Create a Racing Bar Plot to display the animation of EV Make and its count each year.

Installing Required Libraries ¶

```
In [1]:   1  pip install plotly
```

```
Requirement already satisfied: plotly in c:\users\ajayv\anaconda3\lib\site-packages (5.9.0)
Requirement already satisfied: tenacity>=6.2.0 in c:\users\ajayv\anaconda3\lib\site-packages (from plotly) (8.2.2)
Note: you may need to restart the kernel to use updated packages.
```

```
In [2]:   1  import pandas as pd
          2  import plotly.express as px
```

Load the dataset

```
In [3]:   1  data = pd.read_csv('EV_Data.csv')
```

Show the initial rows of the dataset to get a quick overview.

```
In [4]:   1  print(data.head())
```

```
     VIN (1-10)     County        City State  Postal Code  Model Year      Make  \
0   JTMEB3FV6N      Monroe   Key West    FL        33040        2022    TOYOTA
1   1G1RD6E45D       Clark   Laughlin    NV        89029        2013  CHEVROLET
2   JN1AZ0CP8B      Yakima     Yakima    WA        98901        2011     NISSAN
3   1G1FW6S08H      Skagit   Concrete    WA        98237        2017  CHEVROLET
4   3FA6P0SU1K   Snohomish    Everett    WA        98201        2019       FORD

        Model                         Electric Vehicle Type  \
0  RAV4 PRIME   Plug-in Hybrid Electric Vehicle (PHEV)
1        VOLT   Plug-in Hybrid Electric Vehicle (PHEV)
2        LEAF            Battery Electric Vehicle (BEV)
3     BOLT EV            Battery Electric Vehicle (BEV)
4      FUSION   Plug-in Hybrid Electric Vehicle (PHEV)

  Clean Alternative Fuel Vehicle (CAFV) Eligibility   Electric Range  \
0           Clean Alternative Fuel Vehicle Eligible              42
1           Clean Alternative Fuel Vehicle Eligible              38
2           Clean Alternative Fuel Vehicle Eligible              73
3           Clean Alternative Fuel Vehicle Eligible             238
4                 Not eligible due to low battery range          26

   Base MSRP  Legislative District  DOL Vehicle ID  \
0          0                   NaN       198968248
1          0                   NaN         5204412
2          0                  15.0       218972519
3          0                  39.0       186750406
4          0                  38.0         2006714

              Vehicle Location        Electric Utility  2020 Census Tract
0    POINT (-81.80023 24.5545)                     NaN         12087972100
1  POINT (-114.57245 35.16815)                     NaN         32003005702
2  POINT (-120.50721 46.60448)                PACIFICORP         53077001602
3   POINT (-121.7515 48.53892)   PUGET SOUND ENERGY INC        53057951101
4  POINT (-122.20596 47.97659)   PUGET SOUND ENERGY INC        53061041500
```

Racing Bar Plot to display the animation of EV Make and its count each year

```
In [5]:    1  # Convert the 'Model Year' column to a string format
           2  data['Model Year'] = pd.to_datetime(data['Model Year'], format='%Y').dt.year.astype(str)
           3
           4  # Group the data by 'Model Year' and 'Make' to calculate the count of each EV Make for each year
           5  ev_make_count = data.groupby(['Model Year', 'Make']).size().reset_index(name='Count')
           6
           7  # Create a Racing Bar Plot to visualize the count of EV Makes over the years
           8  fig = px.bar(
           9      ev_make_count,
          10      x='Make',
          11      y='Count',
          12      animation_frame='Model Year',
          13      animation_group='Make',
          14      range_y=[0, ev_make_count['Count'].max() + 10],  # Adjust the y-axis range for better visualization
          15      title='EV Make Count Over the Years',
          16  )
          17
          18  # Set the layout and labels for better visualization
          19  fig.update_layout(
          20      xaxis_title='EV Make',
          21      yaxis_title='Count',
          22      showlegend=False,
          23      title_font_size=24,
          24  )
```

```
25
26  # Display the Racing Bar Plot
27  fig.show()
28
```

EV Make Count Over the Years
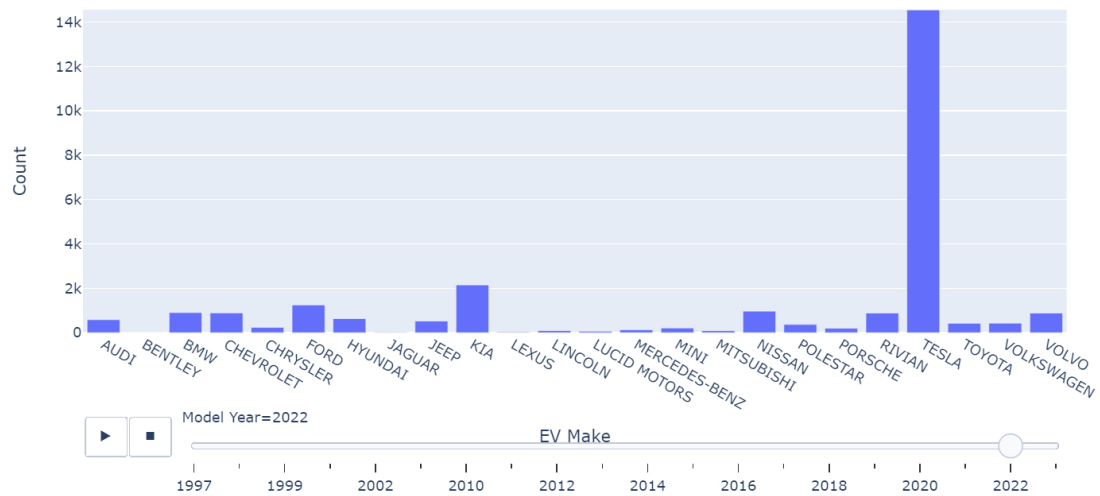
Among the many thrilling aspects of this project, one that truly stood out was the creation of an enthralling Racing Bar Plot! This mesmerizing animation offered a captivating glimpse into the changing landscape of EV Makes and their corresponding counts over the years. As the graph came to life, it vividly portrayed the dynamic growth and evolution of the electric vehicle industry, presenting a visual journey through time that left us in awe of the rapid progress in this innovative domain.

In [ ]:   1