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 [1]:
```
from plotly.offline import init_notebook_mode
import plotly.io as pio
import plotly.express as px

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

In [2]:
```
#Load data
df = px.data.gapminder()
df.head()
```

Out[2]:

	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.

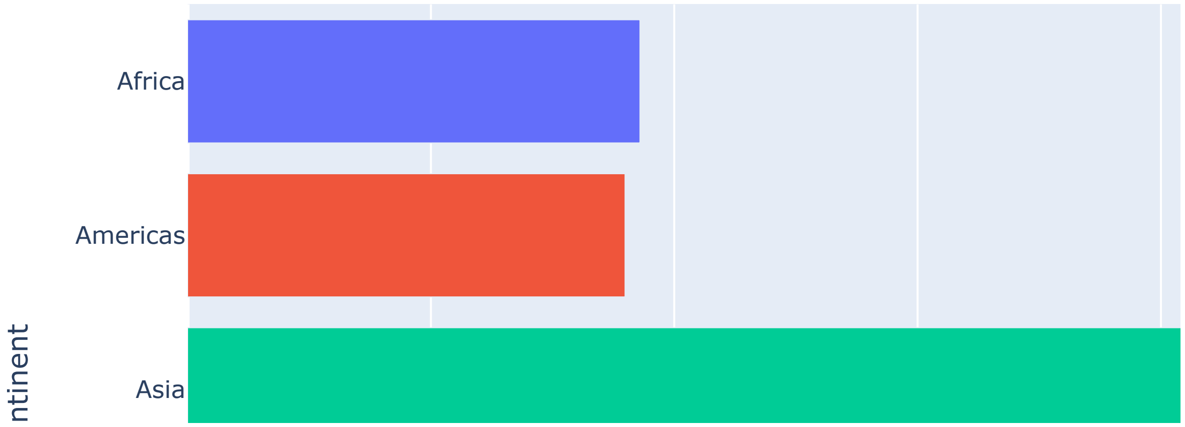
Hints:

- 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 [3]:
```
# YOUR CODE HERE

df2007 = df.loc[df['year'] == 2007]
grouped_df2007 = df2007.groupby('continent').sum().reset_index()
fig = px.bar(grouped_df2007, x='pop', y='continent', color = 'continent')
```

```
fig.update_layout(showlegend=False)
fig.show();
```



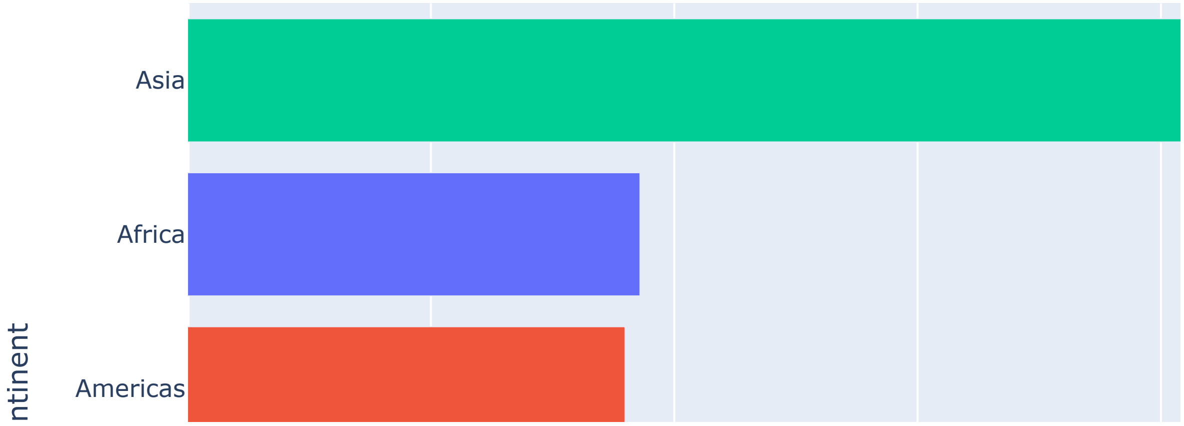
Question 2:

Sort the order of the continent for the visualisation

Hint: Use axis layout setting

In [4]:

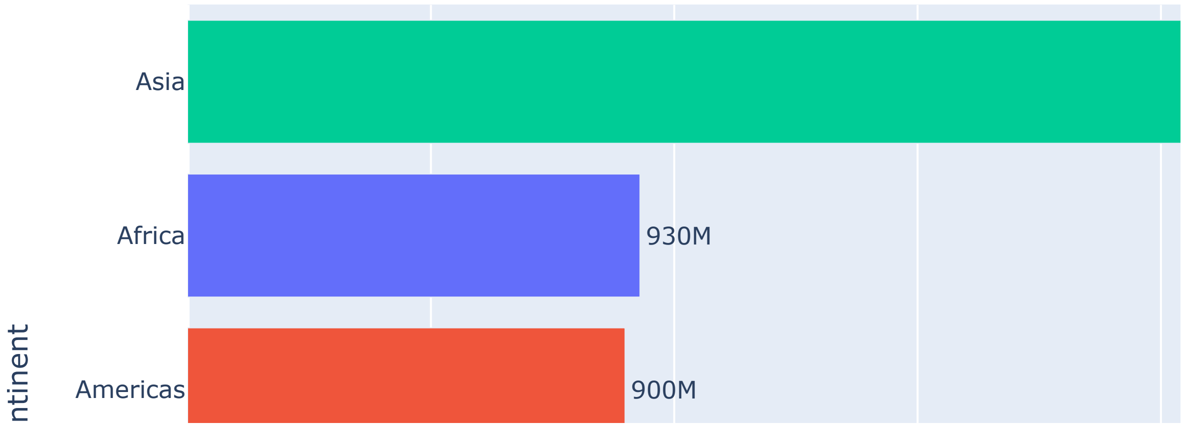
```
# YOUR CODE HERE
fig.update_yaxes(categoryorder='total ascending')
fig.show()
```



Question 3:

Add text to each bar that represents the population

In [5]:
```
# YOUR CODE HERE
fig.update_traces(texttemplate='%{x:.2s}', textposition='outside')
fig.show()
```



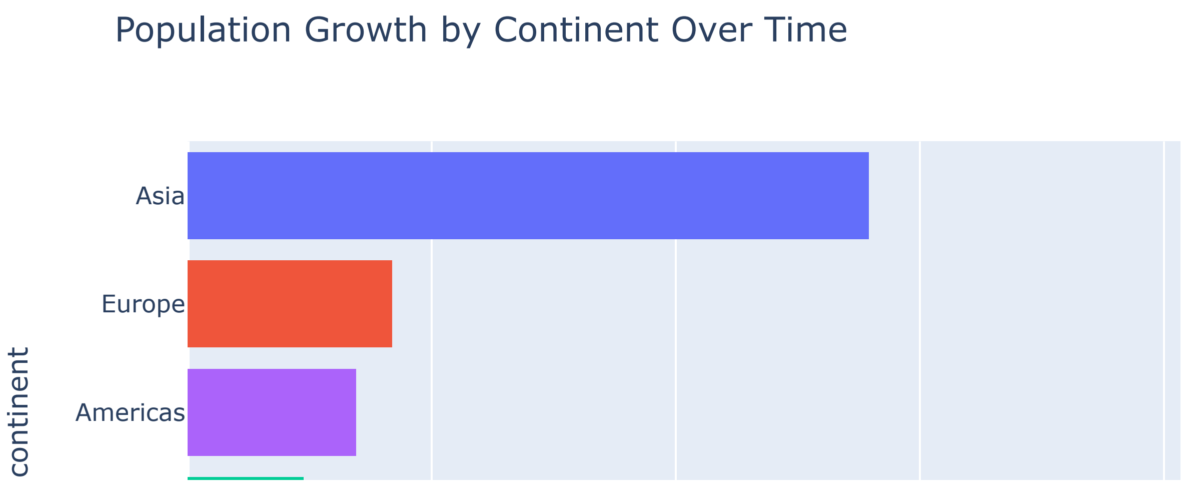
Question 4:

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 [6]:

