--- Introduction ---

Welcome! In this notebook, you will practice creating interactive visualizations using Plotly Express.

Follow the instructions, run the code cells, and explore the outputs!

-- Edit and Write your Name and USN below this line --

- USN - 01
- FULL NAME - SAGAR YAJAMAN K N
- SECTION - F
- SEMESTER - I

In [1]:
```
!pip install plotly
%pip install seaborn
#In case for installation of ploty and seaborn package uncomment above syntax and exec
```

```
Requirement already satisfied: plotly in d:\users\shivani k n\lib\site-packages (5.9.
0)
Requirement already satisfied: tenacity>=6.2.0 in d:\users\shivani k n\lib\site-packa
ges (from plotly) (8.0.1)
Requirement already satisfied: seaborn in d:\users\shivani k n\lib\site-packages (0.1
2.2)
Requirement already satisfied: matplotlib!=3.6.1,>=3.1 in d:\users\shivani k n\lib\si
te-packages (from seaborn) (3.7.0)
Requirement already satisfied: pandas>=0.25 in d:\users\shivani k n\lib\site-packages
(from seaborn) (1.5.3)
Requirement already satisfied: numpy!=1.24.0,>=1.17 in d:\users\shivani k n\lib\site-
packages (from seaborn) (1.23.5)
Requirement already satisfied: packaging>=20.0 in d:\users\shivani k n\lib\site-packa
ges (from matplotlib!=3.6.1,>=3.1->seaborn) (22.0)
Requirement already satisfied: python-dateutil>=2.7 in d:\users\shivani k n\lib\site-
packages (from matplotlib!=3.6.1,>=3.1->seaborn) (2.8.2)
Requirement already satisfied: pillow>=6.2.0 in d:\users\shivani k n\lib\site-package
s (from matplotlib!=3.6.1,>=3.1->seaborn) (9.4.0)
Requirement already satisfied: fonttools>=4.22.0 in d:\users\shivani k n\lib\site-pac
kages (from matplotlib!=3.6.1,>=3.1->seaborn) (4.25.0)
Requirement already satisfied: contourpy>=1.0.1 in d:\users\shivani k n\lib\site-pack
ages (from matplotlib!=3.6.1,>=3.1->seaborn) (1.0.5)
Requirement already satisfied: cycler>=0.10 in d:\users\shivani k n\lib\site-packages
(from matplotlib!=3.6.1,>=3.1->seaborn) (0.11.0)
Requirement already satisfied: pyparsing>=2.3.1 in d:\users\shivani k n\lib\site-pack
ages (from matplotlib!=3.6.1,>=3.1->seaborn) (3.0.9)
Requirement already satisfied: kiwisolver>=1.0.1 in d:\users\shivani k n\lib\site-pac
kages (from matplotlib!=3.6.1,>=3.1->seaborn) (1.4.4)
Requirement already satisfied: pytz>=2020.1 in d:\users\shivani k n\lib\site-packages
(from pandas>=0.25->seaborn) (2022.7)
Requirement already satisfied: six>=1.5 in d:\users\shivani k n\lib\site-packages (fr
om python-dateutil>=2.7->matplotlib!=3.6.1,>=3.1->seaborn) (1.16.0)
Note: you may need to restart the kernel to use updated packages.
```

In [2]:
```
# verify the plotly version
!pip show plotly
```

```
Name: plotly
Version: 5.9.0
Summary: An open-source, interactive data visualization library for Python
Home-page: https://plotly.com/python/
Author: Chris P
Author-email: chris@plot.ly
License: MIT
Location: d:\users\shivani k n\lib\site-packages
Requires: tenacity
Required-by:
```

In [3]:
```
# verify the seaborn version
!pip show seaborn
```

```
Name: seaborn
Version: 0.12.2
Summary: Statistical data visualization
Home-page:
Author:
Author-email: Michael Waskom <mwaskom@gmail.com>
License:
Location: d:\users\shivani k n\lib\site-packages
Requires: matplotlib, numpy, pandas
Required-by:
```

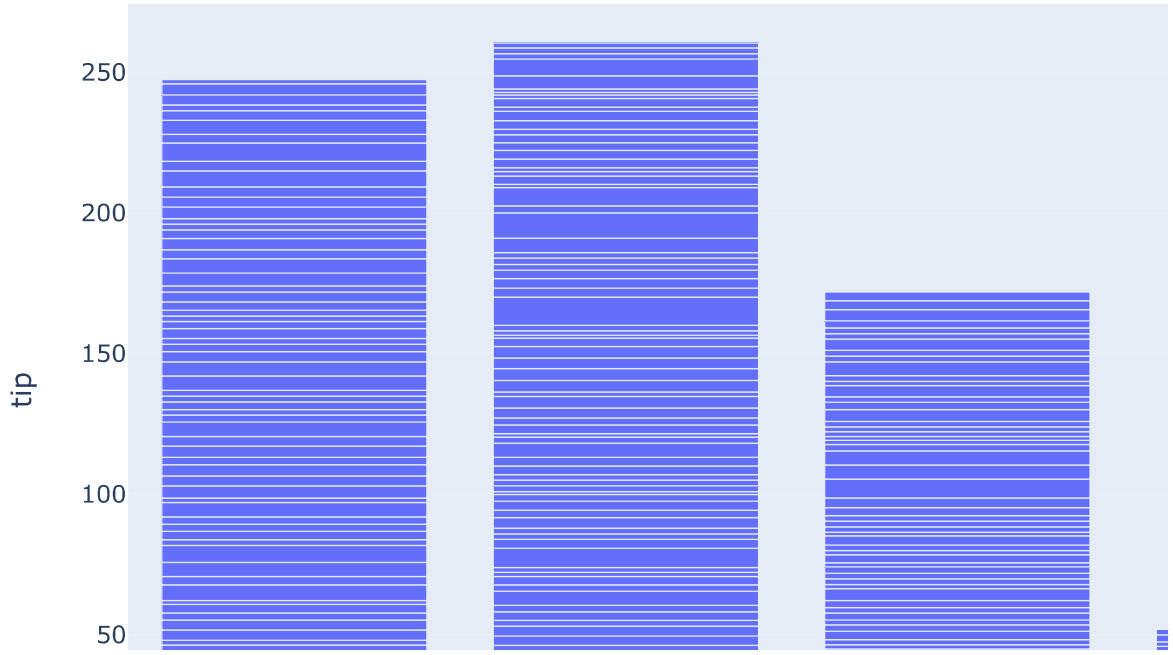
In [4]:
```
# Plotly Workshop - Student Practice Notebook

# Import necessary libraries [ seaborn, plotly and pandas ]
# Write the code below this line
import pandas as pd
import seaborn as sns
import plotly.express as px
```

Load the very simple dataset from seaborn library

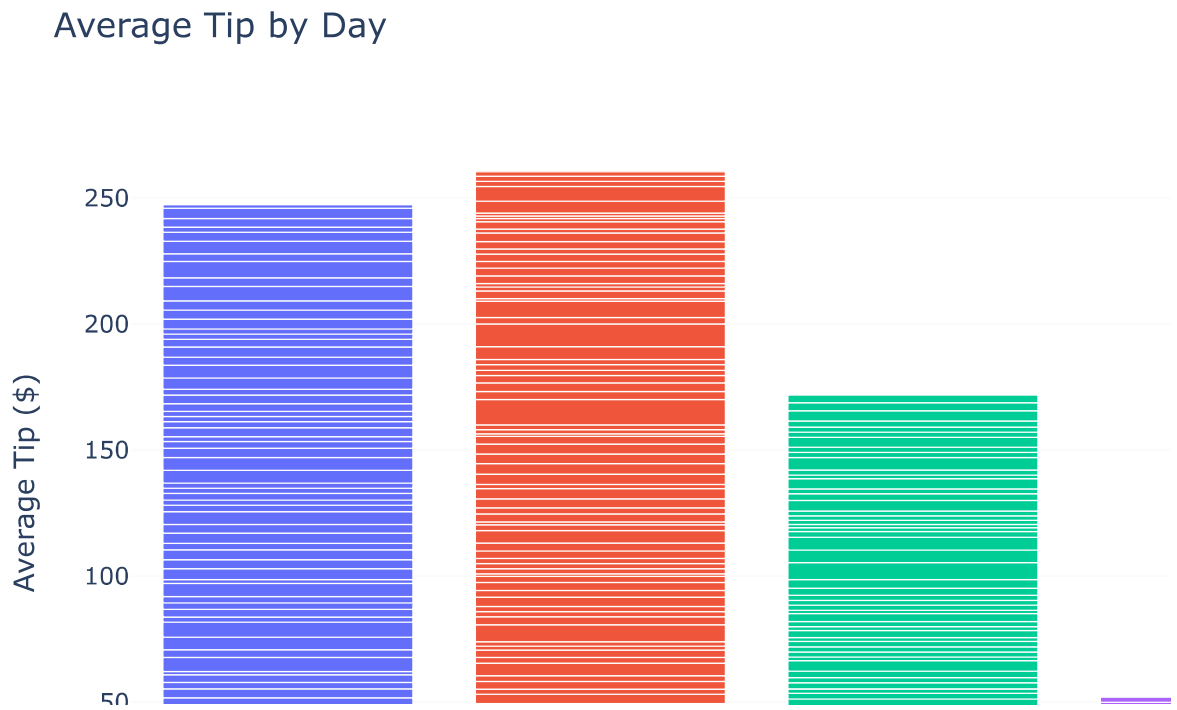
In [5]:
```
#1. Load the tips dataset from Seaborn
# Write the code below this line
dataset = sns.load_dataset("tips")
# Display the first few rows of the dataset
# Write the code below this line
print(dataset)
```

```
     total_bill   tip     sex smoker   day    time  size
0         16.99  1.01  Female     No   Sun  Dinner     2
1         10.34  1.66    Male     No   Sun  Dinner     3
2         21.01  3.50    Male     No   Sun  Dinner     3
3         23.68  3.31    Male     No   Sun  Dinner     2
4         24.59  3.61  Female     No   Sun  Dinner     4
..          ...   ...     ...    ...   ...     ...   ...
239       29.03  5.92    Male     No   Sat  Dinner     3
240       27.18  2.00  Female    Yes   Sat  Dinner     2
241       22.67  2.00    Male    Yes   Sat  Dinner     2
242       17.82  1.75    Male     No   Sat  Dinner     2
243       18.78  3.00  Female     No  Thur  Dinner     2

[244 rows x 7 columns]
```

In [6]:
```
#2. Visualizations using  [ simple plot ]
# Write the code below this line

plot01 = px.bar(dataset, x = 'day', y = 'tip')
plot01.show()
```

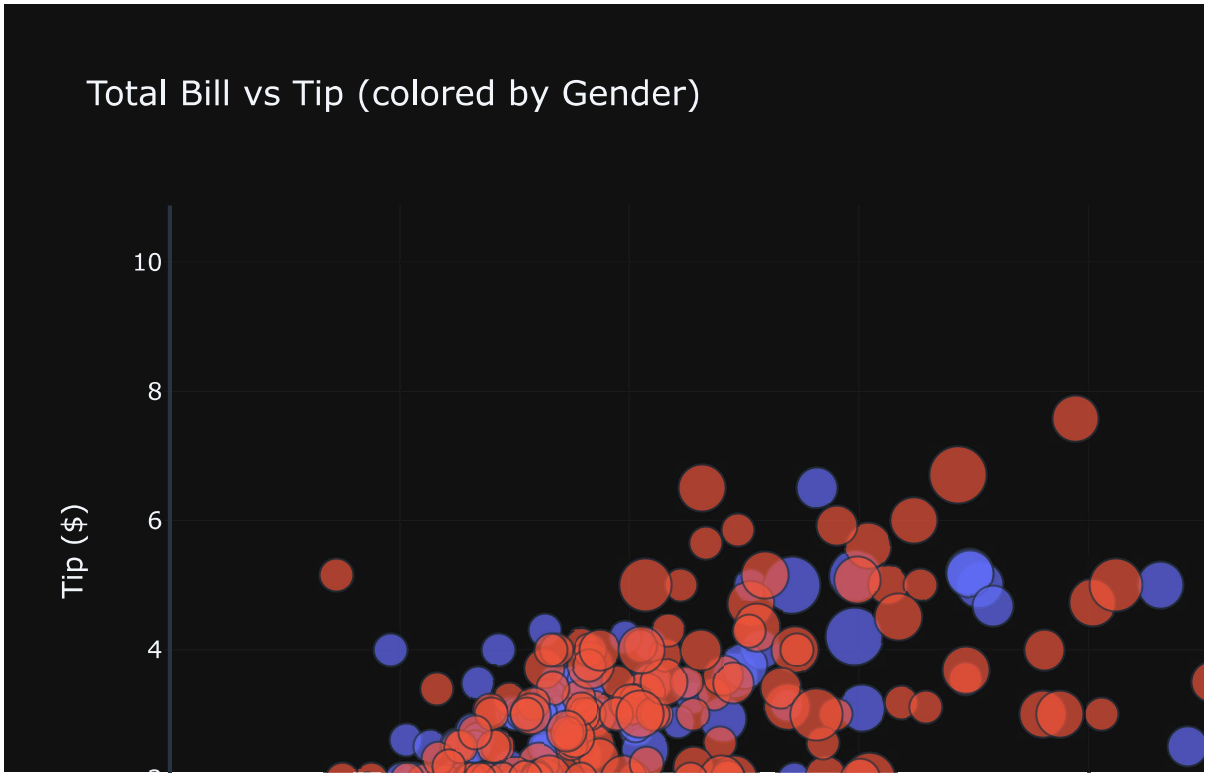


In [7]:
```
#3. Bar Chart: Average Tip by Day (With Color)
# Write the code below this line
fig2 = px.bar(
   dataset, x = 'day', y = 'tip', color = 'day',
   title = 'Average Tip by Day',
   labels = {'tip':'Average Tip ($)', 'day': 'Day of Week'},
   template = 'plotly_white', # Clean white background
 )
fig2.show()
```



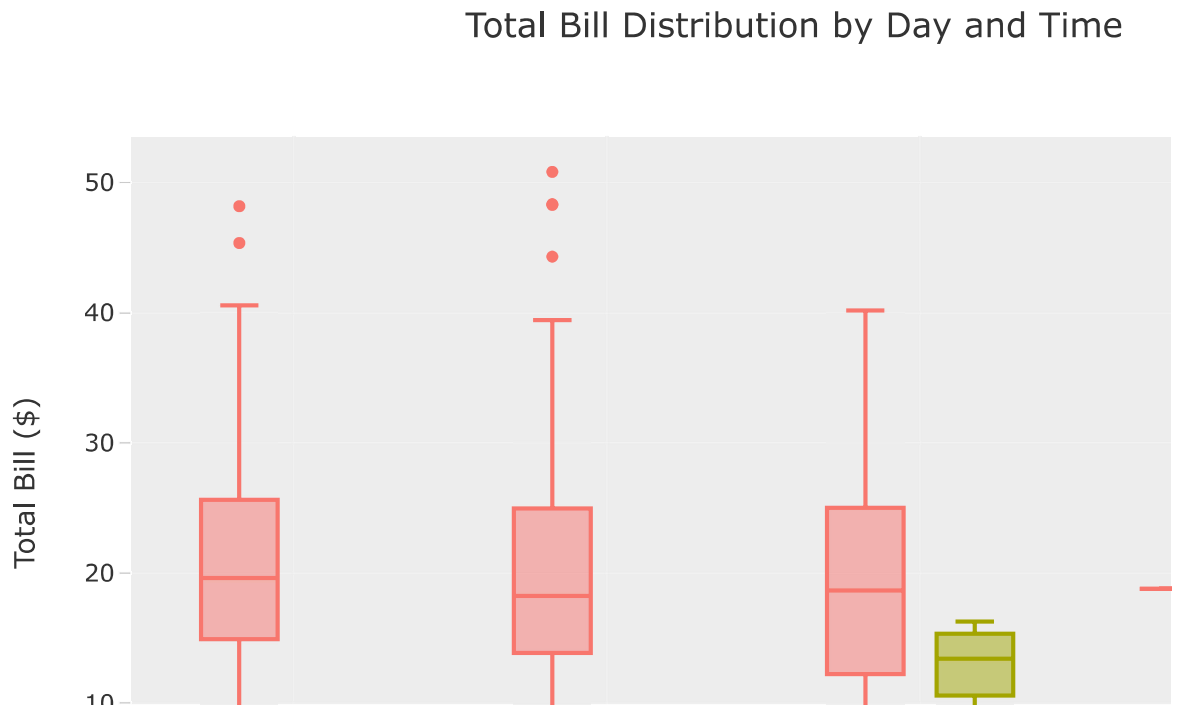
[Double click and edit the line] -- Write the inference of the above plot below this line. --

In [8]:
```
#4. Scatter Plot: Total Bill vs. Tip (Color-coded by Gender)
fig4 = px.scatter(
dataset, x='total_bill', y='tip', color='sex',
title='Total Bill vs Tip (colored by Gender)',
labels={'total_bill': 'Total Bill ($)', 'tip': 'Tip ($)'},
template='plotly_dark', # Using a cool dark theme
size='size' #The size of points based on the size of the group
)
fig4.show()
```



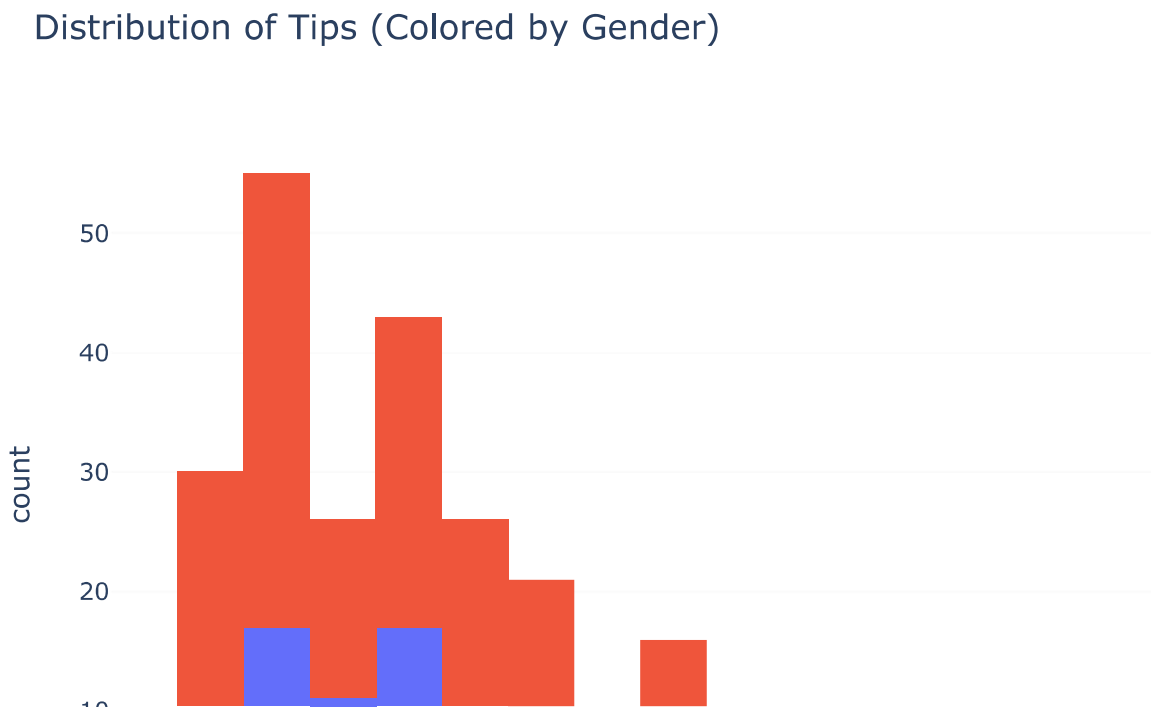
[Double click and edit the line] -- Write the inference of the above plot below this line. --

In [9]:
```
#5. Box Plot: Distribution of Total Bill by Day (With Color by Time)
fig5 = px.box(
dataset, x='day', y='total_bill', color='time',
title='Total Bill Distribution by Day and Time',
labels={'total_bill': 'Total Bill ($)', 'day': 'Day'},
template='ggplot2', # Classic theme for a beautiful look
)
fig5.show()
```



[Double click and edit the line] -- Write the inference of the above plot below this line. --

In [10]:
```
#6. Histogram: Tip Distribution (With Color)
fig6 = px.histogram(
dataset, x='tip', color='sex',
title='Distribution of Tips (Colored by Gender)',
labels={'tip': 'Tip ($)','sex': 'Gender'},
template='plotly_white', #Clean and bright look
)
fig6.show()
```



[Double click and edit the line] -- Write the inference of the above plot below this line. --

In [ ]:

-- End of the Task --