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 [2]:
```
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 [3]:
```
#load data
df = px.data.gapminder()
df.head()
```

Out[3]:

	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

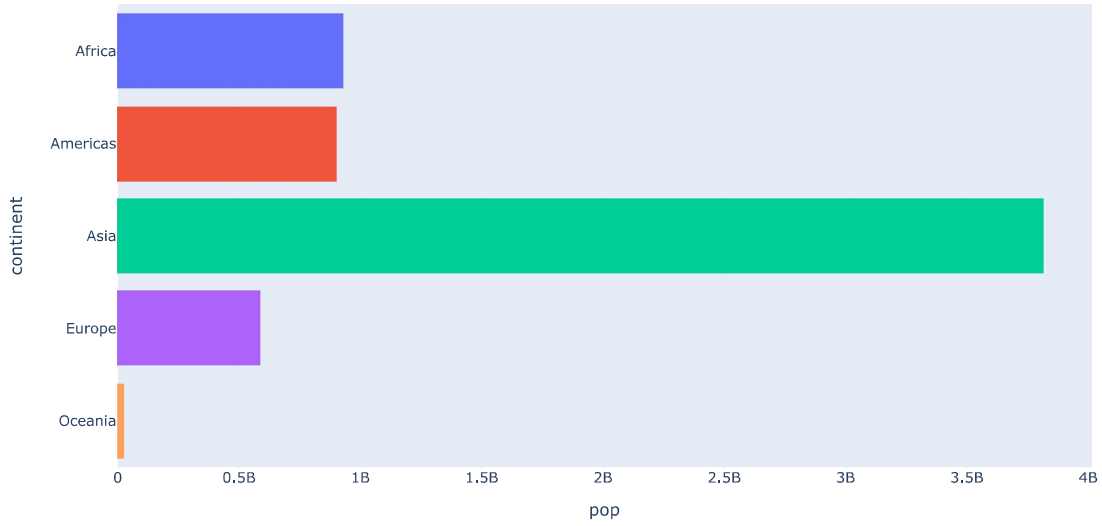
Question 1:

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 (https://plotly.com/python-api-reference/generated/plotly.express.bar)
- Add different colors for different continents
- Sort the order of the continent for the visualisation. Use axis layout setting (https://plotly.com/python/reference/layout/xaxis/)
- Add text to each bar that represents the population

In [4]:
```
# YOUR CODE HERE
df_2007 = df[
    df.year == 2007
]
df_2007_continent = df_2007.groupby('continent').sum()
fig = px.bar(df_2007_continent, x='pop', y=df_2007_continent.index, color=df_2007_continent.index)
fig = fig.update_layout(barmode='stack', showlegend=False)
fig.show()
```

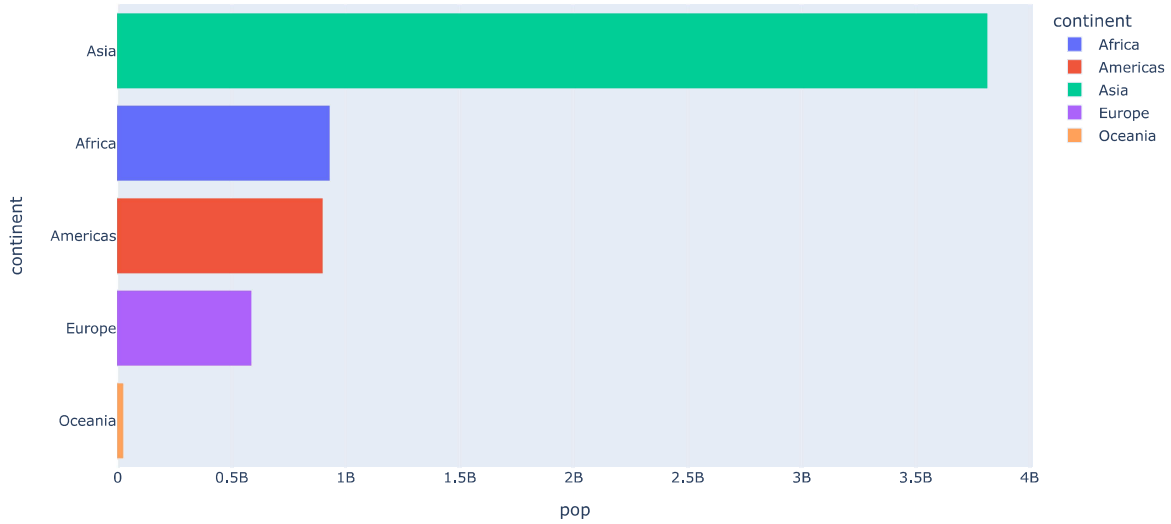


Question 2:

Sort the order of the continent for the visualisation

Hint: Use axis layout setting (https://plotly.com/python/reference/layout/xaxis/)

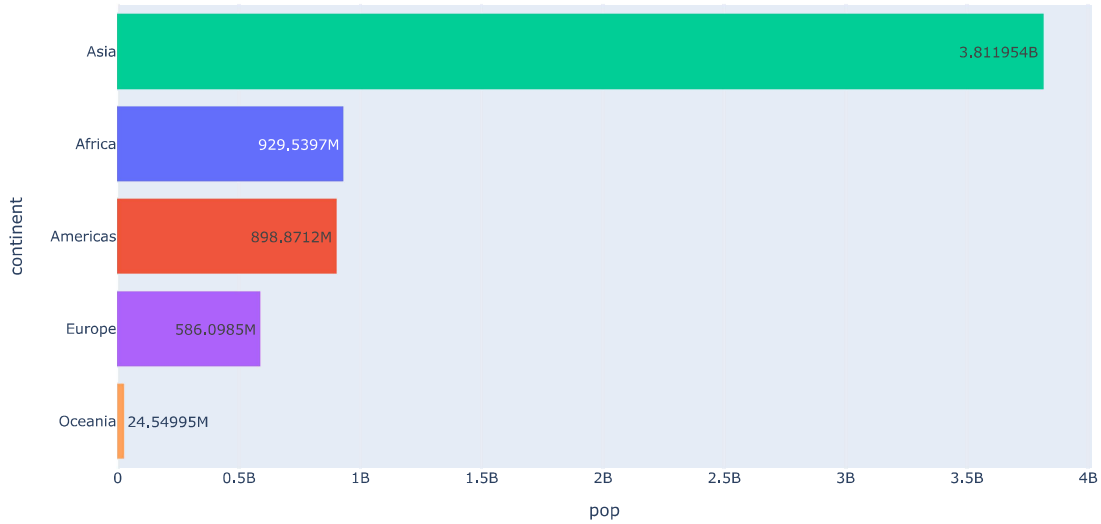
In [5]:
```
# YOUR CODE HERE
df_2007 = df[
    df.year == 2007
]
df_2007_continent = df_2007.groupby('continent').sum()
fig = px.bar(df_2007_continent, x='pop', y=df_2007_continent.index, color=df_2007_continent.index)
fig = fig.update_layout(barmode='stack', yaxis={'categoryorder':'total ascending'})
fig.show()
```



Question 3:

Add text to each bar that represents the population

In [6]:
```
# YOUR CODE HERE
df_2007 = df[
    df.year == 2007
]
df_2007_continent = df_2007.groupby('continent').sum()
fig = px.bar(df_2007_continent, x='pop', y=df_2007_continent.index, color=df_2007_continent.index, text_auto=True)
fig = fig.update_layout(barmode='stack', yaxis={'categoryorder':'total ascending'}, showlegend=False)
fig.show()
```

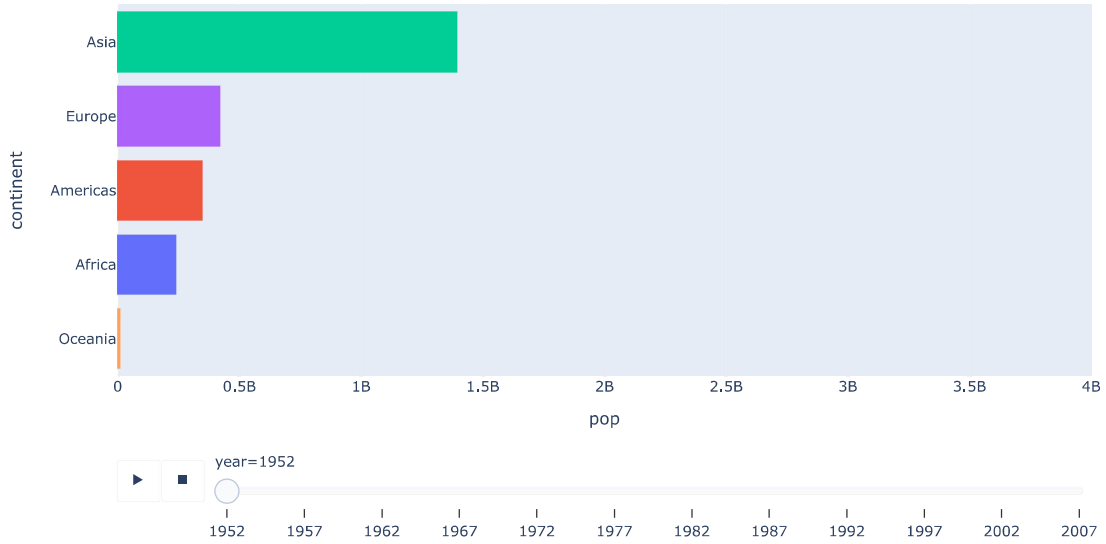


Question 4:

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 [7]:
```
df_year = df.groupby(['year','continent'])['pop'].sum().reset_index()
```

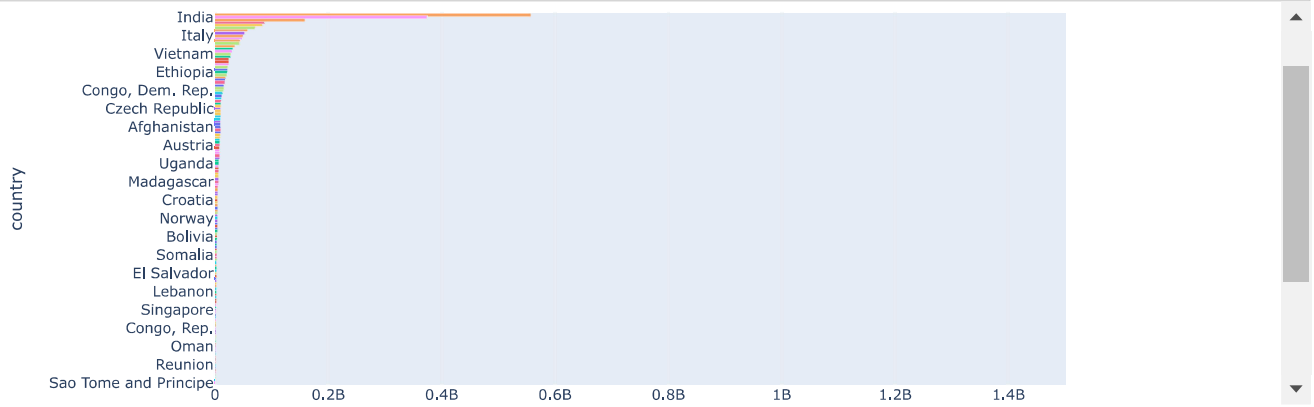
In [8]:
```
# YOUR CODE HERE

fig = px.bar(df_year, x='pop', y='continent', color='continent', animation_frame='year', range_x=[0, 4000000000])
fig = fig.update_layout(barmode='stack', yaxis={'categoryorder':'total ascending'}, 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

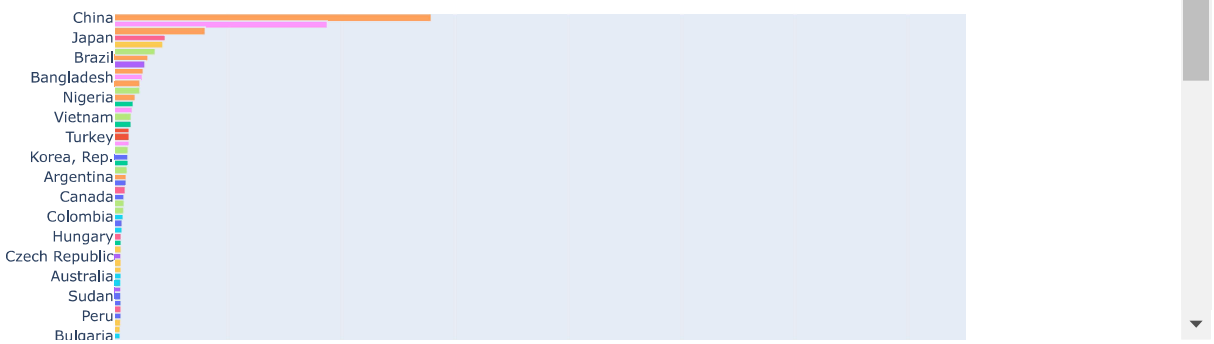
In [9]:
```
# YOUR CODE HERE
df_country = df.groupby(['year','country'])['pop'].sum().reset_index()
fig = px.bar(df_country, x='pop', y='country', color='country', animation_frame='year', range_x=[0, 1500000000])
fig = fig.update_layout(barmode='stack', yaxis={'categoryorder':'total ascending'}, showlegend=False)
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 [10]:
```
# YOUR CODE HERE
df_country = df.groupby(['year','country'])['pop'].sum().reset_index()
fig = px.bar(df_country, x='pop', y='country', color='country', animation_frame='year', range_x=[0, 1500000000], height=1000)
fig = fig.update_layout(barmode='stack', yaxis={'categoryorder':'total ascending'}, showlegend=False)
fig.show()
```

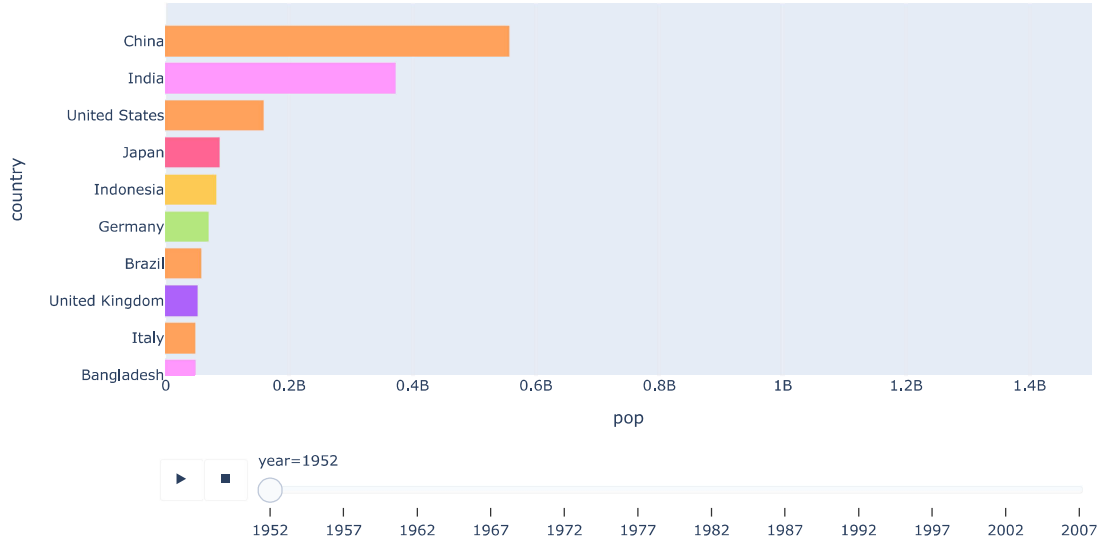


Question 7:

Show only the top 10 countries in the animation

Hint: Use the axis limit to set this.

In [11]:
```
# YOUR CODE HERE
df_country = df.groupby(['year','country'])['pop'].sum().reset_index()
fig = px.bar(df_country,x='pop',y='country',color='country',animation_frame='year',range_x=[0,1500000000],range_y=[132,142])
fig = fig.update_layout(barmode='stack',yaxis={'categoryorder':'total ascending'},showlegend=False)
fig.show()
```



In [ ]: