In [1]:
```
### ignoring warnings here only to keep the notebook clean for viewing ###

import warnings
warnings.filterwarnings('ignore')
```

In [2]:
```
### import pandas and plotly libraries for data analysis/manipulation and graphing ###

import pandas as pd
import plotly.express as px
```

In [3]:
```
### read in dataset ###

df = pd.read_excel('/Users/shaner/Downloads/world_population.xlsx')
```

In [4]:
```
### view the first five rows to check that data was successfully imported ###

df.head()
```

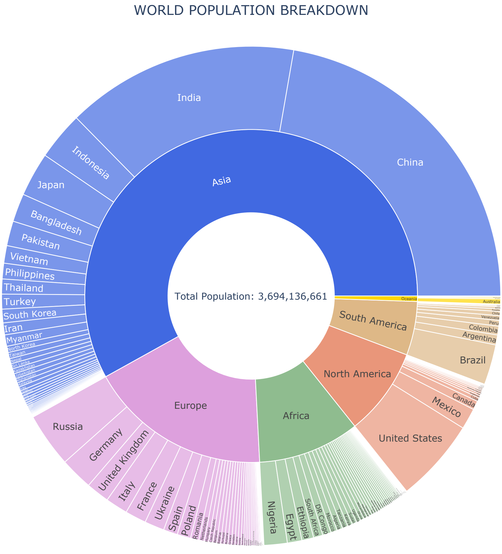
Out[4]:

| | Rank | CCA3 | World 2022 | World 1970 | Continent | Country | Capital | 2022 Population | 2020 Population | 2015 Population | 2010 Population | 2000 Population | 1990 Population | 1980 Population | 1970 Population | Area (km¬≤) | Density (per km¬≤) | Growth Rate | Po Per |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **0** | 36 | AFG | Total Population: 7,973,413,042 | Total Population: 3,694,136,661 | Asia | Afghanistan | Kabul | 41128771 | 38972230 | 33753499 | 28189672 | 19542982 | 10694796 | 12486631 | 10752971 | 652230 | 63.0587 | 1.0257 | |
| **1** | 138 | ALB | Total Population: 7,973,413,042 | Total Population: 3,694,136,661 | Europe | Albania | Tirana | 2842321 | 2866849 | 2882481 | 2913399 | 3182021 | 3295066 | 2941651 | 2324731 | 28748 | 98.8702 | 0.9957 | |
| **2** | 34 | DZA | Total Population: 7,973,413,042 | Total Population: 3,694,136,661 | Africa | Algeria | Algiers | 44903225 | 43451666 | 39543154 | 35856344 | 30774621 | 25518074 | 18739378 | 13795915 | 2381741 | 18.8531 | 1.0164 | |
| **3** | 213 | ASM | Total Population: 7,973,413,042 | Total Population: 3,694,136,661 | Oceania | American Samoa | Pago Pago | 44273 | 46189 | 51368 | 54849 | 58230 | 47818 | 32886 | 27075 | 199 | 222.4774 | 0.9831 | |
| **4** | 203 | AND | Total Population: 7,973,413,042 | Total Population: 3,694,136,661 | Europe | Andorra | Andorra la Vella | 79824 | 77700 | 71746 | 71519 | 66097 | 53569 | 35611 | 19860 | 468 | 170.5641 | 1.0100 | |

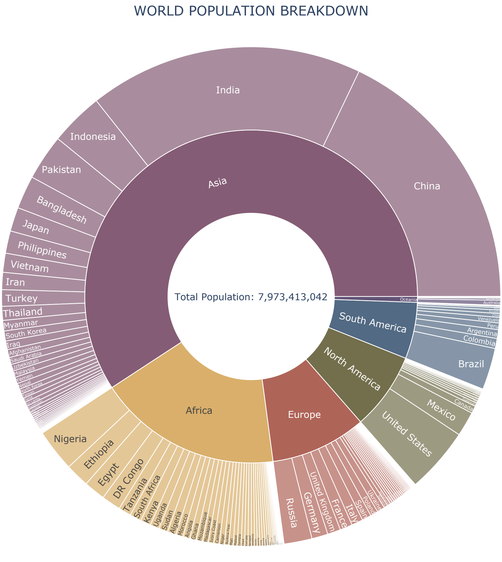
In [5]:
```
### view information about the dataframe, check for nulls, etc. ###

df.info()
```

```
<class 'pandas.core.frame.DataFrame'>
RangeIndex: 234 entries, 0 to 233
Data columns (total 19 columns):
 #   Column                      Non-Null Count  Dtype  
---  ------                      --------------  -----  
 0   Rank                        234 non-null    int64  
 1   CCA3                        234 non-null    object 
 2   World 2022                  234 non-null    object 
 3   World 1970                  234 non-null    object 
 4   Continent                   234 non-null    object 
 5   Country                     234 non-null    object 
 6   Capital                     234 non-null    object 
 7   2022 Population             234 non-null    int64  
 8   2020 Population             234 non-null    int64  
 9   2015 Population             234 non-null    int64  
 10  2010 Population             234 non-null    int64  
 11  2000 Population             234 non-null    int64  
 12  1990 Population             234 non-null    int64  
 13  1980 Population             234 non-null    int64  
 14  1970 Population             234 non-null    int64  
 15  Area (km¬≤)                  234 non-null    int64  
 16  Density (per km¬≤)           234 non-null    float64
 17  Growth Rate                 234 non-null    float64
 18  World Population Percentage  234 non-null    float64
dtypes: float64(3), int64(10), object(6)
memory usage: 34.9+ KB
```

In [6]:
```
### build 1970 population sunburst chart ###

fig_one = px.sunburst(df, path=['World 1970','Continent','Country'], values='1970 Population', width=800, height=800,
                  color_discrete_sequence=['royalblue','plum','darkseagreen','darksalmon','burlywood','gold'])

fig_one.update_layout(title_text='WORLD POPULATION BREAKDOWN', title_x=0.5)
```




In [7]:
```
#### build 2022 population sunburst chart ###

fig_two = px.sunburst(df, path=['World 2022','Continent','Country'], values='2022 Population', width=800, height=800,
                  color_discrete_sequence=px.colors.qualitative.Antique)

fig_two.update_layout(title_text='WORLD POPULATION BREAKDOWN', title_x=0.5)
```




In [8]:
```
### install kaleido to enable chart export as static image ###

### pip install -U kaleido ###
```

In [9]:
```
### export chart as static image ###
### png, jpeg, webp ###

fig_one.write_image('/Users/shaner/Downloads/1970_world_pop.png')
```

In [10]:
```
### export chart as interactice html file ###

fig_two.write_html('/Users/shaner/Downloads/2022_world_pop.html')
```