Submission

Put the ipynb file and html file in the github branch you created in the last assignment and submit the link to the commit in brightspace

In [ ]:
```
from plotly.offline import init_notebook_mode
import plotly.io as pio
import plotly.express as px
import pandas as pd

init_notebook_mode(connected=True)
pio.renderers.default = "plotly_mimetype+notebook"
```

In [ ]:
```
#load data
df = px.data.gapminder()
df.head()
```

Out[ ]:

	country	continent	year	lifeExp	pop	gdpPercap	iso_alpha	iso_num
0	Afghanistan	Asia	1952	28.801	8425333	779.445314	AFG	4
1	Afghanistan	Asia	1957	30.332	9240934	820.853030	AFG	4
2	Afghanistan	Asia	1962	31.997	10267083	853.100710	AFG	4
3	Afghanistan	Asia	1967	34.020	11537966	836.197138	AFG	4
4	Afghanistan	Asia	1972	36.088	13079460	739.981106	AFG	4

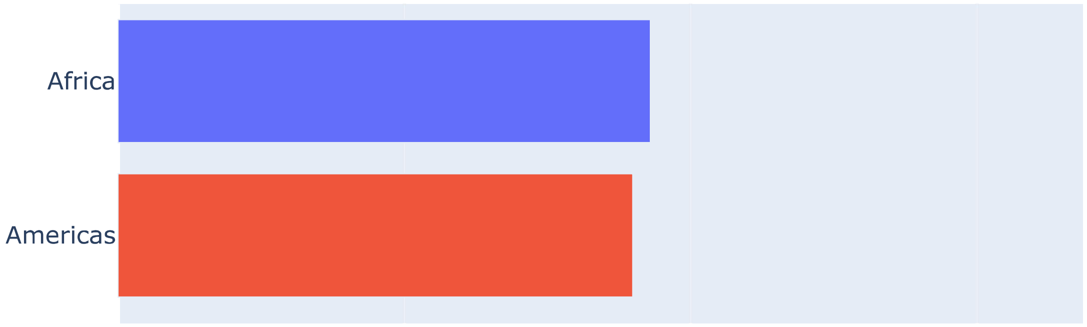
Question 1:

Recreate the barplot below that shows the population of different continents for the year 2007.

Hints:

- Extract the 2007 year data from the dataframe. You have to process the data accordingly
- use plotly bar
- Add different colors for different continents
- Sort the order of the continent for the visualisation. Use axis layout setting
- Add text to each bar that represents the population

In [ ]:
```
# YOUR CODE HERE
df = px.data.gapminder()
df_2007 = df.query('year==2007')
df_2007_new = df_2007.groupby('continent').sum()
fig = px.bar(df_2007_new, x='pop', y=df_2007_new.index, orientation='h',
    color=df_2007_new.index,
    )
fig.show()
```



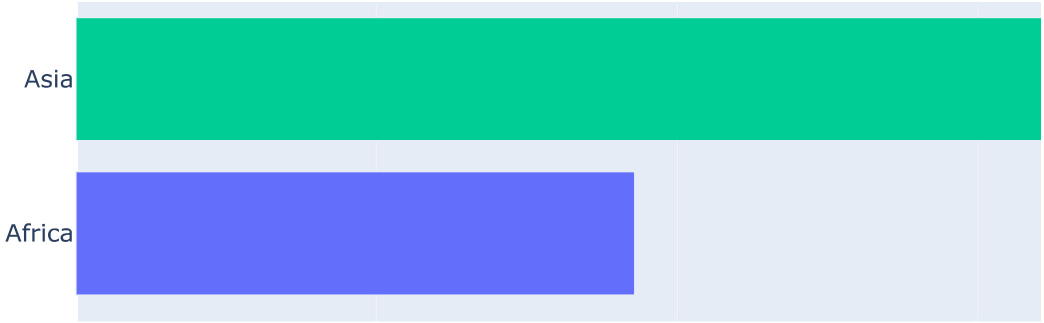
Question 2:

Sort the order of the continent for the visualisation

Hint: Use axis layout setting

In [ ]:

```
# YOUR CODE HERE
df = px.data.gapminder()
df_2007 = df.query('year==2007')
df_2007_new = df_2007.groupby('continent').sum()
fig = px.bar(df_2007_new, x='pop', y=df_2007_new.index, orientation='h',
    color=df_2007_new.index,
    )
fig.update_yaxes(categoryorder='min ascending')
fig.update_traces(showlegend=False)
fig.show()
```

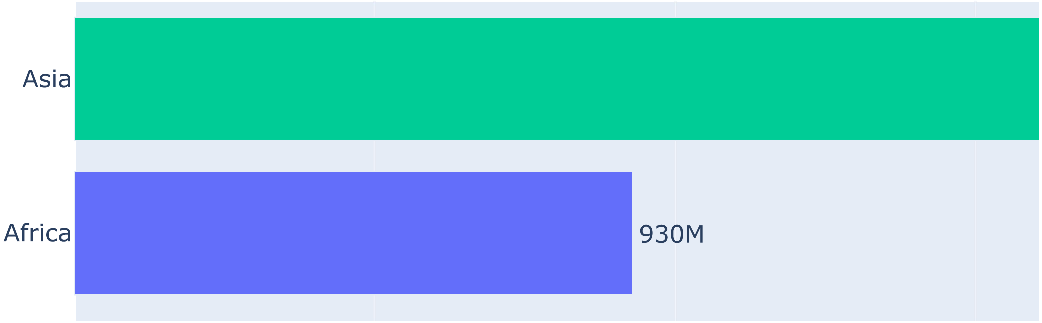


Question 3:

Add text to each bar that represents the population

In [ ]:

```
df = px.data.gapminder()
df_2007 = df.query('year==2007')
df_2007_new = df_2007.groupby('continent').sum()
fig = px.bar(df_2007_new, x='pop', y=df_2007_new.index, orientation='h',
    color=df_2007_new.index,
    text_auto='.2s')
fig.update_yaxes(categoryorder='min ascending')
fig.update_traces(textposition= "outside", showlegend=False)
fig.show()
```

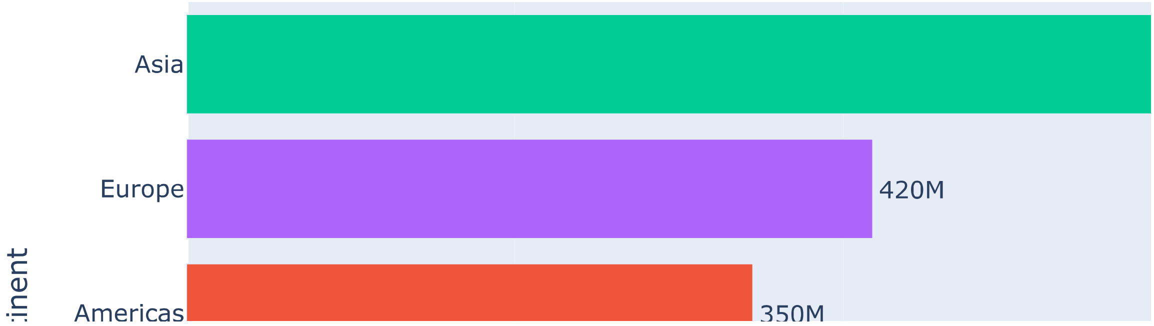


Question 4:

Thus far we looked at data from one year (2007). Lets create an animation to see the population growth of the continents through the years

In [ ]:

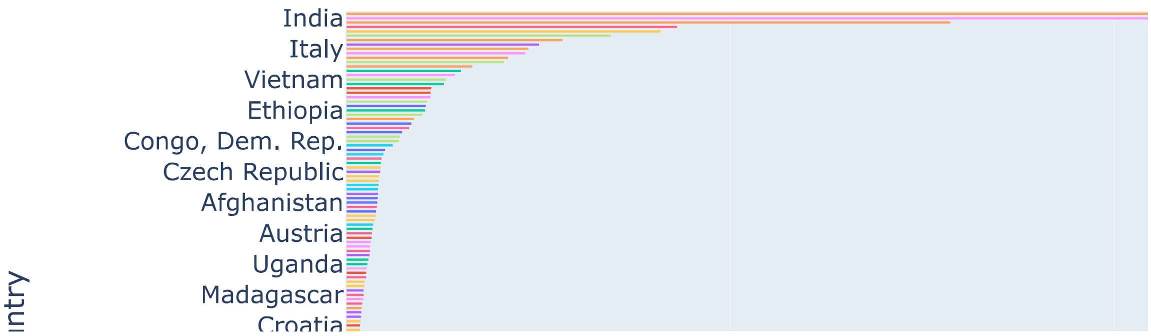
```
# YOUR CODE HERE
df = px.data.gapminder()
df_allyears = df.groupby(['continent', 'year']).sum().reset_index()
fig = px.bar(df_allyears, x='pop', y='continent',
    animation_frame="year", animation_group="continent",
    color='continent',
    text_auto='.2s')
fig.update_yaxes(categoryorder='min ascending')
fig.update_traces(textposition= "outside", showlegend=False)
fig.show()
```



Question 5:

Instead of the continents, lets look at individual countries. Create an animation that shows the population growth of the countries through the years

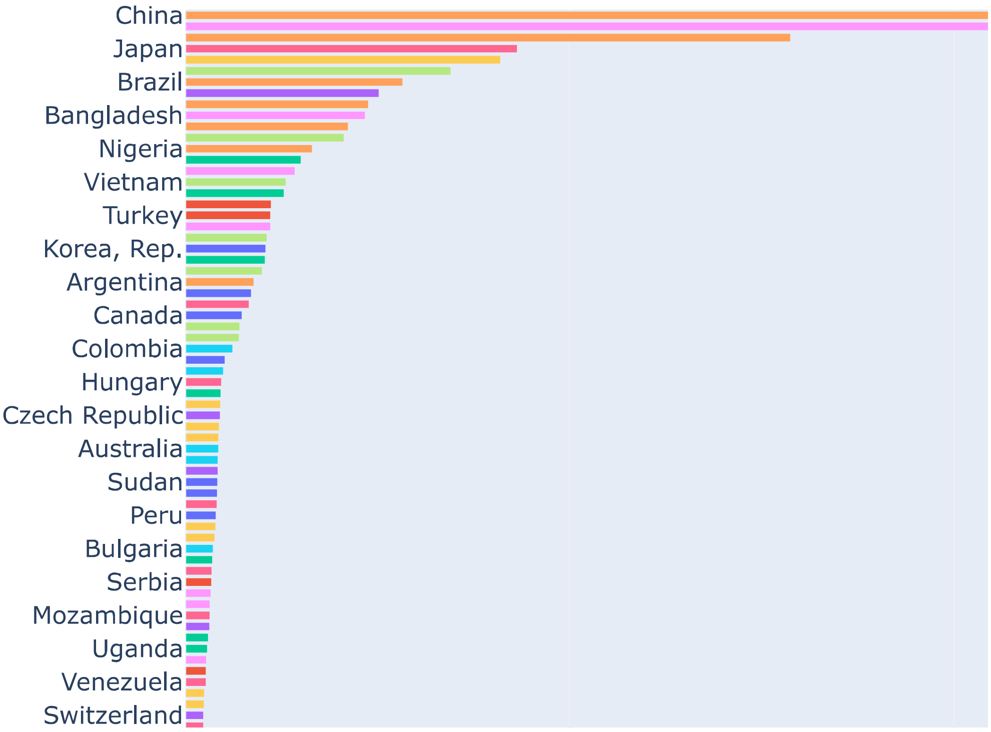
In [ ]:
```
# YOUR CODE HERE
df = px.data.gapminder()
df_countries = df.groupby(['country', 'year']).sum().reset_index()
fig = px.bar(df_countries, x='pop', y='country',
    animation_frame="year", animation_group="country",
    color='country')
fig.update_yaxes(categoryorder='min ascending')
fig.update_traces(showlegend=False)
fig.show()
```



Question 6:

Clean up the country animation. Set the height size of the figure to 1000 to have a better view of the animation

```
In [ ]: # YOUR CODE HERE
df = px.data.gapminder()
df_countries = df.groupby(['country', 'year']).sum().reset_index()
fig = px.bar(df_countries, x='pop', y='country',
    animation_frame="year", animation_group="country",
    height=1000,
    color='country')
fig.update_yaxes(categoryorder='min ascending')
fig.update_traces(showlegend=False)
fig.show()
```

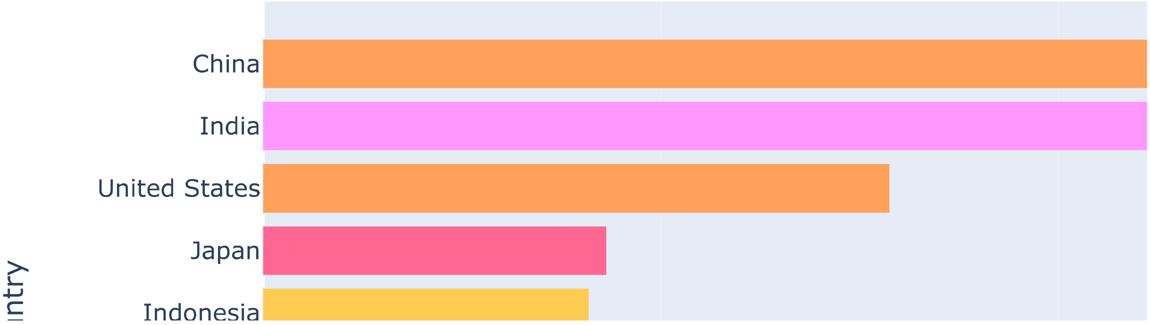

China
Japan
Brazil
Bangladesh
Nigeria
Vietnam
Turkey
Korea, Rep.
Argentina
Canada
Colombia
Hungary
Czech Republic
Australia
Sudan
Peru
Bulgaria
Serbia
Mozambique
Uganda
Venezuela
Switzerland

Question 7:

Show only the top 10 countries in the animation

Hint: Use the axis limit to set this.

```
In [ ]: # YOUR CODE HERE
        df = px.data.gapminder()
        df_countries = df.groupby(['country', 'year']).sum().reset_index()
        fig = px.bar(df_countries, x='pop', y='country',
            animation_frame="year", animation_group="country",
            color='country')
        fig.update_yaxes(categoryorder='min ascending', range=[(df_countries.country.nuniqu
        fig.update_traces(showlegend=False)
        fig.show()
```



```
In [ ]:
```