Task 1

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

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

Reading the dataset

In [2]:
```
df=pd.read_csv('worldpopulationdata.csv')
```

Checking the first 5 rows

In [3]:
```
df.head(5)
```

Out[3]:

	Series Name	Series Code	Country Name	Country Code	2022	2021	2020	201
0	Population, total	SP.POP.TOTL	Afghanistan	AFG	41128771.0	40099462.0	38972230.0	37769499
1	Population, total	SP.POP.TOTL	Albania	ALB	2775634.0	2811666.0	2837849.0	2854191
2	Population, total	SP.POP.TOTL	Algeria	DZA	44903225.0	44177969.0	43451666.0	42705368
3	Population, total	SP.POP.TOTL	American Samoa	ASM	44273.0	45035.0	46189.0	47321
4	Population, total	SP.POP.TOTL	Andorra	AND	79824.0	79034.0	77700.0	76343

5 rows × 26 columns

Checking the last 5 rows

In [4]:
```
df.tail(5)
```

Out[4]:

	Series Name	Series Code	Country Name	Country Code	2022	2021	2020	
1080	Population, male (% of total population)	SP.POP.TOTL.MA.ZS	Virgin Islands (U.S.)	VIR	46.613382	46.764444	46.914637	47.0
1081	Population, male (% of total population)	SP.POP.TOTL.MA.ZS	West Bank and Gaza	PSE	49.893678	49.877839	49.858957	49.8
1082	Population, male (% of total population)	SP.POP.TOTL.MA.ZS	Yemen, Rep.	YEM	50.519031	50.538516	50.554317	50.5
1083	Population, male (% of total population)	SP.POP.TOTL.MA.ZS	Zambia	ZMB	49.344602	49.344951	49.338301	49.3
1084	Population, male (% of total population)	SP.POP.TOTL.MA.ZS	Zimbabwe	ZWE	47.214139	47.167153	47.130679	47.0

5 rows × 26 columns

Checking the shape of the dataset

In [5]:
```
df.shape
```

Out[5]:
```
(1085, 26)
```

Checking the columns of the dataset

In [6]:
```
df.columns
```

Out[6]:
```
Index(['Series Name', 'Series Code', 'Country Name', 'Country Code', '2022',
       '2021', '2020', '2019', '2018', '2017', '2016', '2015', '2014', '201
3',
       '2012', '2011', '2010', '2009', '2008', '2007', '2006', '2005', '200
4',
       '2003', '2002', '2001'],
      dtype='object')
```

In [7]:
```
df.info()
```

```
<class 'pandas.core.frame.DataFrame'>
RangeIndex: 1085 entries, 0 to 1084
Data columns (total 26 columns):
 #   Column        Non-Null Count  Dtype  
---  ------        --------------  -----  
 0   Series Name   1085 non-null   object 
 1   Series Code   1085 non-null   object 
 2   Country Name  1085 non-null   object 
 3   Country Code  1085 non-null   object 
 4   2022          1085 non-null   float64
 5   2021          1085 non-null   float64
 6   2020          1085 non-null   float64
 7   2019          1085 non-null   float64
 8   2018          1085 non-null   float64
 9   2017          1085 non-null   float64
 10  2016          1085 non-null   float64
 11  2015          1085 non-null   float64
 12  2014          1085 non-null   float64
 13  2013          1085 non-null   float64
 14  2012          1085 non-null   float64
 15  2011          1085 non-null   float64
 16  2010          1085 non-null   float64
 17  2009          1085 non-null   float64
 18  2008          1085 non-null   float64
 19  2007          1085 non-null   float64
 20  2006          1085 non-null   float64
 21  2005          1085 non-null   float64
 22  2004          1085 non-null   float64
 23  2003          1085 non-null   float64
 24  2002          1085 non-null   float64
 25  2001          1085 non-null   float64
dtypes: float64(22), object(4)
memory usage: 220.5+ KB
```

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

Out[8]:

	2022	2021	2020	2019	2018	2017	
count	1.085000e+03	1.085000e+03	1.085000e+03	1.085000e+03	1.085000e+03	1.085000e+03	1.(
mean	1.461378e+07	1.449711e+07	1.437307e+07	1.422876e+07	1.407966e+07	1.392568e+07	1.
std	7.832944e+07	7.801505e+07	7.763257e+07	7.712985e+07	7.657562e+07	7.596457e+07	7.5
min	2.749000e+01	2.732503e+01	2.735104e+01	2.676295e+01	2.573928e+01	2.508394e+01	2.4
25%	5.034029e+01	5.035172e+01	5.034171e+01	5.033040e+01	5.033917e+01	5.033041e+01	5.(
50%	1.465500e+05	1.463660e+05	1.461650e+05	1.459570e+05	1.457520e+05	1.441350e+05	1.4
75%	5.903468e+06	5.856733e+06	5.831404e+06	5.814422e+06	5.774185e+06	5.686999e+06	5.(
max	1.417173e+09	1.412360e+09	1.411100e+09	1.407745e+09	1.402760e+09	1.396215e+09	1.3

8 rows × 22 columns

Checking for duplicate rows

In [9]:
```
df.duplicated().sum()
```

Out[9]:
```
0
```

Observation:

- There are no duplicate rows in the dataset

Checking for missing values

In [10]:
```
df.isna().sum()
```

Out[10]:
```
Series Name     0
Series Code     0
Country Name    0
Country Code    0
2022            0
2021            0
2020            0
2019            0
2018            0
2017            0
2016            0
2015            0
2014            0
2013            0
2012            0
2011            0
2010            0
2009            0
2008            0
2007            0
2006            0
2005            0
2004            0
2003            0
2002            0
2001            0
dtype: int64
```

Observation:

- no missing values present

Checking unique values for columns

In [11]:
```
print(df['Country Name'].unique())
print("\nTotal no of unique countries:",df['Country Name'].nunique())
```

```
['Afghanistan' 'Albania' 'Algeria' 'American Samoa' 'Andorra' 'Angola'
 'Antigua and Barbuda' 'Argentina' 'Armenia' 'Aruba' 'Australia' 'Austria'
 'Azerbaijan' 'Bahamas, The' 'Bahrain' 'Bangladesh' 'Barbados' 'Belarus'
 'Belgium' 'Belize' 'Benin' 'Bermuda' 'Bhutan' 'Bolivia'
 'Bosnia and Herzegovina' 'Botswana' 'Brazil' 'British Virgin Islands'
 'Brunei Darussalam' 'Bulgaria' 'Burkina Faso' 'Burundi' 'Cabo Verde'
 'Cambodia' 'Cameroon' 'Canada' 'Cayman Islands'
 'Central African Republic' 'Chad' 'Channel Islands' 'Chile' 'China'
 'Colombia' 'Comoros' 'Congo, Dem. Rep.' 'Congo, Rep.' 'Costa Rica'
"Cote d'Ivoire" 'Croatia' 'Cuba' 'Curacao' 'Cyprus' 'Czechia' 'Denmark'
 'Djibouti' 'Dominica' 'Dominican Republic' 'Ecuador' 'Egypt, Arab Rep.'
 'El Salvador' 'Equatorial Guinea' 'Eritrea' 'Estonia' 'Eswatini'
 'Ethiopia' 'Faroe Islands' 'Fiji' 'Finland' 'France' 'French Polynesia'
 'Gabon' 'Gambia, The' 'Georgia' 'Germany' 'Ghana' 'Gibraltar' 'Greece'
 'Greenland' 'Grenada' 'Guam' 'Guatemala' 'Guinea' 'Guinea-Bissau'
 'Guyana' 'Haiti' 'Honduras' 'Hong Kong SAR, China' 'Hungary' 'Iceland'
 'India' 'Indonesia' 'Iran, Islamic Rep.' 'Iraq' 'Ireland' 'Isle of Man'
 'Israel' 'Italy' 'Jamaica' 'Japan' 'Jordan' 'Kazakhstan' 'Kenya'
 'Kiribati' "Korea, Dem. People's Rep." 'Korea, Rep.' 'Kosovo' 'Kuwait'
 'Kyrgyz Republic' 'Lao PDR' 'Latvia' 'Lebanon' 'Lesotho' 'Liberia'
 'Libya' 'Liechtenstein' 'Lithuania' 'Luxembourg' 'Macao SAR, China'
 'Madagascar' 'Malawi' 'Malaysia' 'Maldives' 'Mali' 'Malta'
 'Marshall Islands' 'Mauritania' 'Mauritius' 'Mexico'
 'Micronesia, Fed. Sts.' 'Moldova' 'Monaco' 'Mongolia' 'Montenegro'
 'Morocco' 'Mozambique' 'Myanmar' 'Namibia' 'Nauru' 'Nepal' 'Netherlands'
 'New Caledonia' 'New Zealand' 'Nicaragua' 'Niger' 'Nigeria'
 'North Macedonia' 'Northern Mariana Islands' 'Norway' 'Oman' 'Pakistan'
 'Palau' 'Panama' 'Papua New Guinea' 'Paraguay' 'Peru' 'Philippines'
 'Poland' 'Portugal' 'Puerto Rico' 'Qatar' 'Romania' 'Russian Federation'
 'Rwanda' 'Samoa' 'San Marino' 'Sao Tome and Principe' 'Saudi Arabia'
 'Senegal' 'Serbia' 'Seychelles' 'Sierra Leone' 'Singapore'
 'Sint Maarten (Dutch part)' 'Slovak Republic' 'Slovenia'
 'Solomon Islands' 'Somalia' 'South Africa' 'South Sudan' 'Spain'
 'Sri Lanka' 'St. Kitts and Nevis' 'St. Lucia' 'St. Martin (French part)'
 'St. Vincent and the Grenadines' 'Sudan' 'Suriname' 'Sweden'
 'Switzerland' 'Syrian Arab Republic' 'Tajikistan' 'Tanzania' 'Thailand'
 'Timor-Leste' 'Togo' 'Tonga' 'Trinidad and Tobago' 'Tunisia' 'Turkiye'
 'Turkmenistan' 'Turks and Caicos Islands' 'Tuvalu' 'Uganda' 'Ukraine'
 'United Arab Emirates' 'United Kingdom' 'United States' 'Uruguay'
 'Uzbekistan' 'Vanuatu' 'Venezuela, RB' 'Vietnam' 'Virgin Islands (U.S.)'
 'West Bank and Gaza' 'Yemen, Rep.' 'Zambia' 'Zimbabwe']

Total no of unique countries: 217
```

In [12]:
```
print(df['Country Code'].unique())
print("\nTotal no of unique country code:",df['Country Code'].nunique())
```

```
['AFG' 'ALB' 'DZA' 'ASM' 'AND' 'AGO' 'ATG' 'ARG' 'ARM' 'ABW' 'AUS' 'AUT'
 'AZE' 'BHS' 'BHR' 'BGD' 'BRB' 'BLR' 'BEL' 'BLZ' 'BEN' 'BMU' 'BTN' 'BOL'
 'BIH' 'BWA' 'BRA' 'VGB' 'BRN' 'BGR' 'BFA' 'BDI' 'CPV' 'KHM' 'CMR' 'CAN'
 'CYM' 'CAF' 'TCD' 'CHI' 'CHL' 'CHN' 'COL' 'COM' 'COD' 'COG' 'CRI' 'CIV'
 'HRV' 'CUB' 'CUW' 'CYP' 'CZE' 'DNK' 'DJI' 'DMA' 'DOM' 'ECU' 'EGY' 'SLV'
 'GNQ' 'ERI' 'EST' 'SWZ' 'ETH' 'FRO' 'FJI' 'FIN' 'FRA' 'PYF' 'GAB' 'GMB'
 'GEO' 'DEU' 'GHA' 'GIB' 'GRC' 'GRL' 'GRD' 'GUM' 'GTM' 'GIN' 'GNB' 'GUY'
 'HTI' 'HND' 'HKG' 'HUN' 'ISL' 'IND' 'IDN' 'IRN' 'IRQ' 'IRL' 'IMN' 'ISR'
 'ITA' 'JAM' 'JPN' 'JOR' 'KAZ' 'KEN' 'KIR' 'PRK' 'KOR' 'XKX' 'KWT' 'KGZ'
 'LAO' 'LVA' 'LBN' 'LSO' 'LBR' 'LBY' 'LIE' 'LTU' 'LUX' 'MAC' 'MDG' 'MWI'
 'MYS' 'MDV' 'MLI' 'MLT' 'MHL' 'MRT' 'MUS' 'MEX' 'FSM' 'MDA' 'MCO' 'MNG'
 'MNE' 'MAR' 'MOZ' 'MMR' 'NAM' 'NRU' 'NPL' 'NLD' 'NCL' 'NZL' 'NIC' 'NER'
 'NGA' 'MKD' 'MNP' 'NOR' 'OMN' 'PAK' 'PLW' 'PAN' 'PNG' 'PRY' 'PER' 'PHL'
 'POL' 'PRT' 'PRI' 'QAT' 'ROU' 'RUS' 'RWA' 'WSM' 'SMR' 'STP' 'SAU' 'SEN'
 'SRB' 'SYC' 'SLE' 'SGP' 'SXM' 'SVK' 'SVN' 'SLB' 'SOM' 'ZAF' 'SSD' 'ESP'
 'LKA' 'KNA' 'LCA' 'MAF' 'VCT' 'SDN' 'SUR' 'SWE' 'CHE' 'SYR' 'TJK' 'TZA'
 'THA' 'TLS' 'TGO' 'TON' 'TTO' 'TUN' 'TUR' 'TKM' 'TCA' 'TUV' 'UGA' 'UKR'
 'ARE' 'GBR' 'USA' 'URY' 'UZB' 'VUT' 'VEN' 'VNM' 'VIR' 'PSE' 'YEM' 'ZMB'
 'ZWE']

Total no of unique country code: 217
```

In [13]:
```
df['Series Name'].unique()
```

Out[13]:
```
array(['Population, total', 'Population, female', 'Population, male',
       'Population, female (% of total population)',
       'Population, male (% of total population)'], dtype=object)
```

In [14]:
```
df['Series Code'].unique()
```

Out[14]:
```
array(['SP.POP.TOTL', 'SP.POP.TOTL.FE.IN', 'SP.POP.TOTL.MA.IN',
       'SP.POP.TOTL.FE.ZS', 'SP.POP.TOTL.MA.ZS'], dtype=object)
```

Dropping unnecessary columns

In [15]:
```
df.drop(['Series Name','Country Code'],axis=1,inplace=True)
```

In [16]:
```
df.columns
```

Out[16]:
```
Index(['Series Code', 'Country Name', '2022', '2021', '2020', '2019', '201
8',
       '2017', '2016', '2015', '2014', '2013', '2012', '2011', '2010', '200
9',
       '2008', '2007', '2006', '2005', '2004', '2003', '2002', '2001'],
      dtype='object')
```

Extraction of top-10 countries with respect to total population

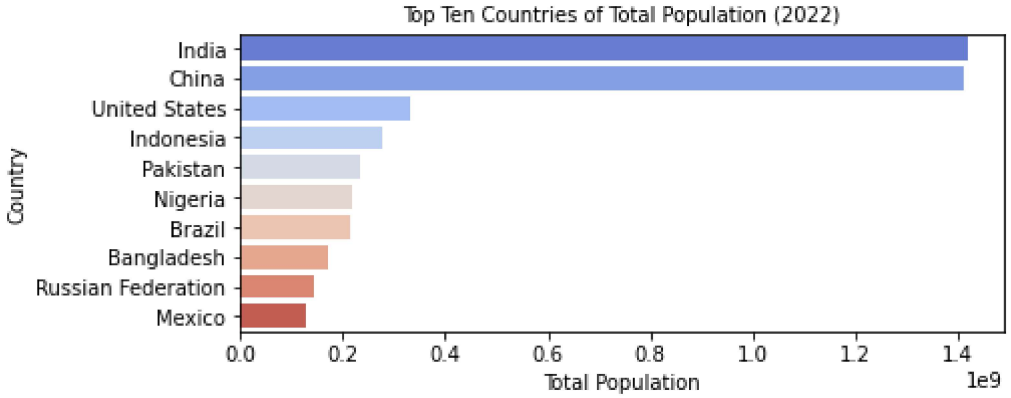
In [17]:
```
total_population_data = df[df['Series Code'] == 'SP.POP.TOTL']

# Sort data based on the total population for 2022
total_population_sorted = total_population_data.sort_values(by="2022", ascendi
total_top_ten_countries = total_population_sorted.head(10)
print("Top ten countries of total population\n")
print(total_top_ten_countries[['Country Name']] )
```

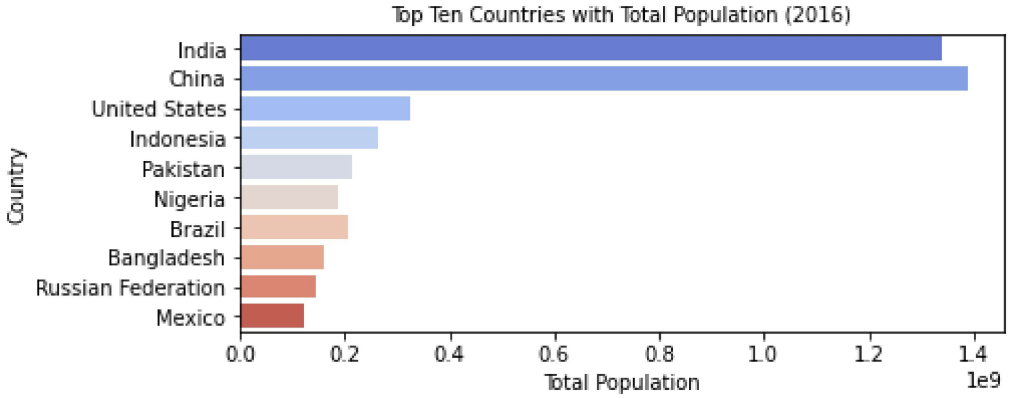
```
Top ten countries of total population

          Country Name
89               India
41               China
206      United States
90           Indonesia
149           Pakistan
144            Nigeria
26              Brazil
15           Bangladesh
161  Russian Federation
127              Mexico
```

Bar Plot

Top ten countries of total population in year 2022 and 2016

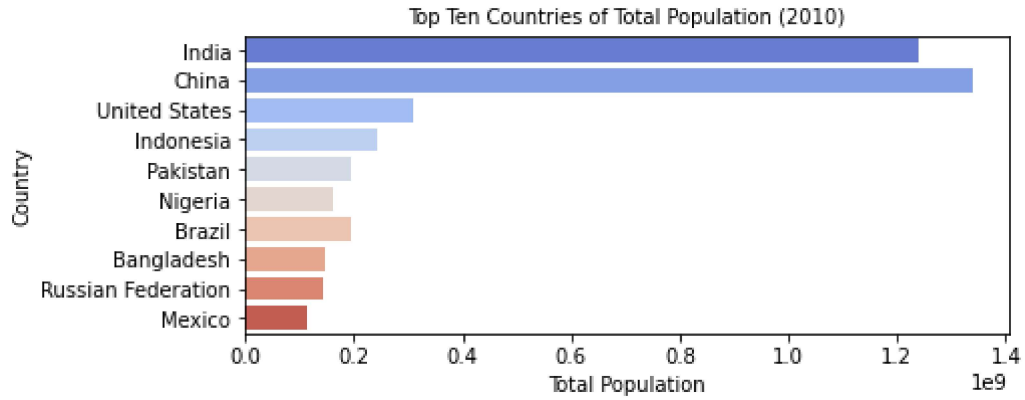
In [18]:
```
# Create the bar plot
plt.figure(figsize=(15, 6))
plt.subplot(2,2,1)
sns.barplot(x="2022", y="Country Name", data=total_top_ten_countries, palette=
plt.title("Top Ten Countries of Total Population (2022)",fontsize=10)
plt.xlabel("Total Population",fontsize=10)
plt.ylabel("Country",fontsize=10)
plt.show()

plt.figure(figsize=(15, 6))
plt.subplot(2,2,2)
sns.barplot(x="2016", y="Country Name", data=total_top_ten_countries, palette=
plt.title("Top Ten Countries with Total Population (2016)",fontsize=10)
plt.xlabel("Total Population",fontsize=10)
plt.ylabel("Country",fontsize=10)
plt.show()
```

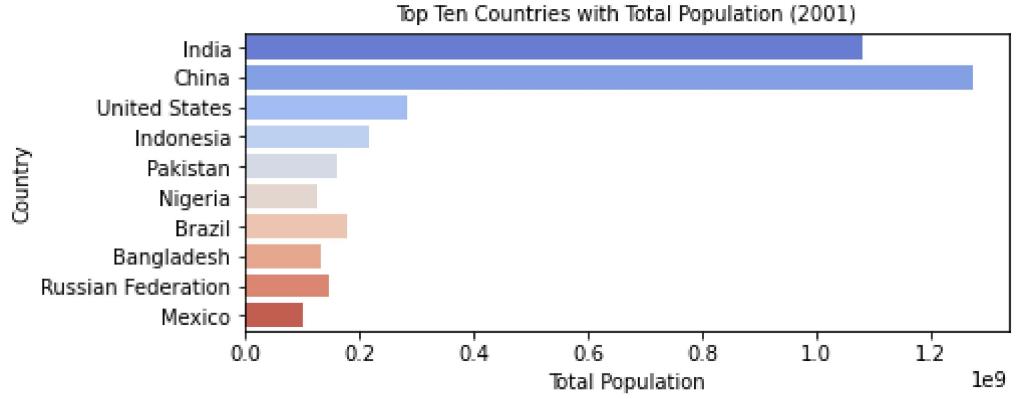




Top ten countries of total population in year 2010 and 2001

In [19]:
```
# Create the bar plot
plt.figure(figsize=(15, 6))
plt.subplot(2,2,1)
sns.barplot(x="2010", y="Country Name", data=total_top_ten_countries, palette=
plt.title("Top Ten Countries of Total Population (2010)",fontsize=10)
plt.xlabel("Total Population",fontsize=10)
plt.ylabel("Country",fontsize=10)
plt.show()

plt.figure(figsize=(15, 6))
plt.subplot(2,2,2)
sns.barplot(x="2001", y="Country Name", data=total_top_ten_countries, palette=
plt.title("Top Ten Countries with Total Population (2001)",fontsize=10)
plt.xlabel("Total Population",fontsize=10)
plt.ylabel("Country",fontsize=10)
plt.show()
```





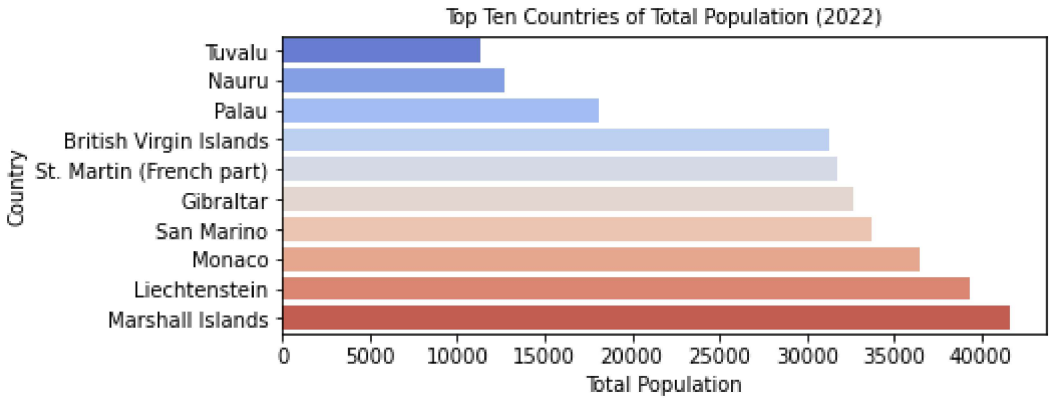
Extraction of bottom-10 countries with respect to total population

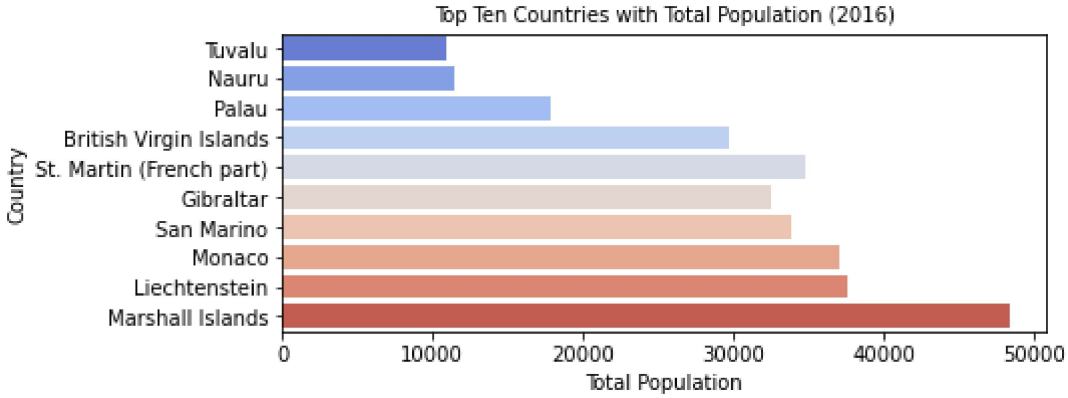
In [20]:
```
# Sort data based on the total population for 2022
total_population_sorted1 = total_population_data.sort_values(by="2022", ascend
total_bottom_ten_countries = total_population_sorted1.head(10)
print("Bottom ten countries of total population\n")
print(total_bottom_ten_countries[['Country Name']] )
```

```
Bottom ten countries of total population

                Country Name
201                   Tuvalu
137                    Nauru
150                    Palau
27     British Virgin Islands
183  St. Martin (French part)
75                  Gibraltar
164                San Marino
130                    Monaco
114             Liechtenstein
124          Marshall Islands
```

Bottom ten countries of total population in year 2022 and 2016

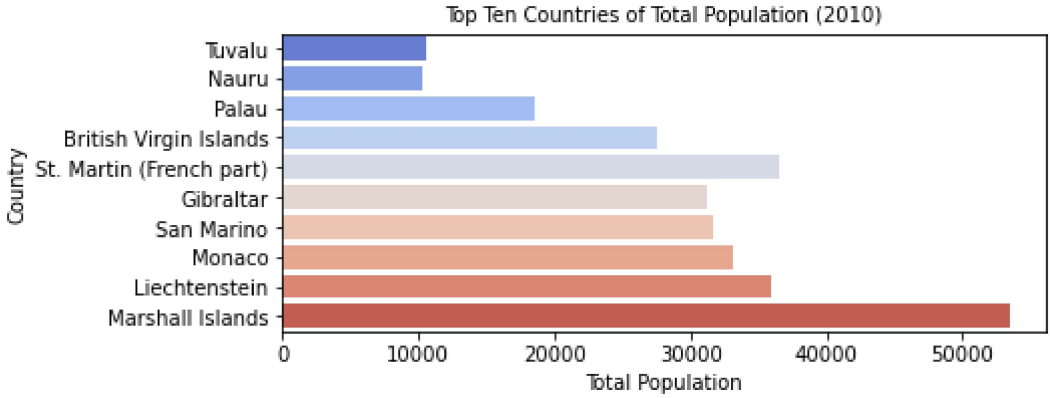
In [21]:
```
# Create the bar plot
plt.figure(figsize=(15, 6))
plt.subplot(2,2,1)
sns.barplot(x="2022", y="Country Name", data=total_bottom_ten_countries, palet
plt.title("Top Ten Countries of Total Population (2022)",fontsize=10)
plt.xlabel("Total Population",fontsize=10)
plt.ylabel("Country",fontsize=10)
plt.show()

plt.figure(figsize=(15, 6))
plt.subplot(2,2,2)
sns.barplot(x="2016", y="Country Name", data=total_bottom_ten_countries, palet
plt.title("Top Ten Countries with Total Population (2016)",fontsize=10)
plt.xlabel("Total Population",fontsize=10)
plt.ylabel("Country",fontsize=10)
plt.show()
```

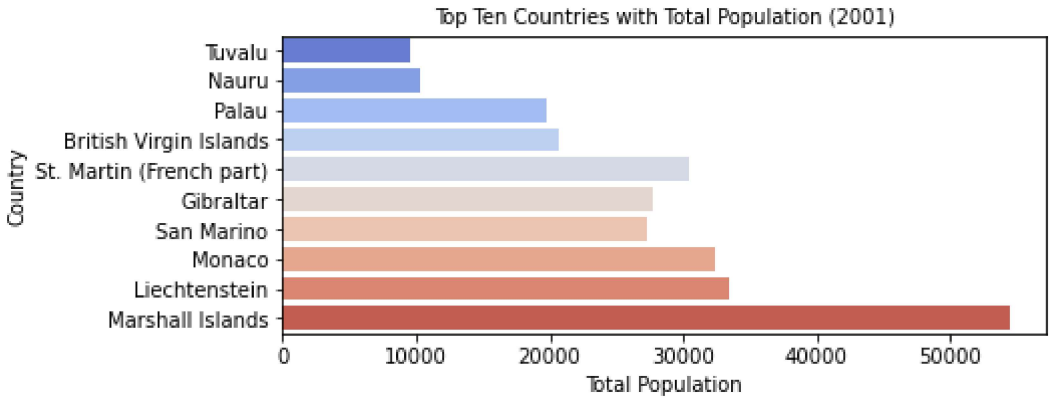




Bottom ten countries of total population in year 2010 and 2001

In [22]:
```
# Create the bar plot
plt.figure(figsize=(15, 6))
plt.subplot(2,2,1)
sns.barplot(x="2010", y="Country Name", data=total_bottom_ten_countries, palet
plt.title("Top Ten Countries of Total Population (2010)",fontsize=10)
plt.xlabel("Total Population",fontsize=10)
plt.ylabel("Country",fontsize=10)
plt.show()

plt.figure(figsize=(15, 6))
plt.subplot(2,2,2)
sns.barplot(x="2001", y="Country Name", data=total_bottom_ten_countries, palet
plt.title("Top Ten Countries with Total Population (2001)",fontsize=10)
plt.xlabel("Total Population",fontsize=10)
plt.ylabel("Country",fontsize=10)
plt.show()
```





Extraction of top ten countries with highest male population

In [23]:
```
# Filter data for male population
male_population_data = df[df["Series Code"] == "SP.POP.TOTL.MA.IN"]
male_population_sorted = male_population_data.sort_values(by="2022", ascending
male_top_ten_countries = male_population_sorted.head(10)
print("Top ten countries of male population")
print(male_top_ten_countries[['Country Name']] )
```

```
Top ten countries of male population
          Country Name
523              India
475              China
640      United States
524          Indonesia
583           Pakistan
578            Nigeria
460             Brazil
449         Bangladesh
595  Russian Federation
561             Mexico
```

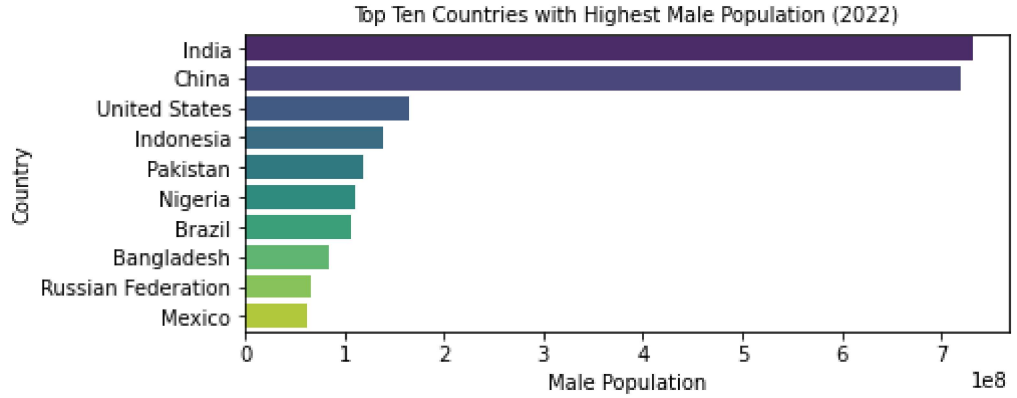
Extraction of top ten countries with highest female population

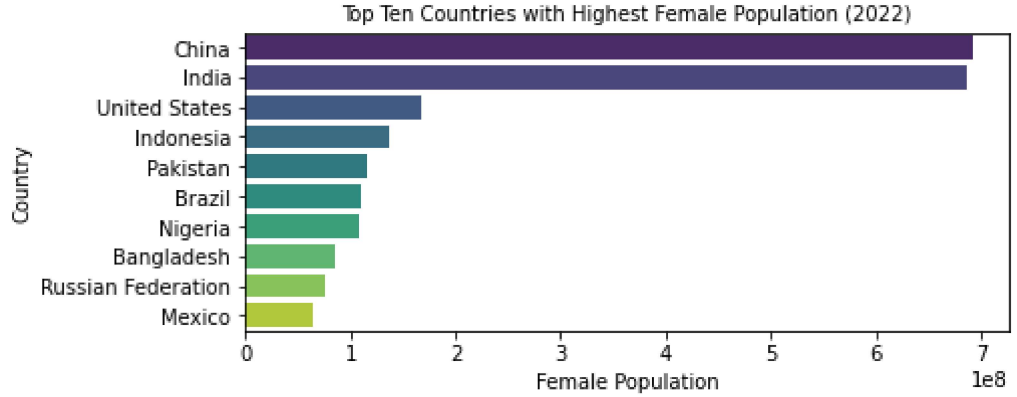
In [24]:
```
# Filter data for female population
female_population_data = df[df["Series Code"] == "SP.POP.TOTL.FE.IN"]
female_population_sorted = female_population_data.sort_values(by="2022", ascer
female_top_ten_countries = female_population_sorted.head(10)
print("Top ten countries of female population")
print(female_top_ten_countries[['Country Name']] )
```

```
Top ten countries of female population
          Country Name
258              China
306              India
423      United States
307          Indonesia
366           Pakistan
243             Brazil
361            Nigeria
232         Bangladesh
378  Russian Federation
344             Mexico
```

Top ten countries with highest male and female population in 2022

In [25]:
```
# Create the bar plot
plt.figure(figsize=(15, 6))
plt.subplot(2,2,1)
sns.barplot(x="2022", y="Country Name", data=male_top_ten_countries, palette='
plt.title("Top Ten Countries with Highest Male Population (2022)",size=10)
plt.xlabel("Male Population",size=10)
plt.ylabel("Country",size=10)
plt.show()

plt.figure(figsize=(15, 6))
plt.subplot(2,2,2)
sns.barplot(x="2022", y="Country Name", data=female_top_ten_countries, palette
plt.title("Top Ten Countries with Highest Female Population (2022)",size=10)
plt.xlabel("Female Population",size=10)
plt.ylabel("Country",size=10)
plt.show()
```





Extraction of top ten countries with lowest male population

In [26]:
```
male_lowest_ten_countries = male_population_sorted.tail(10)
print("Top ten countries of lowest male population")
print(male_lowest_ten_countries[['Country Name']] )
```

```
Top ten countries of lowest male population
                Country Name
558          Marshall Islands
548             Liechtenstein
564                    Monaco
598                San Marino
509                 Gibraltar
617  St. Martin (French part)
461    British Virgin Islands
584                     Palau
571                     Nauru
635                    Tuvalu
```

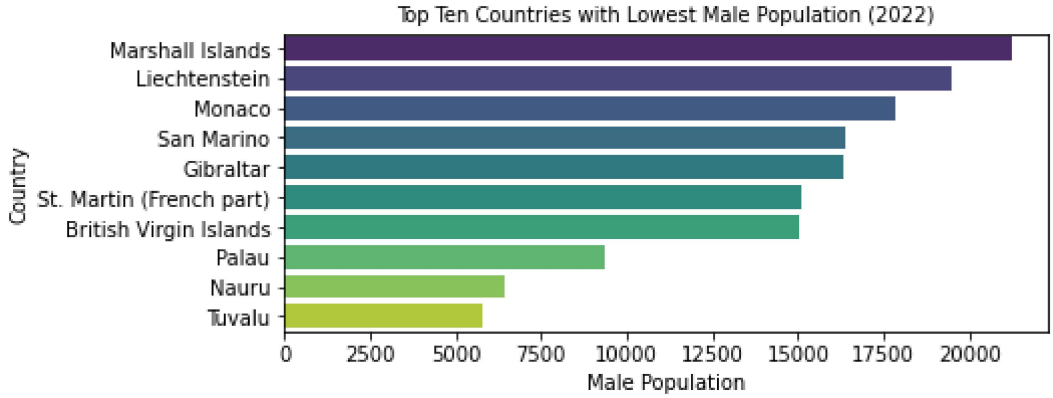
Extraction of top ten countries with lowest female population

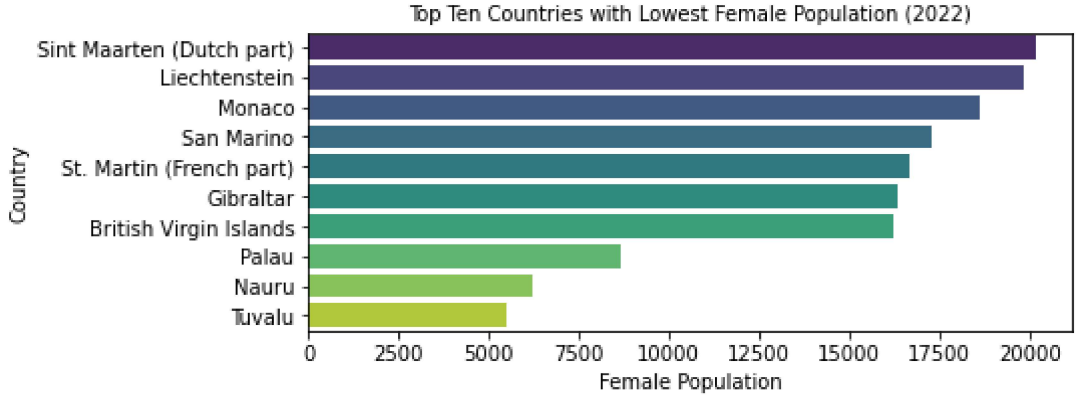
In [27]:
```
female_lowest_ten_countries = female_population_sorted.tail(10)
print("Top ten countries of lowest female population")
print(female_lowest_ten_countries[['Country Name']] )
```

```
Top ten countries of lowest female population
                 Country Name
389  Sint Maarten (Dutch part)
331               Liechtenstein
347                      Monaco
381                  San Marino
400   St. Martin (French part)
292                   Gibraltar
244     British Virgin Islands
367                       Palau
354                       Nauru
418                      Tuvalu
```

Top ten countries with lowest male and female population in 2022

In [28]:
```
# Create the bar plot
plt.figure(figsize=(15, 6))
plt.subplot(2,2,1)
sns.barplot(x="2022", y="Country Name", data=male_lowest_ten_countries, palett
plt.title("Top Ten Countries with Lowest Male Population (2022)",size=10)
plt.xlabel("Male Population",size=10)
plt.ylabel("Country",size=10)
plt.show()

plt.figure(figsize=(15, 6))
plt.subplot(2,2,2)
sns.barplot(x="2022", y="Country Name", data=female_lowest_ten_countries, pale
plt.title("Top Ten Countries with Lowest Female Population (2022)",size=10)
plt.xlabel("Female Population",size=10)
plt.ylabel("Country",size=10)
plt.show()
```





Stacked Bar Plot

Top 10 Countries with Male and Female Populations (2022)

In [29]:
```
# Merge male and female population data on 'Country Name'
merged_data = pd.merge(male_population_data, female_population_data, on="Count
```

In [30]:
```
merged_data
```

Out[30]:

	Series Code_male	Country Name	2022_male	2021_male	2020_male	2019_male	2018_mal
0	SP.POP.TOTL.MA.IN	Afghanistan	20766442.0	20254878.0	19692301.0	19090409.0	18549862.(
1	SP.POP.TOTL.MA.IN	Albania	1384548.0	1404454.0	1419264.0	1428828.0	1435881.(
2	SP.POP.TOTL.MA.IN	Algeria	22862237.0	22497244.0	22132899.0	21756903.0	21362603.(
3	SP.POP.TOTL.MA.IN	American Samoa	21873.0	22289.0	22921.0	23535.0	24134.(
4	SP.POP.TOTL.MA.IN	Andorra	40786.0	40361.0	39615.0	38842.0	38071.(
...	...	...	...	...	...	...	...	.
212	SP.POP.TOTL.MA.IN	Virgin Islands (U.S.)	49137.0	49510.0	49866.0	50196.0	50489.(
213	SP.POP.TOTL.MA.IN	West Bank and Gaza	2516444.0	2455361.0	2394860.0	2334948.0	2275925.(
214	SP.POP.TOTL.MA.IN	Yemen, Rep.	17023203.0	16668432.0	16320979.0	15953578.0	15578957.(
215	SP.POP.TOTL.MA.IN	Zambia	9877642.0	9609004.0	9338613.0	9066397.0	8794716.(
216	SP.POP.TOTL.MA.IN	Zimbabwe	7705601.0	7543690.0	7385220.0	7231989.0	7086002.(

217 rows × 47 columns

In [31]:
```
# Calculate the total population for each country (male + female)
merged_data["Total Population"] = merged_data["2022_male"] + merged_data["202
```

In [32]:
```
merged_data.head()
```

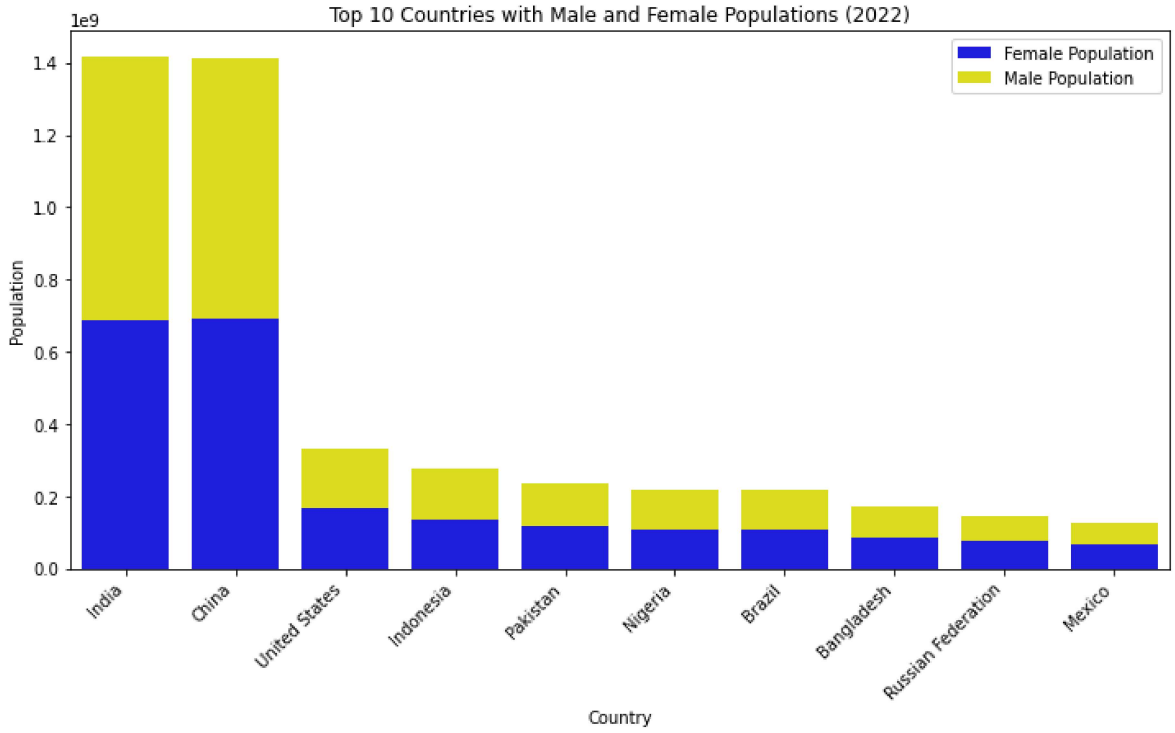
Out[32]:

	Series Code_male	Country Name	2022_male	2021_male	2020_male	2019_male	2018_male
0	SP.POP.TOTL.MA.IN	Afghanistan	20766442.0	20254878.0	19692301.0	19090409.0	18549862.0
1	SP.POP.TOTL.MA.IN	Albania	1384548.0	1404454.0	1419264.0	1428828.0	1435881.0
2	SP.POP.TOTL.MA.IN	Algeria	22862237.0	22497244.0	22132899.0	21756903.0	21362603.0
3	SP.POP.TOTL.MA.IN	American Samoa	21873.0	22289.0	22921.0	23535.0	24134.0
4	SP.POP.TOTL.MA.IN	Andorra	40786.0	40361.0	39615.0	38842.0	38071.0

5 rows × 48 columns

In [33]:
```
sorted_data = merged_data.sort_values(by="Total Population", ascending=False)
top_10_countries = sorted_data.head(10)
```

In [34]:
```
# Create the stacked bar plot
plt.figure(figsize=(12, 6))
sns.barplot(x="Country Name", y="2022_female", data=top_10_countries, color="b
sns.barplot(x="Country Name", y="2022_male", data=top_10_countries, bottom=top
plt.title("Top 10 Countries with Male and Female Populations (2022)")
plt.xlabel("Country")
plt.ylabel("Population")
plt.legend()
plt.xticks(rotation=45, ha="right")
plt.show()
```



Bottom 10 Countries with Male and Female Populations (2022)

In [35]:
```
bottom_10_countries = sorted_data.tail(10)
```

In [36]:
```
plt.figure(figsize=(12, 6))
sns.barplot(x="Country Name", y="2022_female", data=bottom_10_countries, color
sns.barplot(x="Country Name", y="2022_male", data=bottom_10_countries, bottom=
plt.title("Bottom 10 Countries with Male and Female Populations (2022)")
plt.xlabel("Country")
plt.ylabel("Population")
plt.legend()
plt.xticks(rotation=45, ha="right")
plt.show()
```