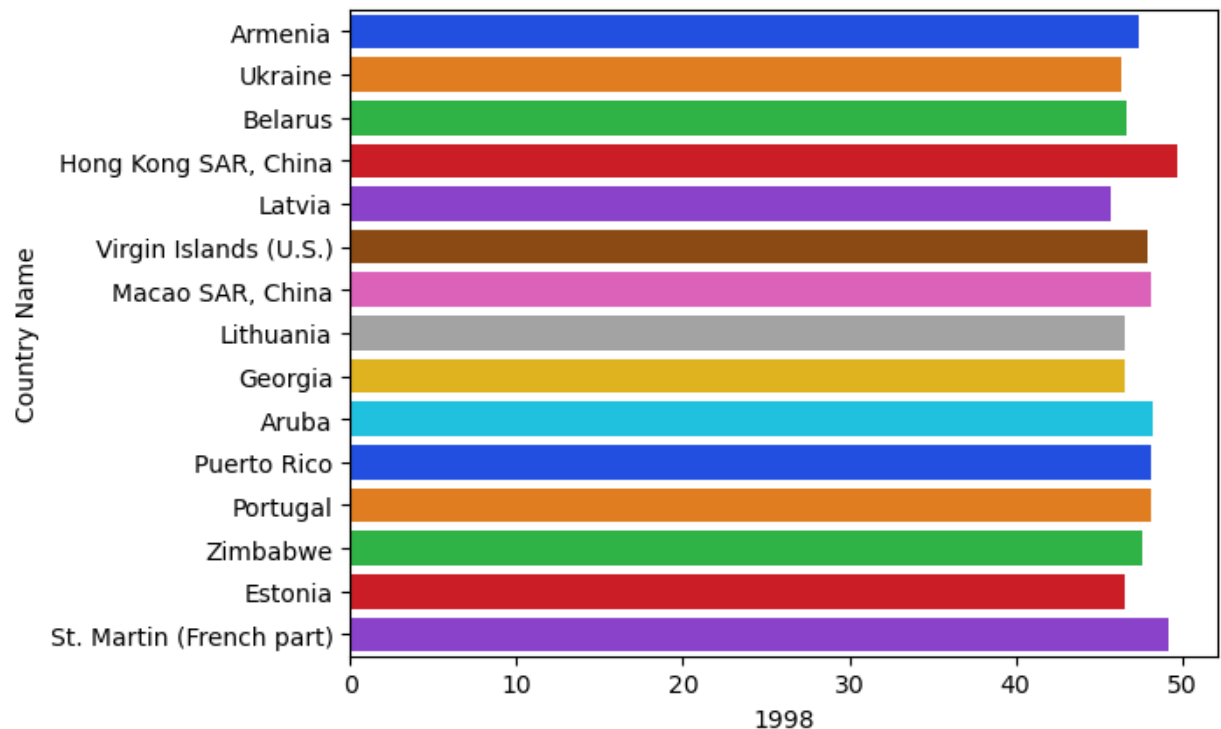
	2020	2021	2022
221	45.106515	45.020054	44.959286
413	46.304436	46.282274	45.919077
236	46.140066	46.094467	46.043914
295	46.156584	46.121369	46.073324
329	46.235422	46.319932	46.384705
420	46.914637	46.764444	46.613382
330	46.970721	46.938933	46.921032
327	46.846593	46.928625	46.968479
282	47.039177	47.017094	47.003740
214	47.108880	47.126350	47.135140
370	47.311989	47.235005	47.169343
372	47.191517	47.178663	47.183640
428	47.130679	47.167153	47.214139
274	47.376272	47.427525	47.476739
331	47.544005	47.539752	47.532320

[15 rows x 29 columns]

Bottom 15 countries having male(% of total population) in 1998.

```
In [45]: sns.barplot(x='1998', y='Country Name', data=male, palette = 'bright')
```

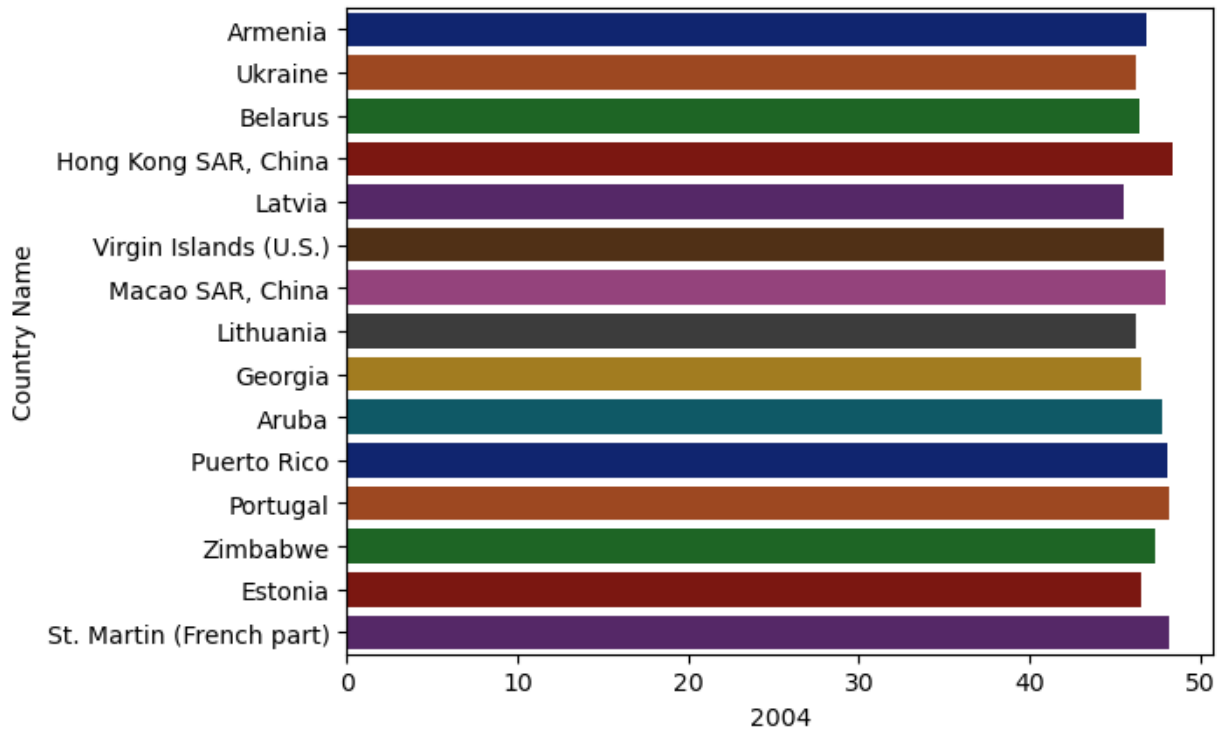
```
Out[45]: <Axes: xlabel='1998', ylabel='Country Name'>
```



Bottom 15 countries having male(% of total population) in 2004.

```
In [46]: sns.barplot(x='2004' , y='Country Name' , data=male, palette = 'dark')
```

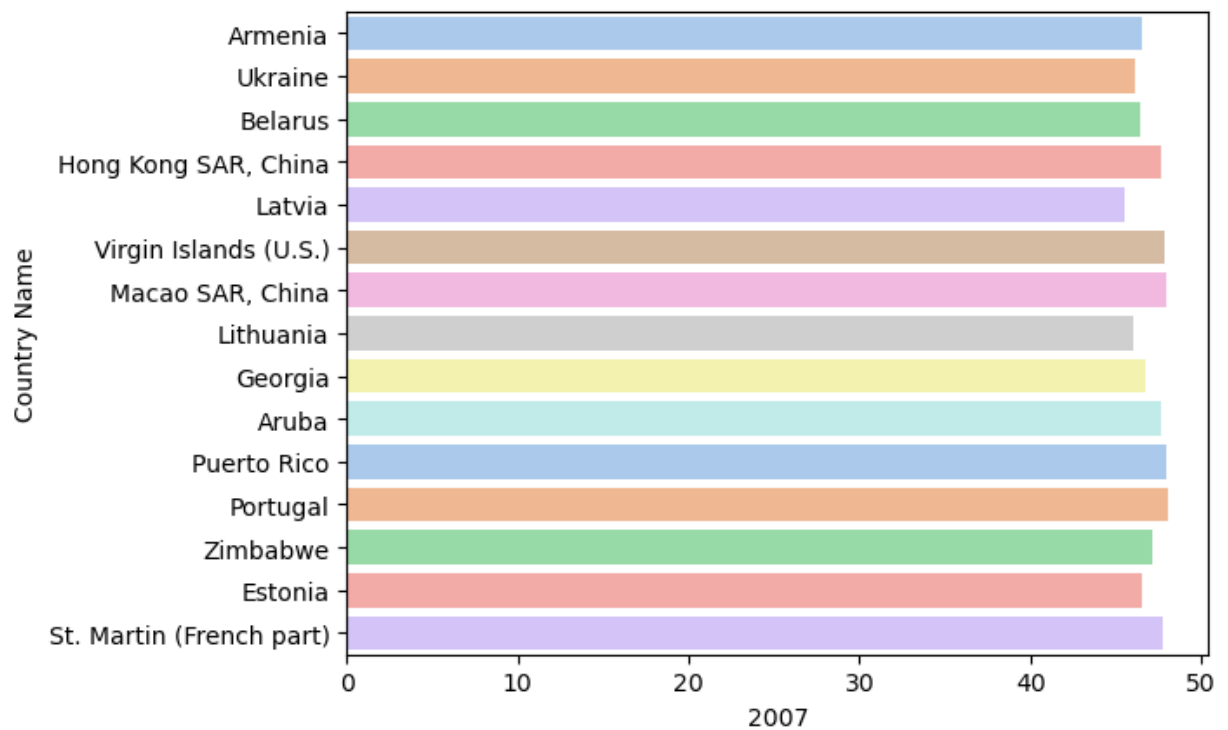
```
Out[46]: <Axes: xlabel='2004', ylabel='Country Name'>
```



Bottom 15 countries having male(% of total population) in 2007.

```
In [47]: sns.barplot(x='2007' , y='Country Name' , data=male, palette = 'pastel')
```

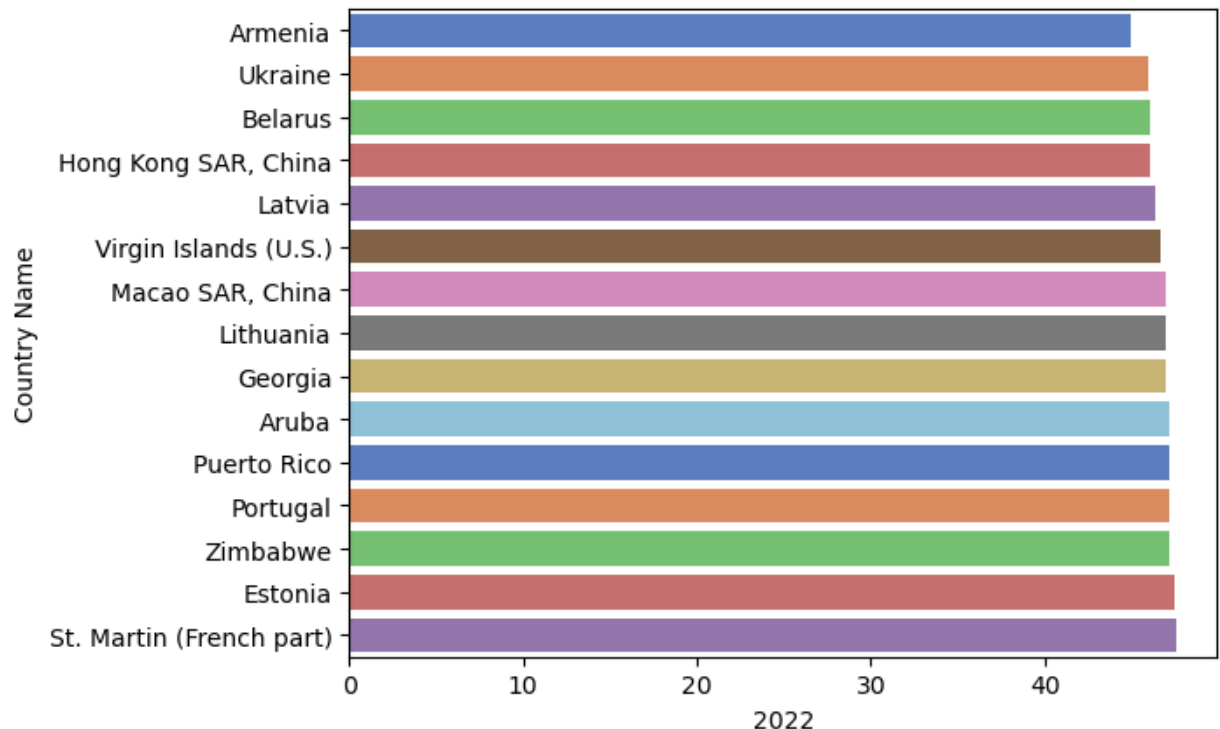
```
Out[47]: <Axes: xlabel='2007', ylabel='Country Name'>
```



Bottom 15 countries having male(% of total population) in 2022.

```
In [48]: sns.barplot(x='2022' , y='Country Name' , data=male, palette = 'muted')
```

```
Out[48]: <Axes: xlabel='2022', ylabel='Country Name'>
```



```
In [49]: total1=df[df['Indicator Code'] == 'SP.POP.TOTL.FE.ZS' ]
sort=total.sort_values(by='2022' , ascending =False)
```

```
female=sort.head(15)  
print(female)
```

	Country Name	Country Code	\
376	Qatar	QAT	
219	United Arab Emirates	ARE	
233	Bahrain	BHR	
362	Oman	OMN	
319	Kuwait	KWT	
379	Saudi Arabia	SAU	
336	Maldives	MDV	
345	Northern Mariana Islands	MNP	
243	Bhutan	BTN	
288	Equatorial Guinea	GNQ	
396	Seychelles	SYC	
291	Greenland	GRL	
382	Singapore	SGP	
341	Malta	MLT	
367	Palau	PLW	

	Indicator Name	Indicator Code	1998	\
376	Population, male (% of total population)	SP.POP.TOTL.MA.ZS	66.829433	
219	Population, male (% of total population)	SP.POP.TOTL.MA.ZS	68.025593	
233	Population, male (% of total population)	SP.POP.TOTL.MA.ZS	58.873668	
362	Population, male (% of total population)	SP.POP.TOTL.MA.ZS	57.774330	
319	Population, male (% of total population)	SP.POP.TOTL.MA.ZS	58.224753	
379	Population, male (% of total population)	SP.POP.TOTL.MA.ZS	57.180370	
336	Population, male (% of total population)	SP.POP.TOTL.MA.ZS	51.635889	
345	Population, male (% of total population)	SP.POP.TOTL.MA.ZS	48.373016	
243	Population, male (% of total population)	SP.POP.TOTL.MA.ZS	51.651192	
288	Population, male (% of total population)	SP.POP.TOTL.MA.ZS	50.108141	
396	Population, male (% of total population)	SP.POP.TOTL.MA.ZS	50.103008	
291	Population, male (% of total population)	SP.POP.TOTL.MA.ZS	53.500347	
382	Population, male (% of total population)	SP.POP.TOTL.MA.ZS	50.952915	
341	Population, male (% of total population)	SP.POP.TOTL.MA.ZS	49.644188	
367	Population, male (% of total population)	SP.POP.TOTL.MA.ZS	54.259495	

	1999	2000	2001	2002	2003	...	2013	\
376	67.008423	67.160574	67.291564	67.377094	67.437828	...	74.050565	
219	68.181955	68.316351	68.433078	68.534795	68.625255	...	71.718861	
233	58.920323	58.974590	59.040721	59.124390	59.378020	...	62.398339	
362	57.543976	57.321757	57.107375	56.900542	56.713440	...	64.442447	
319	58.388315	58.546200	58.699968	58.851675	59.002972	...	57.280452	
379	57.171929	57.163522	57.157808	57.144706	57.110774	...	57.203317	
336	51.649881	51.649694	51.636480	51.628211	51.630073	...	57.024216	
345	47.752404	47.564042	47.821437	48.185635	48.554735	...	52.730097	
243	51.787072	52.082996	52.367075	52.638729	52.899105	...	53.187522	
288	50.275331	50.475855	50.702518	50.916372	51.117856	...	52.453211	
396	50.178225	50.279790	50.377790	50.449456	50.552684	...	52.081395	
291	53.505864	53.483198	53.447664	53.400513	53.340502	...	52.885593	
382	51.057776	51.096728	51.010801	50.861714	50.712413	...	52.168735	
341	49.670314	49.680621	49.674873	49.670990	49.660252	...	50.088109	
367	54.484004	54.582784	54.488602	54.324719	54.159960	...	52.732379	

	2014	2015	2016	2017	2018	2019	\
376	74.592825	75.258897	75.352791	74.916060	74.260716	73.237046	
219	71.387619	71.072399	70.774693	70.492670	70.221141	69.952811	
233	61.832276	61.792309	62.215313	62.615027	62.661799	62.469314	
362	64.634608	64.755392	65.172587	65.191792	64.578692	63.542221	
319	57.836832	59.842052	60.838816	60.800300	61.517864	61.656391	
379	57.163650	57.325787	57.730264	57.990086	58.071328	58.156916	
336	57.384256	57.507656	57.615376	57.706131	57.776494	57.803642	
345	52.890697	53.043833	53.194610	53.340298	53.480837	53.614265	

243	53.175973	53.168280	53.168276	53.144801	53.094361	53.045570
288	52.571876	52.672919	52.758150	52.826716	52.880152	52.921094
396	52.197427	52.284361	52.365981	52.446199	52.529073	52.618014
291	52.842564	52.807943	52.788111	52.773208	52.765014	52.756074
382	52.211847	52.243727	52.257878	52.264009	52.268874	52.273462
341	50.289288	50.518968	50.773030	51.034522	51.292958	51.552017
367	53.062486	53.130269	52.935564	52.749902	52.558218	52.349855

	2020	2021	2022
376	72.648960	72.675008	72.510001
219	69.722908	69.534823	69.353400
233	62.297754	62.097364	61.960233
362	62.085346	61.094696	60.867846
319	61.256606	60.955894	60.811085
379	58.023696	57.763608	57.621293
336	57.756620	57.672253	57.526246
345	53.705608	53.751945	53.752699
243	52.997388	52.948606	52.901445
288	52.890168	52.823063	52.774600
396	52.674121	52.690404	52.647548
291	52.709456	52.616326	52.511246
382	52.285626	52.305397	52.296664
341	51.791376	52.012727	52.130002
367	52.175607	52.041722	51.930213

[15 rows x 29 columns]

Bottom 15 countries having maximum female(% of total population) from 1998-2022.

```
In [50]: total=df[df['Indicator Code'] == 'SP.POP.TOTL.FE.ZS' ]
sort=total.sort_values(by='2022' , ascending =True)
female=sort.head(15)
print(female)
```

	Country Name	Country Code	\
590	Qatar	QAT	
434	United Arab Emirates	ARE	
448	Bahrain	BHR	
576	Oman	OMN	
534	Kuwait	KWT	
594	Saudi Arabia	SAU	
551	Maldives	MDV	
560	Northern Mariana Islands	MNP	
611	Sint Maarten (Dutch part)	SXM	
458	Bhutan	BTN	
503	Equatorial Guinea	GNQ	
612	Seychelles	SYC	
506	Greenland	GRL	
597	Singapore	SGP	
556	Malta	MLT	

	Indicator Name	Indicator Code	1998	\
590	Population, female (% of total population)	SP.POP.TOTL.FE.ZS	33.170567	
434	Population, female (% of total population)	SP.POP.TOTL.FE.ZS	31.974407	
448	Population, female (% of total population)	SP.POP.TOTL.FE.ZS	41.126183	
576	Population, female (% of total population)	SP.POP.TOTL.FE.ZS	42.225670	
534	Population, female (% of total population)	SP.POP.TOTL.FE.ZS	41.775302	
594	Population, female (% of total population)	SP.POP.TOTL.FE.ZS	42.819630	
551	Population, female (% of total population)	SP.POP.TOTL.FE.ZS	48.364111	
560	Population, female (% of total population)	SP.POP.TOTL.FE.ZS	51.625524	
611	Population, female (% of total population)	SP.POP.TOTL.FE.ZS	50.919017	
458	Population, female (% of total population)	SP.POP.TOTL.FE.ZS	48.348808	
503	Population, female (% of total population)	SP.POP.TOTL.FE.ZS	49.892018	
612	Population, female (% of total population)	SP.POP.TOTL.FE.ZS	49.896992	
506	Population, female (% of total population)	SP.POP.TOTL.FE.ZS	46.497871	
597	Population, female (% of total population)	SP.POP.TOTL.FE.ZS	49.047059	
556	Population, female (% of total population)	SP.POP.TOTL.FE.ZS	50.355557	

	1999	2000	2001	2002	2003	...	2013	\
590	32.991577	32.839426	32.708436	32.622906	32.562306	...	25.949435	
434	31.818013	31.683649	31.566893	31.465205	31.374718	...	28.281139	
448	41.079677	41.025410	40.959279	40.875610	40.621980	...	37.601661	
576	42.456024	42.678243	42.892667	43.099458	43.286519	...	35.557553	
534	41.611685	41.453852	41.300032	41.148374	40.997028	...	42.719548	
594	42.828071	42.836473	42.842196	42.855294	42.889230	...	42.796683	
551	48.350119	48.350306	48.363172	48.371447	48.369927	...	42.975535	
560	52.246285	52.437203	52.178563	51.813069	51.443925	...	47.267985	
611	51.038479	51.172554	51.281208	51.383528	51.504356	...	47.956071	
458	48.212928	47.917004	47.633091	47.361271	47.101053	...	46.812340	
503	49.724669	49.524145	49.297482	49.083628	48.882144	...	47.546789	
612	49.821775	49.720210	49.622210	49.551757	49.447316	...	47.918605	
506	46.495918	46.515022	46.552336	46.601255	46.661261	...	47.114407	
597	48.942224	48.903296	48.989224	49.138286	49.287587	...	47.831247	
556	50.329686	50.319379	50.325375	50.329010	50.339994	...	49.911891	

	2014	2015	2016	2017	2018	2019	\
590	25.407175	24.741062	24.647209	25.083940	25.739284	26.762954	
434	28.612393	28.927601	29.225307	29.507319	29.778859	30.047189	
448	38.167724	38.207617	37.784616	37.384973	37.338201	37.530686	
576	35.365417	35.244608	34.827413	34.808208	35.421286	36.457779	
534	42.163142	40.157948	39.161159	39.199700	38.482136	38.343609	
594	42.836350	42.674213	42.269736	42.009914	41.928672	41.843084	
551	42.615744	42.492344	42.384844	42.293869	42.223506	42.196358	
560	47.111231	46.956167	46.805390	46.657730	46.519163	46.385735	

611	47.634271	47.374705	47.126687	47.109806	47.067178	46.838064
458	46.823891	46.831720	46.831857	46.855199	46.905770	46.954430
503	47.428124	47.327007	47.241850	47.173284	47.119915	47.078841
612	47.801553	47.715639	47.635014	47.552818	47.470927	47.381028
506	47.155648	47.190267	47.210101	47.226792	47.234986	47.243926
597	47.788135	47.756273	47.742122	47.735991	47.731109	47.726538
556	49.710712	49.481032	49.226970	48.965270	48.707246	48.447785

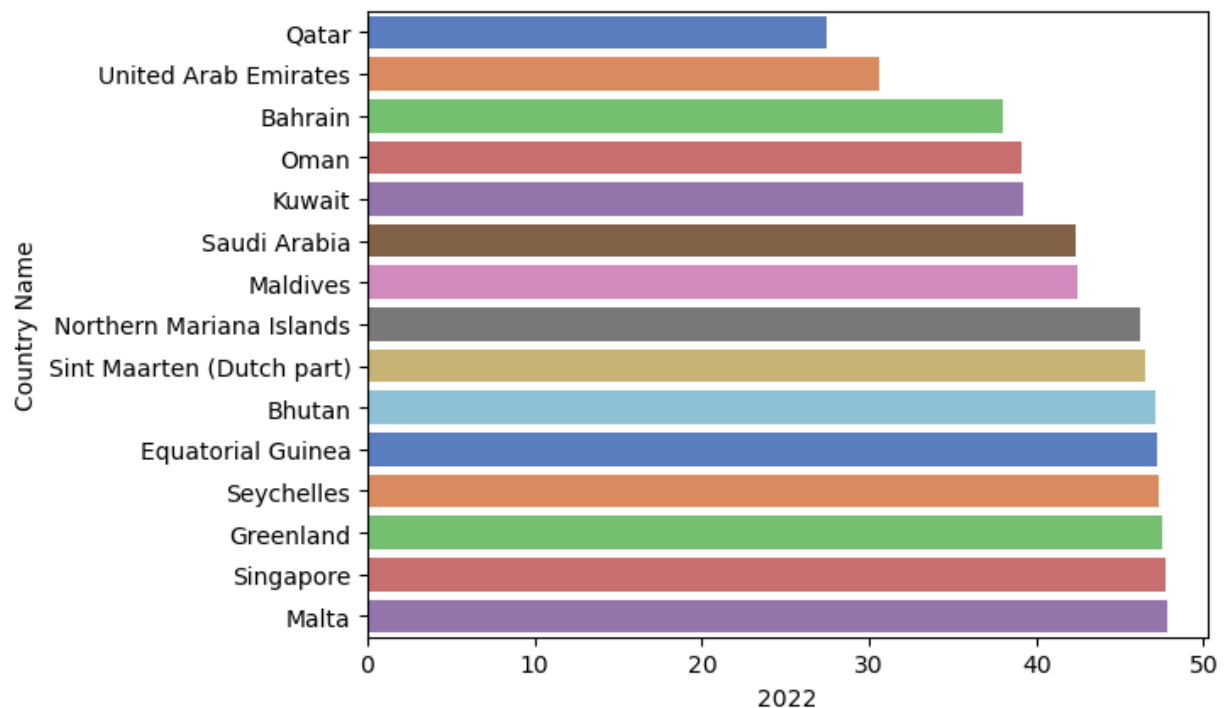
	2020	2021	2022
590	27.351040	27.325029	27.489999
434	30.277092	30.465177	30.646600
448	37.702246	37.902636	38.039767
576	37.914654	38.905304	39.132154
534	38.743394	39.044106	39.188938
594	41.976301	42.236392	42.378704
551	42.243380	42.327747	42.473563
560	46.294392	46.248055	46.247301
611	46.633502	46.478362	46.465195
458	47.002742	47.051394	47.098555
503	47.109832	47.176937	47.225400
612	47.325879	47.308657	47.353386
506	47.292329	47.383674	47.490525
597	47.714374	47.694603	47.703319
556	48.208624	47.987273	47.869998

[15 rows x 29 columns]

Bottom 15 countries having maximum female(% of total population) in 2022.

```
In [51]: sns.barplot(x='2022' , y='Country Name' , data=female, palette = 'muted')
```

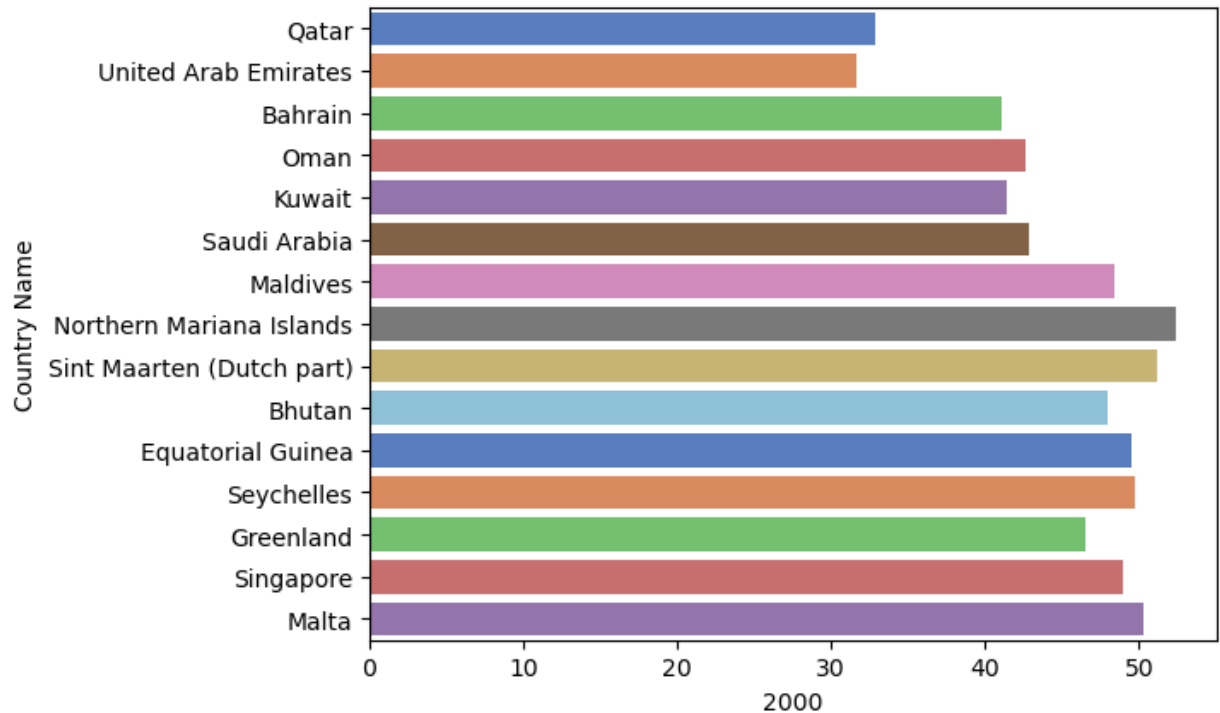
```
Out[51]: <Axes: xlabel='2022', ylabel='Country Name'>
```



Bottom 15 countries having maximum female(% of total population) in 2000.

```
In [52]: sns.barplot(x='2000' , y='Country Name' , data=female, palette = 'muted')
```

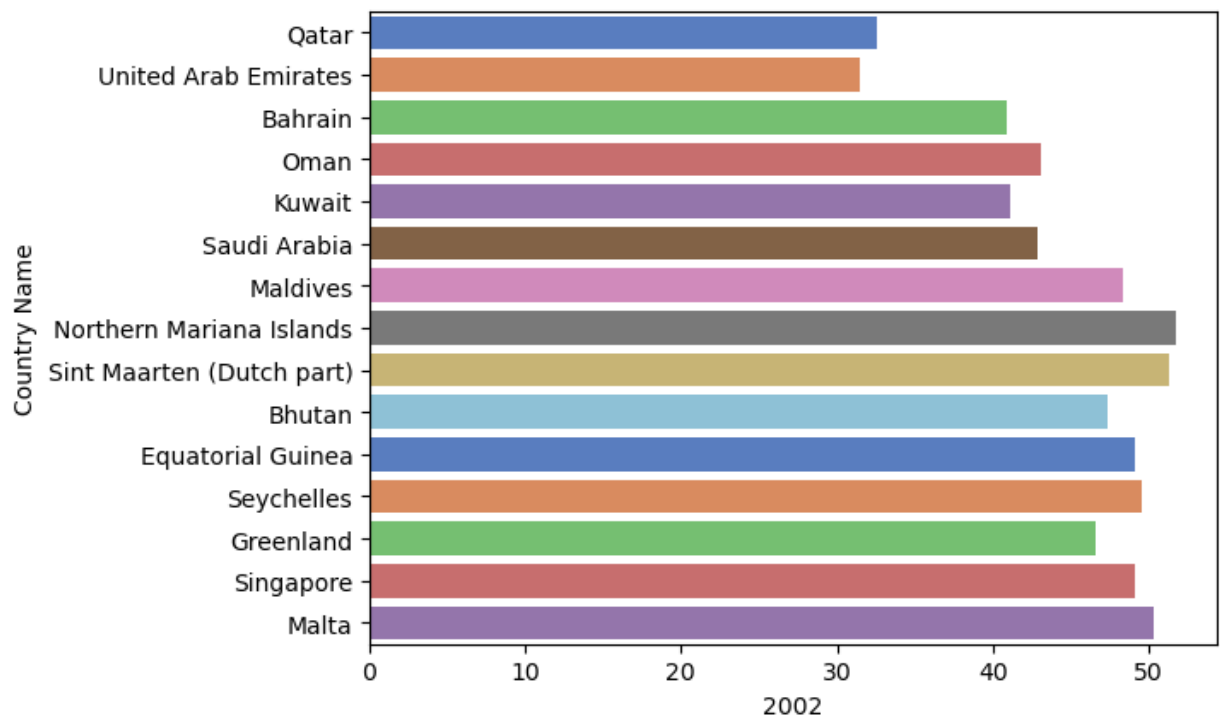
```
Out[52]: <Axes: xlabel='2000', ylabel='Country Name'>
```



Bottom 15 countries having maximum female(% of total population) in 2002.

```
In [53]: sns.barplot(x='2002' , y='Country Name' , data=female, palette = 'muted')
```

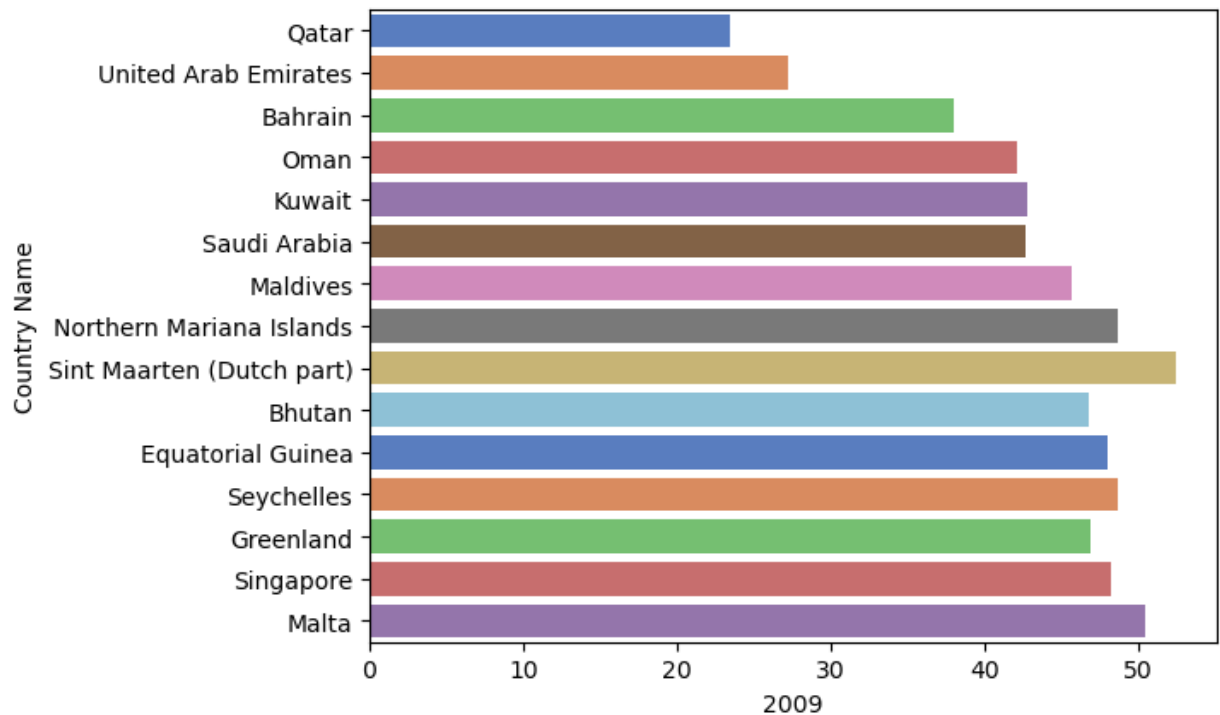
```
Out[53]: <Axes: xlabel='2002', ylabel='Country Name'>
```



Bottom 15 countries having maximum female(% of total population) in 2009.

```
In [54]: sns.barplot(x='2009' , y='Country Name' , data=female, palette = 'muted')
```

```
Out[54]: <Axes: xlabel='2009', ylabel='Country Name'>
```



Bottom 15 countries having maximum female(% of total population) in 2014.

```
In [55]: sns.barplot(x='2014' , y='Country Name' , data=female, palette = 'muted')
```

```
Out[55]: <Axes: xlabel='2014', ylabel='Country Name'>
```

