In this notebook, I created a race chart to show Browsers usage from 2020 to 2022.

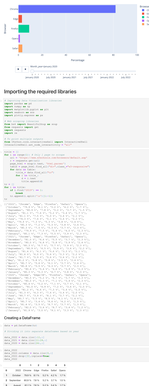
Summary of this notebook:

- Importing the required libraries (https://www.kaggle.com/code/mexwell/bar-chart-race)
- Joint Transformation table of the required format is used (the paper)
- Joint Uses pivot by for interactive data visualization

Output

```
[nbs] 2022-12-01T00:00:00+00:00 [info] Writing /home/app_root/output/_JoyTransform_2020_2022.mp4
[nbs] 2022-12-01T00:00:00+00:00 [info] Chrome/Mozilla version found: 107.0.5304.110
[nbs] 2022-12-01T00:00:00+00:00 [info] Total frames: 1000
[nbs] 2022-12-01T00:00:00+00:00 [info] Duration: 100.00s at 10.0 fps
[nbs] 2022-12-01T00:00:00+00:00 [info] Preparing frame rendering with 1 processes...
[nbs] 2022-12-01T00:00:00+00:00 [info] Frame rendering complete, saved frame data in /home/app_root/output/tmpqzqzqzqz
[nbs] 2022-12-01T00:00:00+00:00 [info] Finished +faststart adjustment in 0.00 s
[nbs] 2022-12-01T00:00:00+00:00 [info] Finished video creation in 0.00 s
[nbs] 2022-12-01T00:00:00+00:00 [info] Supporting data saved to /home/app_root/output/_JoyTransform_2020_2022.perf
[nbs] 2022-12-01T00:00:00+00:00 [info] Chart saved to /home/app_root/output/_JoyTransform_2020_2022.png
```

Browsers usage % from 2020 to 2022



Importing the required libraries

```
%matplotlib inline
import numpy as np
import matplotlib as mpl
import matplotlib.pyplot as plt
import matplotlib.ticker as ticker
import matplotlib.animation as ani
import pandas as pd
import os
from IPython.display import HTML
from matplotlib.colors import ColorConverter, LinearSegmentedColormap
from collections import OrderedDict, defaultdict

# Preparing models
df = pd.read_csv('../input/joint-trans-transformed-2020-2022/data.csv')
print('Data dimension: {} rows and {} columns'.format(*df.shape))
print('Data sample rows.\n', df.sample(3, random_state=0))
df.fillna(0, inplace=True)
df.rename(columns={'Month': 'Month_year'}, inplace=True)
df['Month_year'] = df['Month_year'].str.strip()
df['Month_year'] = df['Month_year'].str.replace('January', 'Jan')
df['Month_year'] = df['Month_year'].str.replace('February', 'Feb')
df['Month_year'] = df['Month_year'].str.replace('March', 'Mar')
df['Month_year'] = df['Month_year'].str.replace('April', 'Apr')
df['Month_year'] = df['Month_year'].str.replace('June', 'Jun')
df['Month_year'] = df['Month_year'].str.replace('July', 'Jul')
df['Month_year'] = df['Month_year'].str.replace('August', 'Aug')
df['Month_year'] = df['Month_year'].str.replace('September', 'Sept')
df['Month_year'] = df['Month_year'].str.replace('October', 'Oct')
df['Month_year'] = df['Month_year'].str.replace('November', 'Nov')
df['Month_year'] = df['Month_year'].str.replace('December', 'Dec')
df['Month_year'] = df['Month_year'].str.replace('Month', 'Month_year')
df['Month_year'] = df['Month_year'].str.replace('Month_year
```