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:

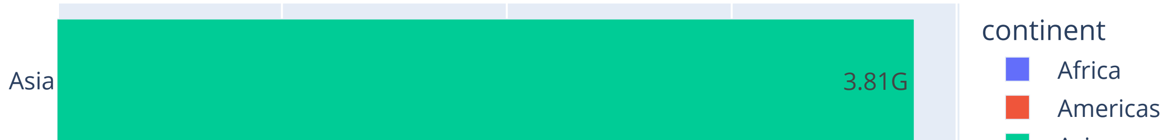
Recreate the barplot below that shows the population of different continents for the year 2007.

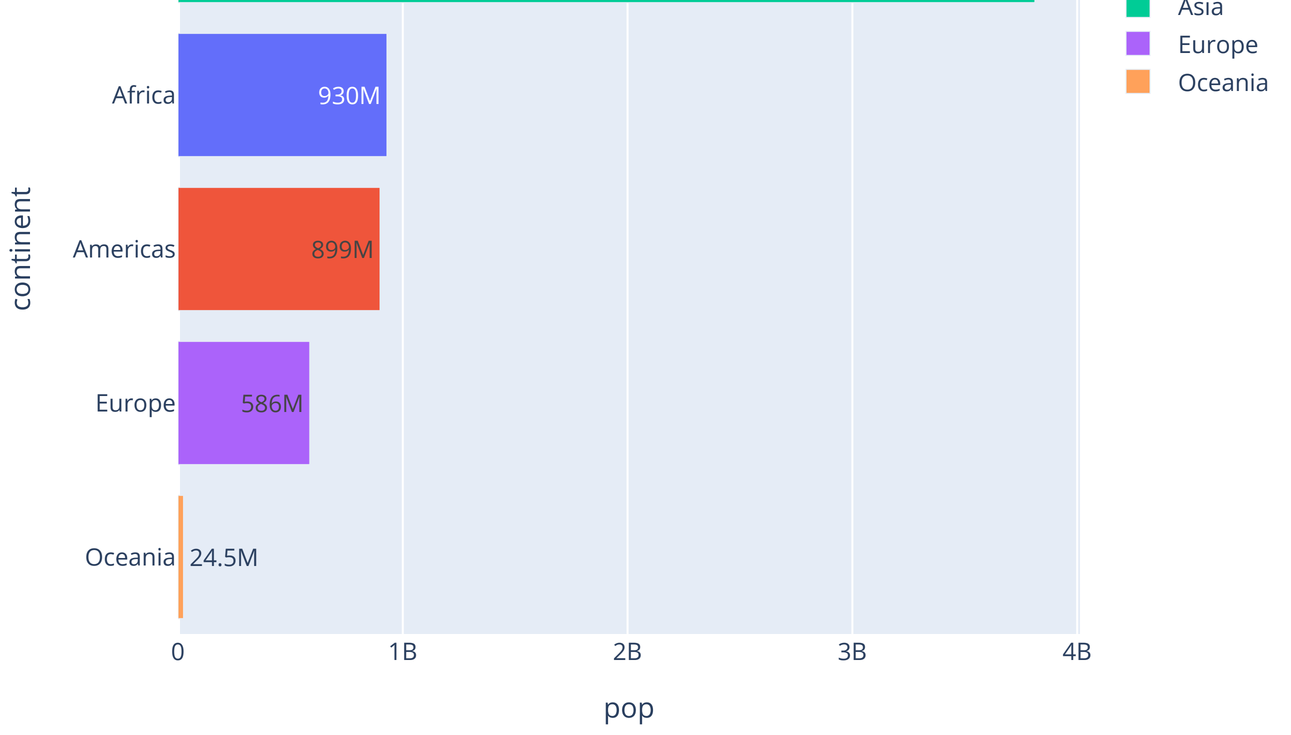
Hints:

- 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]:

```
df_2007 = df.query('year==2007')
df_2007_new = df_2007.groupby('continent').sum()
fig = px.bar(df_2007_new, x="pop", orientation='h', color = df_2007_new.index, text_auto
fig.update_yaxes(categoryorder= 'total ascending')
fig.show()
```





In [ ]:

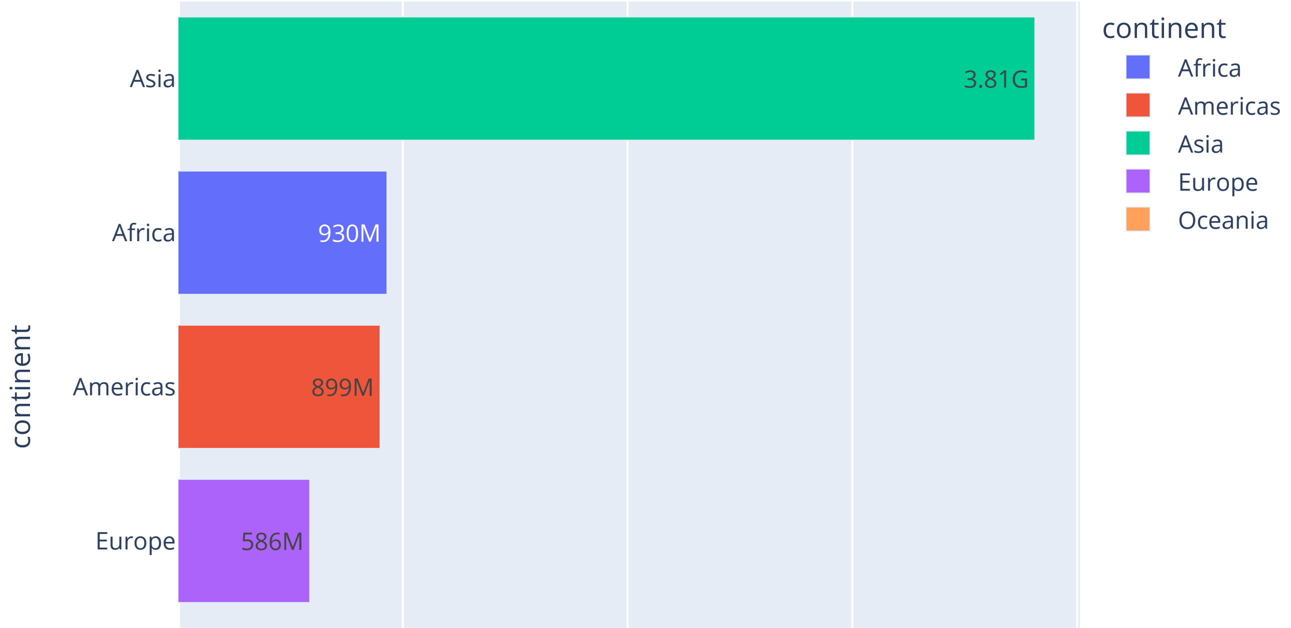
Question 2:

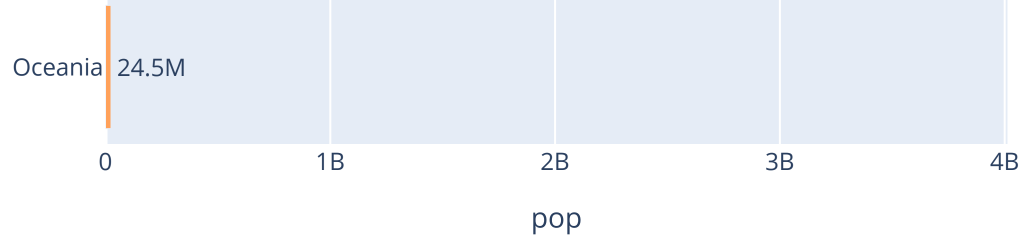
Sort the order of the continent for the visualisation

Hint: Use axis layout setting

In [4]:

```
df_2007 = df.query('year==2007')
df_2007_new = df_2007.groupby('continent').sum()
fig = px.bar(df_2007_new, x="pop", orientation='h', color = df_2007_new.index, text_auto
fig.update_yaxes(categoryorder= 'total ascending')
fig.show()
```



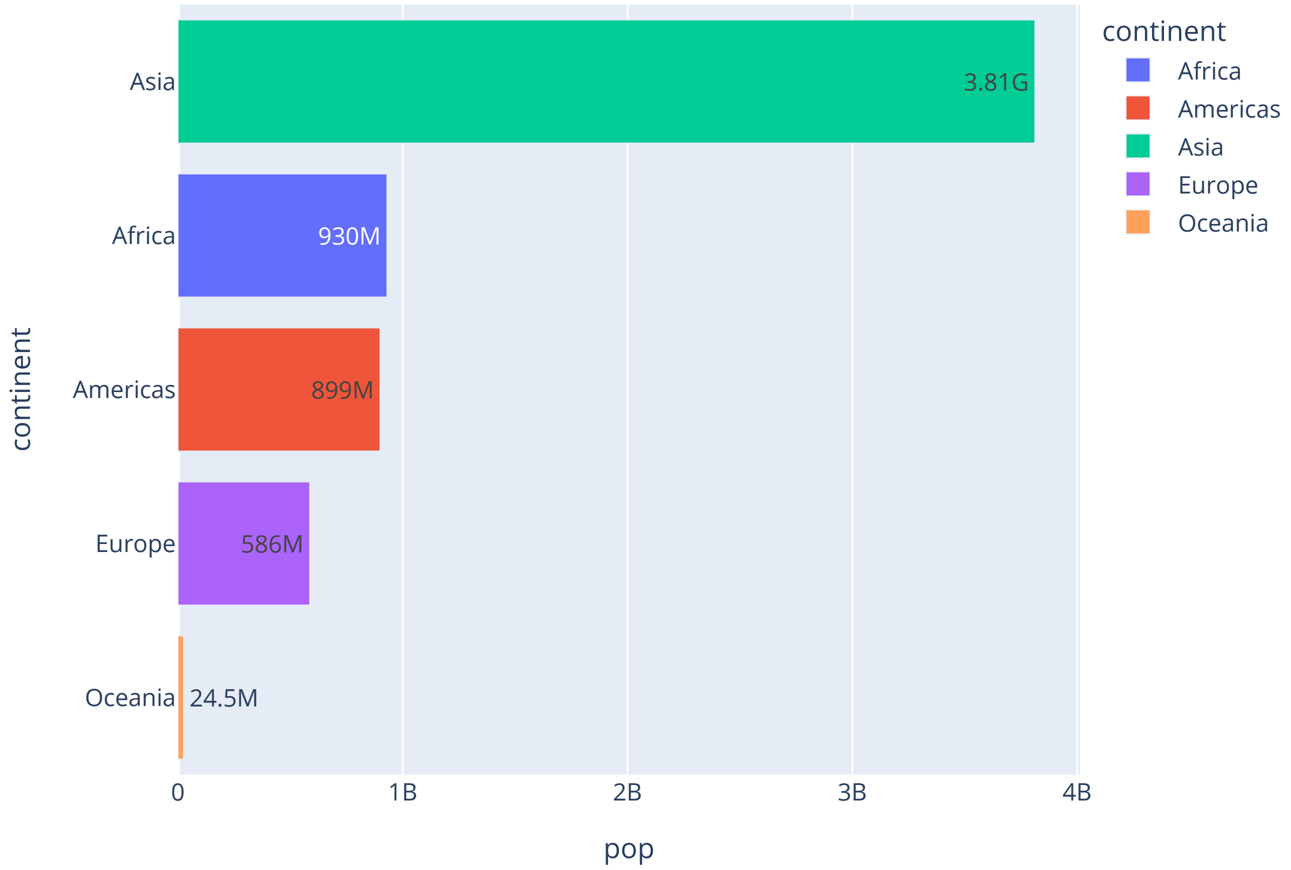


Question 3:

Add text to each bar that represents the population

In [5]:

```
df_2007 = df.query('year==2007')
df_2007_new = df_2007.groupby('continent').sum()
fig = px.bar(df_2007_new, x="pop", orientation='h', color = df_2007_new.index, text_auto
fig.update_yaxes(categoryorder= 'total ascending')
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]:

```
df_years = df.groupby(["year", "continent"]).sum().reset_index()
```

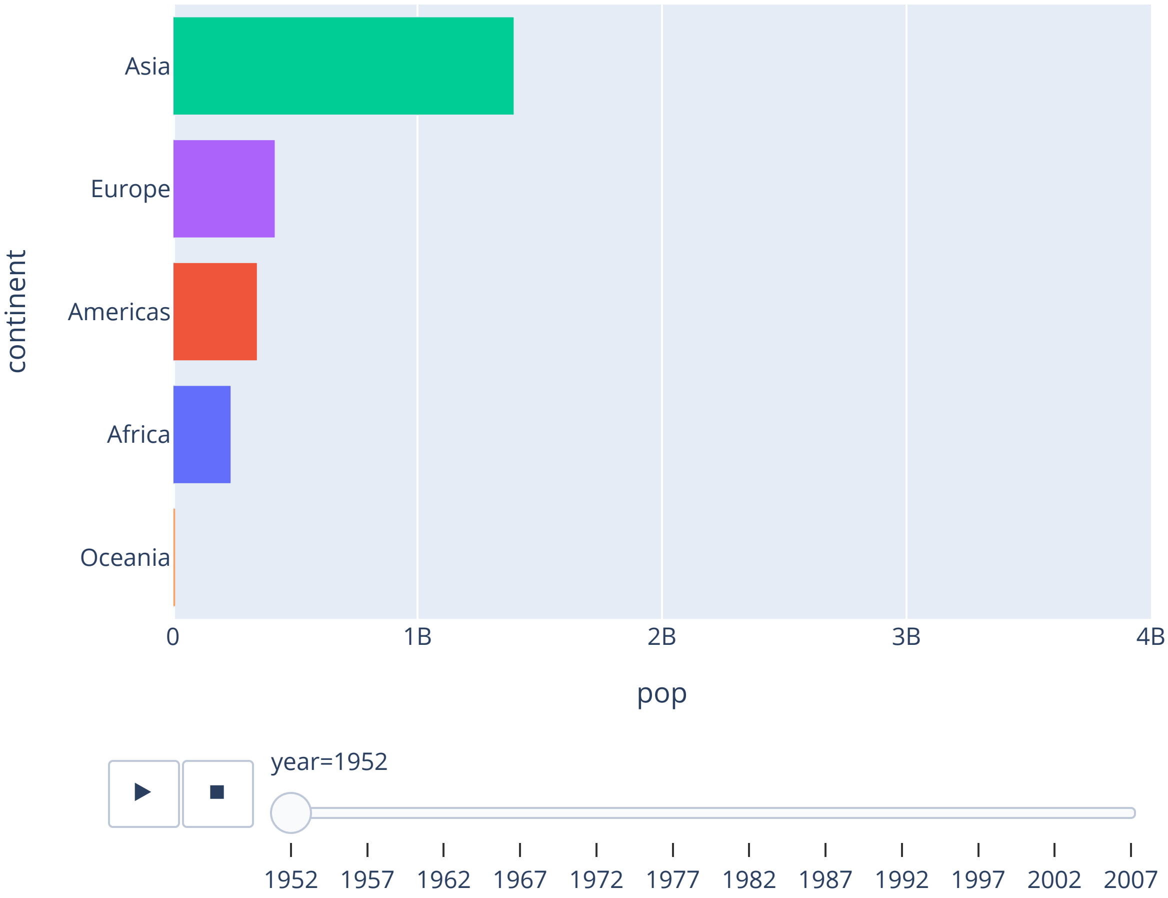
```
df_years.head()
```

Out[6]:

	year	continent	lifeExp	pop	gdpPercap	iso_num
0	1952	Africa	2035.046	237640501	65133.768223	23859
1	1952	Americas	1331.996	345152446	101976.563805	9843
2	1952	Asia	1528.375	1395357351	171450.972133	13354
3	1952	Europe	1932.255	418120846	169831.723043	12829
4	1952	Oceania	138.510	10686006	20596.171300	590

In [7]:

```
fig = px.bar(df_years, x="pop", y="continent", orientation='h', color="continent",
             animation_frame="year", animation_group="continent")
fig.update_layout(showlegend=False, xaxis_range=[0,4000000000])
fig.update_layout(yaxis={'categoryorder':'total ascending'})
```



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

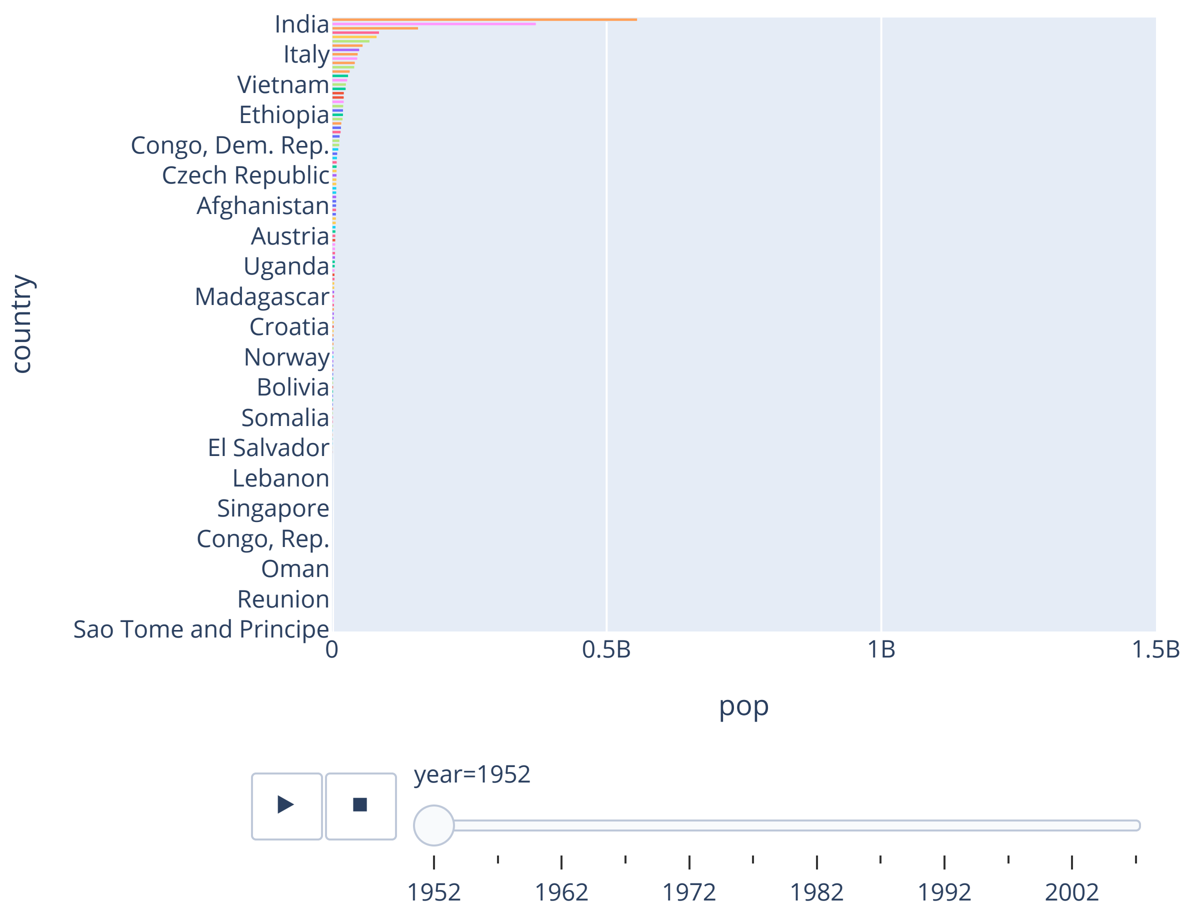
In [8]:

```
df_years_countries = df.groupby(["year", "country"]).sum().reset_index()
```

In [9]:

```
fig = px.bar(df_years_countries, x="pop", y="country", orientation='h', color="country",
             animation_frame="year", animation_group="country")
```

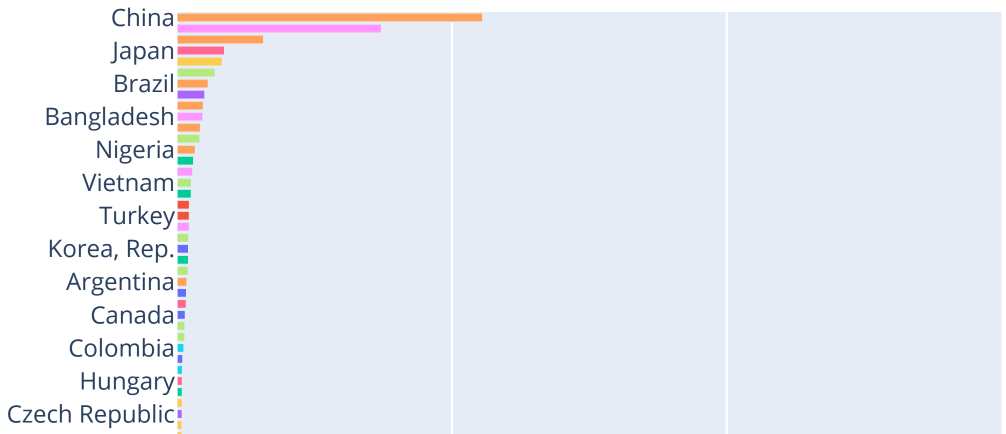
```
fig.update_layout(showlegend=False, xaxis_range=[0,1500000000])
fig.update_layout(yaxis={'categoryorder':'total ascending'})
```

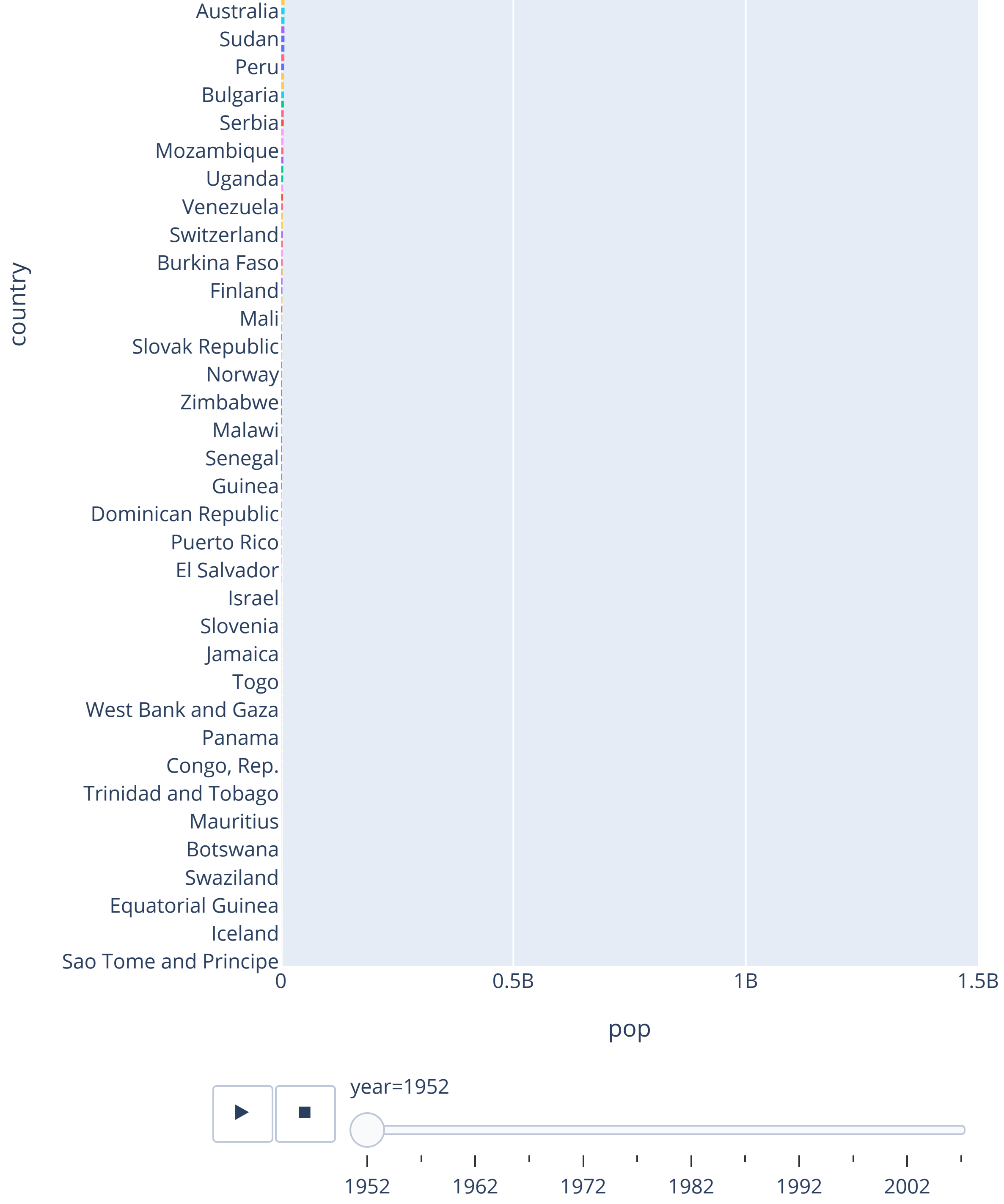


Question 6:

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

In [10]:
```
fig = px.bar(df_years_countries, x="pop", y="country", orientation='h', color="country",
             animation_frame="year", animation_group="country", height=1000)
fig.update_layout(showlegend=False, xaxis_range=[0,1500000000])
fig.update_layout(yaxis={'categoryorder':'total ascending'})
```





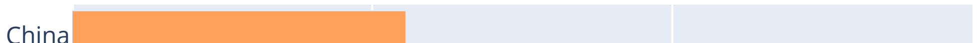
Question 7:

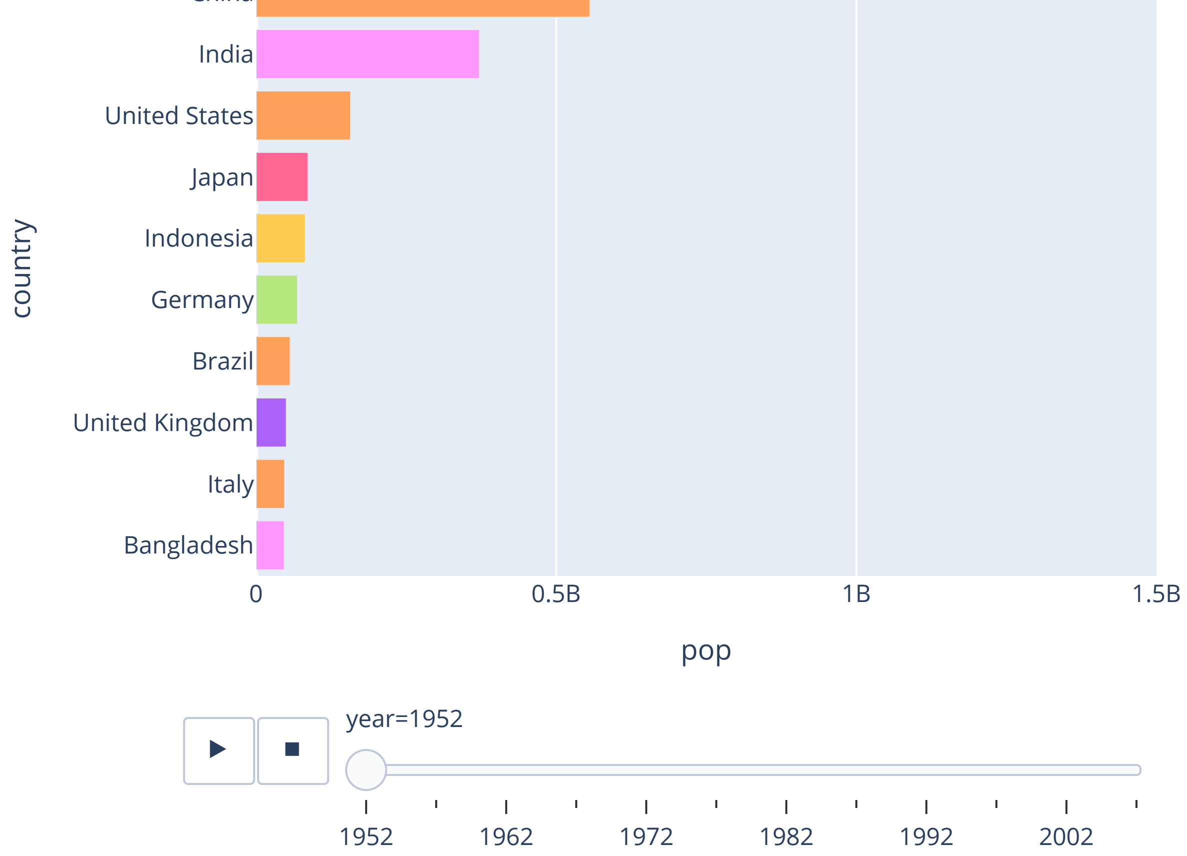
Show only the top 10 countries in the animation

Hint: Use the axis limit to set this.

In [11]:

```
fig = px.bar(df_years_countries, x="pop", y="country", orientation='h', color="country",
             animation_frame="year", animation_group="country")
fig.update_layout(showlegend=False, xaxis_range=[0,1500000000])
fig.update_yaxes(range=(131.5, 141.5))
fig.update_layout(yaxis={'categoryorder':'total ascending'})
```




India
United States
Japan
Indonesia
Germany
Brazil
United Kingdom
Italy
Bangladesh
country
0
0.5B
1B
1.5B
pop
year=1952
1952
1962
1972
1982
1992
2002

In [ ]: