Pie Chart Notebook

October 11, 2023

1 USEFUL WEBSITES

1.1 Scatter Plots

https://plotly.com/python-api-reference/generated/plotly.express.scatter.html

https://plotly.com/python/line-and-scatter/

1.2 Bar Plots

https://plotly.com/python-api-reference/generated/plotly.express.bar

https://plotly.com/python/bar-charts/

1.3 Pie Plots

https://plotly.com/python-api-reference/generated/plotly.express.pie#:~:text=In%20a%20pie%20plot%2C%20ea

https://plotly.com/python/pie-charts/

1.4 Also - you may need to pip install plotly, pip install pandas

[6]:
```
import plotly.express as px
```

1.5 Basic Example of a Pie Chart

- Below is an example of a basic pie-chart. The data being used for this is a dataframe. I have printed a cutout of the data involved.
- The "values" field is the field of data that will be used to split up the Pie Chart, where in this example "values" is set to the tips field.
- "names" is the parameter that gives the slices of the piechart. In this example names="day". So, the Pie Chart will be sliced up depending on Day, and each Day slice represents how much of the total tips were given on that day.

[8]:
```
df = px.data.tips()
print(df)
fig = px.pie(df, values='tip', names='day')
fig.show()
```

```
     total_bill   tip     sex smoker   day    time  size
0         16.99  1.01  Female     No   Sun  Dinner     2
```

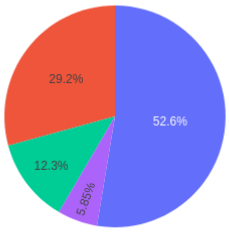
```
1          10.34  1.66    Male     No   Sun  Dinner     3
2          21.01  3.50    Male     No   Sun  Dinner     3
3          23.68  3.31    Male     No   Sun  Dinner     2
4          24.59  3.61  Female     No   Sun  Dinner     4
..           …    …       …      …    …      …        …
239        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]
```

- Instead of using the df format, you could just specify it with lists instead:

[15]:
```
labels = ['Oxygen','Hydrogen','Carbon_Dioxide','Nitrogen']
values = [4500, 2500, 1053, 500]

fig = px.pie(values=values,labels=labels)
fig.show()
```



1.6 Changing the Color of the Chart

- You can either choose from a preset sequence of colors, or specify your own colours for each slice depending on the Slice Name (from the df)

[9]:
```
df = px.data.tips()
fig = px.pie(df, values='tip', names='day', color_discrete_sequence=px.colors.
↪sequential.RdBu)
fig.show()
```

1.7 Text-Orentiation in Pie Chart

- You can change the way text inside the slices are orientated.
- To do this you must use fig.update_traces()

[17]:
```
df = px.data.tips()
fig = px.pie(df, values='tip', names='day')
fig.update_traces(insidetextorientation='radial')
fig.show()
```

1.8 Graph Objects

- Some functionality of Pie Charts arent available plotly.express. plotly.graph_objects is needed

[19]:
```
import plotly.graph_objects as go
```

1.9 Pulled Out Slices

- We can pull out sectors from the main Pie as below:

[20]:
```
labels = ['Oxygen','Hydrogen','Carbon_Dioxide','Nitrogen']
values = [4500, 2500, 1053, 500]

# pull is given as a fraction of the pie radius
fig = go.Figure(data=[go.Pie(labels=labels, values=values, pull=[0, 0, 0.2,␣
 ↪0])])
fig.show()
```

1.10 Styled Pie Charts

- You can change the look of a pie chart as below:

[21]:
```
colors = ['gold', 'mediumturquoise', 'darkorange', 'lightgreen']

fig = go.Figure(data=[go.
 ↪Pie(labels=['Oxygen','Hydrogen','Carbon_Dioxide','Nitrogen'],
                              values=[4500,2500,1053,500])])
fig.update_traces(hoverinfo='label+percent', textinfo='value', textfont_size=20,
                  marker=dict(colors=colors, line=dict(color='#000000',␣
 ↪width=2)))
fig.show()
```

See more fuctionality of Pie Charts at: https://plotly.com/python/pie-charts/

https://plotly.com/python-api-reference/generated/plotly.express.pie#:~:text=In%20a%20pie%20plot%2C%20ea