```
# YOUR CODE HERE
fig = px.histogram(df, x='pop', y='continent',
             animation_frame='year', color = 'continent',
             title='Population Growth by Continent Over Time',
             labels={'year': 'Year', 'pop': 'Population'})

fig.update_layout(showlegend=False)
fig.update_xaxes(range=[0, 4e9])
fig.update_yaxes(categoryorder='total ascending')
fig.show()
```



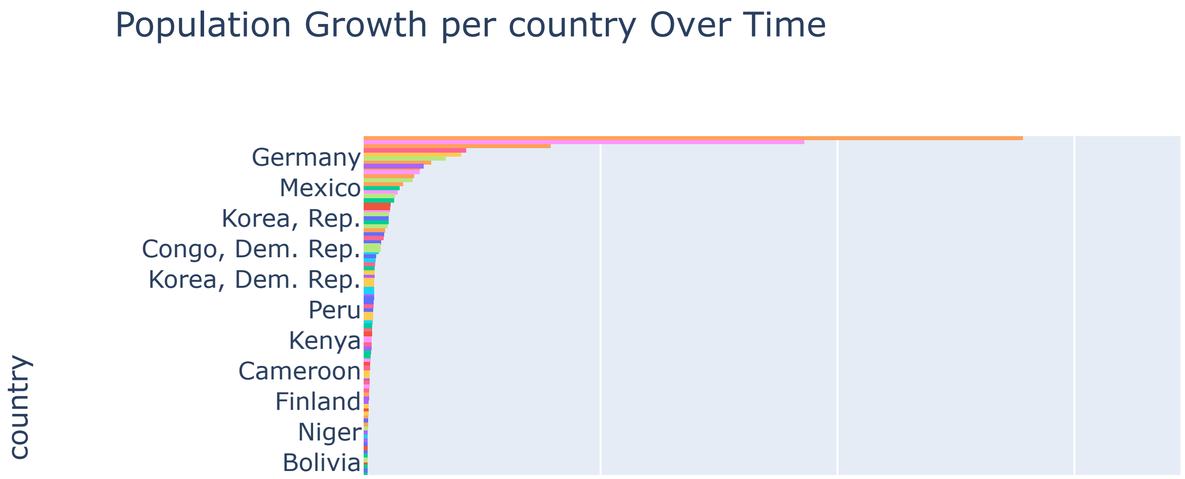
Question 5:

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

In [7]:

```
# YOUR CODE HERE
fig = px.histogram(df, x='pop', y='country',
             animation_frame='year', color = 'country',
             title='Population Growth per country Over Time',
             labels={'year': 'Year', 'pop': 'Population'})

fig.update_layout(showlegend=False)
fig.update_xaxes(range=[0, 1.5e9])
fig.update_yaxes(categoryorder='total ascending')
fig.show()
```

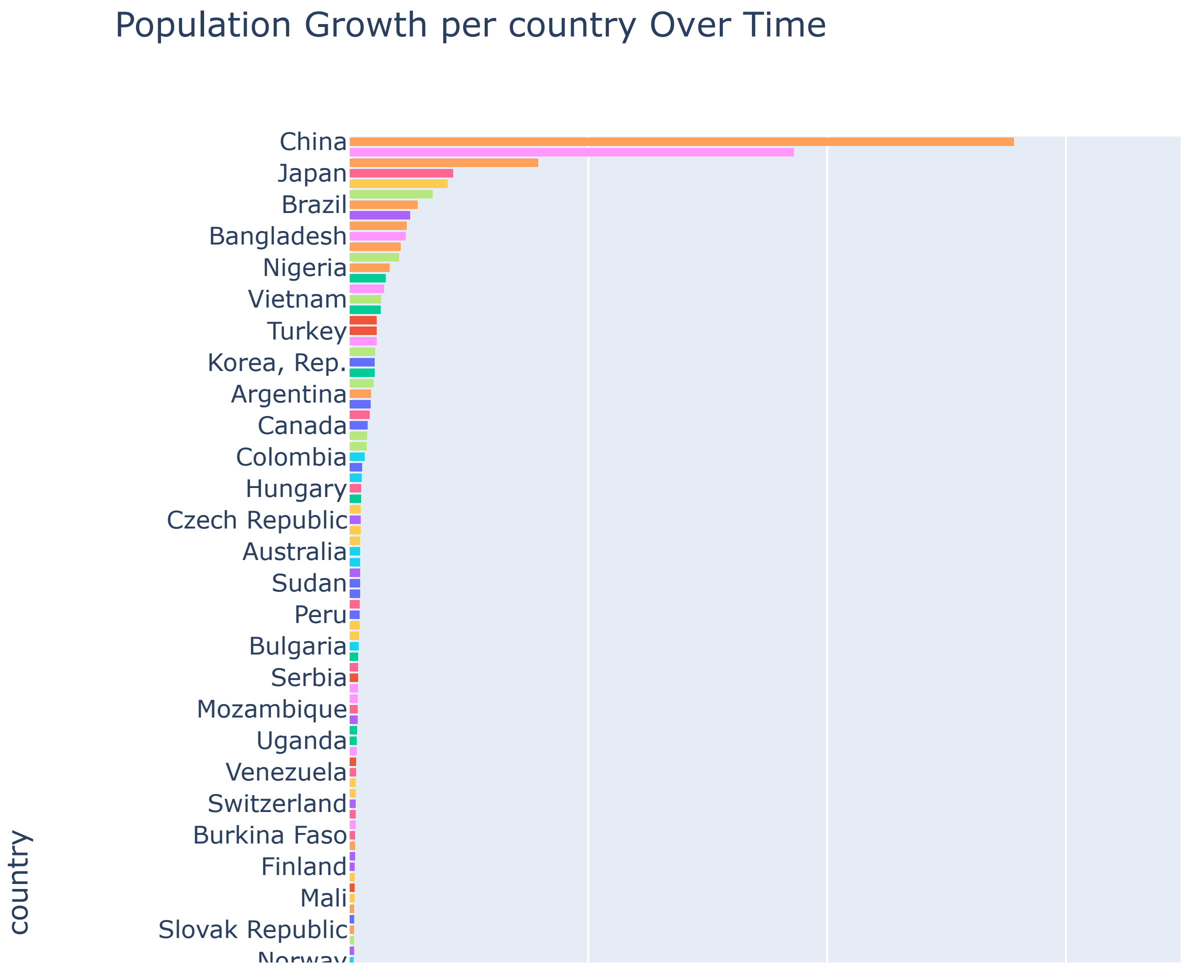


Question 6:

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

In [8]:

```
# YOUR CODE HERE
fig.update_layout(height=1000)
fig.show()
```


Population Growth per country Over Time
country
China
Japan
Brazil
Bangladesh
Nigeria
Vietnam
Turkey
Korea, Rep.
Argentina
Canada
Colombia
Hungary
Czech Republic
Australia
Sudan
Peru
Bulgaria
Serbia
Mozambique
Uganda
Venezuela
Switzerland
Burkina Faso
Finland
Mali
Slovak Republic
Norway

Question 7:

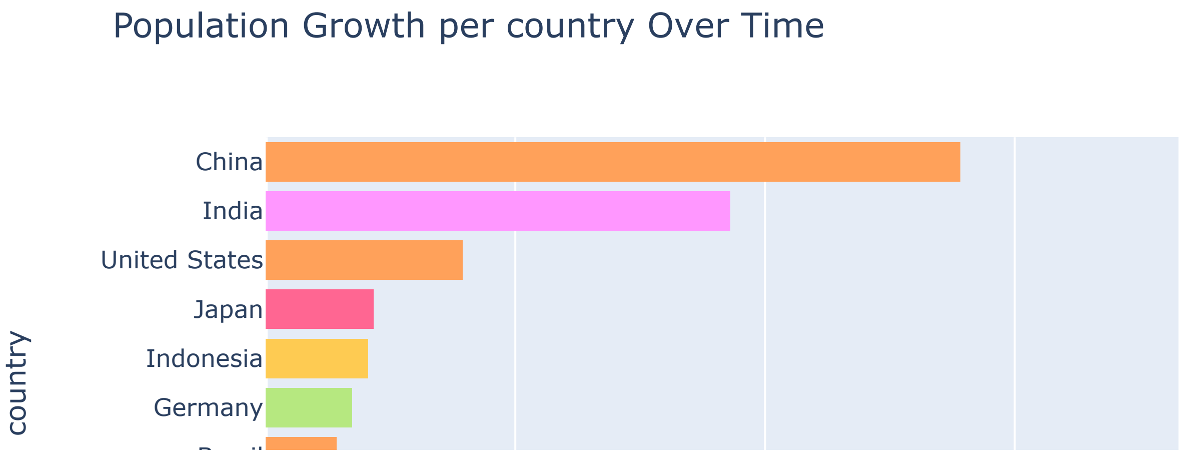
Show only the top 10 countries in the animation

Hint: Hint: Use the axis limit to set this.

In [9]:

```
# YOUR CODE HERE
fig.update_yaxes(range = [131.5, 141.5])
fig.update_layout(height=500)

fig.show()
```



In [ ]: