Since there are many plotly charts notebook may take some time to load have patience

Plots you are going to be familiar with after this plolty tutorial

1. Scatter Plot
2. Line Plot
3. Bar Plot
4. Pie Chart
5. Donut Chart
6. Area Chart
7. Color Scales
8. Sun Burust Charts
9. Tables & Figure Factory Tables
10. Bubble Chart
11. Sankey Diagram

Notebook URL for seaborn and matplotlib Tutorial

1. Seaborn Tutorial: https://www.kaggle.com/gaganmaahi224/seaborn-tutorial-17-plots (https://www.kaggle.com/gaganmaahi224/seaborn-tutorial-17-plots)
2. Matplotlib Tutorial: https://www.kaggle.com/gaganmaahi224/matplotlib-tutorial (https://www.kaggle.com/gaganmaahi224/matplotlib-tutorial)

In [1]:
```
!pip install dash
```

```
Requirement already satisfied: dash in e:\new folder\lib\site-packages (2.0.0)
Requirement already satisfied: dash-table==5.0.0 in e:\new folder\lib\site-pack
ages (from dash) (5.0.0)
Requirement already satisfied: flask-compress in e:\new folder\lib\site-package
s (from dash) (1.10.1)
Requirement already satisfied: Flask>=1.0.4 in e:\new folder\lib\site-packages
(from dash) (1.1.2)
Requirement already satisfied: dash-html-components==2.0.0 in e:\new folder\lib
\site-packages (from dash) (2.0.0)
Requirement already satisfied: dash-core-components==2.0.0 in e:\new folder\lib
\site-packages (from dash) (2.0.0)
Requirement already satisfied: plotly>=5.0.0 in e:\new folder\lib\site-packages
(from dash) (5.3.1)
Requirement already satisfied: click>=5.1 in e:\new folder\lib\site-packages (f
rom Flask>=1.0.4->dash) (7.1.2)
Requirement already satisfied: Jinja2>=2.10.1 in e:\new folder\lib\site-package
s (from Flask>=1.0.4->dash) (2.11.3)
Requirement already satisfied: itsdangerous>=0.24 in e:\new folder\lib\site-pac
kages (from Flask>=1.0.4->dash) (1.1.0)
Requirement already satisfied: Werkzeug>=0.15 in e:\new folder\lib\site-package
s (from Flask>=1.0.4->dash) (1.0.1)
Requirement already satisfied: MarkupSafe>=0.23 in e:\new folder\lib\site-packa
ges (from Jinja2>=2.10.1->Flask>=1.0.4->dash) (1.1.1)
Requirement already satisfied: tenacity>=6.2.0 in e:\new folder\lib\site-packag
es (from plotly>=5.0.0->dash) (8.0.1)
Requirement already satisfied: six in e:\new folder\lib\site-packages (from plo
tly>=5.0.0->dash) (1.15.0)
Requirement already satisfied: brotli in e:\new folder\lib\site-packages (from
flask-compress->dash) (1.0.9)
```

In [2]:
```
import numpy as np
import pandas as pd
import plotly.graph_objects as go
import plotly.offline as po
from plotly.offline import download_plotlyjs, init_notebook_mode, plot, iplot
import matplotlib.pyplot as plt
import dash
import plotly.express as px
import random
import plotly.figure_factory as ff
from plotly.offline import iplot
```

Loading Datasets

In [3]:
```
pokemon = pd.read_csv("pokemon_updated.csv")
pokemon.head(10)
```

Out[3]:

	#	Name	Type 1	Type 2	HP	Attack	Defense	Sp. Atk	Sp. Def	Speed	Generation	Legendary
0	1	Bulbasaur	Grass	Poison	45	49	49	65	65	45	1	Fals
1	2	Ivysaur	Grass	Poison	60	62	63	80	80	60	1	Fals
2	3	Venusaur	Grass	Poison	80	82	83	100	100	80	1	Fals
3	3	VenusaurMega Venusaur	Grass	Poison	80	100	123	122	120	80	1	Fals
4	4	Charmander	Fire	NaN	39	52	43	60	50	65	1	Fals
5	5	Charmeleon	Fire	NaN	58	64	58	80	65	80	1	Fals
6	6	Charizard	Fire	Flying	78	84	78	109	85	100	1	Fals
7	6	CharizardMega Charizard X	Fire	Dragon	78	130	111	130	85	100	1	Fals
8	6	CharizardMega Charizard Y	Fire	Flying	78	104	78	159	115	100	1	Fals
9	7	Squirtle	Water	NaN	44	48	65	50	64	43	1	Fals

In [4]:
```
stdperf = pd.read_csv("studentp.csv")
stdperf.head(10)
```

Out[4]:

	gender	race/ethnicity	parental level of education	lunch	test preparation course	math score	reading score	writing score
0	female	group B	bachelor's degree	standard	none	72	72	74
1	female	group C	some college	standard	completed	69	90	88
2	female	group B	master's degree	standard	none	90	95	93
3	male	group A	associate's degree	free/reduced	none	47	57	44
4	male	group C	some college	standard	none	76	78	75
5	female	group B	associate's degree	standard	none	71	83	78
6	female	group B	some college	standard	completed	88	95	92
7	male	group B	some college	free/reduced	none	40	43	39
8	male	group D	high school	free/reduced	completed	64	64	67
9	female	group B	high school	free/reduced	none	38	60	50

In [5]:
```
corona = pd.read_csv('key-countries-pivoted.csv' ,
                     index_col='Date' , parse_dates=True)
corona.head(10)
```

Out[5]:

Date	China	US	United_Kingdom	Italy	France	Germany	Spain	Iran
2020-01-22	548	1	0	0	0	0	0	0
2020-01-23	643	1	0	0	0	0	0	0
2020-01-24	920	2	0	0	2	0	0	0
2020-01-25	1406	2	0	0	3	0	0	0
2020-01-26	2075	5	0	0	3	0	0	0
2020-01-27	2877	5	0	0	3	1	0	0
2020-01-28	5509	5	0	0	4	4	0	0
2020-01-29	6087	5	0	0	5	4	0	0
2020-01-30	8141	5	0	0	5	4	0	0
2020-01-31	9802	7	2	2	5	5	0	0

In [6]:
```
spotify = pd.read_csv("spotify.csv" ,
                      index_col="Date")
spotify.head(10)
```

Out[6]:

Date	Shape of You	Despacito	Something Just Like This	HUMBLE.	Unforgettable
2017-01-06	12287078	NaN	NaN	NaN	NaN
2017-01-07	13190270	NaN	NaN	NaN	NaN
2017-01-08	13099919	NaN	NaN	NaN	NaN
2017-01-09	14506351	NaN	NaN	NaN	NaN
2017-01-10	14275628	NaN	NaN	NaN	NaN
2017-01-11	14372699	NaN	NaN	NaN	NaN
2017-01-12	14148108	NaN	NaN	NaN	NaN
2017-01-13	14536236	275178.0	NaN	NaN	NaN
2017-01-14	14173311	1144886.0	NaN	NaN	NaN
2017-01-15	12889849	1288198.0	NaN	NaN	NaN

In [7]:
```
housing = pd.read_csv('housing.csv')
housing.tail()
```

Out[7]:

	longitude	latitude	housing_median_age	total_rooms	total_bedrooms	population	household
20635	-121.09	39.48	25.0	1665.0	374.0	845.0	330
20636	-121.21	39.49	18.0	697.0	150.0	356.0	114
20637	-121.22	39.43	17.0	2254.0	485.0	1007.0	433
20638	-121.32	39.43	18.0	1860.0	409.0	741.0	349
20639	-121.24	39.37	16.0	2785.0	616.0	1387.0	530

In [8]:
```
insurance = pd.read_csv('insurance.csv')
insurance.head(10)
```

Out[8]:

	age	sex	bmi	children	smoker	region	charges
0	19	female	27.900	0	yes	southwest	16884.92400
1	18	male	33.770	1	no	southeast	1725.55230
2	28	male	33.000	3	no	southeast	4449.46200
3	33	male	22.705	0	no	northwest	21984.47061
4	32	male	28.880	0	no	northwest	3866.85520
5	31	female	25.740	0	no	southeast	3756.62160
6	46	female	33.440	1	no	southeast	8240.58960
7	37	female	27.740	3	no	northwest	7281.50560
8	37	male	29.830	2	no	northeast	6406.41070
9	60	female	25.840	0	no	northwest	28923.13692

In [9]:
```
!pip install openpyxl
```

```
Requirement already satisfied: openpyxl in e:\new folder\lib\site-packages (3.
0.7)
Requirement already satisfied: et-xmlfile in e:\new folder\lib\site-packages (f
rom openpyxl) (1.0.1)
```

In [10]:
```
employment = pd.read_excel("unemployment.xlsx")
employment.head(10)
```

Out[10]:

	Age	Gender	Period	Unemployed
0	16 to 19 years	Men	2005-01-01	91000
1	20 to 24 years	Men	2005-01-01	175000
2	25 to 34 years	Men	2005-01-01	194000
3	35 to 44 years	Men	2005-01-01	201000
4	45 to 54 years	Men	2005-01-01	207000
5	55 to 64 years	Men	2005-01-01	101000
6	65 years and over	Men	2005-01-01	33000
7	16 to 19 years	Women	2005-01-01	38000
8	20 to 24 years	Women	2005-01-01	90000
9	25 to 34 years	Women	2005-01-01	142000

In [11]:
```
helpdesk = pd.read_csv("helpdesk.csv")
helpdesk.head(10)
```

Out[11]:

	ticket	requestor	RequestorSeniority	ITOwner	FiledAgainst	TicketType	Severity	Priority	c
0	1	1929	1 - Junior	50	Systems	Issue	2 - Normal	0 - Unassigned	
1	2	1587	2 - Regular	15	Software	Request	1 - Minor	1 - Low	
2	3	925	2 - Regular	15	Access/Login	Request	2 - Normal	0 - Unassigned	
3	4	413	4 - Management	22	Systems	Request	2 - Normal	0 - Unassigned	
4	5	318	1 - Junior	22	Access/Login	Request	2 - Normal	1 - Low	
5	6	858	4 - Management	38	Access/Login	Request	2 - Normal	3 - High	
6	7	1978	3 - Senior	10	Systems	Request	2 - Normal	3 - High	
7	8	1209	4 - Management	1	Software	Request	2 - Normal	0 - Unassigned	
8	9	887	2 - Regular	14	Software	Request	2 - Normal	2 - Medium	
9	10	1780	3 - Senior	46	Access/Login	Request	2 - Normal	1 - Low	

In [12]:
```
fish= pd.read_csv("Fish.csv")
fish.head(10)
```

Out[12]:

	Species	Weight	Length1	Length2	Length3	Height	Width
0	Bream	242.0	23.2	25.4	30.0	11.5200	4.0200
1	Bream	290.0	24.0	26.3	31.2	12.4800	4.3056
2	Bream	340.0	23.9	26.5	31.1	12.3778	4.6961
3	Bream	363.0	26.3	29.0	33.5	12.7300	4.4555
4	Bream	430.0	26.5	29.0	34.0	12.4440	5.1340
5	Bream	450.0	26.8	29.7	34.7	13.6024	4.9274
6	Bream	500.0	26.8	29.7	34.5	14.1795	5.2785
7	Bream	390.0	27.6	30.0	35.0	12.6700	4.6900
8	Bream	450.0	27.6	30.0	35.1	14.0049	4.8438
9	Bream	500.0	28.5	30.7	36.2	14.2266	4.9594

In [13]:
```
exercise = pd.read_csv("exercise.csv")
exercise.head(10)
```

Out[13]:

	id	diet	pulse	time	kind
0	1	low fat	85	1 min	rest
1	1	low fat	85	15 min	rest
2	1	low fat	88	30 min	rest
3	2	low fat	90	1 min	rest
4	2	low fat	92	15 min	rest
5	2	low fat	93	30 min	rest
6	3	low fat	97	1 min	rest
7	3	low fat	97	15 min	rest
8	3	low fat	94	30 min	rest
9	4	low fat	80	1 min	rest

In [14]:
```
suicide = pd.read_csv("suicide.csv")
suicide.head(10)
```

Out[14]:

	country	year	sex	age	suicides_no	population	suicides/100k pop	country-year	HDI for year	gdp_for
0	Albania	1987	male	15-24 years	21	312900	6.71	Albania1987	NaN	2,156,62
1	Albania	1987	male	35-54 years	16	308000	5.19	Albania1987	NaN	2,156,62
2	Albania	1987	female	15-24 years	14	289700	4.83	Albania1987	NaN	2,156,62
3	Albania	1987	male	75+ years	1	21800	4.59	Albania1987	NaN	2,156,62
4	Albania	1987	male	25-34 years	9	274300	3.28	Albania1987	NaN	2,156,62
5	Albania	1987	female	75+ years	1	35600	2.81	Albania1987	NaN	2,156,62
6	Albania	1987	female	35-54 years	6	278800	2.15	Albania1987	NaN	2,156,62
7	Albania	1987	female	25-34 years	4	257200	1.56	Albania1987	NaN	2,156,62
8	Albania	1987	male	55-74 years	1	137500	0.73	Albania1987	NaN	2,156,62
9	Albania	1987	female	5-14 years	0	311000	0.00	Albania1987	NaN	2,156,62

In [15]:
```
canada = pd.read_csv("canada.csv")
canada.head()
```

Out[15]:

	Type	Coverage	OdName	AREA	AreaName	REG	RegName	DEV	DevName	1980
0	Immigrants	Foreigners	Afghanistan	935	Asia	5501	Southern Asia	902	Developing regions	16
1	Immigrants	Foreigners	Albania	908	Europe	925	Southern Europe	901	Developed regions	1
2	Immigrants	Foreigners	Algeria	903	Africa	912	Northern Africa	902	Developing regions	80
3	Immigrants	Foreigners	American Samoa	909	Oceania	957	Polynesia	902	Developing regions	0
4	Immigrants	Foreigners	Andorra	908	Europe	925	Southern Europe	901	Developed regions	0

5 rows × 43 columns

In [16]:
```
canada.columns
```

Out[16]:
```
Index(['Type', 'Coverage', 'OdName', 'AREA', 'AreaName', 'REG', 'RegName',
       'DEV', 'DevName', '1980', '1981', '1982', '1983', '1984', '1985',
       '1986', '1987', '1988', '1989', '1990', '1991', '1992', '1993', '1994',
       '1995', '1996', '1997', '1998', '1999', '2000', '2001', '2002', '2003',
       '2004', '2005', '2006', '2007', '2008', '2009', '2010', '2011', '2012',
       '2013'],
      dtype='object')
```

In [17]:
```
canada.drop(columns=['AREA' , 'DEV', 'DevName' , 'REG', 'Type', 'Coverage' , 'Are
canada.head()
```

Out[17]:

	OdName	1980	1981	1982	1983	1984	1985	1986	1987	1988	...	2004	2005	2006	2007
0	Afghanistan	16	39	39	47	71	340	496	741	828	...	2978	3436	3009	2652
1	Albania	1	0	0	0	0	0	1	2	2	...	1450	1223	856	702
2	Algeria	80	67	71	69	63	44	69	132	242	...	3616	3626	4807	3623
3	American Samoa	0	1	0	0	0	0	0	1	0	...	0	0	1	0
4	Andorra	0	0	0	0	0	0	2	0	0	...	0	0	1	1

5 rows × 35 columns

In [18]:
```
canada.rename(columns={'OdName':'Country'} , inplace=True)
canada.set_index(canada.Country,inplace=True)
canada.head()
```

Out[18]:

	Country	1980	1981	1982	1983	1984	1985	1986	1987	1988	...	2004	2005	2
Country														
Afghanistan	Afghanistan	16	39	39	47	71	340	496	741	828	...	2978	3436	3
Albania	Albania	1	0	0	0	0	0	1	2	2	...	1450	1223	
Algeria	Algeria	80	67	71	69	63	44	69	132	242	...	3616	3626	4
American Samoa	American Samoa	0	1	0	0	0	0	0	1	0	...	0	0	
Andorra	Andorra	0	0	0	0	0	0	2	0	0	...	0	0	

5 rows × 35 columns

In [19]:
```
canada2 = canada.copy()
canada2.head()
```

Out[19]:

	Country	1980	1981	1982	1983	1984	1985	1986	1987	1988	...	2004	2005	2
Country														
Afghanistan	Afghanistan	16	39	39	47	71	340	496	741	828	...	2978	3436	3
Albania	Albania	1	0	0	0	0	0	1	2	2	...	1450	1223	
Algeria	Algeria	80	67	71	69	63	44	69	132	242	...	3616	3626	4
American Samoa	American Samoa	0	1	0	0	0	0	0	1	0	...	0	0	
Andorra	Andorra	0	0	0	0	0	0	2	0	0	...	0	0	

5 rows × 35 columns

In [20]:
```
canada.index.name=None
canada.head()
```

Out[20]:

	Country	1980	1981	1982	1983	1984	1985	1986	1987	1988	...	2004	2005	2
Afghanistan	Afghanistan	16	39	39	47	71	340	496	741	828	...	2978	3436	3
Albania	Albania	1	0	0	0	0	0	1	2	2	...	1450	1223	
Algeria	Algeria	80	67	71	69	63	44	69	132	242	...	3616	3626	4
American Samoa	American Samoa	0	1	0	0	0	0	0	1	0	...	0	0	
Andorra	Andorra	0	0	0	0	0	0	2	0	0	...	0	0	

5 rows × 35 columns

In [21]:
```
del canada['Country']
canada.head()
```

Out[21]:

	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	...	2004	2005	2006	2
Afghanistan	16	39	39	47	71	340	496	741	828	1076	...	2978	3436	3009	2
Albania	1	0	0	0	0	0	1	2	2	3	...	1450	1223	856	
Algeria	80	67	71	69	63	44	69	132	242	434	...	3616	3626	4807	3
American Samoa	0	1	0	0	0	0	0	1	0	1	...	0	0	1	
Andorra	0	0	0	0	0	0	2	0	0	0	...	0	0	1	

5 rows × 34 columns

In [22]:
```
canada = canada.transpose()
```

In [23]:
```
canada.head()
```

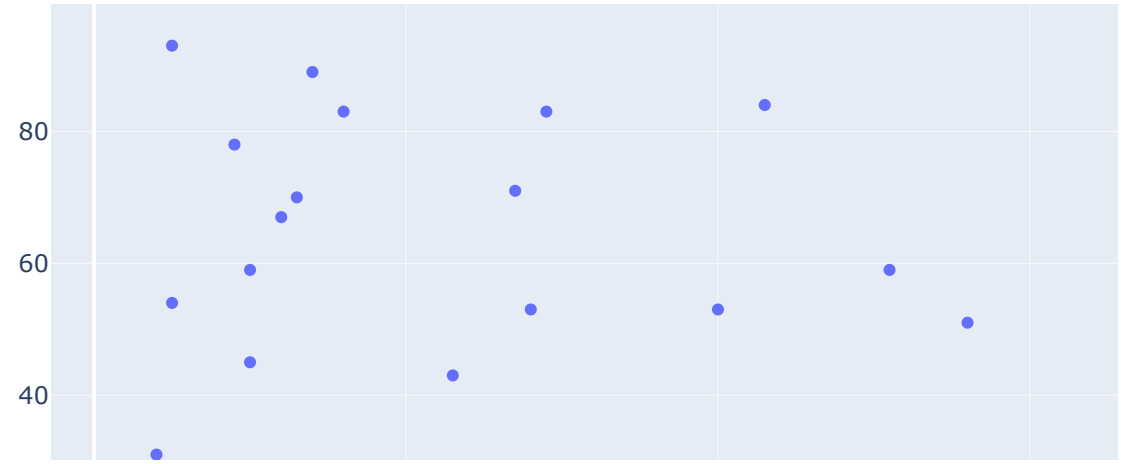
Out[23]:

	Afghanistan	Albania	Algeria	American Samoa	Andorra	Angola	Antigua and Barbuda	Argentina	Armenia	Au
1980	16	1	80	0	0	1	0	368	0	
1981	39	0	67	1	0	3	0	426	0	
1982	39	0	71	0	0	6	0	626	0	
1983	47	0	69	0	0	6	0	241	0	
1984	71	0	63	0	0	4	42	237	0	

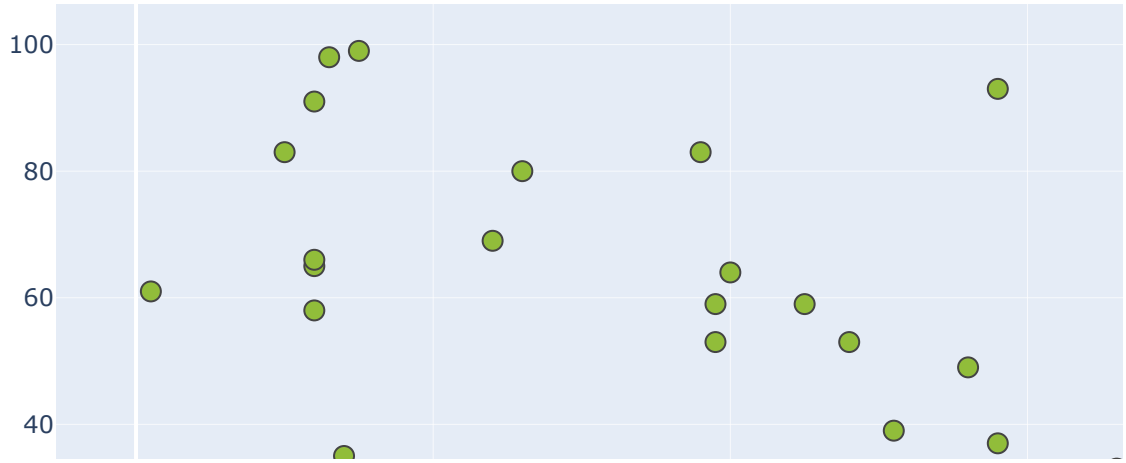
5 rows × 197 columns

Scatter Plot

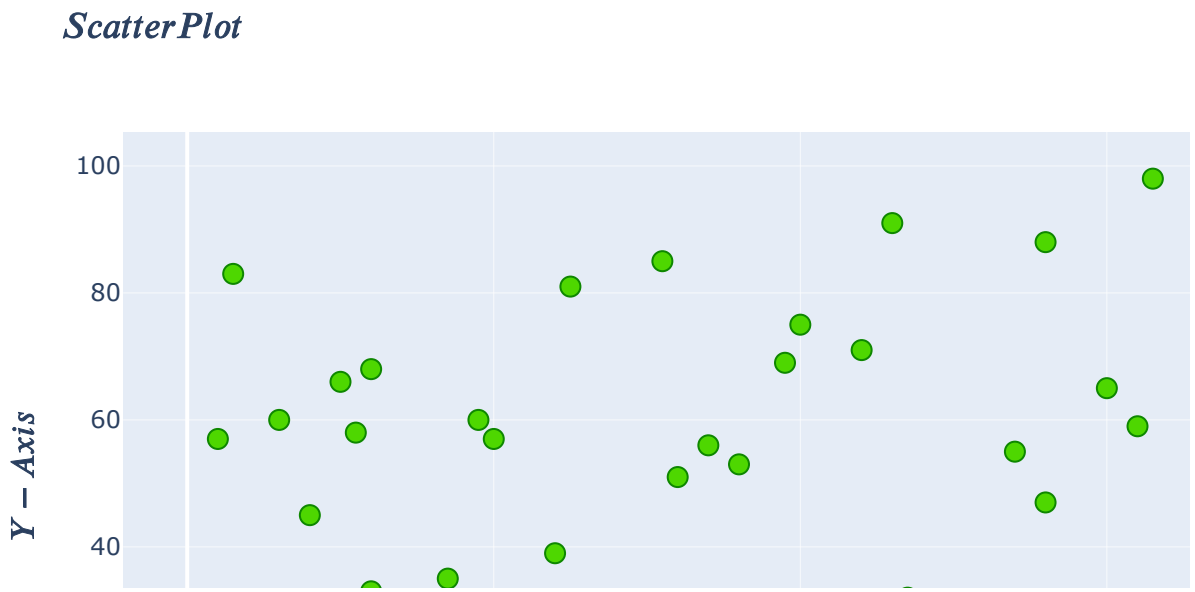
In [24]:
```
#Simple Scatter Plot
random_x = np.random.randint(1,100,50)
random_y = np.random.randint(1,100,50)

data = [go.Scatter(
                    x = random_x,
                    y = random_y,
                    mode = 'markers'
                   )
       ]
fig = go.Figure(data=data)
iplot(fig)
```



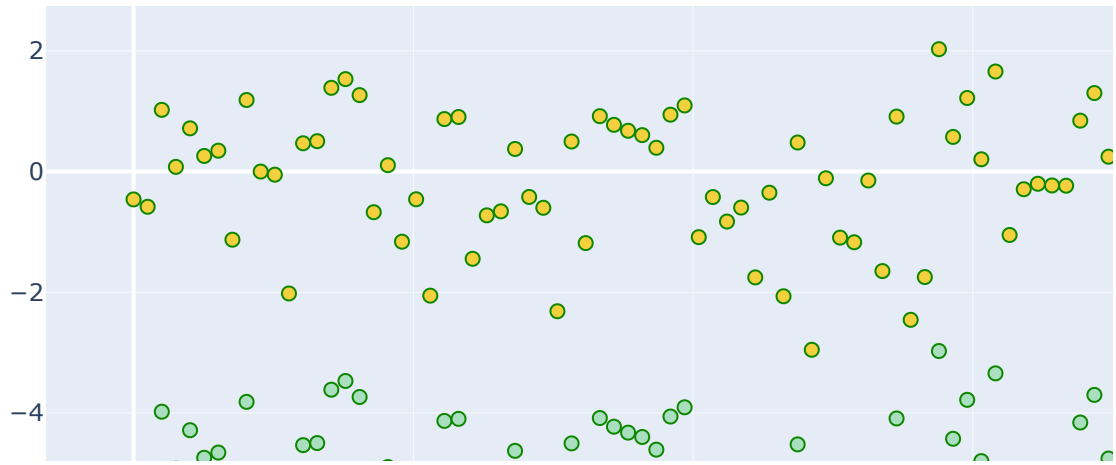
In [25]:
```
# Changing Marker size , shape & color using Marker parameter
x_val = np.random.randint(1,100,50)
y_val = np.random.randint(1,100,50)

data = [go.Scatter(
                    x = x_val,
                    y = y_val,
                    mode = 'markers',
                    marker = dict(
                                  size = 10,
                                  color = '#91bd3a', #color of marker
                                  symbol = 'circle', # Shape of scatter plot
                                  line = dict(width = 1) #width of boundary
                                 )
                   )
       ]
fig = go.Figure(data=data)
iplot(fig)
```



In [26]:
```
# Defining Labels (X-Axis & Y-Axis label , Graph tile)
x_val = np.random.randint(1,100,50)
y_val = np.random.randint(1,100,50)

data = [go.Scatter(
                    x = x_val,
                    y = y_val,
                    mode = 'markers',
                    marker = dict(
                                  size = 10,
                                  color = '#4ED700',
                                  symbol = 'circle',
                                  line = dict(width = 1,color = '#0E8700')
                                  )
                   )
       ]
layout = go.Layout(
                    title = '$Scatter Plot$', # Title
                    xaxis = dict(title = '$X-Axis$'), # x-axis label
                    yaxis = dict(title = '$Y-Axis$'), # y-axis label
                    )
fig = go.Figure(data=data, layout=layout)
iplot(fig)
```



In [27]:
```
x_values = np.linspace(0, 100, 100) # 100 evenly spaced values
y_values = np.random.randn(100)    # 100 random values

trace0 = go.Scatter(
                    x = x_values,
                    y = y_values,
                    mode = 'markers',
                    marker = dict(
                                  size = 7,
                                  color = '#F4D03F',
                                  symbol = 'circle',
                                  line = dict(width = 1,color = '#0E8700')
                                  )
                    )

trace1 = go.Scatter(
                    x = x_values,
                    y = y_values-5,
                    mode = 'markers',
                    marker = dict(size = 7,
                                  color = '#A9DFBF',
                                  symbol = 'circle',
                                  line = dict(width = 1,color = '#0E8700')
                                 )
                    )

data = [trace0, trace1]
fig = go.Figure(data=data)
iplot(fig)
```

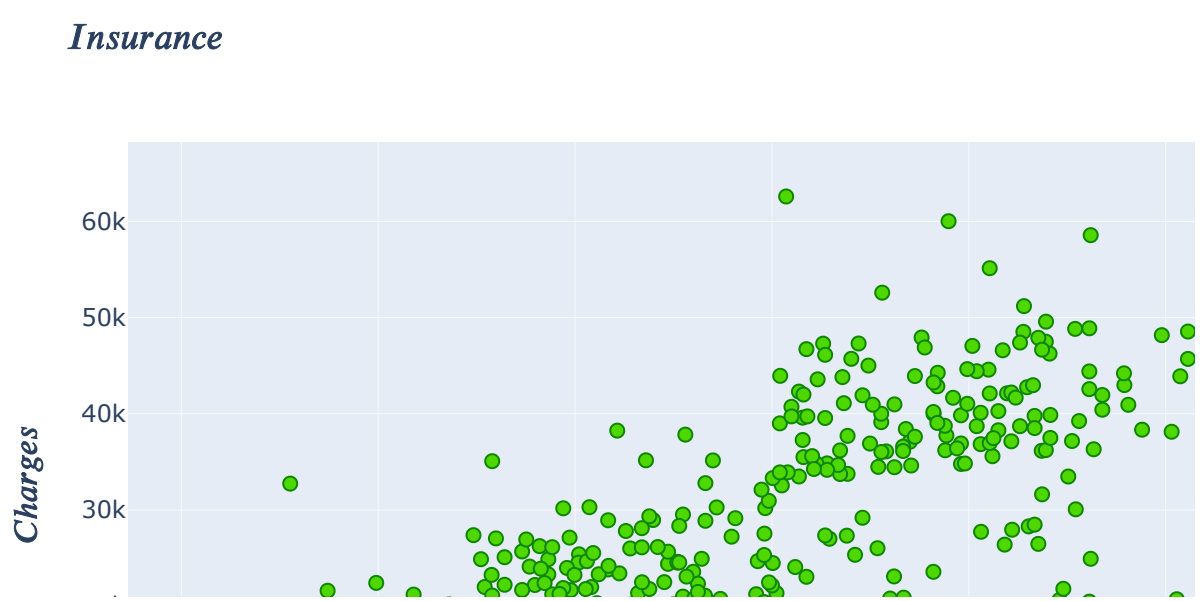


In [28]:
```
insurance.head(10)
```

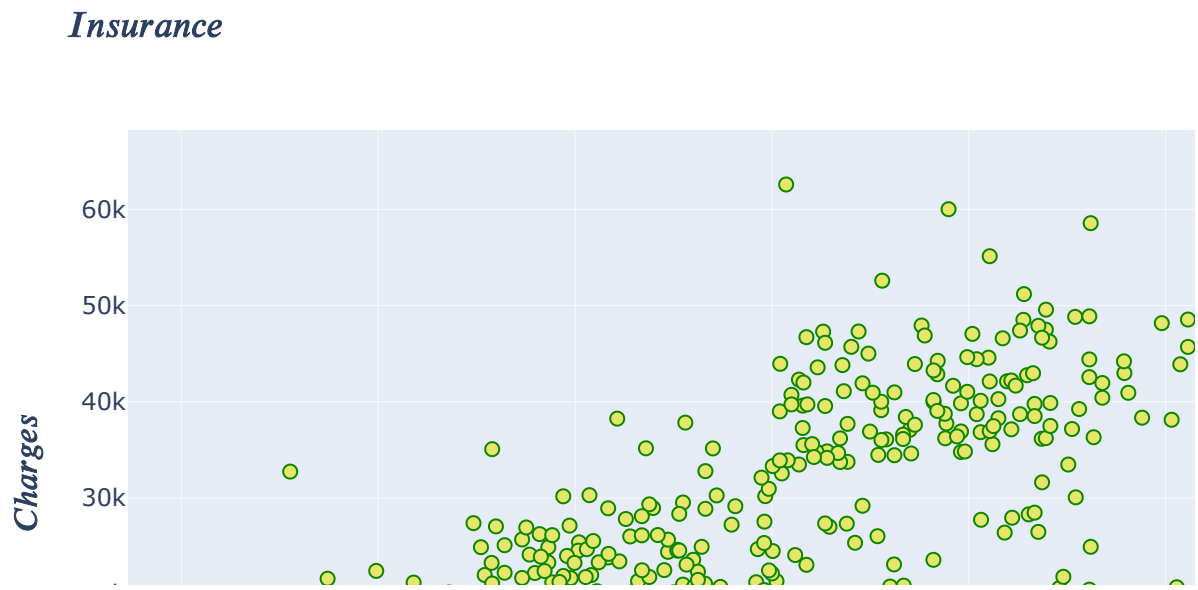
Out[28]:

	age	sex	bmi	children	smoker	region	charges
0	19	female	27.900	0	yes	southwest	16884.92400
1	18	male	33.770	1	no	southeast	1725.55230
2	28	male	33.000	3	no	southeast	4449.46200
3	33	male	22.705	0	no	northwest	21984.47061
4	32	male	28.880	0	no	northwest	3866.85520
5	31	female	25.740	0	no	southeast	3756.62160
6	46	female	33.440	1	no	southeast	8240.58960
7	37	female	27.740	3	no	northwest	7281.50560
8	37	male	29.830	2	no	northeast	6406.41070
9	60	female	25.840	0	no	northwest	28923.13692

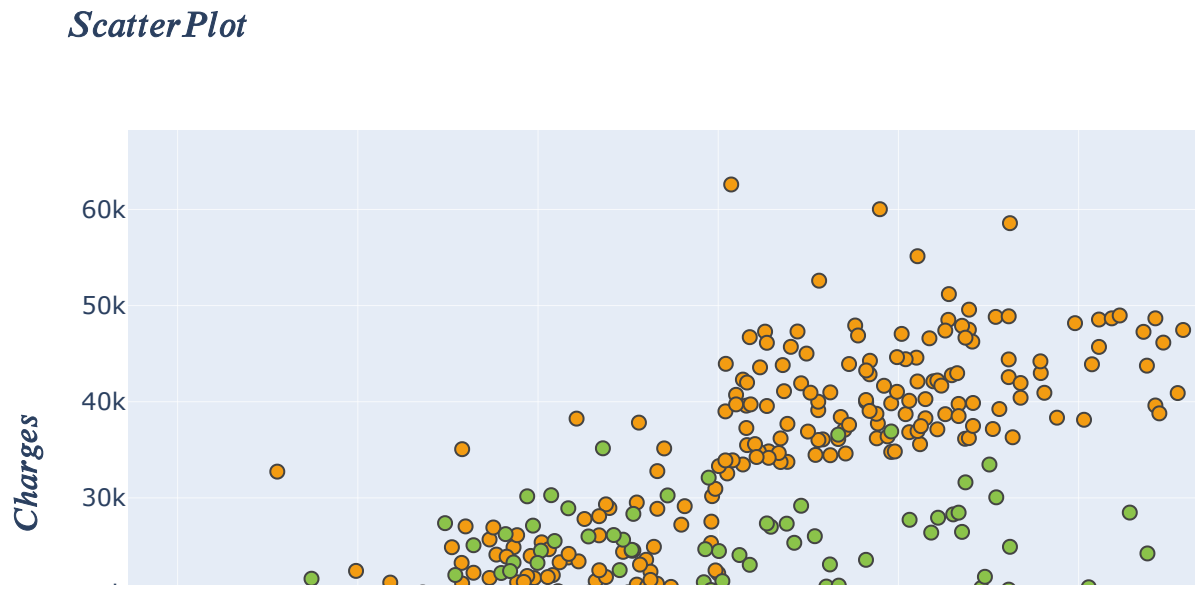
In [29]:
```
data = [go.Scatter(
                    x = insurance.bmi,
                    y = insurance.charges,
                    mode = 'markers',
                    marker = dict(size = 7,
                                  color = '#4ED700',
                                  symbol = 'circle',
                                  line = dict(width = 1,color = '#0E8700')
                                 )
                   )
       ]

layout = go.Layout(
                    title = '$Insurance$', # Chart Title
                    xaxis = dict(title = '$BMI$'), # x-axis label
                    yaxis = dict(title = '$Charges$'), # y-axis label
                   )

fig = go.Figure(data=data, layout=layout)

iplot(fig)
```



In [30]:
```
data = [go.Scatter(
                    x = insurance.bmi,
                    y = insurance.charges,
                    mode = 'markers',
                    marker = dict(size = 7,
                                  color = '#4ED700',
                                  symbol = 'circle',
                                  line = dict(width = 1,color = '#0E8700')
                                  )
                   )
       ]

layout = go.Layout(
                    title = '$Insurance$', # Title
                    xaxis = dict(title = '$BMI$'), # x-axis label
                    yaxis = dict(title = '$Charges$'), # y-axis label
                   )

fig = go.Figure(data=data, layout=layout)

# Updating Traces
fig.update_traces(
                  marker=dict(color="#e6e56c"),
                 )

iplot(fig)
```

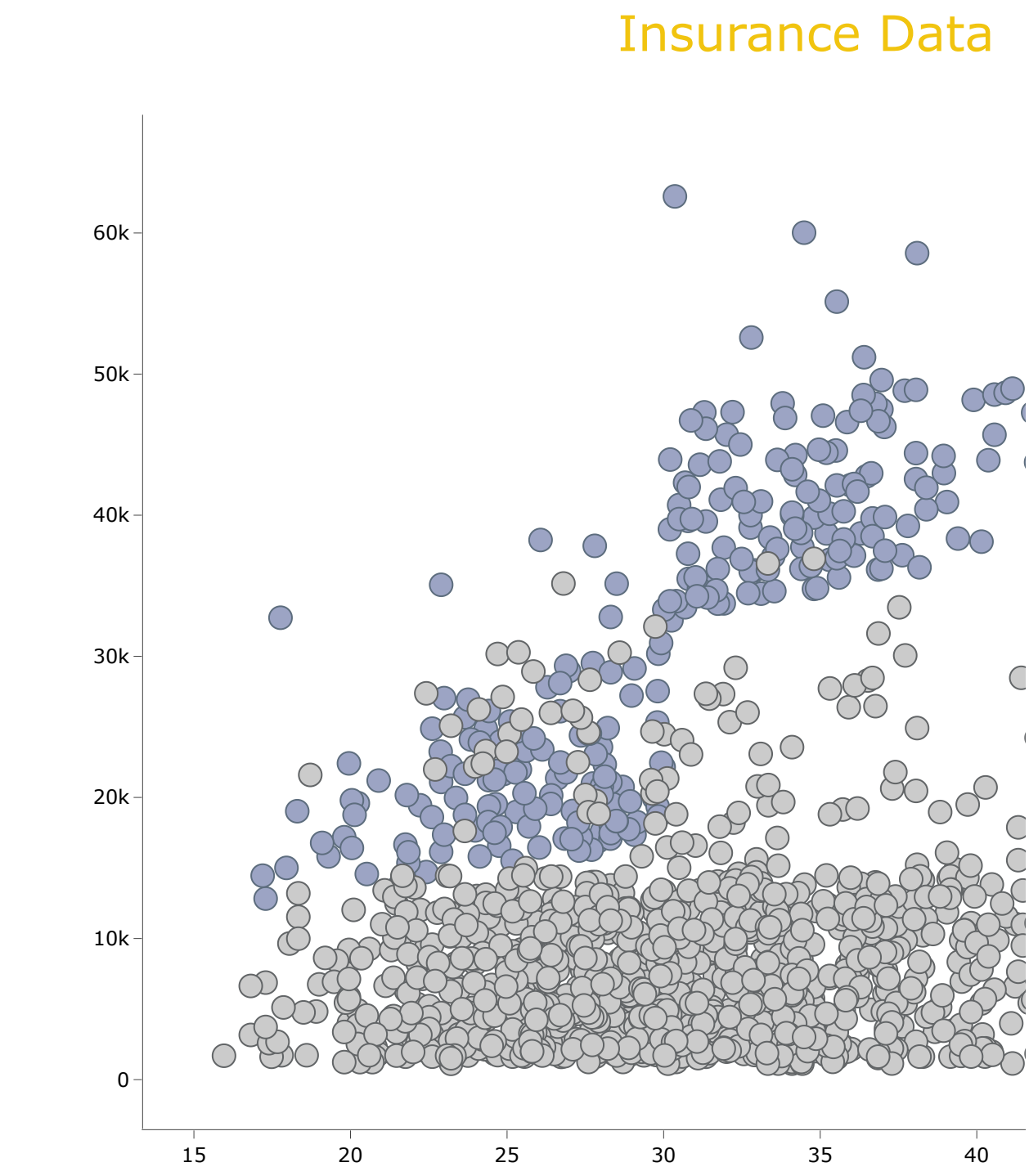


In [31]:
```
# trace0 will capture all smokers
trace0 = go.Scatter(
                      x = insurance[insurance.smoker=='yes'].bmi,
                      y = insurance[insurance.smoker=='yes'].charges,
                      mode = 'markers',
                      name = 'Smoker',
                     marker = dict(size = 7, color = '#F39C12',symbol = 'circle',]
                     )

# trace1 will capture all non-smokers
trace1 = go.Scatter(
                      x = insurance[insurance.smoker=='no'].bmi,
                      y = insurance[insurance.smoker=='no'].charges,
                      mode = 'markers',
                      name = 'Non-Smoker',
                      marker = dict(size = 7, color = '#8BC34A',symbol = 'circle',
                     )

layout = go.Layout(
                     title = '$Scatter Plot$', # Title
                     xaxis = dict(title = '$BMI$'), # x-axis label
                     yaxis = dict(title = '$Charges$'), # y-axis label
                    )

data = [trace0, trace1]
fig = go.Figure(data=data,layout=layout)
iplot(fig)
```

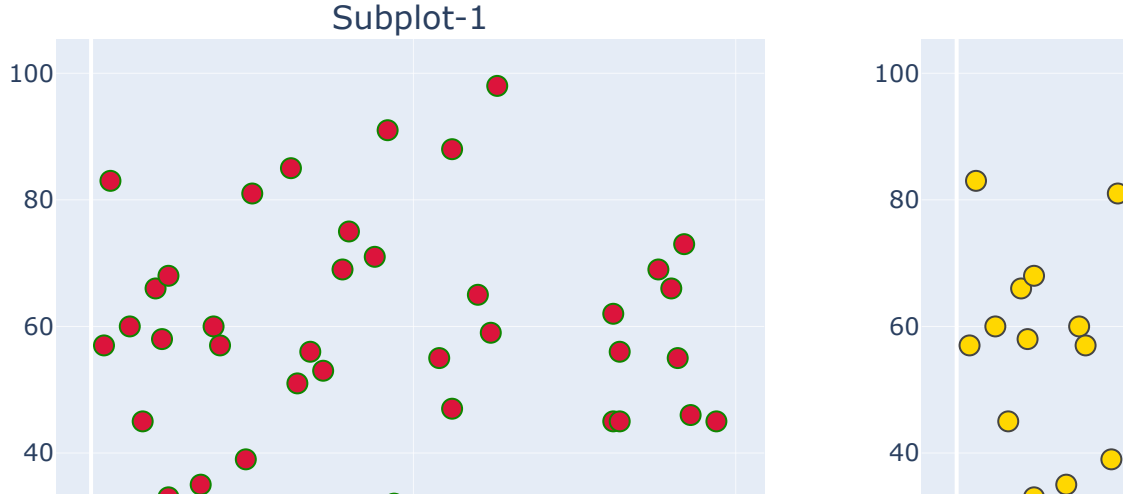


In [32]:
```
# trace0 will capture all smokers
trace0 = go.Scatter(
                        x = insurance[insurance.smoker=='yes'].bmi,
                        y = insurance[insurance.smoker=='yes'].charges,
                        mode = 'markers',
                        name = 'Smoker',
                        marker = dict(size = 14, color = '#9ca4c4',symbol = 'circle
                                      line = dict(width = 1,color = '#5D6D7E')
                                     )

                       )

# trace1 will capture all non-smokers
trace1 = go.Scatter(
                        x = insurance[insurance.smoker=='no'].bmi,
                        y = insurance[insurance.smoker=='no'].charges,
                        mode = 'markers',
                        name = 'Non-Smoker',
                        marker = dict(size = 14, color = '#cbcbcb',symbol = 'circle'
                                      line = dict(width = 1,color = '#626567')
                                     )
                       )

#Layout Setting
layout = go.Layout(
                       title=dict(text = "Insurance Data",x=0.5,y=0.95),
                       title_font_size=30,
                       title_font_color='#F1C40F',
                       xaxis=dict(
                                  showgrid=False, # Hide Gridlines
                                  showline=True, # Show X-Axis
                                  linecolor='black', # Color of X-axis
                                  tickfont_color='black', #Color of ticks
                                  showticklabels=True, #Show X labels
                                  dtick=5,
                                  ticks='outside',
                                  tickcolor='black',
                                  ),

                      yaxis=dict(
                                  showgrid=False,
                                  showline=True,
                                  linecolor='black',
                                  tickfont_color='black',
                                  showticklabels=True,
                                  ticks='outside',
                                  tickcolor='black',
                                  ),
                       legend=dict(
                                   font_size=15,
                                   yanchor='bottom',
                                   xanchor='right',
                                  ),
                       paper_bgcolor='white',
                       plot_bgcolor='white',
                       hovermode='closest',
```

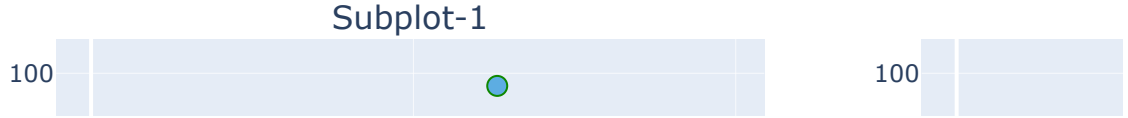
```
                    width=970,
                    height=800,
                    )

data = [trace0, trace1]
fig = go.Figure(data=data,layout=layout)
iplot(fig)
```

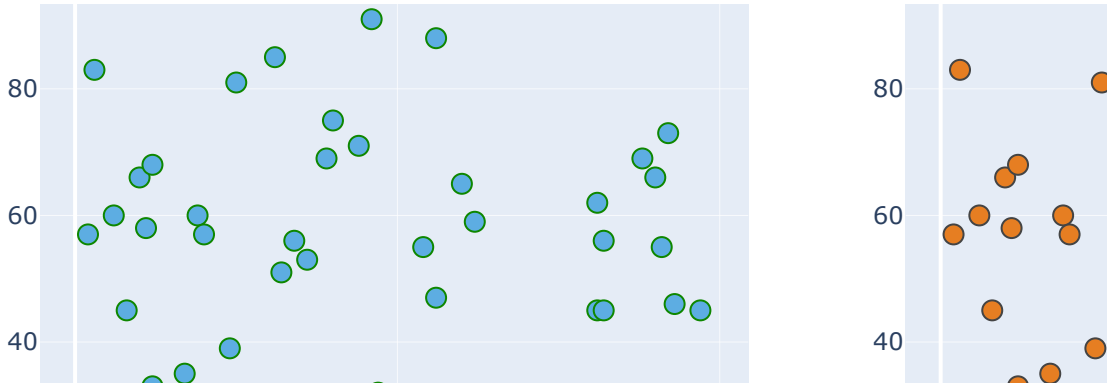


In [33]:
```
# Display multiple Scatter plots in one figure using Subplots

from plotly.subplots import make_subplots

#Subplot initialization
fig = make_subplots(
                      rows=1,
                      cols=2,
                      subplot_titles=("Subplot-1", "Subplot-2")
                    )


# Subplot - 1 (Add graph object trace to a figure)
fig.add_trace(go.Scatter
                    (
                      x = x_val,
                      y = y_val,
                      mode = 'markers',
                      marker = dict(size = 10, color = 'crimson',symbol = 'circle',
                    ),
                row=1, col=1
               )

# Add graph object trace to a figure (Subplot-2)
fig.add_trace(go.Scatter
                    (
                      x = x_val,
                      y = y_val,
                      mode = 'markers',
                      marker = dict(size = 10, color = 'gold',symbol = 'circle',lir
                     ),
                row=1, col=2
               )

fig.show()
```



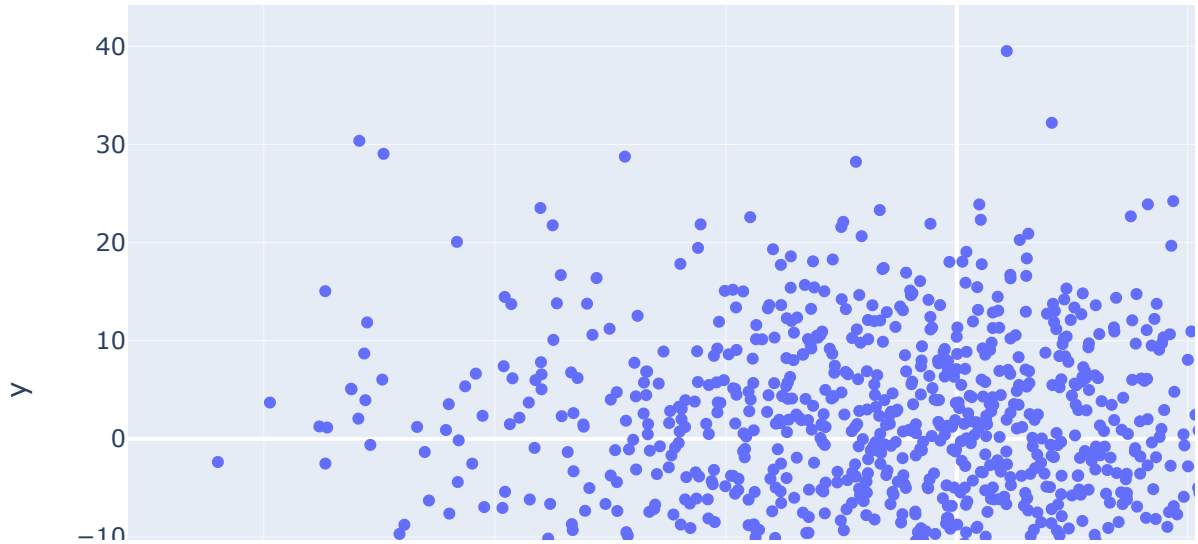
In [34]:
```
# Display multiple Scatter plots in one figure using Subplots

from plotly.subplots import make_subplots

#Subplot initialization
fig = make_subplots(
                     rows=1,
                     cols=2,
                     subplot_titles=("Subplot-1", "Subplot-2")
                    )


# Subplot - 1 (Add graph object trace to a figure)
fig.add_trace(go.Scatter
                   (
                     x = x_val,
                     y = y_val,
                     mode = 'markers',
                     marker = dict(size = 10, color = '#4ED700',symbol = 'circle',
                   ),
              row=1, col=1
             )

# Add graph object trace to a figure
fig.add_trace(go.Scatter
                   (
                     x = x_val,
                     y = y_val,
                     mode = 'markers',
                     marker = dict(size = 10, color = '#FFC107',symbol = 'circle',
                    ),
              row=1, col=2
             )

#Update traces in Suplots
fig.update_traces(
                   marker=dict(color="#5DADE2"),
                   col=1,
                   row = 1
                  )

#Update traces in Suplots
fig.update_traces(
                   marker=dict(color="#E67E22"),
                   col=2,
                   row = 1
                  )
fig.show()
```



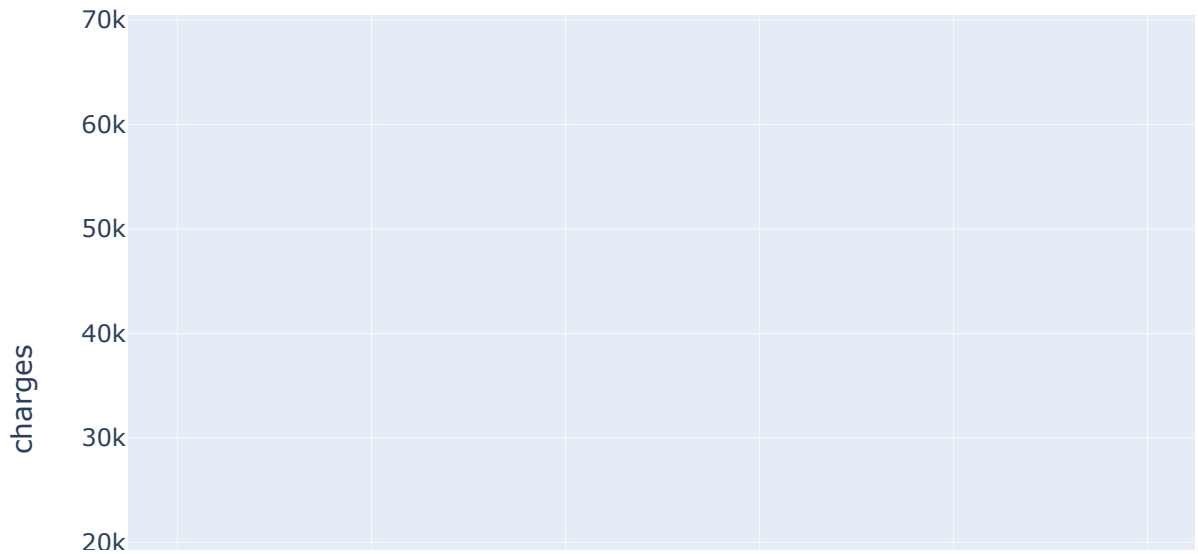


Scatter Plot using Plotly Express

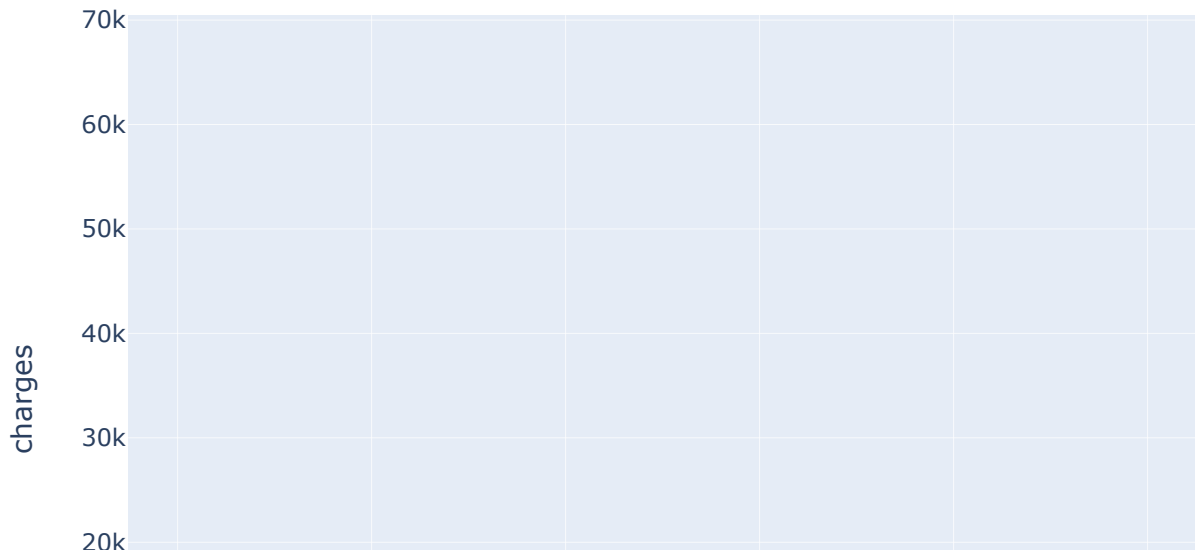
In [35]:
```
xval = np.random.normal(0,10,1000)
yval = np.random.normal(0,10,1000)
fig = px.scatter(x=xval,y= yval)
fig.show()
```



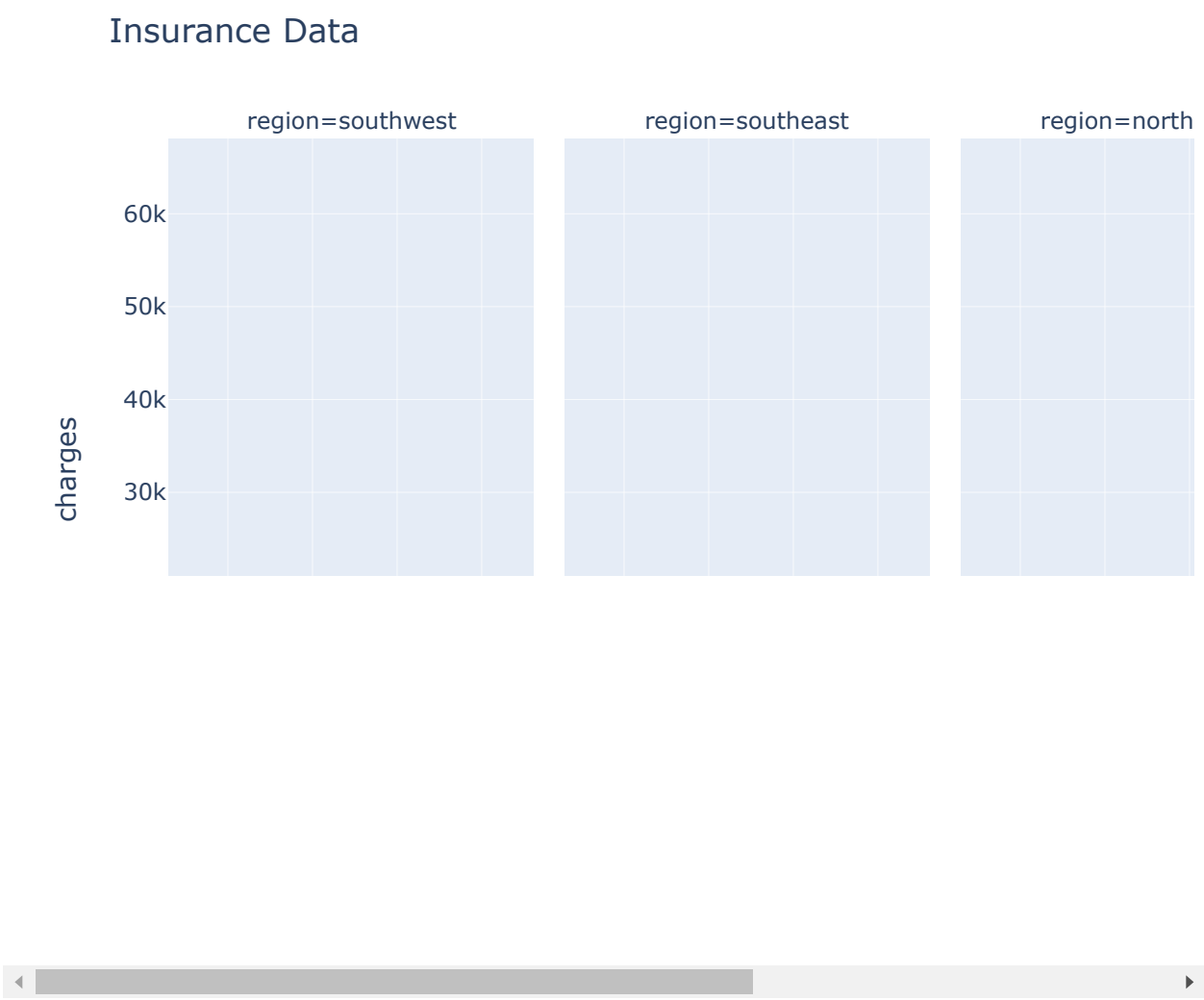
In [36]:
```
fig = px.scatter(
                  insurance,
                  x=insurance.bmi,
                  y= insurance.charges,
                  color="smoker", # Show groups with different colors using "colo
                  size=insurance.charges
                 )
fig.show()
```



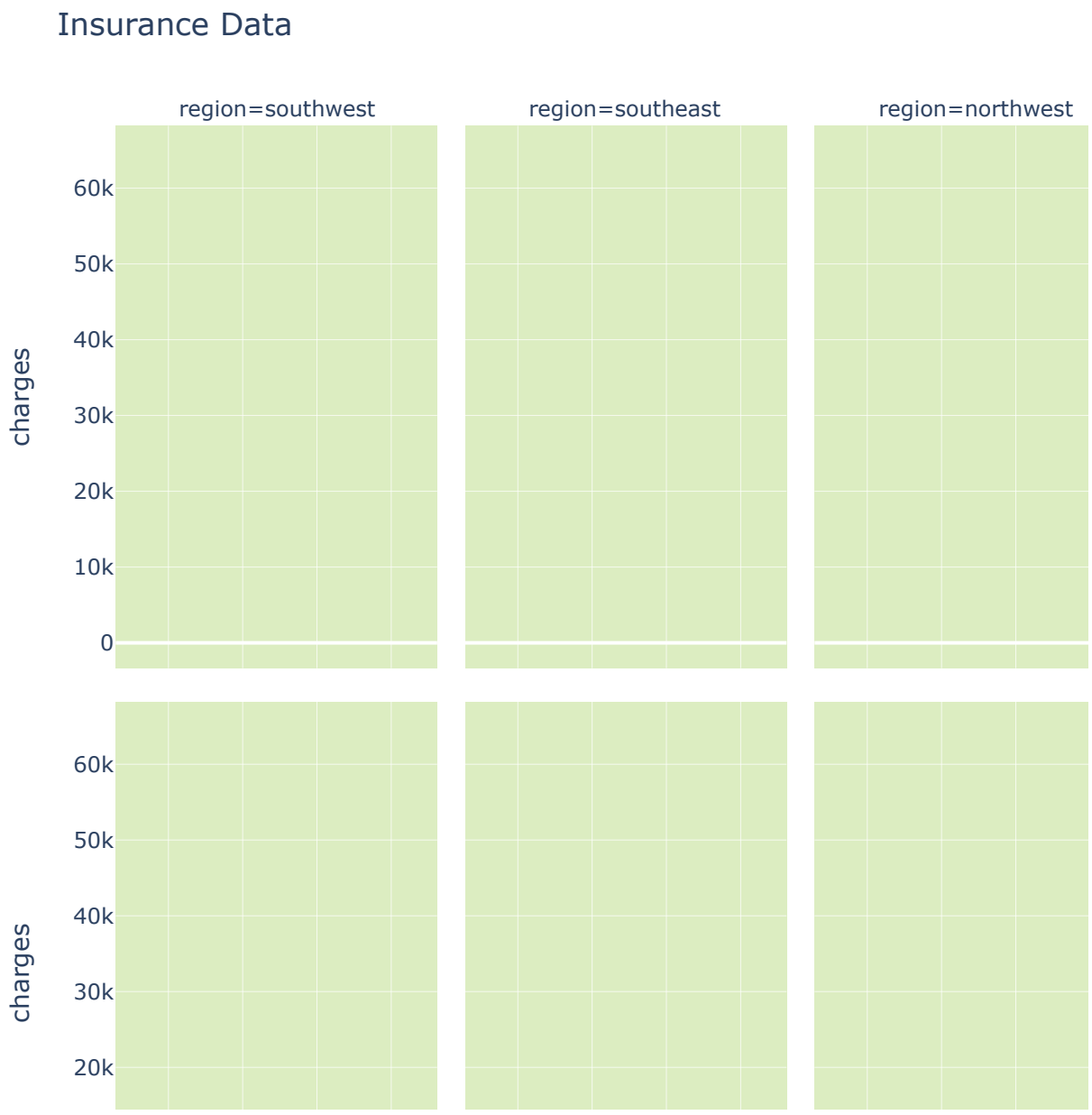
In [37]:
```
fig = px.scatter(insurance,
                 x=insurance.bmi,
                 y= insurance.charges,
                 color="smoker",  #  Show groups with different colors using "col
                 size=insurance.charges,
                 color_discrete_map={"yes": "#FF5722","no": "#7CB342"} #Map color
                )
fig.show()
```

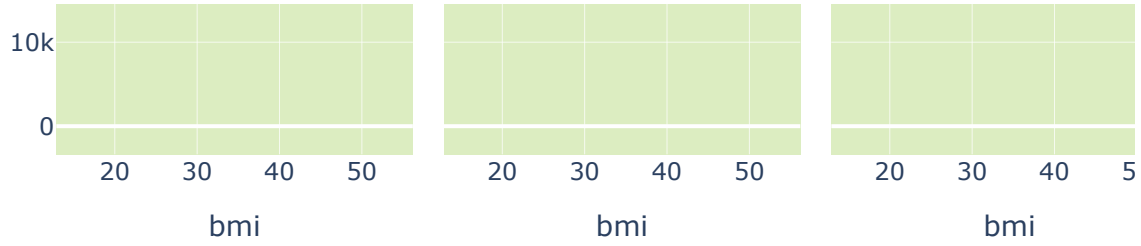


In [38]:
```
# Using facet_col arguments to create Sub plots
fig = px.scatter(insurance,
                 x=insurance.bmi,
                 y=insurance.charges,
                 color=insurance.smoker,    #  Show groups with different colors u
                 facet_col=insurance.region, # Using facet_col arguments to creat
                 color_discrete_map={"yes": "#FF5722","no": "#7CB342"}, #Map colo
                 title="Insurance Data"
                )

fig.show()
```

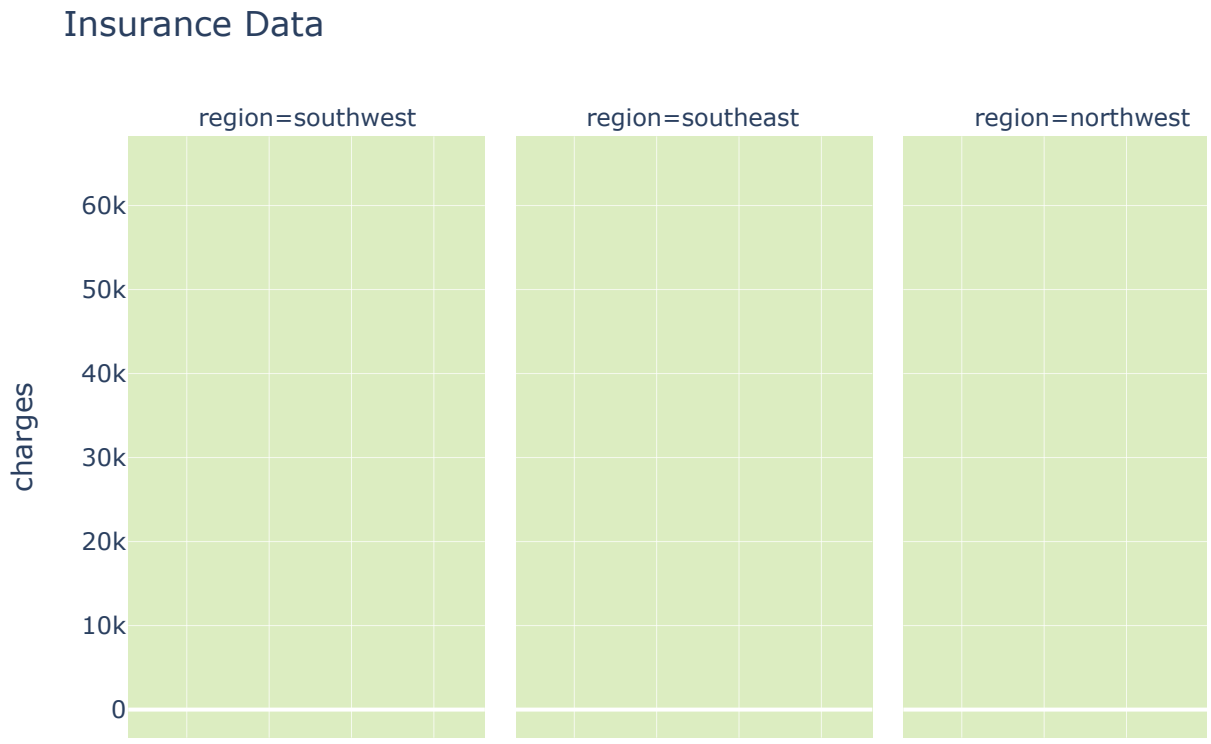


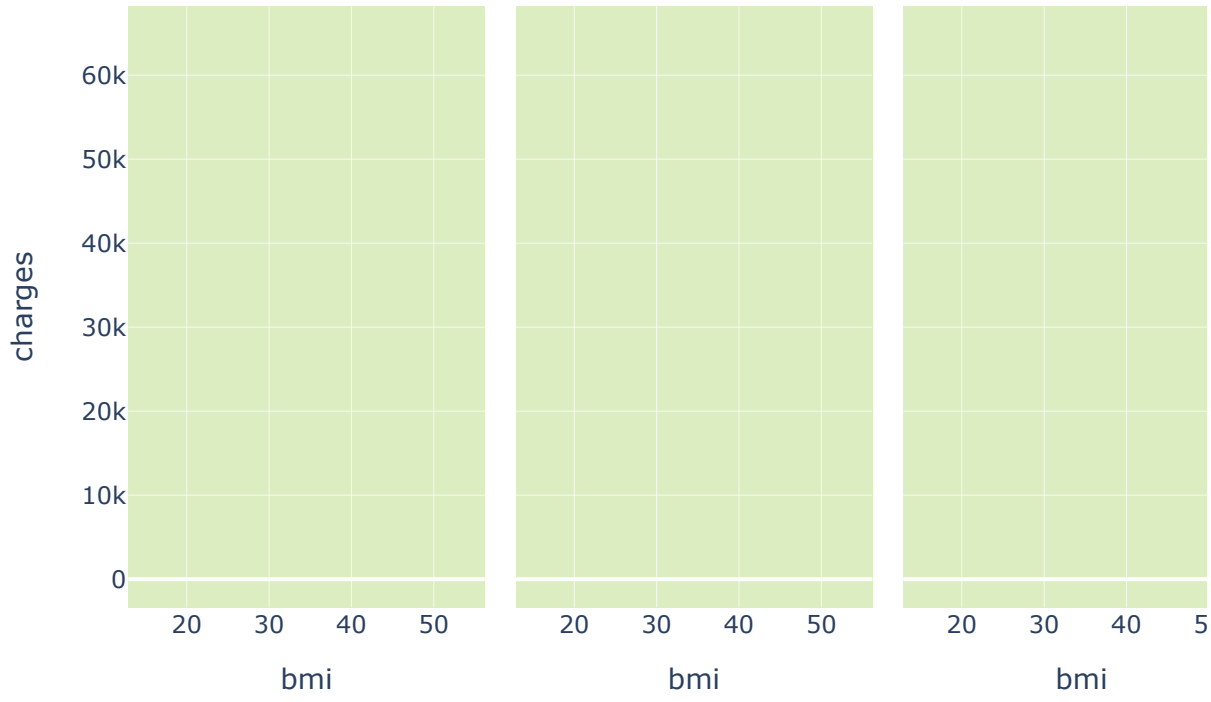
In [39]:
```
# Using facet_row and or facet_col arguments to create Sub plots
fig = px.scatter(insurance,
                 x=insurance.bmi,
                 y=insurance.charges,
                 color=insurance.smoker,
                 facet_col=insurance.region, # Using facet_col argument to create
                 facet_row=insurance.sex, # Using facet_row argument to create Su
                 color_discrete_map={"yes": "#FF5722","no": "#7CB342"},
                 width=950,
                 height=800,
                 title="Insurance Data")

fig.update_layout(
                    plot_bgcolor= "#dcedc1",
                    paper_bgcolor="#FFFDE7",
                 )

fig.show()
```




10k
0
20
30
40
50
bmi
20
30
40
50
bmi
20
30
40
5
bmi

In [40]:
```
# Using facet_row and or facet_col arguments to create Sub plots
fig = px.scatter(insurance,
                 x=insurance.bmi,
                 y=insurance.charges,
                 color=insurance.smoker,
                 facet_col=insurance.region,
                 facet_row=insurance.sex,
                 color_discrete_map={"yes": "#FF5722","no": "#7CB342"},
                 width=950,
                 height=800,
                 title="Insurance Data")

fig.update_layout(
                    plot_bgcolor= "#dcedc1",
                    paper_bgcolor="#FFFDE7",
                 )

# Updating Traces using "selector" argument
fig.update_traces(
                  marker_color="#339900",
                  selector=dict(marker_color="#7CB342")
                 )

# Updating Traces using "selector" argument
fig.update_traces(
                  marker_color="#FF3333",
                  selector=dict(marker_color="#FF5722")
                 )


fig.show()
#po.plot(fig)
```

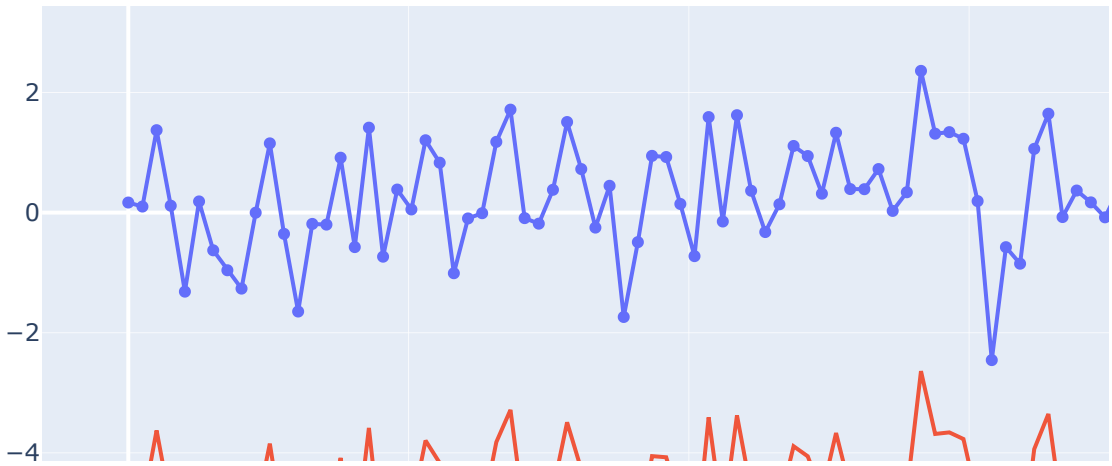



60k
50k
40k
30k
20k
10k
0
charges
20
30
40
50
bmi
20
30
40
50
bmi
20
30
40
5
bmi

Line Plot

In [41]:
```
#Simple Line Plot

x_values = np.linspace(0, 100, 100) # 100 evenly spaced values
y_values = np.random.randn(100)   # 100 random values

# create traces
trace0 = go.Scatter(
                    x = x_values,
                    y = y_values,
                    mode = 'lines',
                    )

fig = go.Figure(data=trace0)
fig.show()
```

In [42]:
```
#Line Styling

x_values = np.linspace(0, 100, 100) # 100 evenly spaced values
y_values = np.random.randn(100)   # 100 random values

trace0 = go.Scatter(
                    x = x_values,
                    y = y_values,
                    mode = 'lines+markers',
                    )
trace1 = go.Scatter(
                    x = x_values,
                    y = y_values-5,
                    mode = 'lines',
                    )
data = [trace0, trace1]
fig = go.Figure(data=data)
iplot(fig)
```



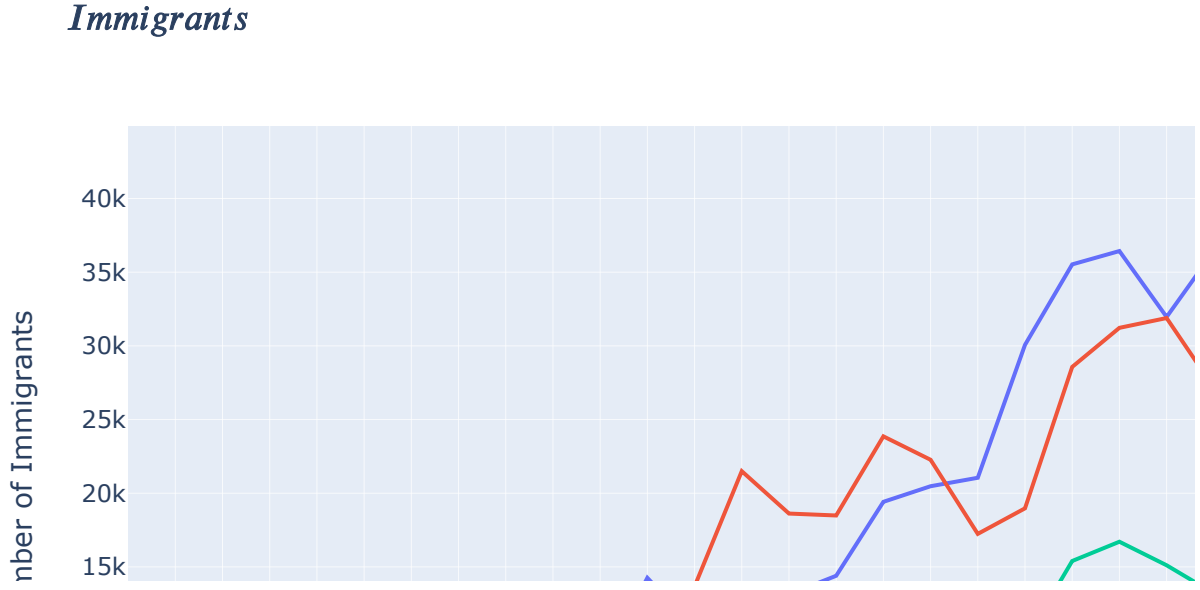
In [43]:
```
canada.head()
```

Out[43]:

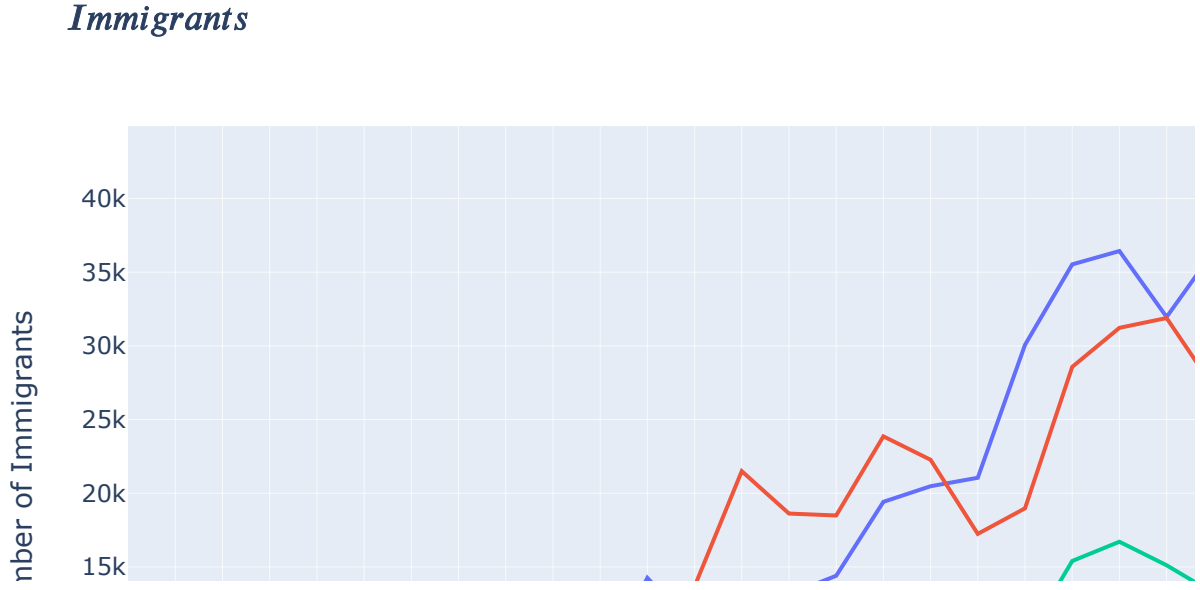
	Afghanistan	Albania	Algeria	American Samoa	Andorra	Angola	Antigua and Barbuda	Argentina	Armenia	Au
1980	16	1	80	0	0	1	0	368	0	
1981	39	0	67	1	0	3	0	426	0	
1982	39	0	71	0	0	6	0	626	0	
1983	47	0	69	0	0	6	0	241	0	
1984	71	0	63	0	0	4	42	237	0	

5 rows × 197 columns

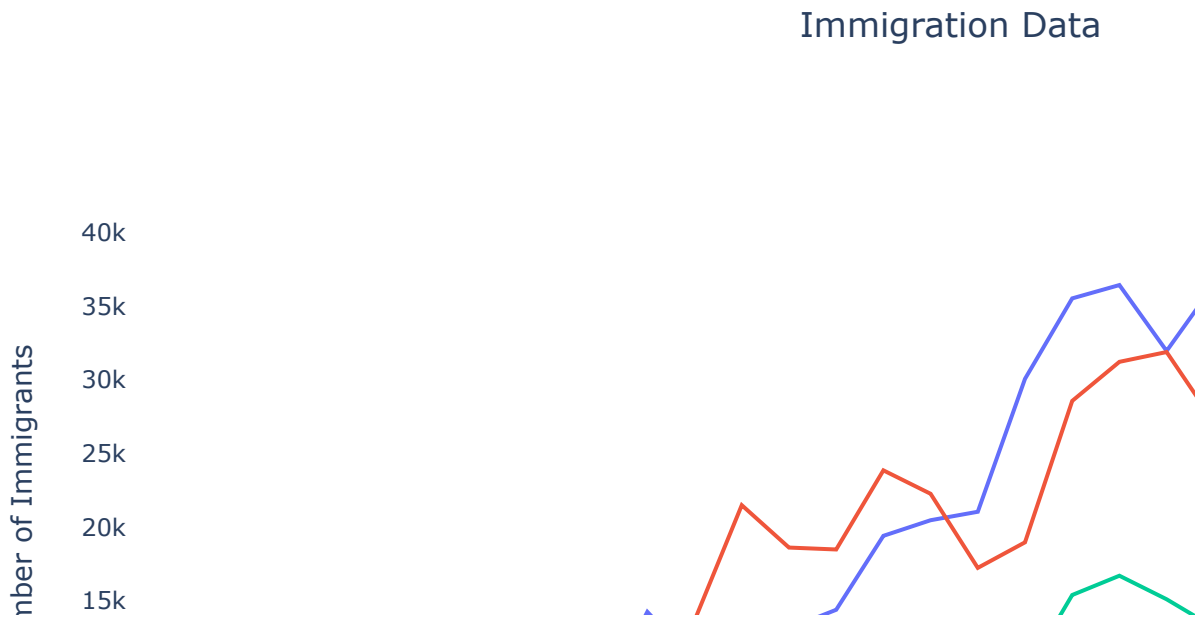
In [44]:
```
# Plot Immigrants from China
china = go.Scatter(
                    x = canada.index.values,
                    y = canada['China'],
                    mode = 'lines',
                    name = 'China'
                   )

#Plot Immigrants from India
india = go.Scatter(
                    x = canada.index.values,
                    y = canada['India'],
                    mode = 'lines',
                    name = 'India'
                  )

#Plot Immigrants from Pakistan
pakistan = go.Scatter(
                       x = canada.index.values,
                       y = canada['Pakistan'],
                       mode = 'lines',
                       name = 'Pakistan'
                     )

# Layout setting
layout = go.Layout(
                    title = '$Immigrants$', # Title
                    xaxis = dict(title = 'Year'), # x-axis label
                    yaxis = dict(title = 'Number of Immigrants'), # y-axis label

                  )

data = [china, india,pakistan]
fig = go.Figure(data=data,layout=layout)
iplot(fig)
```



In [45]:
```
# Plot Immigrants from China
china = go.Scatter(
                    x = canada.index.values,
                    y = canada['China'],
                    mode = 'lines',
                    name = 'China'
                  )

# Plot Immigrants from India
india = go.Scatter(
                    x = canada.index.values,
                    y = canada['India'],
                    mode = 'lines',
                    name = 'India'
                  )

# Plot Immigrants from Pakistan
pakistan = go.Scatter(
                       x = canada.index.values,
                       y = canada['Pakistan'],
                       mode = 'lines',
                       name = 'Pakistan'
                     )


layout = go.Layout(
                    title = '$Immigrants$', # Title
                    xaxis = dict(title = 'Year'), # x-axis label
                    yaxis = dict(title = 'Number of Immigrants'), # y-axis label
                    paper_bgcolor= '#FFFDE7' # Paper background color

                  )

data = [china, india,pakistan]
fig = go.Figure(data=data,layout=layout)
iplot(fig)
```



In [46]:
```
# Plot Immigrants from China
china = go.Scatter(
                    x = canada.index.values,
                    y = canada['China'],
                    mode = 'lines',
                    name = 'China'
                  )

# Plot Immigrants from India
india = go.Scatter(
                    x = canada.index.values,
                    y = canada['India'],
                    mode = 'lines',
                    name = 'India'
                  )

# Plot Immigrants from Pakistan
pakistan = go.Scatter(
                       x = canada.index.values,
                       y = canada['Pakistan'],
                       mode = 'lines',
                       name = 'Pakistan'
                     )


layout = go.Layout(
                    title=dict(text = "Immigration Data",x=0.5,y=0.95),
                    xaxis = dict(title = 'Year'), # x-axis label
                    yaxis = dict(title = 'Number of Immigrants'), # y-axis label
                    paper_bgcolor= '#FFFDE7',
                    plot_bgcolor= '#FFFDE7'
                  )

data = [china, india,pakistan]
fig = go.Figure(data=data,layout=layout)
iplot(fig)
```



In [47]:
```
canada1 = canada.copy()
del canada1['Unknown']
del canada1['Total']
canada1.head()
```

Out[47]:

	Afghanistan	Albania	Algeria	American Samoa	Andorra	Angola	Antigua and Barbuda	Argentina	Armenia	Au
1980	16	1	80	0	0	1	0	368	0	
1981	39	0	67	1	0	3	0	426	0	
1982	39	0	71	0	0	6	0	626	0	
1983	47	0	69	0	0	6	0	241	0	
1984	71	0	63	0	0	4	42	237	0	

5 rows × 195 columns

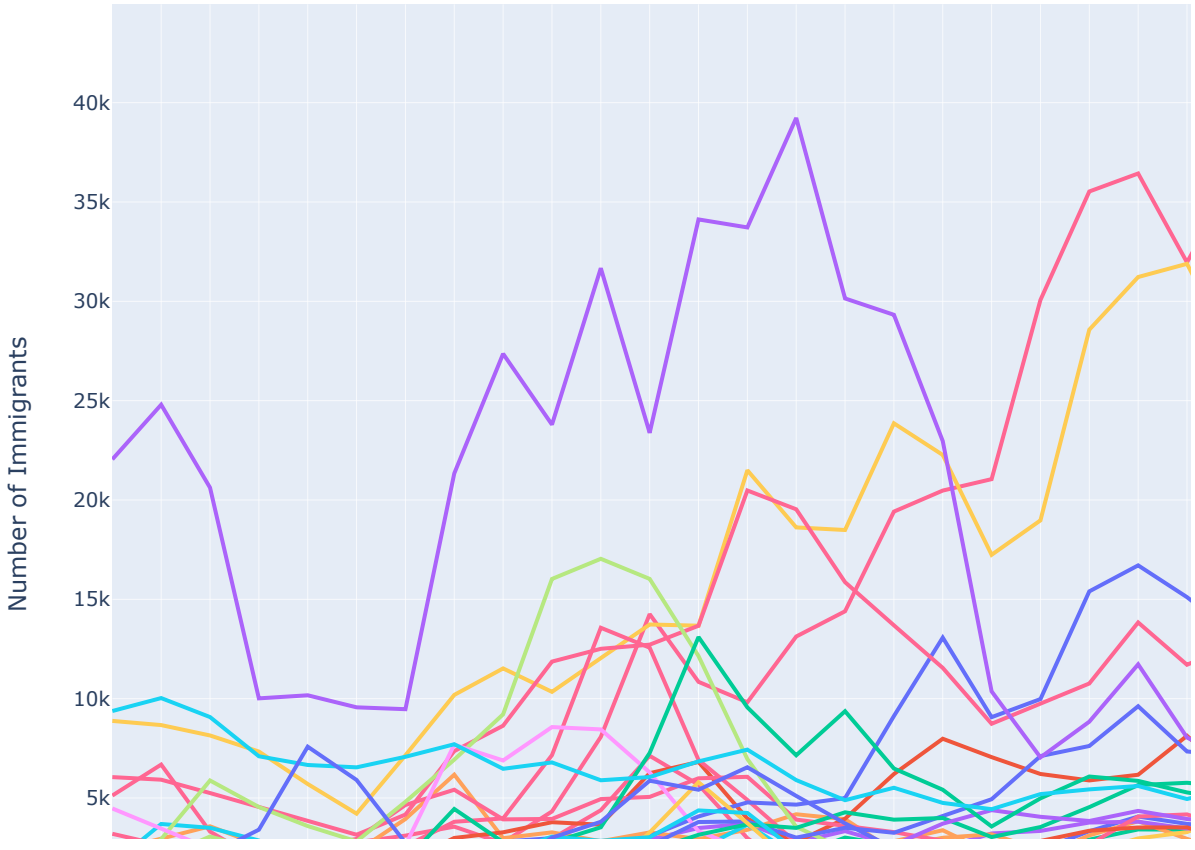
In [48]:
```
canada.head()
```

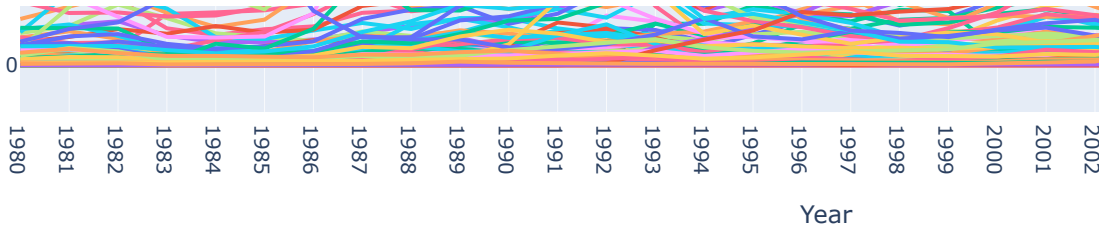
Out[48]:

	Afghanistan	Albania	Algeria	American Samoa	Andorra	Angola	Antigua and Barbuda	Argentina	Armenia	Au
1980	16	1	80	0	0	1	0	368	0	
1981	39	0	67	1	0	3	0	426	0	
1982	39	0	71	0	0	6	0	626	0	
1983	47	0	69	0	0	6	0	241	0	
1984	71	0	63	0	0	4	42	237	0	

5 rows × 197 columns

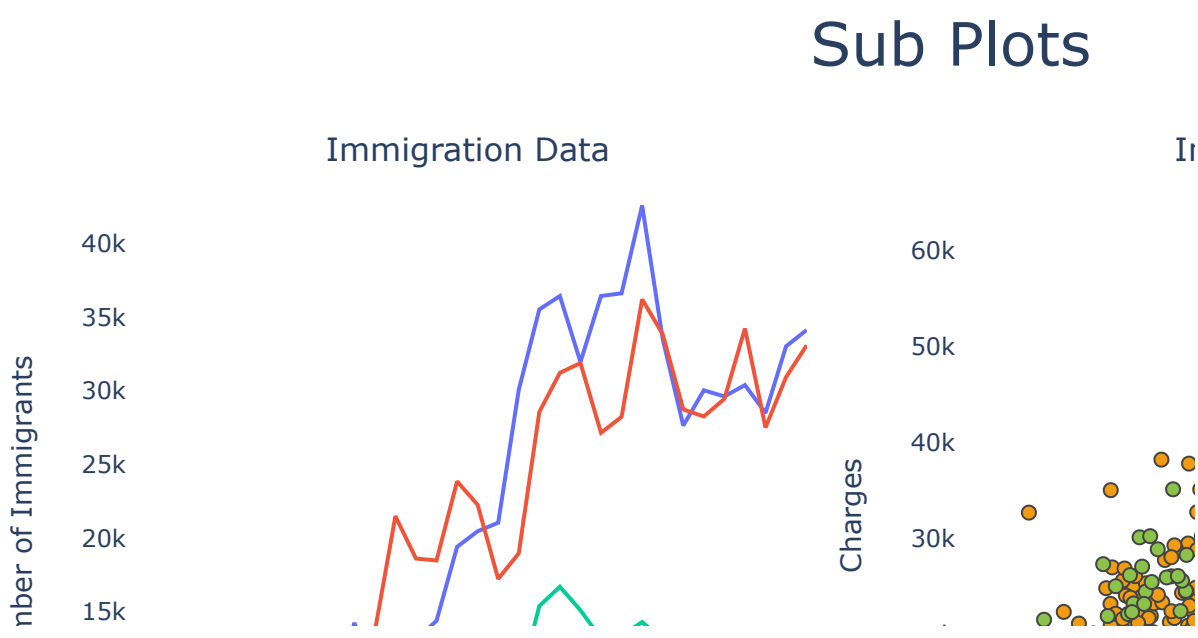
In [49]:
```
#Immigrants from all countires using for loop
traces = [] # Initiate trace
for i in canada1.columns:
    traces.append(
        go.Scatter(
                    x=canada1.index.values,
                    y=canada1[i],
                    mode='lines',
                    name = i,
                    connectgaps=True,
                  )
                 )

layout = go.Layout(
                    title = 'Immigrants', # Title
                    title_font=dict(size=20),
                    xaxis = dict(title = 'Year'), # x-axis label
                    yaxis = dict(title = 'Number of Immigrants'), # y-axis label
                    font=dict(size=10),
                    width=1230,
                    height=650
                   )

fig = go.Figure(data=traces, layout=layout)
fig.show()
```




0
1980
1981
1982
1983
1984
1985
1986
1987
1988
1989
1990
1991
1992
1993
1994
1995
1996
1997
1998
1999
2000
2001
2002
Year

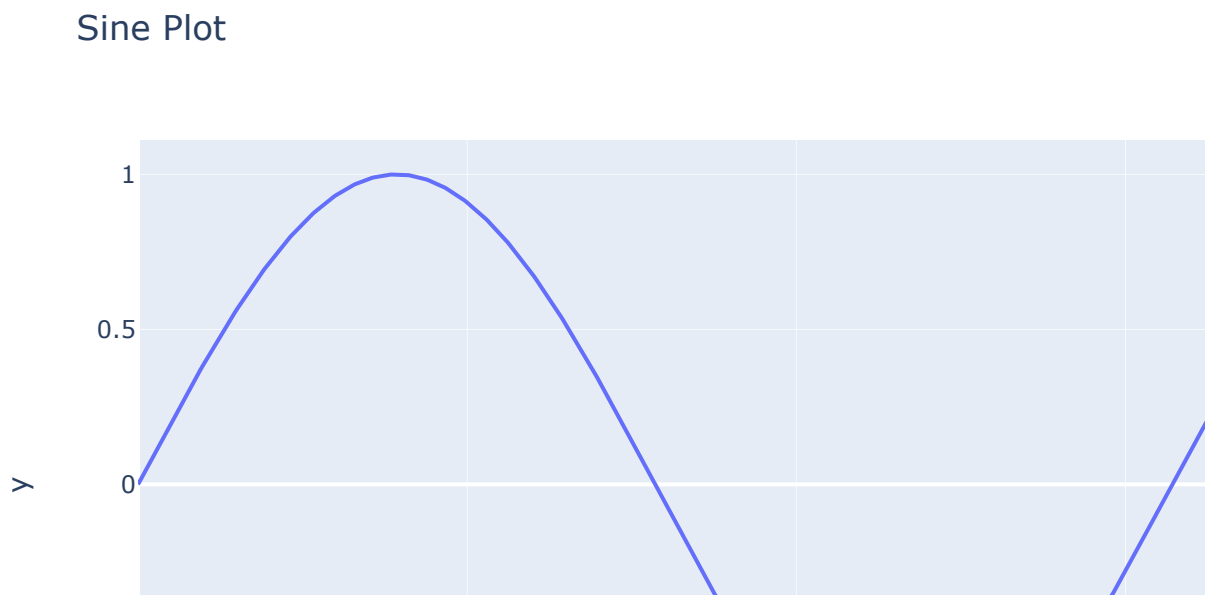
In [50]:
```
from plotly.subplots import make_subplots


#Subplot initialization
fig = make_subplots(
                    rows=1,
                    cols=2,
                    subplot_titles=("Immigration Data", "Insurance Data")
                   )


# Subplot - 1 (Add graph object trace to a figure)
fig.add_trace(go.Scatter(
                         x = canada.index.values,
                         y = canada['China'],
                         mode = 'lines',
                         name = 'China'
                         ),
              row=1, col=1
             )

# Add graph object trace to a figure
fig.add_trace(go.Scatter(
                         x = canada.index.values,
                         y = canada['India'],
                         mode = 'lines',
                         name = 'India'
                        ),
              row=1, col=1
             )

# Add graph object trace to a figure
fig.add_trace(go.Scatter(
                         x = canada.index.values,
                         y = canada['Pakistan'],
                         mode = 'lines',
                         name = 'Pakistan'
                        ),
              row=1, col=1
             )


# Subplot - 2 (Add graph object trace to a figure)
fig.add_trace(go.Scatter(
                            x = insurance[insurance.smoker=='yes'].bmi,
                            y = insurance[insurance.smoker=='yes'].charges,
                            mode = 'markers',
                            name = 'Smoker',
                            marker = dict(size = 7, color = '#F39C12',symbol = 'c
                         ),
              row=1, col=2
             )

# Add graph object trace to a figure
fig.add_trace(go.Scatter(
                            x = insurance[insurance.smoker=='no'].bmi,
```

```
                            y = insurance[insurance.smoker=='no'].charges,
                            mode = 'markers',
                            name = 'Non-Smoker',
                            marker = dict(size = 7, color = '#8BC34A',symbol = 'c
                        ),
                row=1, col=2
               )

# Changing X & Y Axis properties
fig.update_xaxes(title_text="Year", row=1, col=1)
fig.update_yaxes(title_text="Number of Immigrants", row=1, col=1)
fig.update_xaxes(title_text="BMI" ,row=1, col=2)
fig.update_yaxes(title_text="Charges", row=1, col=2)


#Changing plot & figure background
fig.update_layout(
                    paper_bgcolor= '#FFFDE7',
                    plot_bgcolor= '#FFFDE7',
                    title=dict(text = "Sub Plots",x=0.5,y=0.95),
                    title_font_size=30
                  )
fig.show()
```

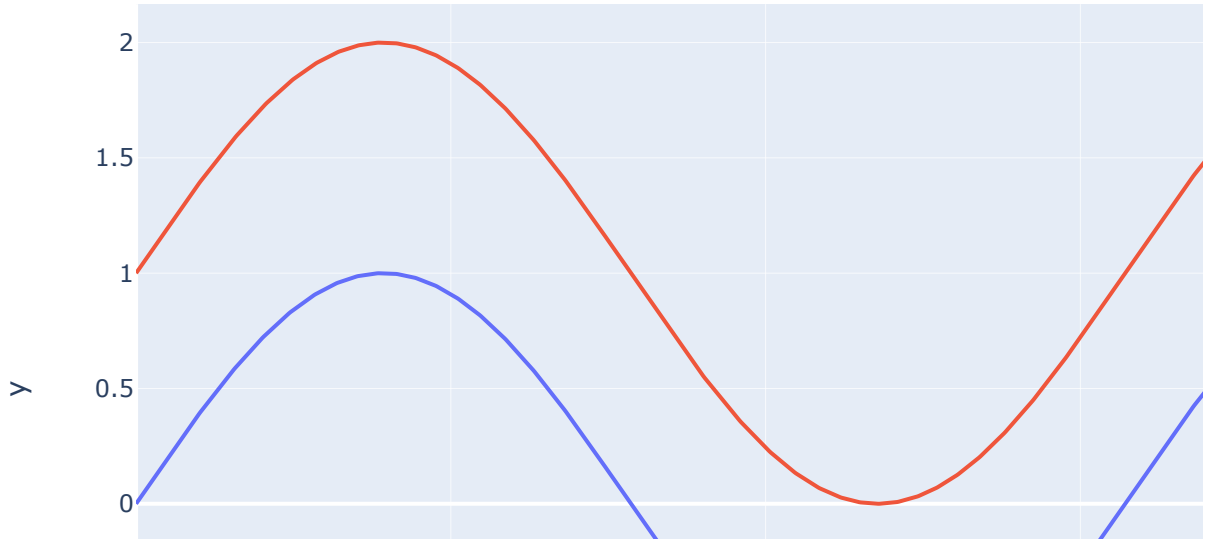


Line Plot using Plotly Express

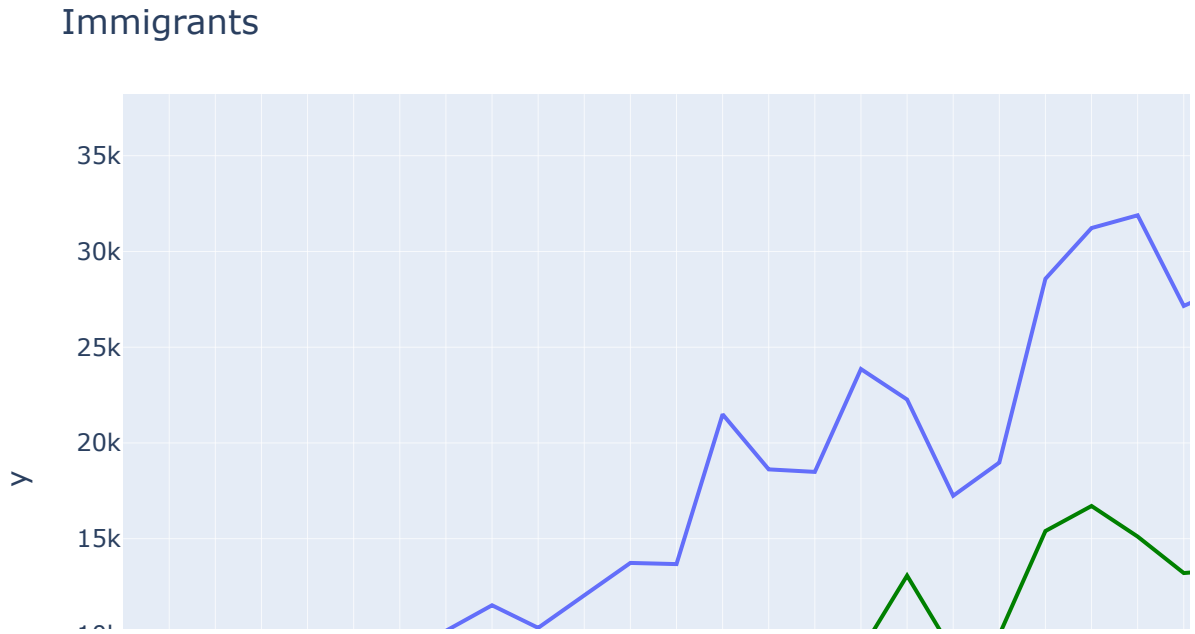
In [51]:
```
col1 = np.linspace(0, 10, 1000)
col2 = np.sin(col1)
fig = px.line(
              x=col1,
              y= col2,
              title="Sine Plot"
             )
fig.show()
```



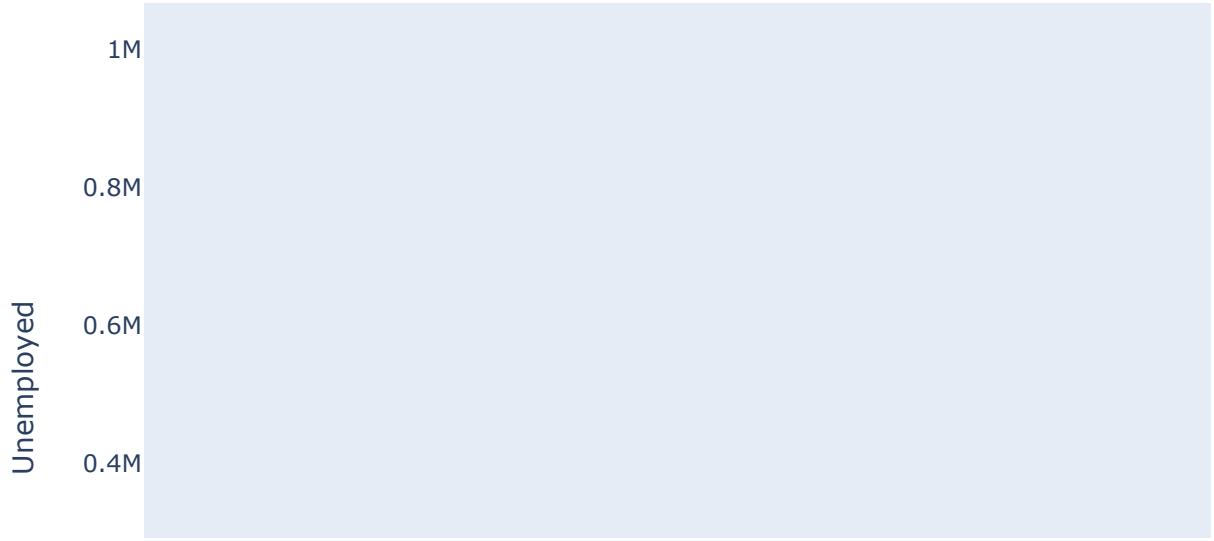
In [52]:
```
fig = px.line(
              x=col1,
              y= col2
             )
fig.add_scatter(x=col1,
                y= col2+1
               )
fig.show()
```



In [53]:
```
# Plot Immigrants from India
fig = px.line(
              x=canada1.index.values,
              y= canada1['India']
             )

# Plot Immigrants from Pakistan
fig.add_scatter(
                 x=canada1.index.values,
                 y= canada1['Pakistan'],
                 name = 'Pakistan',
                 line={'color': 'green'}
                )

# Plot Immigrants from Bangladesh
fig.add_scatter(
                 x=canada1.index.values,
                 y= canada1['Bangladesh'] ,
                 name = 'Bangladesh',
                 line={'color': 'red'}
                )

fig.update_layout(title_text='Immigrants')
fig.show()
```

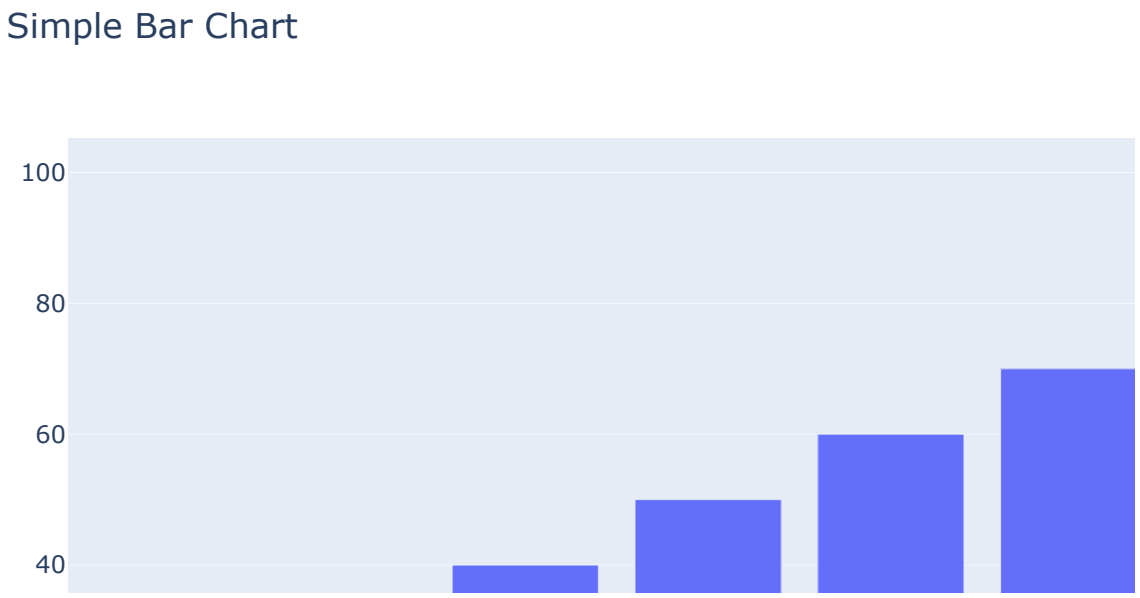


In [54]:
```
fig = px.line(
              employment,
              x="Period" ,
              y = "Unemployed",
              color='Gender'
             )

# Hide grid lines
fig.update_xaxes(showgrid=False)
fig.update_yaxes(showgrid=False)

fig.show()
```

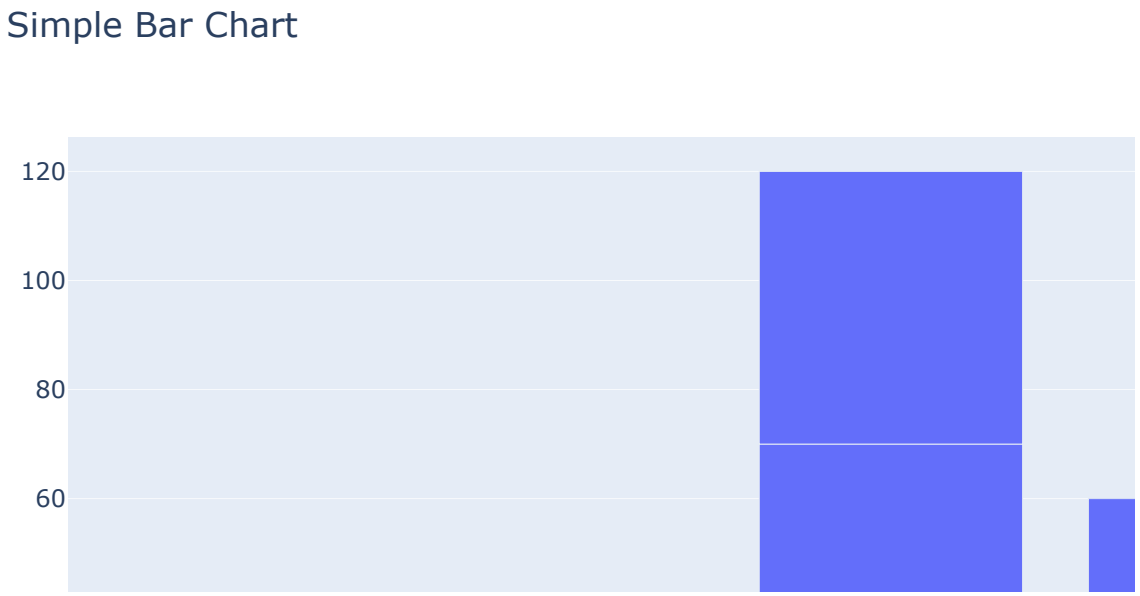


Bar Plot

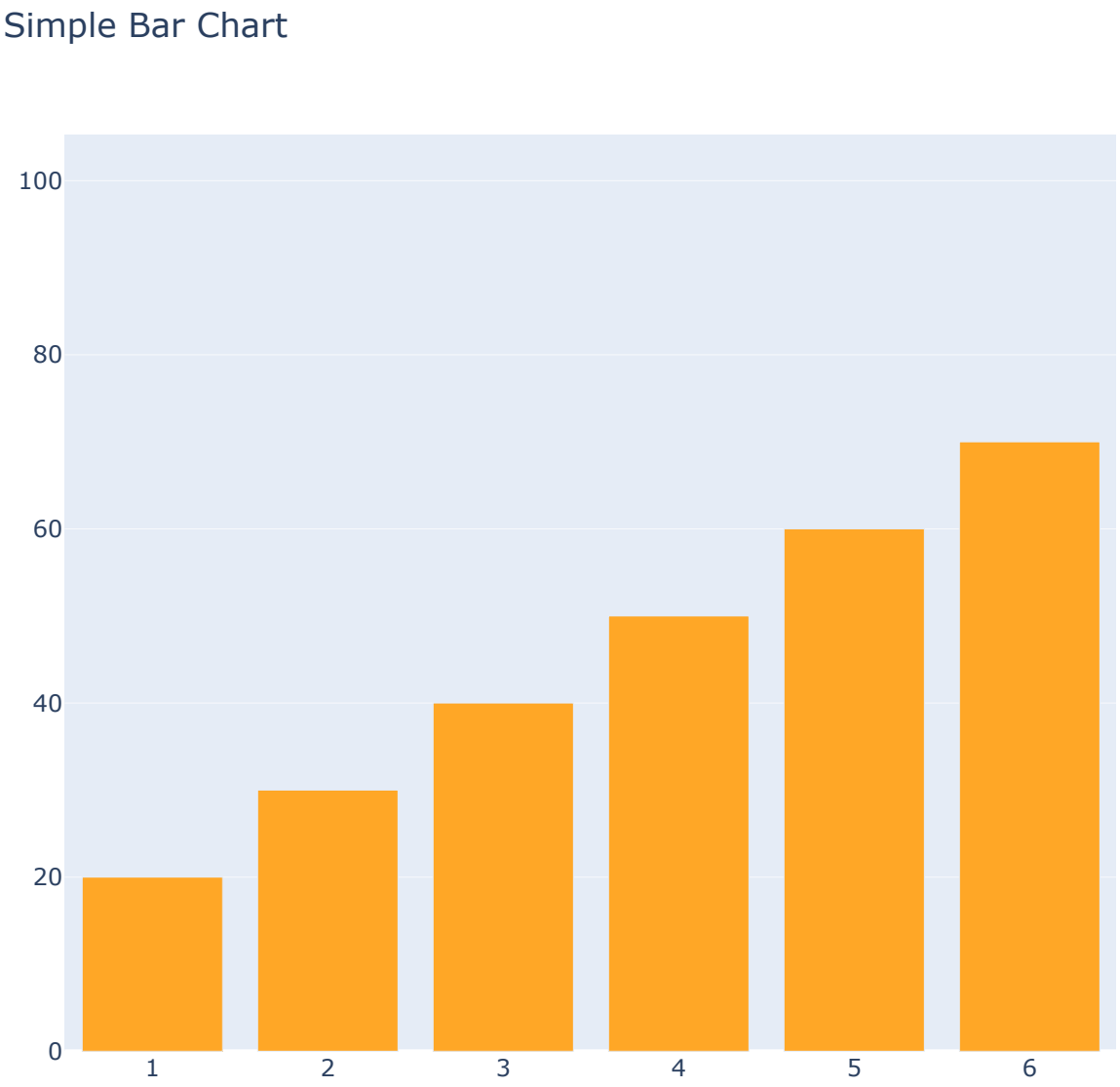
In [55]:
```
# Use go.Bar to plot Bar charts in Plotly
x = np.arange(1,10)
y = np.arange(20,110,10)
data = go.Bar(
             x= x,
             y= y,
             )

layout = go.Layout(
                  title = 'Simple Bar Chart'
                  )


fig = go.Figure(data=data,layout=layout)
fig.show()
```



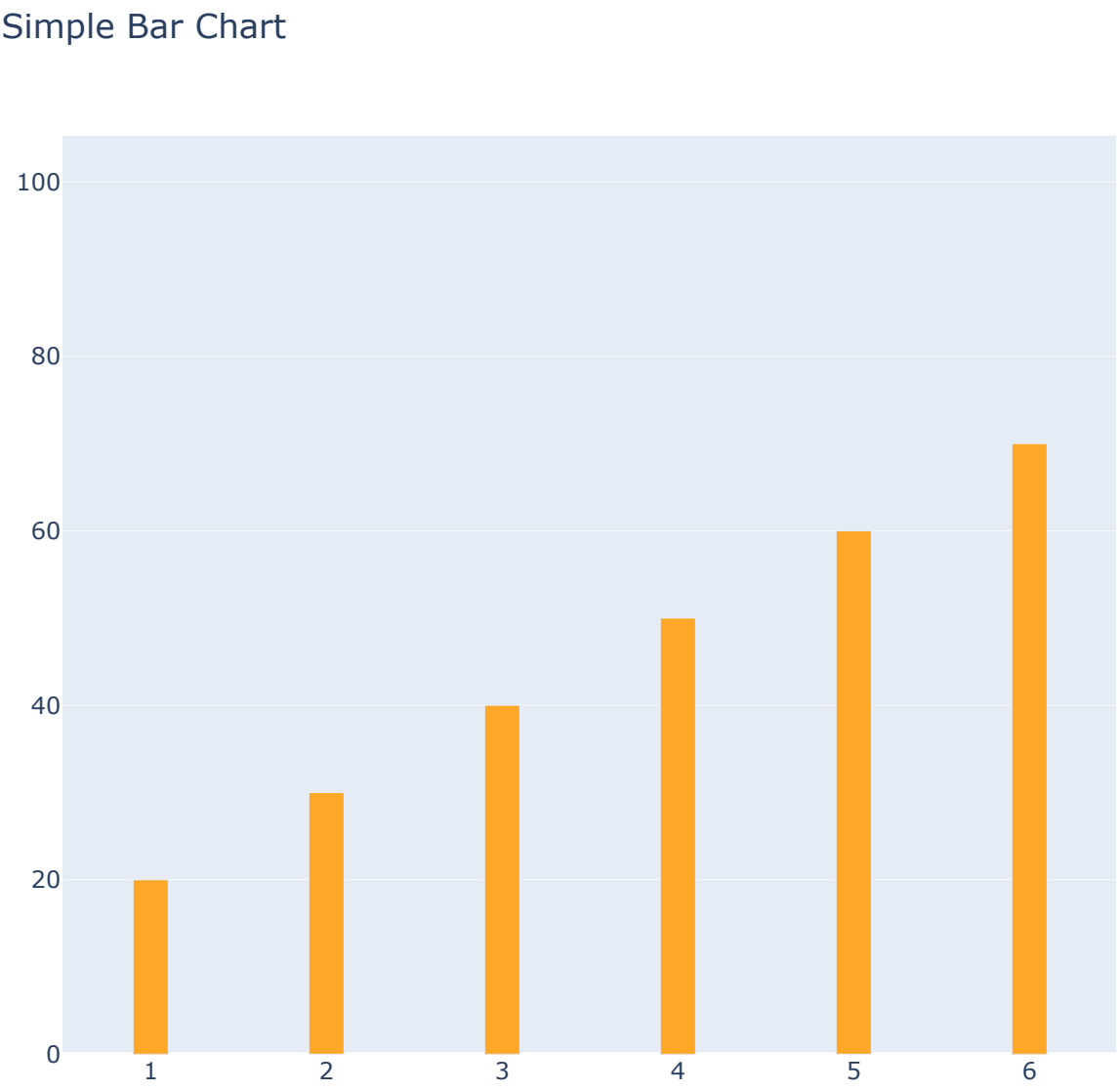
In [56]:
```
# Use go.Bar to plot Bar charts in Plotly
x1 = [1,2,3,3,3,4,5]
y1 = [10,20,30,40,50,60,65]


data = go.Bar(
             x= x1,
             y= y1,
             )

layout = go.Layout(
                  title = 'Simple Bar Chart'
                  )

fig = go.Figure(data=data,layout=layout)
fig.show()
```



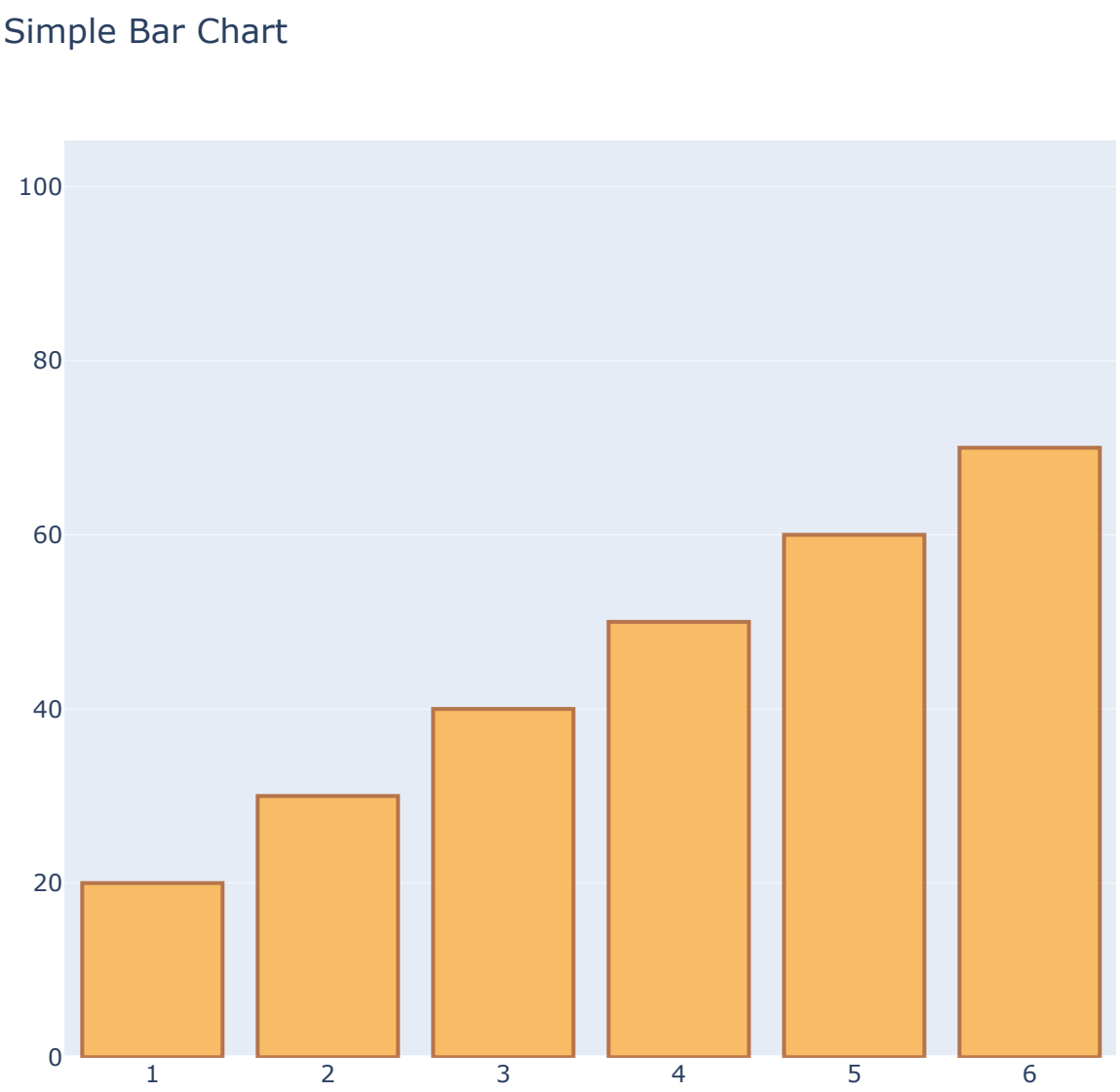
In [57]:
```
#Changing color of Bar plot
x = np.arange(1,10)
y = np.arange(20,130,10)
data = go.Bar(
             x= x,
             y= y,
             marker={'color' : '#FFA726'} # changing color of bar plot
             )

layout = go.Layout(
                  title = 'Simple Bar Chart',
                  width=970,
                  height=650
                  )


fig = go.Figure(data=data,layout=layout)
fig.show()
```



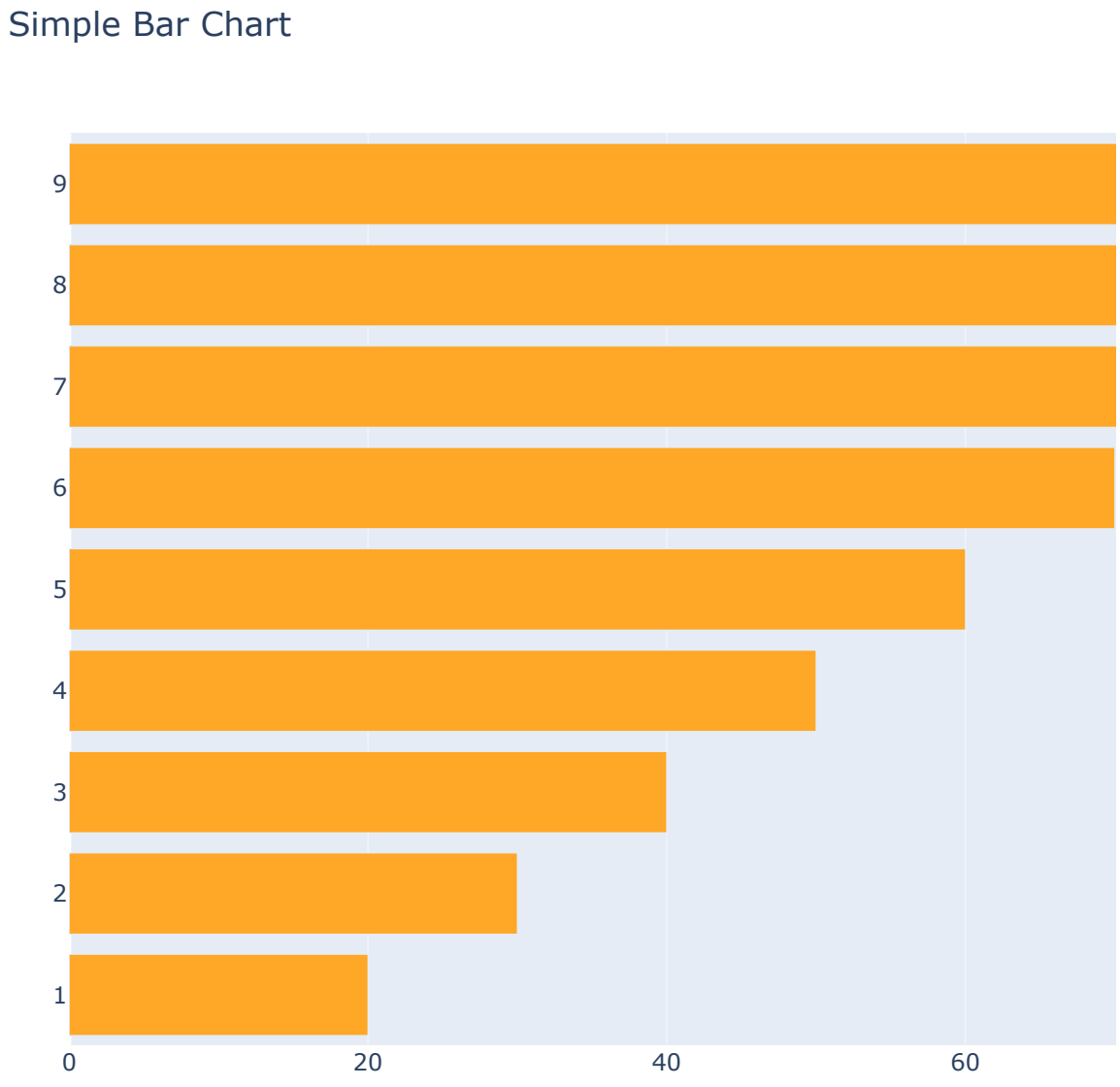
In [58]:
```
# Changing width of Bar Plot
x = np.arange(1,10)
y = np.arange(20,130,10)
wid = [0.2,]*9
data = go.Bar(
             x= x,
             y= y,
             marker={'color' : '#FFA726'}, # Changing color of bars
             width=wid # Changing width of Bars
             )

layout = go.Layout(
                  title = 'Simple Bar Chart',
                  width=970,
                  height=650
                  )


fig = go.Figure(data=data,layout=layout)
fig.show()
```



In [59]:
```
x = np.arange(1,10)
y = np.arange(20,130,10)
data = go.Bar(
             x= x,
             y= y,
             marker_color= '#FFA726', # Changing color of Bars
             marker_line_color = '#A04000', # Changing color of border
             marker_line_width = 2, # Changing width of border
             opacity=0.7 # Changing opacity of Bars
             )

layout = go.Layout(
                  title = 'Simple Bar Chart',
                  width=970,
                  height=650
                  )


fig = go.Figure(data=data,layout=layout)
fig.show()
```

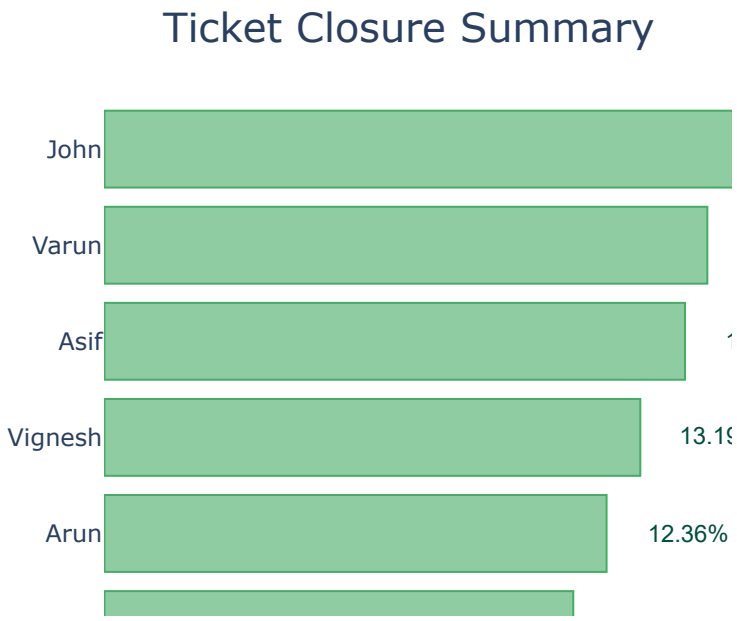


In [60]:
```
# Simple Horizontal Bar Plot (Using orientation='h')
x = np.arange(1,10)
y = np.arange(20,130,10)
data = go.Bar(
             x= y,
             y= x,
             marker={'color' : '#FFA726'},
             orientation='h'
             )

layout = go.Layout(
                  title = 'Simple Bar Chart',
                  width=970,
                  height=650
                  )


fig = go.Figure(data=data,layout=layout)
fig.show()
```

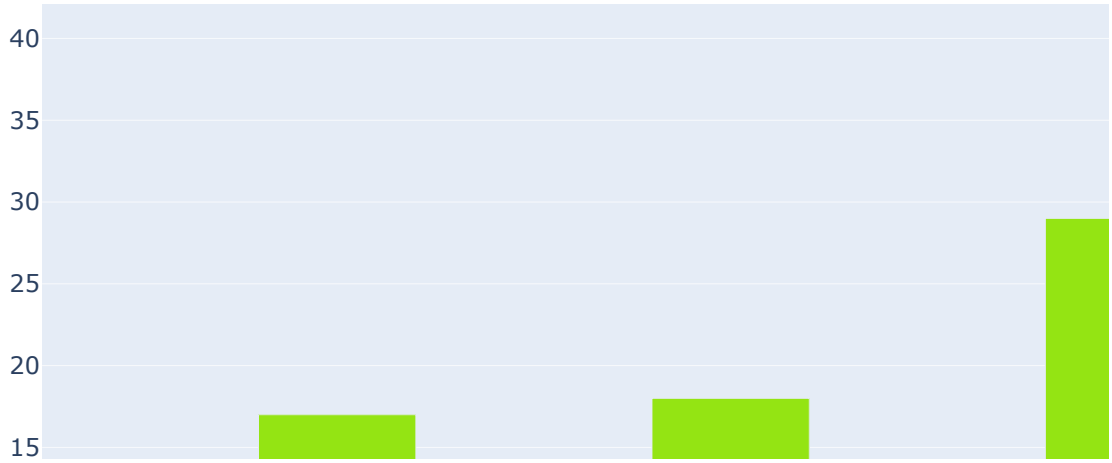


In [61]:
```
Assignee = ['Asif', 'Basit', 'John', 'Charles','Vignesh', 'Arun', 'Ashish', 'Varu
Tickets_Closed = np.array([52,42,60,35,48,45,28,54])
per = (Tickets_Closed/sum(Tickets_Closed))*100
per = np.round(per, decimals=2)

#Create dataframe
helpdesk = pd.DataFrame({'Assignee' : Assignee, 'Tickets Closed' :Tickets_Closed
helpdesk = helpdesk.sort_values(by='Percentage')

#Initialize the figure
fig = go.Figure()

#Plot Closure percentage using Horizontal Bar plot
fig.add_trace(go.Bar(
                     x=helpdesk.Percentage,
                     y=helpdesk.Assignee,
                     orientation='h',
                     marker=dict(
                                 color='rgba(70, 171, 100, 0.6)',
                                 line=dict(color='rgba(70, 171, 100, 1.0)',width
                                ),
                     )
             )

#Update layout
fig.update_layout(
                   title=dict(text = "Ticket Closure Summary",x=0.46,y=0.95,font_
                   yaxis=dict(
                              showticklabels=True,
                              ),

                   xaxis=dict(
                                showticklabels=False,
                                domain=[0, 0.6],
                             ),
                   margin=dict(l=300, r=20, t=70, b=70),
                   paper_bgcolor='rgb(248, 248, 255)',
                   plot_bgcolor='rgb(248, 248, 255)',
                  )



annotations = [] #Initialize anotation object


# Labels
for perc, asg in zip(helpdesk.Percentage, helpdesk.Assignee):

    # Displaying label bar percentage
    annotations.append(dict(xref='x',
                            yref='y',
                            y=asg,
                            x=perc + 2,
                            text=str(perc) + '%',
                            font=dict(family='Arial', size=12,color='#004D40'),
                            showarrow=False))
```

```
    # Displaying Footer
     annotations.append(dict(xref='paper',
                             yref='paper',
                             x=1,
                             y=-0.17,
                             text='Help Desk ' +'Closure Statistics, ' +'Year 2020',
                             font=dict(family='Arial', size=11, color='#9E9E9E'),
                             showarrow=False
                            )
                        )

fig.update_layout(annotations=annotations)

fig.show()
```

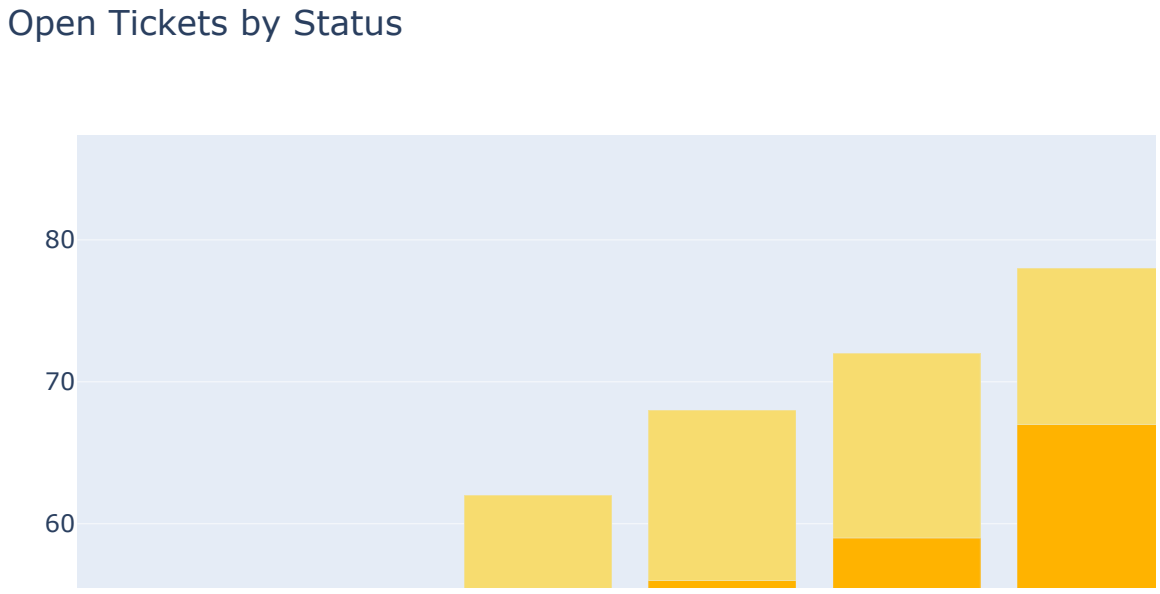


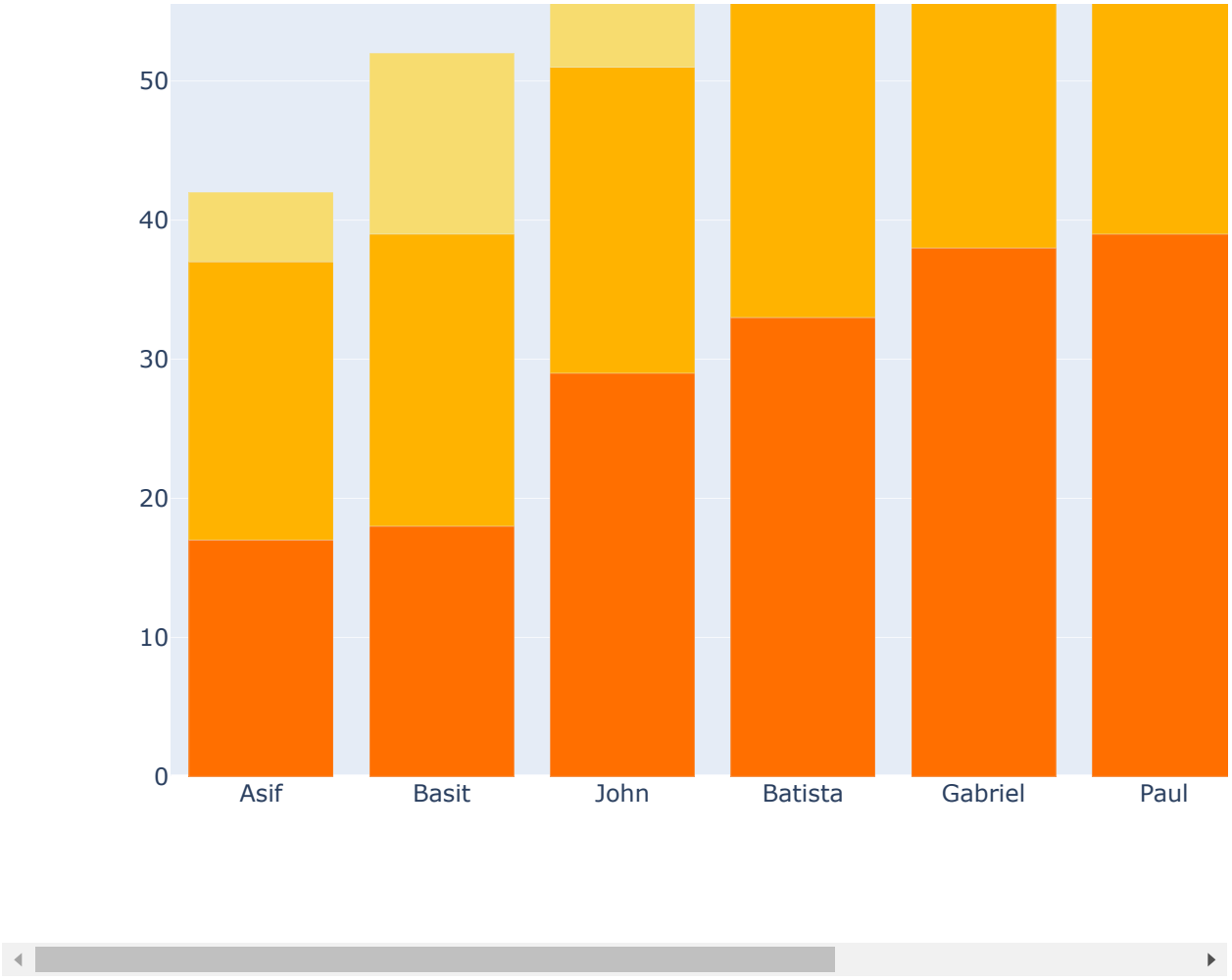
In [62]:
```
x1= [1,3,5,7]
x2=[2,4,6,8]
y1 = [7,7,7,7]
y2= [17,18,29,40]

trace0 = go.Bar(
             x= x1,
             y= y1,
             marker= dict (color ='#FFA726' )

             )

trace1 = go.Bar(
             x= x2,
             y= y2,
             marker={'color' : '#94E413'}
             )


data = [trace0,trace1]
fig = go.Figure(data=data)
fig.show()
```



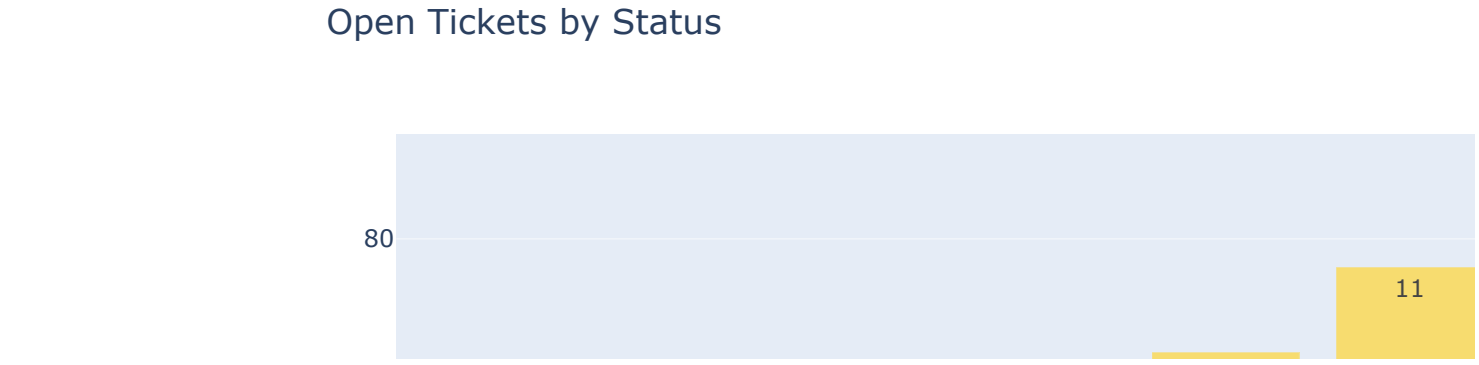
Stacked Vertical Bar

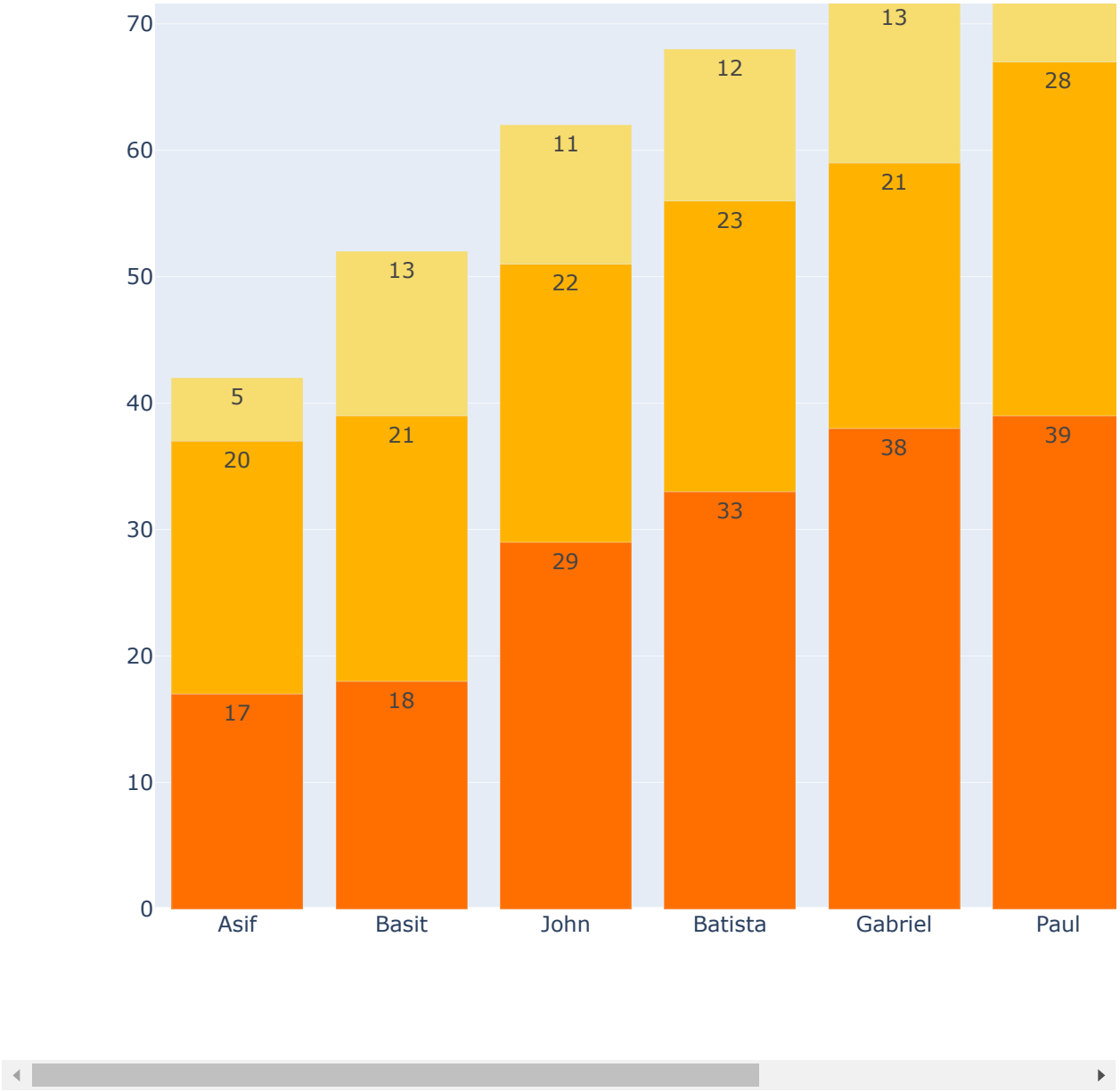
In [63]:
```
x = ['Asif','Basit','John','Batista', 'Gabriel' , 'Paul' , 'Ravi']
y1 = [17,18,29,33,38,39,42]
y2 = [20,21,22,23,21,28,25]
y3 = [5,13,11,12,13,11,16]
trace0 = go.Bar(
              x= x,
              y= y1,
              marker= dict (color ='#FF6F00' ),
              name = 'Open Tickets'

              )

trace1 = go.Bar(
              x= x,
              y= y2,
              marker={'color' : '#FFB300'},
               name = 'Closed Tickets'
               )

trace2 = go.Bar(
              x= x,
              y= y3,
              marker={'color' : '#F7DC6F'},
               name = 'Cancelled Tickets'
               )

layout = go.Layout(
                    title= 'Open Tickets by Status' ,
                    barmode = 'stack',
                    width=900,
                    height=800
                   )


data = [trace0,trace1,trace2]
fig = go.Figure(data=data, layout=layout)
fig.show()
```




50
40
30
20
10
0
Asif
Basit
John
Batista
Gabriel
Paul

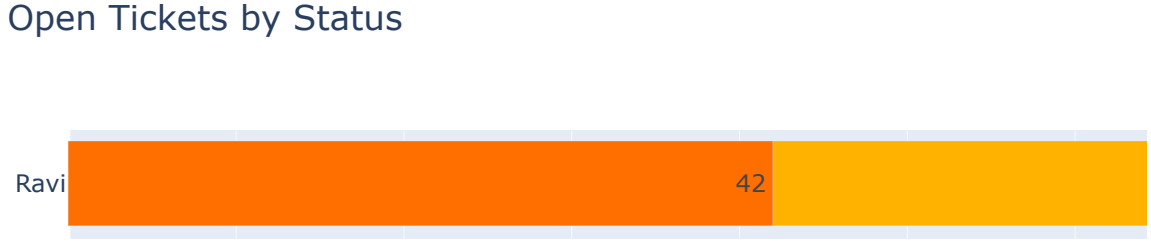
In [64]:
```
#Displaying values in bar plot using "text" and "textposition" parameter
x = ['Asif','Basit','John','Batista', 'Gabriel' , 'Paul' , 'Ravi']
y1 = [17,18,29,33,38,39,42]
y2 = [20,21,22,23,21,28,25]
y3 = [5,13,11,12,13,11,16]
trace0 = go.Bar(
              x= x,
              y= y1,
              marker= dict (color ='#FF6F00' ),
              name = 'Open Tickets',
              text=y1,
              textposition='auto'
              )

trace1 = go.Bar(
              x= x,
              y= y2,
              marker={'color' : '#FFB300'},
              name = 'Closed Tickets',
              text=y2,
              textposition='auto'
               )

trace2 = go.Bar(
              x= x,
              y= y3,
              marker={'color' : '#F7DC6F'},
              name = 'Cancelled Tickets',
              text=y3,
              textposition='auto'
               )

layout = go.Layout(
                   title= 'Open Tickets by Status' ,
                   barmode = 'stack',
                   width=900,
                   height=800
                  )


data = [trace0,trace1,trace2]
fig = go.Figure(data=data, layout=layout)
fig.show()
```

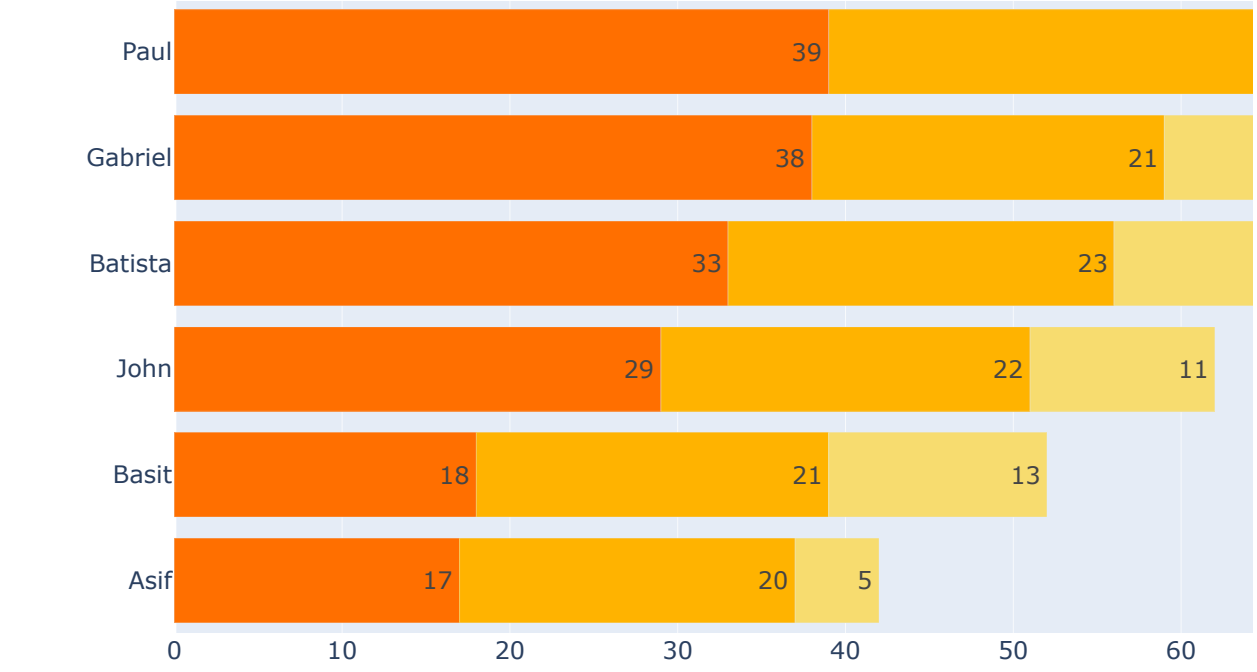




Stacked Horizontal Bar

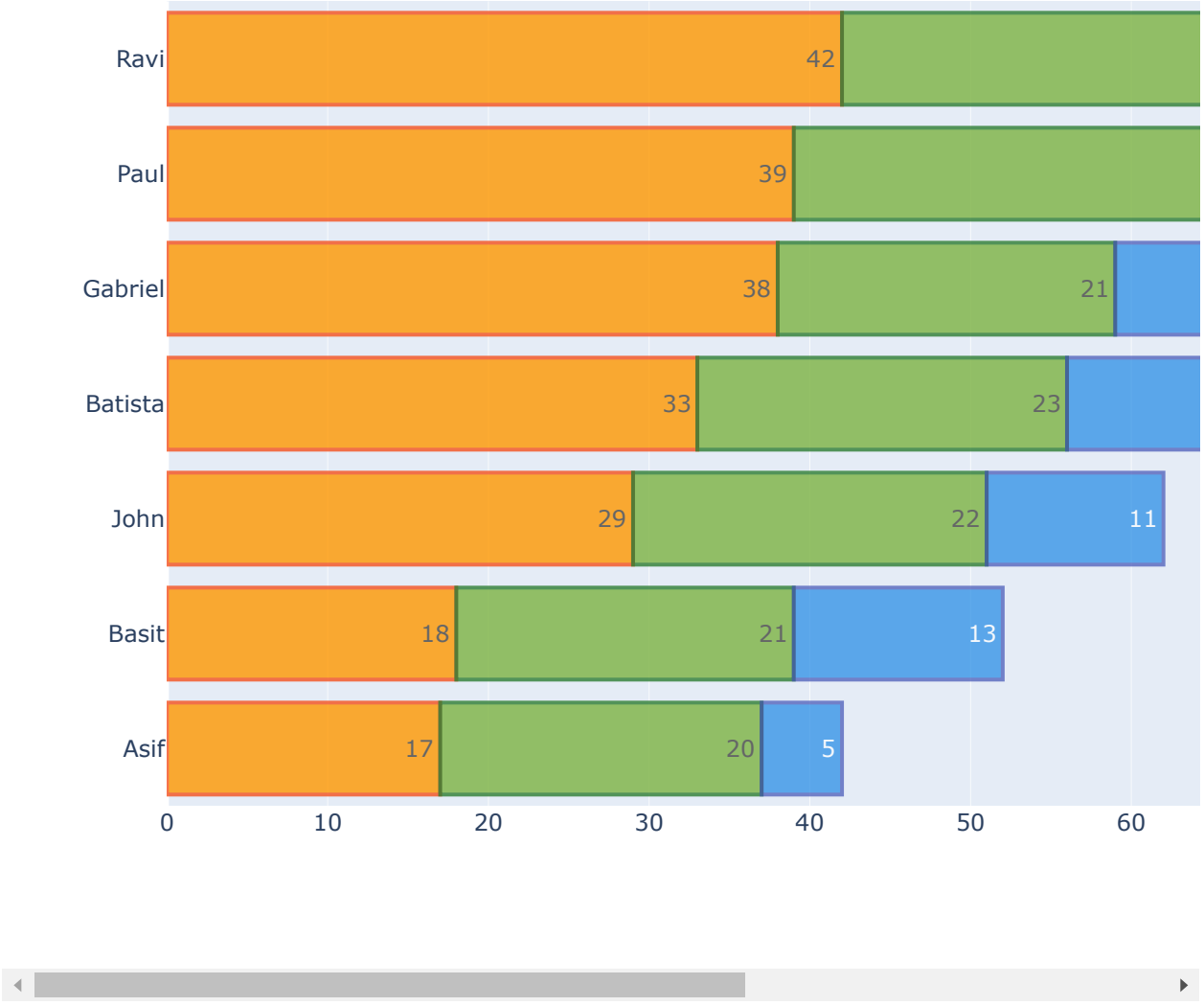
In [65]:
```
x = ['Asif','Basit','John','Batista', 'Gabriel' , 'Paul' , 'Ravi']
y1 = [17,18,29,33,38,39,42]
y2 = [20,21,22,23,21,28,25]
y3 = [5,13,11,12,13,11,16]

trace0 = go.Bar(
             x= y1,
             y= x,
             marker= dict (color ='#FF6F00'),
             name = 'Open Tickets',
             orientation='h',
             text=y1,
             textposition='auto'
             )

trace1 = go.Bar(
             x= y2,
             y= x,
             marker={'color' : '#FFB300'},
             name = 'Closed Tickets',
             orientation='h',
             text=y2,
             textposition='auto'
              )


trace2 = go.Bar(
             x= y3,
             y= x,
             marker={'color' : '#F7DC6F'},
             name = 'Cancelled Tickets',
             orientation='h',
             text=y3,
             textposition='auto'
              )

layout = go.Layout(
                   title= 'Open Tickets by Status' ,
                   barmode = 'stack',
                   width=990,
                   height=550
                  )

data = [trace0,trace1,trace2]
fig = go.Figure(data=data, layout=layout)

fig.show()
```




Paul
Gabriel
Batista
John
Basit
Asif
39
38
21
33
23
29
22
11
18
21
13
17
20
5
0
10
20
30
40
50
60

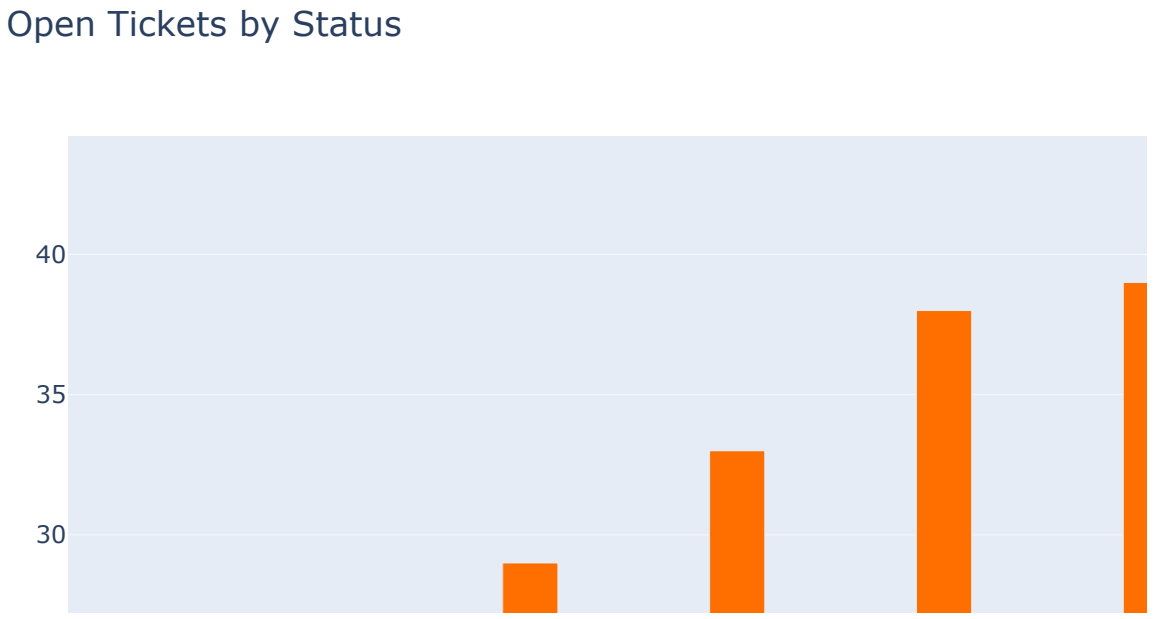
In [66]:
```
x = ['Asif','Basit','John','Batista', 'Gabriel' , 'Paul' , 'Ravi']
y1 = [17,18,29,33,38,39,42]
y2 = [20,21,22,23,21,28,25]
y3 = [5,13,11,12,13,11,16]

trace0 = go.Bar(
             x= y1,
             y= x,
             marker= dict (color ='#FF9800',line=dict(color='#F4511E',width=2)),
             name = 'Open Tickets',
             orientation='h',
             text=y1,
             textposition='auto',
             opacity=0.8,
             )

trace1 = go.Bar(
             x= y2,
             y= x,
             marker= dict (color ='#7CB342',line=dict(color='#2E7D32', width=2)),
             name = 'Closed Tickets',
             orientation='h',
             text=y2,
             textposition='auto',
             opacity=0.8,
              )


trace2 = go.Bar(
             x= y3,
             y= x,
             marker= dict (color ='#1E88E5',line=dict(color='#3F51B5', width=2)),
             name = 'Cancelled Tickets',
             orientation='h',
             text=y3,
             textposition='auto',
             opacity=0.7,
              )

layout = go.Layout(
                   title= 'Open Tickets by Status' ,
                   barmode = 'stack',
                   width=990,
                   height=600
                  )

data = [trace0,trace1,trace2]
fig = go.Figure(data=data, layout=layout)

fig.show()
```

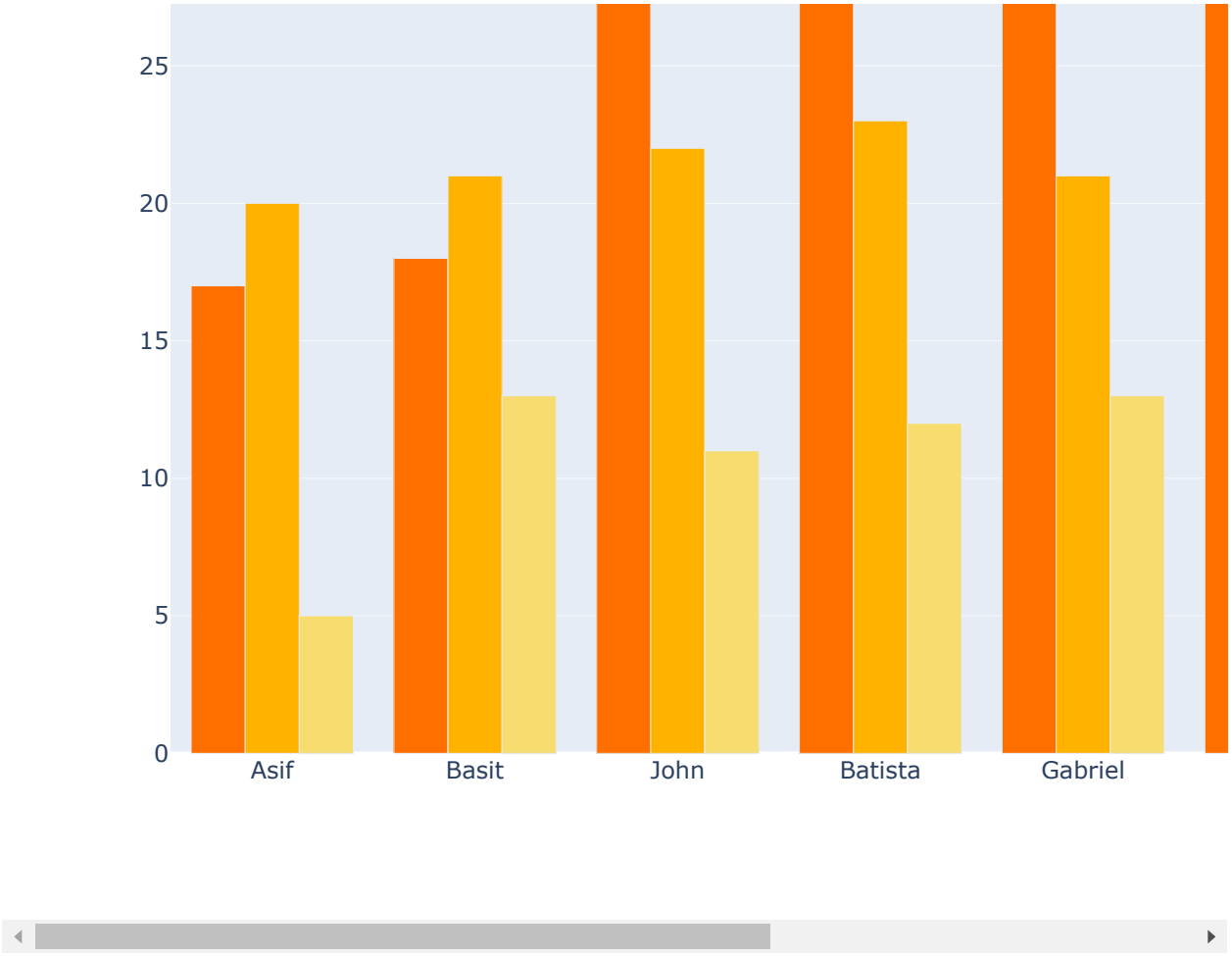
Open Tickets by Status



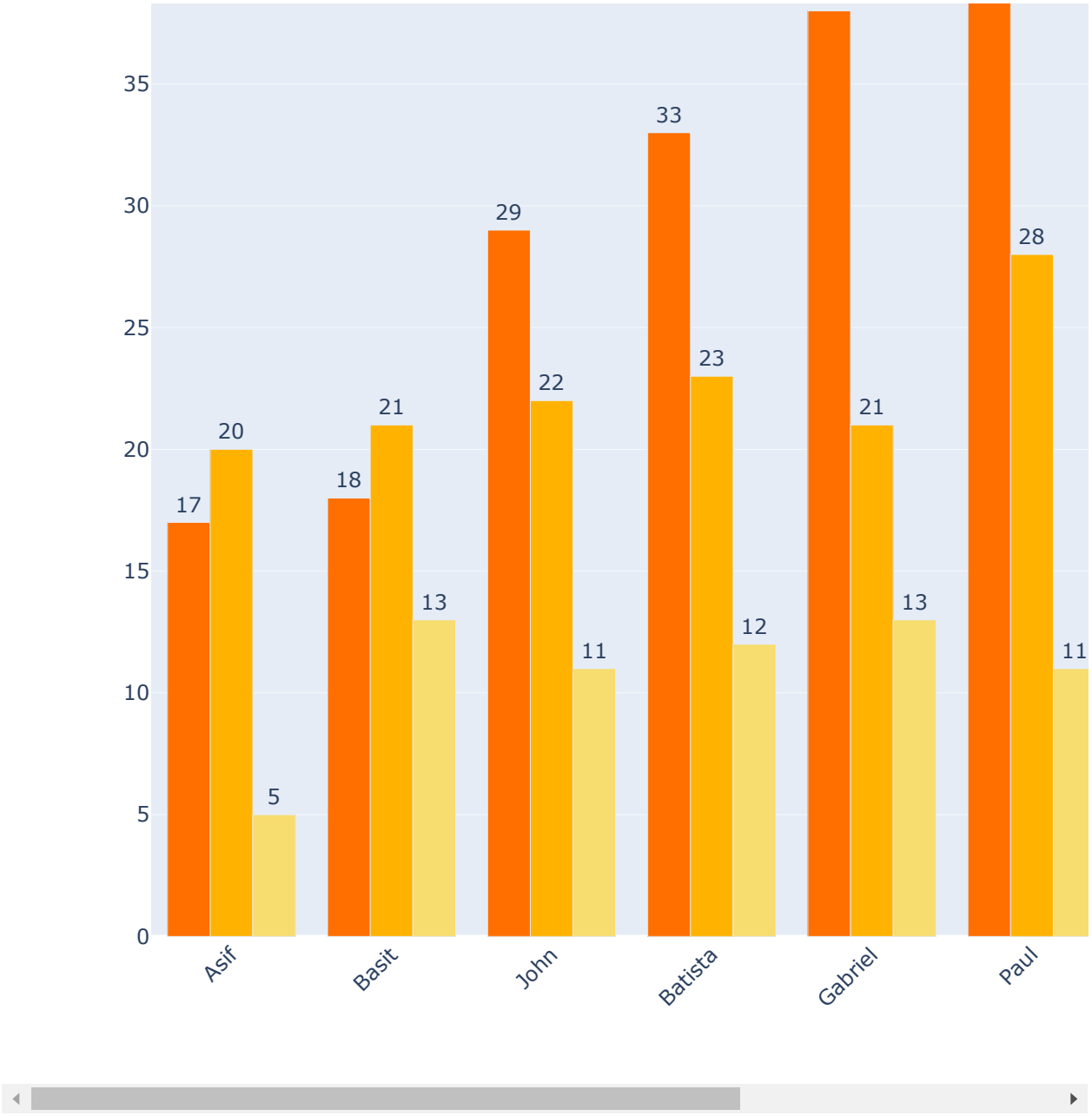
Grouped Bar Chart

In [67]:
```
x = ['Asif','Basit','John','Batista', 'Gabriel' , 'Paul' , 'Ravi']
y1 = [17,18,29,33,38,39,42]
y2 = [20,21,22,23,21,28,25]
y3 = [5,13,11,12,13,11,16]
trace0 = go.Bar(
              x= x,
              y= y1,
              marker= dict (color ='#FF6F00' ),
              name = 'Open Tickets',
              )

trace1 = go.Bar(
              x= x,
              y= y2,
              marker={'color' : '#FFB300'},
               name = 'Closed Tickets'
               )

trace2 = go.Bar(
              x= x,
              y= y3,
              marker={'color' : '#F7DC6F'},
               name = 'Cancelled Tickets'
               )

layout = go.Layout(
                    title= 'Open Tickets by Status' ,
                    width=980,
                    height=800
                   )


data = [trace0,trace1,trace2]
fig = go.Figure(data=data, layout=layout)

fig.show()
```



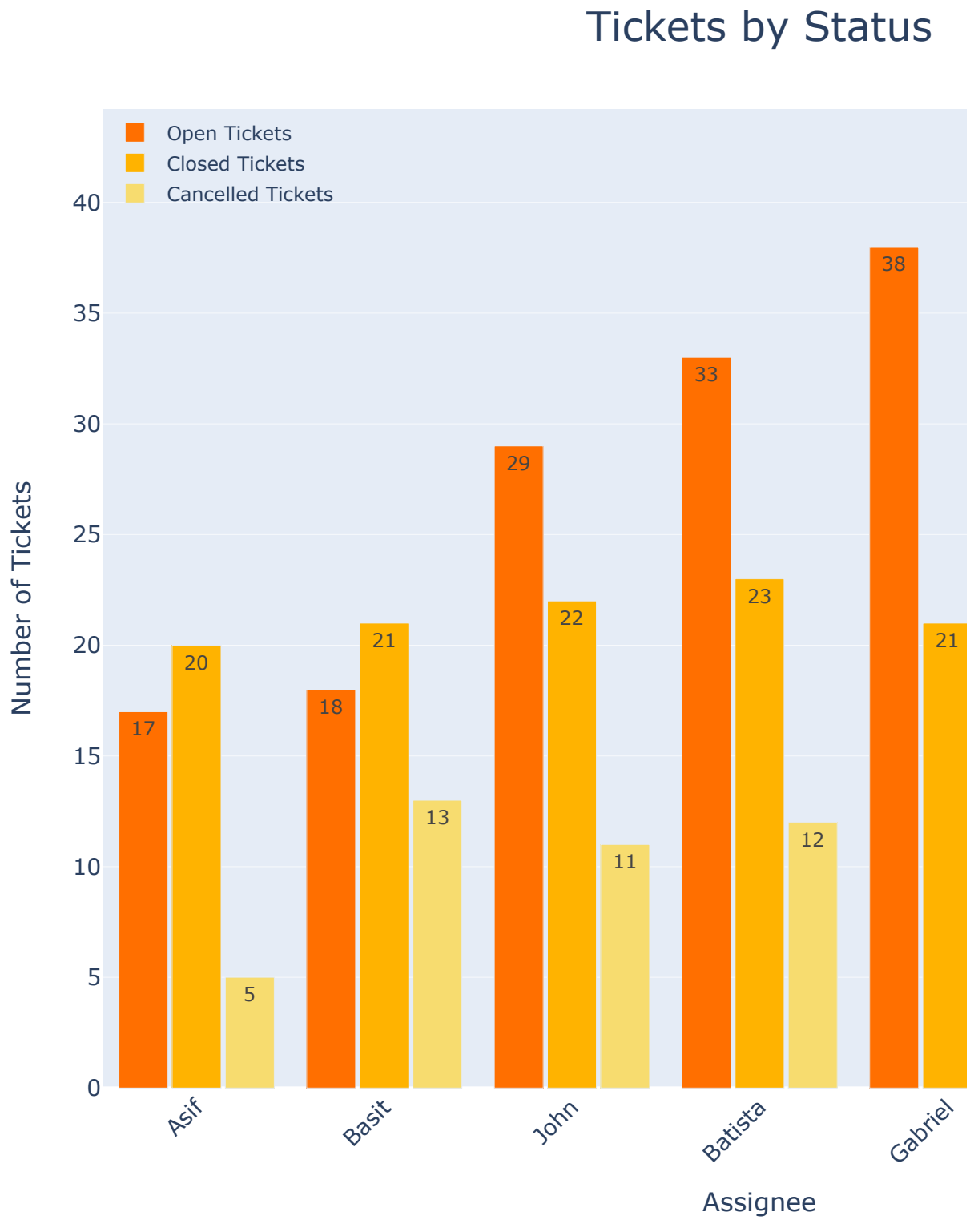

25
20
15
10
5
0
Asif
Basit
John
Batista
Gabriel

In [68]:
```
# Grouped Bar Chart with values displayed outside the bar (Using  textposition='o
x = ['Asif','Basit','John','Batista', 'Gabriel' , 'Paul' , 'Ravi']
y1 = [17,18,29,33,38,39,42]
y2 = [20,21,22,23,21,28,25]
y3 = [5,13,11,12,13,11,16]
trace0 = go.Bar(
              x= x,
              y= y1,
              marker= dict (color ='#FF6F00' ),
              name = 'Open Tickets',
              text=y1,
              textposition='outside'
              )

trace1 = go.Bar(
              x= x,
              y= y2,
              marker={'color' : '#FFB300'},
              name = 'Closed Tickets',
              text=y2,
              textposition='outside'
               )

trace2 = go.Bar(
              x= x,
              y= y3,
              marker={'color' : '#F7DC6F'},
              name = 'Cancelled Tickets',
              text=y3,
              textposition='outside'
               )

layout = go.Layout(
                    title= 'Open Tickets by Status' ,
                    barmode = 'group',
                    width=900,
                    height=800,
                    xaxis_tickangle=-45
                   )


data = [trace0,trace1,trace2]
fig = go.Figure(data=data, layout=layout)

fig.show()
```


35
30
25
20
15
10
5
0
17
20
5
18
21
13
29
22
11
33
23
12
38
21
13
38
28
11
Asif
Basit
John
Batista
Gabriel
Paul

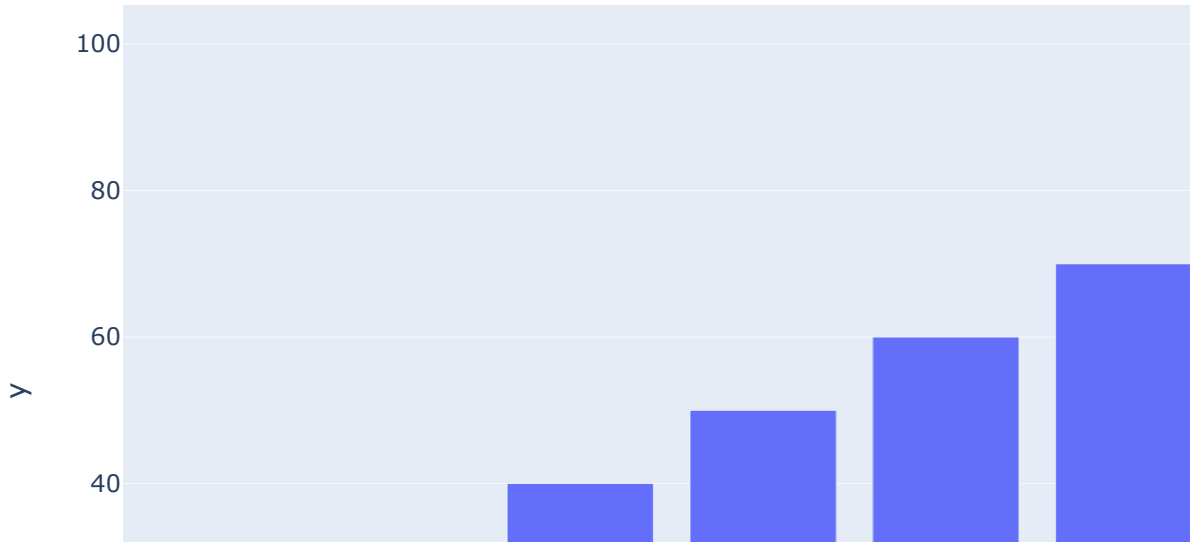
In [69]:
```
# Grouped Bar Chart with values displayed inside the bar using "auto" textpositio
x = ['Asif','Basit','John','Batista', 'Gabriel' , 'Paul' , 'Ravi']
y1 = [17,18,29,33,38,39,42]
y2 = [20,21,22,23,21,28,25]
y3 = [5,13,11,12,13,11,16]
trace0 = go.Bar(
              x= x,
              y= y1,
              marker= dict (color ='#FF6F00' ),
              name = 'Open Tickets',
              text=y1,
              textposition='auto'
              )

trace1 = go.Bar(
              x= x,
              y= y2,
              marker={'color' : '#FFB300'},
              name = 'Closed Tickets',
              text=y2,
              textposition='auto'
               )

trace2 = go.Bar(
              x= x,
              y= y3,
              marker={'color' : '#F7DC6F'},
              name = 'Cancelled Tickets',
              text=y3,
              textposition='auto'
               )


layout = go.Layout(
                   title=dict(text = "Tickets by Status",x=0.5,y=0.95,font_size=2
                   barmode = 'group',
                   width=980,
                   height=800,
                   xaxis_tickangle=-45,
                   xaxis_tickfont_size=14,
                   yaxis=dict(
                              title='Number of Tickets',
                              titlefont_size=16,
                              tickfont_size=14,
                             ),

                   xaxis=dict(
                              title='Assignee',
                              titlefont_size=16,
                              tickfont_size=14,
                             ),
                  legend=dict(
                              x=0,
                              y=1,
                              bgcolor='rgba(255, 255, 255, 0)',
                              bordercolor='rgba(255, 255, 255, 0)'
```

```
                    ),
                bargap=0.15, # gap between bars of adjacent location coordinate
                bargroupgap=0.08 # gap between bars of the same location coordi
               )


data = [trace0,trace1,trace2]
fig = go.Figure(data=data, layout=layout)

fig.show()
```

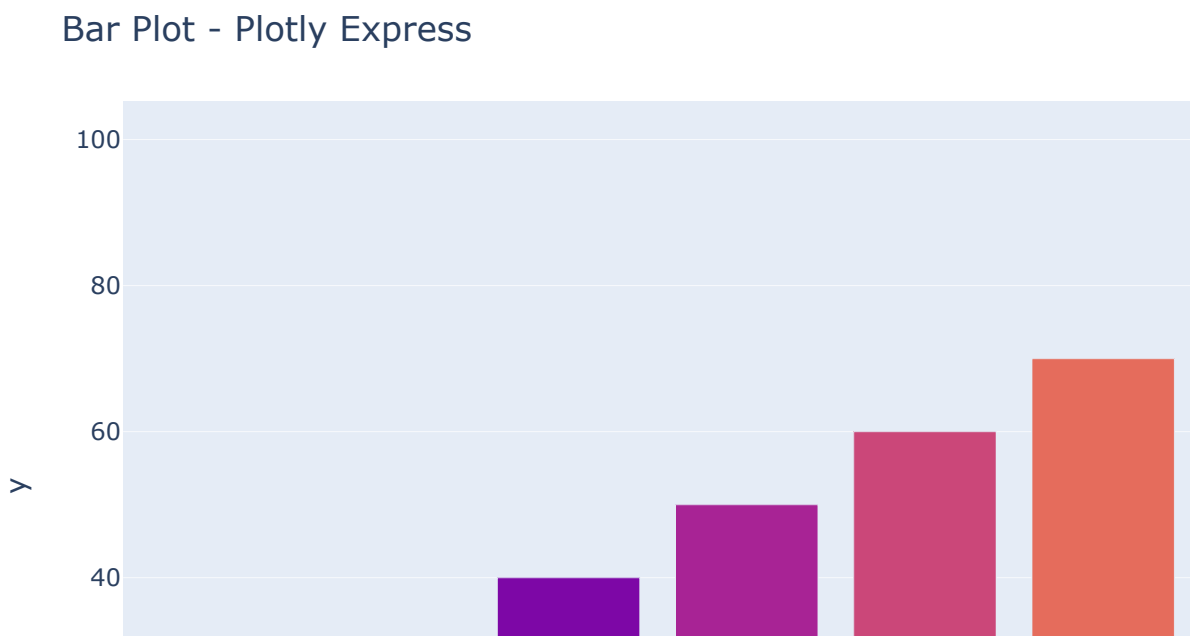


Bar Plot using Plotly Express

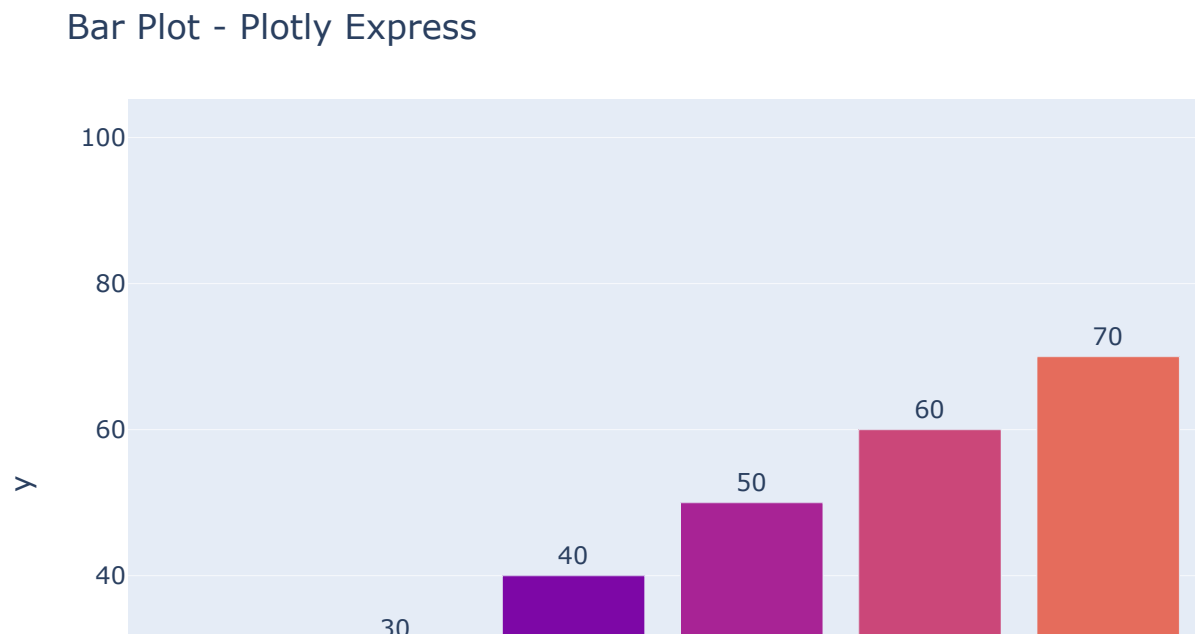
In [70]:
```
#Simple Bar plot using px.bar

x = np.arange(1,10)
y = np.arange(20,110,10)
fig = px.bar(x=x, y=y)
fig.show()
```



In [71]:
```
x = np.arange(1,10)
y = np.arange(20,110,10)
fig = px.bar(x=x, y=y,color=y)
fig.layout.title.text = "Bar Plot - Plotly Express"
fig.update_traces(textposition='outside')
fig.show()
```



In [72]:
```
x = np.arange(1,10)
y = np.arange(20,110,10)
fig = px.bar(x=x, y=y,color=y,text=y)
fig.layout.title.text = "Bar Plot - Plotly Express"
fig.update_traces(textposition='outside')
fig.show()
```



100% Stacked Bar Chart

In [73]:
```
col1 = ['Strongly Agree' , 'Agree' , 'Neutral' , 'Disagree' , 'Strongly Disagree'
index1 = ['Python' , 'Java' , 'Julia' , 'C++' , 'C']
review = np.array([[428, 111, 70, 101, 80],
                   [370, 222, 80, 104, 70],
                   [298, 121, 90, 102, 60],
                   [310, 141, 100, 109, 56],
                   [400, 121, 110, 107, 78]]
                 )

rating = pd.DataFrame(data=review,index=index1,columns=col1)
rating
```

Out[73]:

	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
Python	428	111	70	101	80
Java	370	222	80	104	70
Julia	298	121	90	102	60
C++	310	141	100	109	56
C	400	121	110	107	78

In [74]:
```
rating['Total'] = rating.sum(axis=1)
rating
```

Out[74]:

	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree	Total
Python	428	111	70	101	80	790
Java	370	222	80	104	70	846
Julia	298	121	90	102	60	671
C++	310	141	100	109	56	716
C	400	121	110	107	78	816

In [75]:
```
rating = rating.assign(**{'Strongly Agree (%)': np.nan,
             'Agree (%)' : np.nan,
             'Neutral (%)': np.nan ,
             'Disagree (%)' : np.nan,
             'Strongly Disagree (%)': np.nan,
            })
rating
```

Out[75]:

	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree	Total	Strongly Agree (%)	Agree (%)	Neutral (%)	Disagree (%)	S D
Python	428	111	70	101	80	790	NaN	NaN	NaN	NaN	
Java	370	222	80	104	70	846	NaN	NaN	NaN	NaN	
Julia	298	121	90	102	60	671	NaN	NaN	NaN	NaN	
C++	310	141	100	109	56	716	NaN	NaN	NaN	NaN	
C	400	121	110	107	78	816	NaN	NaN	NaN	NaN	

In [76]:
```
for i in range(0,len(rating['Strongly Agree'])):
    k=0
    for j in range(int(len(rating.iloc[0])/2)+1 , len(rating.iloc[0])):
        rating.iat[i,j] =  np.round((rating.iat[i,k] / rating.iat[i,5])*100 ,deci
        k=k+1
rating
```

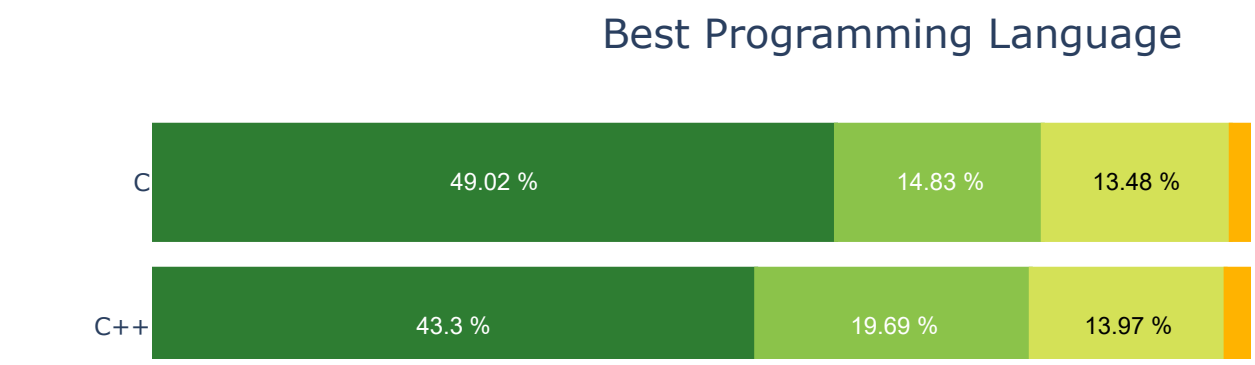
Out[76]:

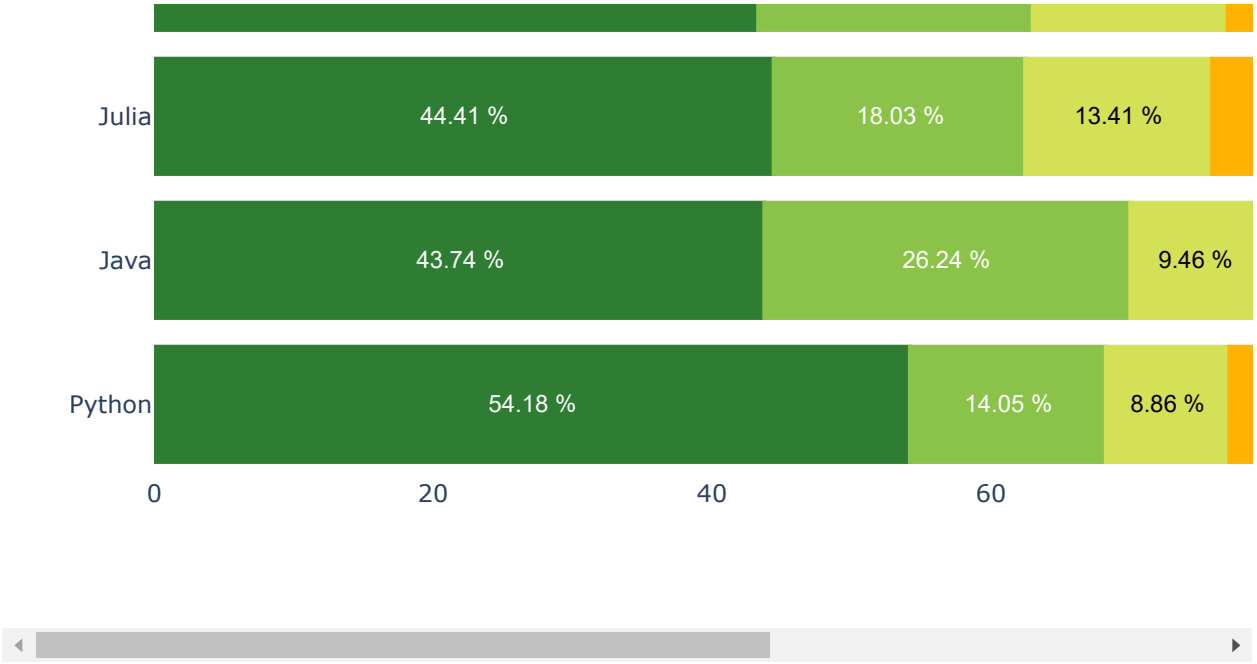
	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree	Total	Strongly Agree (%)	Agree (%)	Neutral (%)	Disagree (%)	S D
Python	428	111	70	101	80	790	54.18	14.05	8.86	12.78	
Java	370	222	80	104	70	846	43.74	26.24	9.46	12.29	
Julia	298	121	90	102	60	671	44.41	18.03	13.41	15.20	
C++	310	141	100	109	56	716	43.30	19.69	13.97	15.22	
C	400	121	110	107	78	816	49.02	14.83	13.48	13.11	

In [77]:
```
fig = go.Figure()

# Trace to plot "Strongly Agree" percentage
fig.add_trace(
                go.Bar(
                        x= rating['Strongly Agree (%)'],
                        y= rating.index,
                        marker= dict (color ='#2E7D32',line=dict(color='#2E7D32',w
                        name = 'Strongly Agree (%)',
                        orientation='h',
                        textposition='auto',
                       )
              )


# Trace to plot "Agree" percentage
fig.add_trace(
                go.Bar(
                        x= rating['Agree (%)'],
                        y= rating.index,
                        marker= dict (color ='#8BC34A',line=dict(color='#8BC34A',w
                        name = 'Agree (%)',
                        orientation='h',
                        textposition='auto',
                       )
              )



# Trace to plot "Neutral" percentage
fig.add_trace(
                go.Bar(
                        x= rating['Neutral (%)'],
                        y= rating.index,
                        marker= dict (color ='#D4E157',line=dict(color='#D4E157',w
                        name = 'Neutral (%)',
                        orientation='h',
                        textposition='auto',
                       )
              )



# Trace to plot "Disagree" percentage
fig.add_trace(
                go.Bar(
                        x= rating['Disagree (%)'],
                        y= rating.index,
                        marker= dict (color ='#FFB300',line=dict(color='#FFB300',w
                        name = 'Disagree (%)',
                        orientation='h',
                        textposition='auto',
                       )
              )
```

```
# Trace to plot "Strongly Disagree" percentage
fig.add_trace(
               go.Bar(
                       x= rating['Strongly Disagree (%)'],
                       y= rating.index,
                       marker= dict (color ='#FF7043',line=dict(color='#FF7043',w
                       name = 'Strongly Disagree (%)',
                       orientation='h',
                       textposition='auto',
                      )
             )


# Layout setting
fig.update_layout(
                   title=dict(text = "Best Programming Language",x=0.44,y=0.95,fo
                   barmode = 'stack',
                   width=1000,
                   height=500,
                   margin=dict(l=70, r=0, t=70, b=70),
                   paper_bgcolor='rgb(248, 248, 255)',
                   plot_bgcolor='rgb(248, 248, 255)',
                  )

annotations =[]



# Displaying bar percentage label for "Strongly Agree"
for perc, lang in zip(rating.iloc[:,6],rating.index):
    # labeling the bar percentage
    annotations.append(dict(xref='x',
                            yref='y',
                            y=lang,
                            x=perc/2 ,
                            text=str(perc) + ' %',
                            font=dict(family='Arial', size=12,color='white'),
                            showarrow=False))


# Displaying bar percentage label for "Agree"
i=0
for perc, lang in zip(rating.iloc[:,7],rating.index):
    # labeling the bar percentage
    annotations.append(dict(xref='x',
                            yref='y',
                            y=lang,
                            x=perc/2 + rating.iloc[i,6],
                            text=str(perc) + ' %',
                            font=dict(family='Arial', size=12,color='white'),
                            showarrow=False))
    i+=1


# Displaying bar percentage label for "Neutral"
```

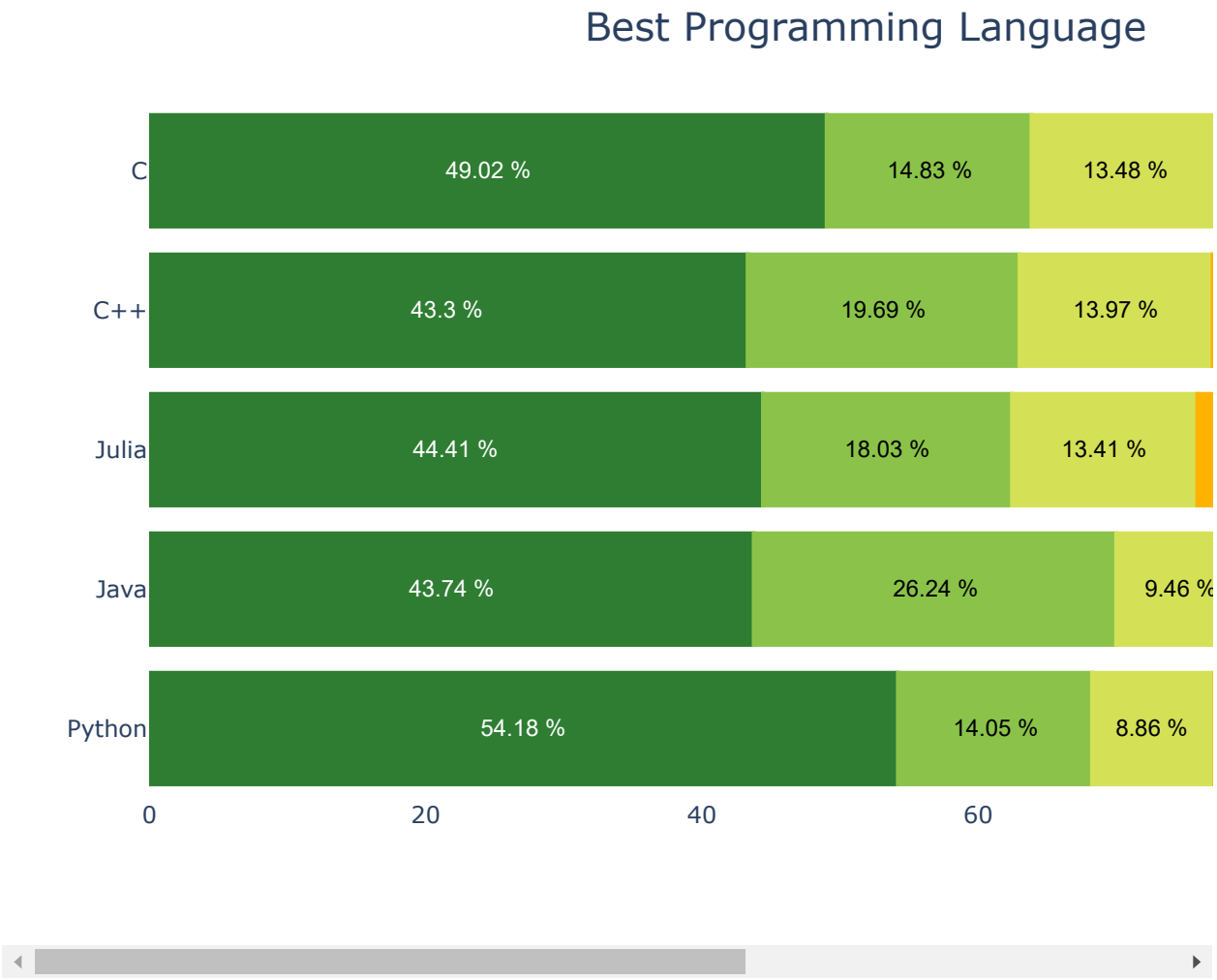
```
i=0
for perc, lang in zip(rating.iloc[:,8],rating.index):
    # labeling the bar percentage
    annotations.append(dict(xref='x',
                            yref='y',
                            y=lang,
                            x=perc/2 + rating.iloc[i,6]+rating.iloc[i,7],
                            text=str(perc) + ' %',
                            font=dict(family='Arial', size=12,color='black'),
                            showarrow=False))
    i+=1



# Displaying bar percentage label for "Disagree"
i=0
for perc, lang in zip(rating.iloc[:,9],rating.index):
    # labeling the bar percentage
    annotations.append(dict(xref='x',
                            yref='y',
                            y=lang,
                            x=perc/2 + rating.iloc[i,6]+rating.iloc[i,7]+rating.i
                            text=str(perc) + ' %',
                            font=dict(family='Arial', size=12,color='black'),
                            showarrow=False))
    i+=1



# Displaying bar percentage label for "Strongly Disagree"
i=0
for perc, lang in zip(rating.iloc[:,10],rating.index):
    # labeling the bar percentage
    annotations.append(dict(xref='x',
                            yref='y',
                            y=lang,
                            x=perc/2 + rating.iloc[i,6]+rating.iloc[i,7]+rating.i
                            text=str(perc) + ' %',
                            font=dict(family='Arial', size=12,color='black'),
                            showarrow=False))
    i+=1

fig.update_layout(annotations=annotations)

fig.show()
```




Julia
44.41 %
18.03 %
13.41 %
Java
43.74 %
26.24 %
9.46 %
Python
54.18 %
14.05 %
8.86 %
0
20
40
60

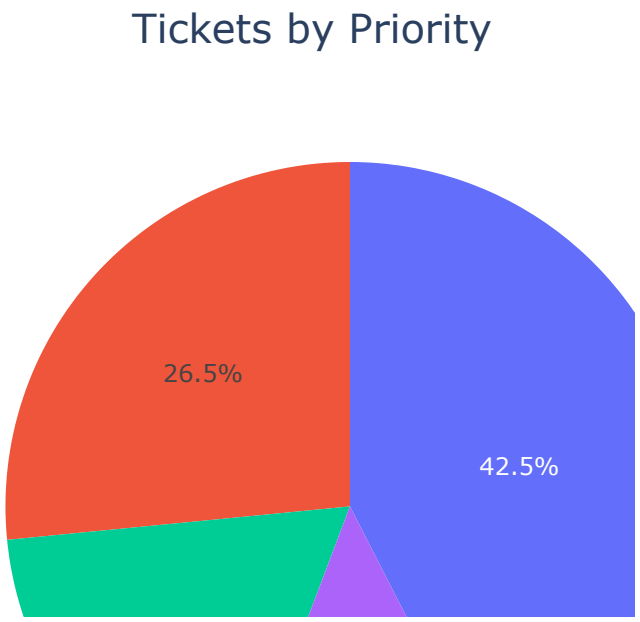
In [78]:
```
#Optimized code for above visualization
fig = go.Figure()
cols = ['#2E7D32' , '#8BC34A' , '#D4E157' , '#FFB300' , '#FF7043']

for i in range (0,5):
    fig.add_trace(
                go.Bar(
                        x= rating.iloc[:,6+i],
                        y= rating.index,
                        marker= dict (color =cols[i],line=dict(color=cols[i],width
                        name = 'Strongly Agree (%)',
                        orientation='h',
                        textposition='auto',
                       )
                  )

fig.update_layout(
                    title=dict(text = "Best Programming Language",x=0.44,y=0.95,fo
                    barmode = 'stack',
                    width=1000,
                    height=500,
                    margin=dict(l=70, r=0, t=70, b=70),
                    paper_bgcolor='rgb(248, 248, 255)',
                    plot_bgcolor='rgb(248, 248, 255)',
                   )

annotations =[]


i=0
for j in range(1,6):
    if j==1:
        for perc, lang in zip(rating.iloc[:,5+j],rating.index):
            # labeling the bar percentage
            annotations.append(dict(xref='x',
                                    yref='y',
                                    y=lang,
                                    x=perc/2 ,
                                    text=str(perc) + ' %',
                                    font=dict(family='Arial', size=12,color='white'),
                                    showarrow=False))
        sum1 = rating.iloc[:,5+j]


    else:
        i=0
        for perc, lang in zip(rating.iloc[:,5+j],rating.index):
            # labeling the bar percentage
            annotations.append(dict(xref='x',
                                    yref='y',
                                    y=lang,
                                    x=perc/2 + sum1[i],
                                    text=str(perc) + ' %',
                                    font=dict(family='Arial', size=12,color='black'),
                                    showarrow=False))
            i+=1
```

```
        sum1 = sum1+ rating.iloc[:,5+j]

fig.update_layout(annotations=annotations)

fig.show()
```

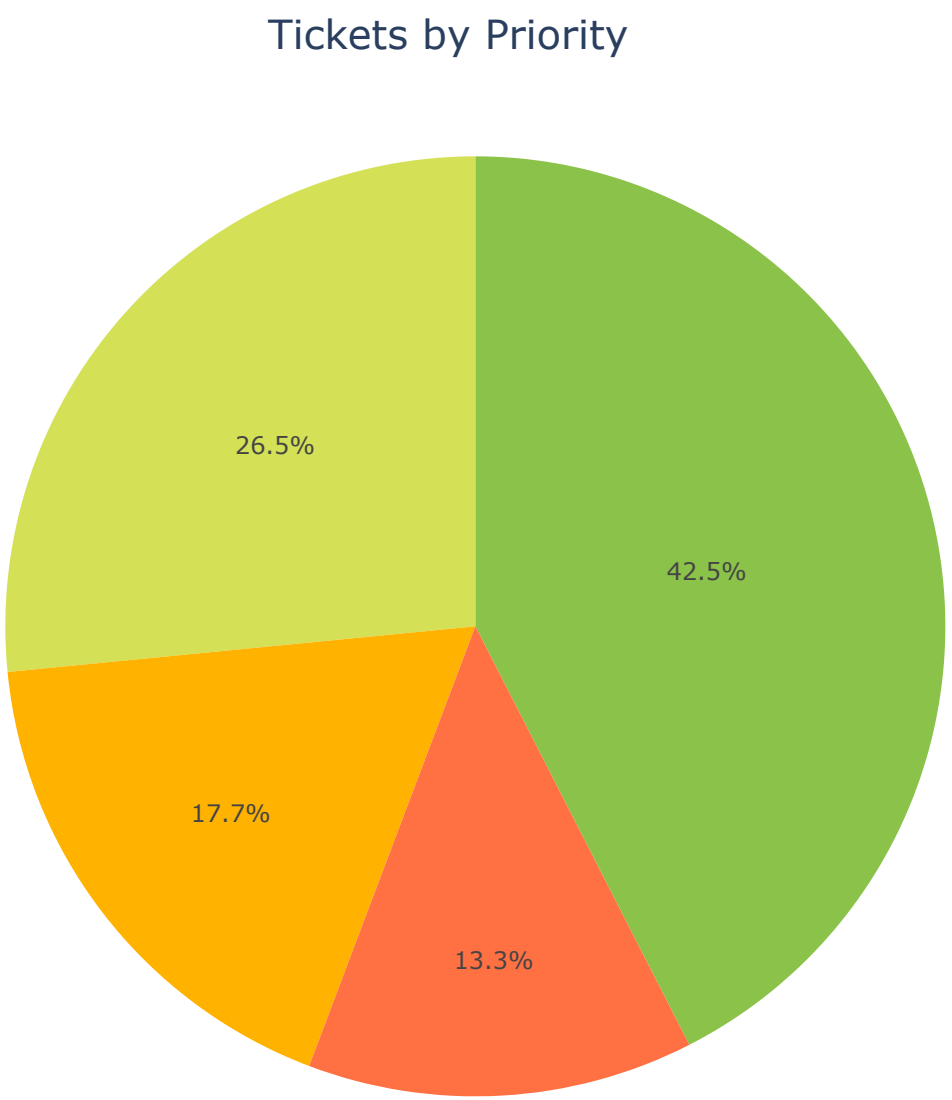


Pie & Donut Chart

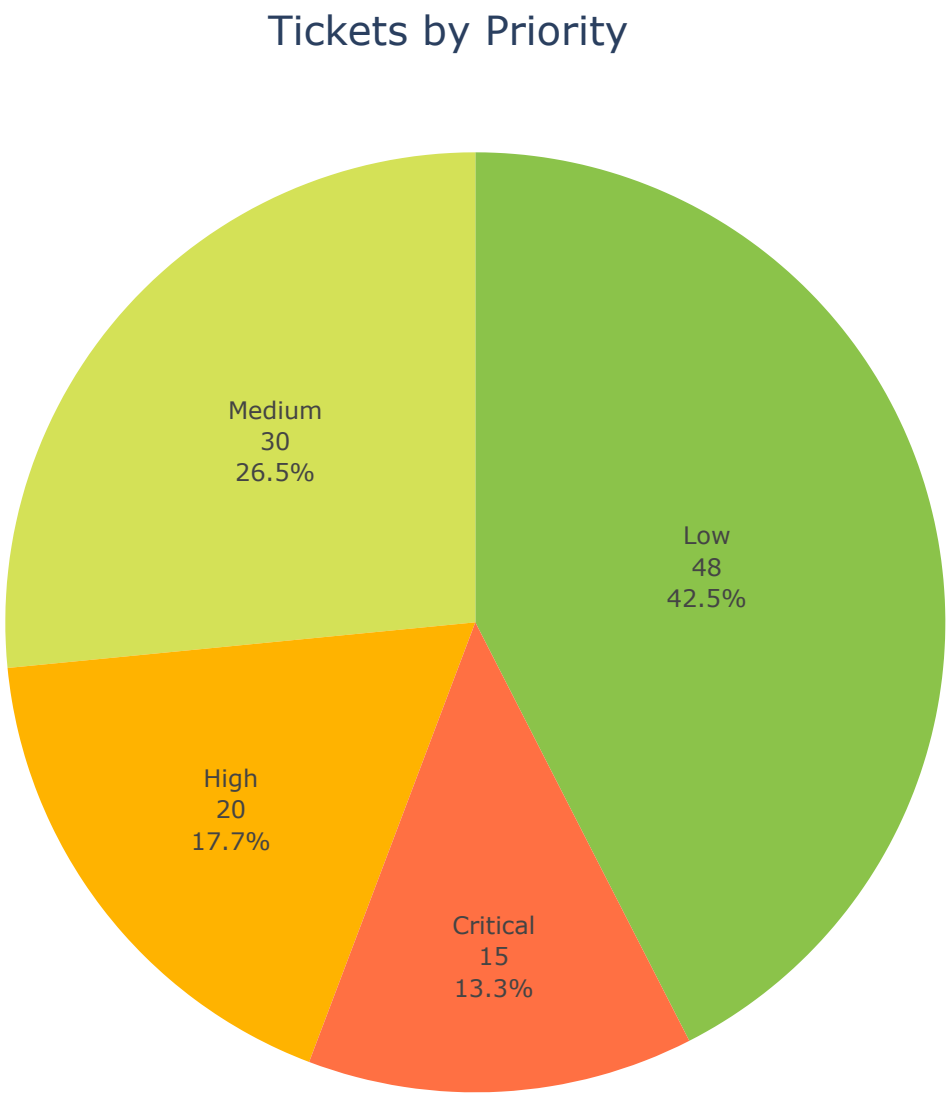
In [79]:
```
#Simple Pie Chart
tickets = [48 , 30 , 20 , 15]
status = ['Low' , 'Medium' , 'High' , 'Critical']
data = go.Pie(
             values= tickets,
             labels= status,
              )


layout = go.Layout(
                  title=dict(text = "Tickets by Priority",x=0.46,y=0.95,font_siz
                 )

fig = go.Figure(data=data,layout=layout)

fig.show()
```



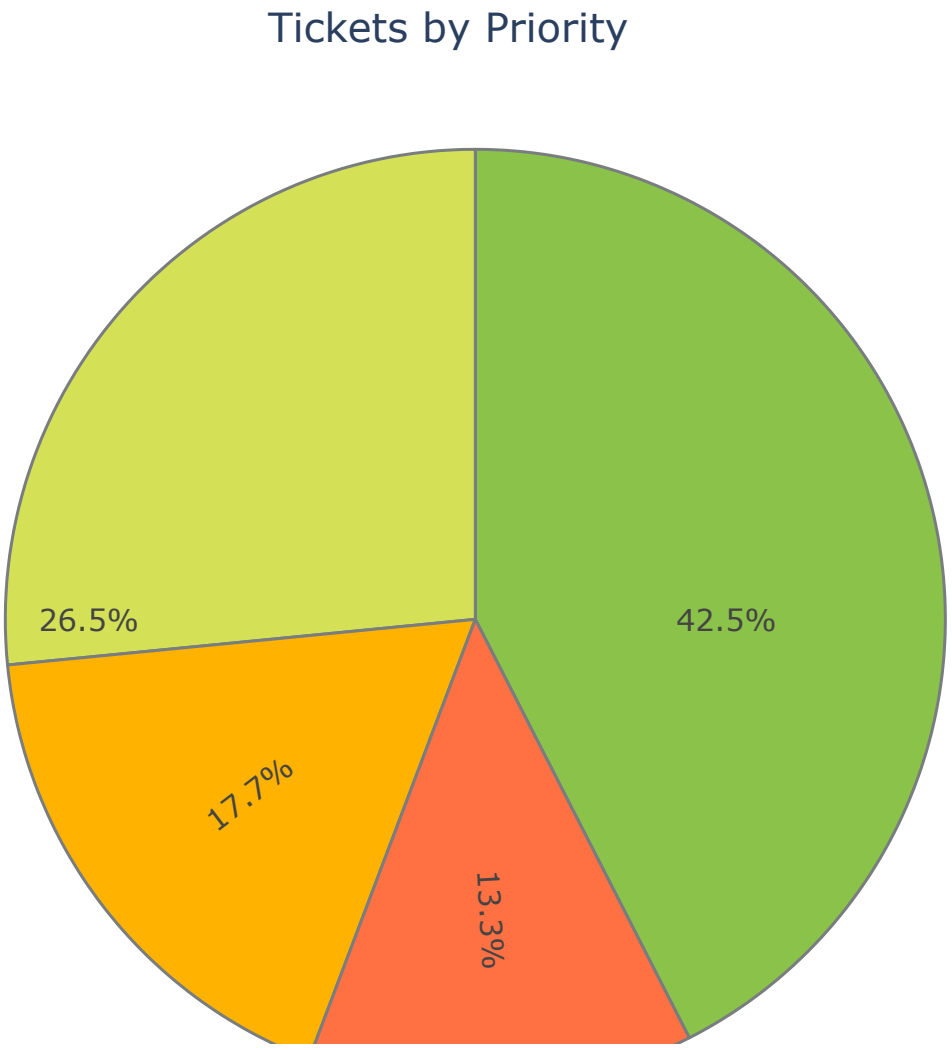
In [80]:
```
#Changing color of Pie Chart
tickets = [48 , 30 , 20 , 15]
status = ['Low' , 'Medium' , 'High' , 'Critical']
colors = ['#8BC34A','#D4E157','#FFB300','#FF7043']
data = go.Pie(
              values= tickets,
              labels= status,
              marker=dict(colors=colors),
              )


layout = go.Layout(
                   title=dict(text = "Tickets by Priority",x=0.46,y=0.95,font_siz
                   width=800,
                   height=650
                  )

fig = go.Figure(data=data,layout=layout)

fig.show()
```



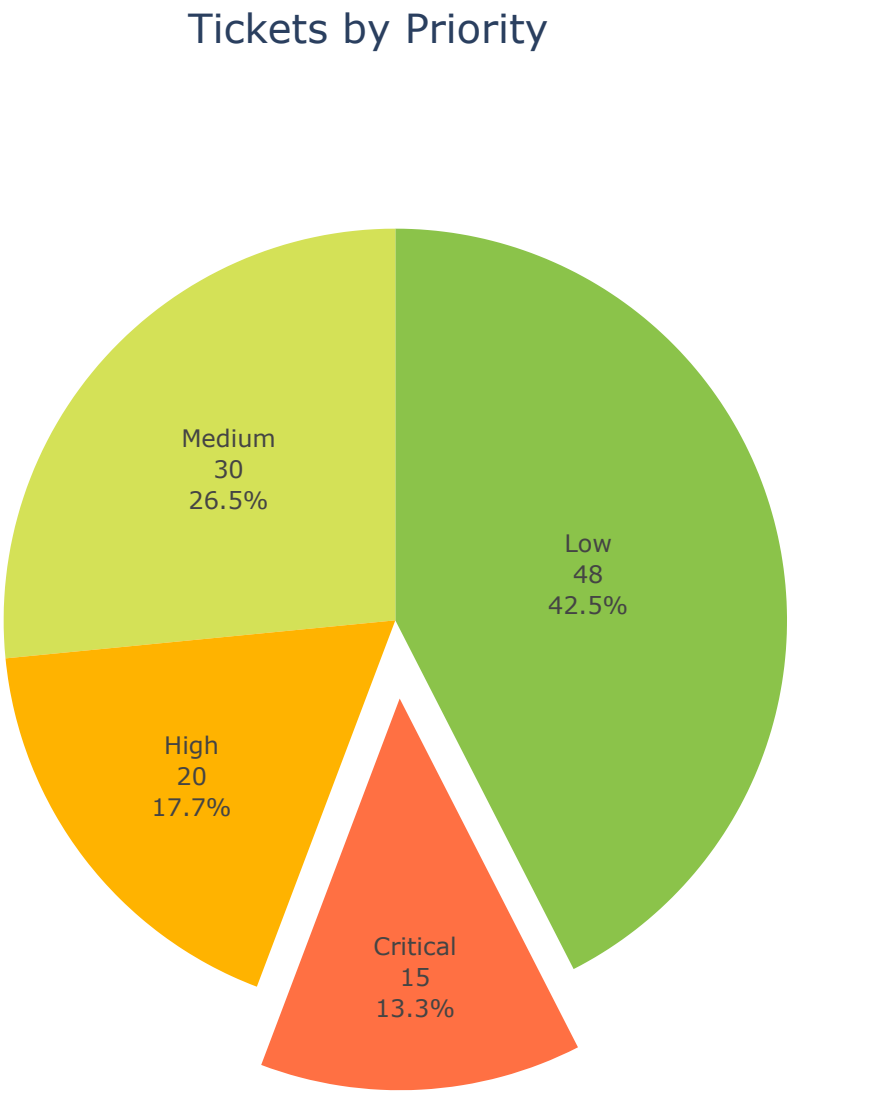
In [81]:
```
# Displaying Label , Value & percent in Pie Chart using "textinfo" parameter
tickets = [48 , 30 , 20 , 15]
status = ['Low' , 'Medium' , 'High' , 'Critical']
colors = ['#8BC34A','#D4E157','#FFB300','#FF7043']
data = go.Pie(
              values= tickets,
              labels= status,
              marker=dict(colors=colors),
              textinfo='label+value+percent'
              )


layout = go.Layout(
                   title=dict(text = "Tickets by Priority",x=0.46,y=0.95,font_siz
                   width=800,
                   height=650
                  )

fig = go.Figure(data=data,layout=layout)

fig.show()
```



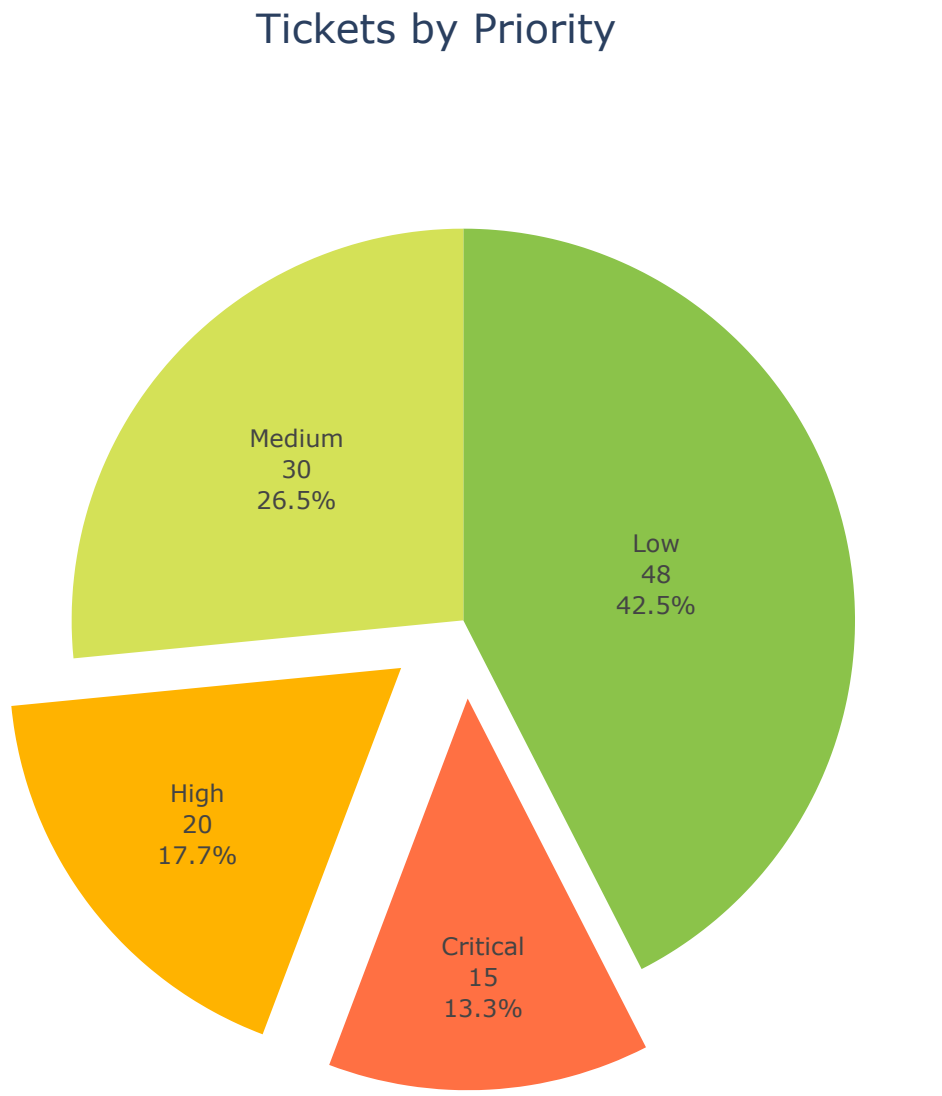
In [82]:
```
# Changing label orientation using "insidetextorientation" paramter
tickets = [48 , 30 , 20 , 15]
status = ['Low' , 'Medium' , 'High' , 'Critical']
colors = ['#8BC34A','#D4E157','#FFB300','#FF7043']
data = go.Pie(
              values= tickets,
              labels= status,
              marker=dict(colors=colors,line=dict(color='#797D7F', width=1.5)),
              textinfo='percent',
              hoverinfo='label+value',
              textfont_size=15,
              insidetextorientation='radial'
              )


layout = go.Layout(
                   title=dict(text = "Tickets by Priority",x=0.46,y=0.95,font_siz
                   width=800,
                   height=650
                  )

fig = go.Figure(data=data,layout=layout)

fig.show()
```



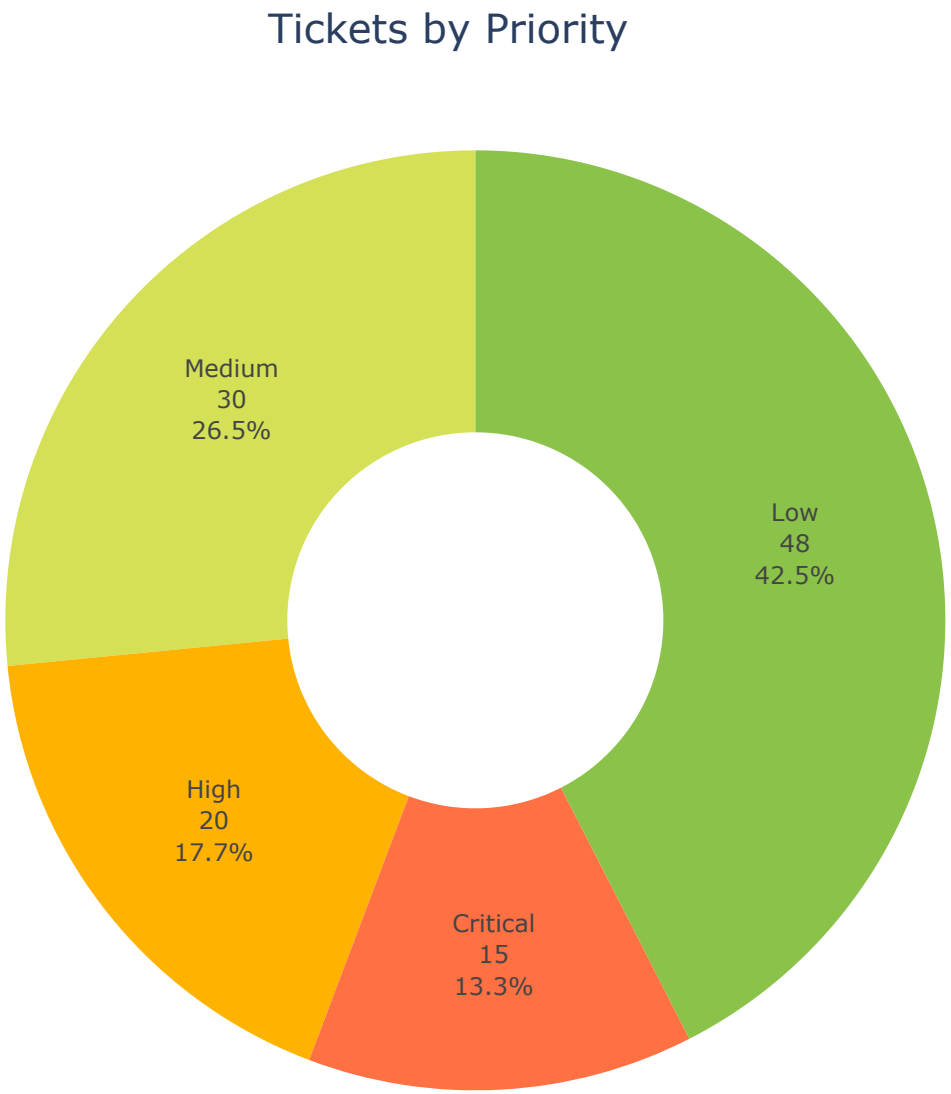
In [83]:
```
#Explode 4th Slice using "pull" parameter
tickets = [48 , 30 , 20 , 15]
status = ['Low' , 'Medium' , 'High' , 'Critical']
colors = ['#8BC34A','#D4E157','#FFB300','#FF7043']
data = go.Pie(
              values= tickets,
              labels= status,
              marker=dict(colors=colors),
              textinfo='label+value+percent',
              pull=[0, 0, 0, 0.2] #Explode 4th Slice
              )


layout = go.Layout(
                   title=dict(text = "Tickets by Priority",x=0.46,y=0.95,font_siz
                   width=800,
                   height=650
                  )

fig = go.Figure(data=data,layout=layout)

fig.show()
```



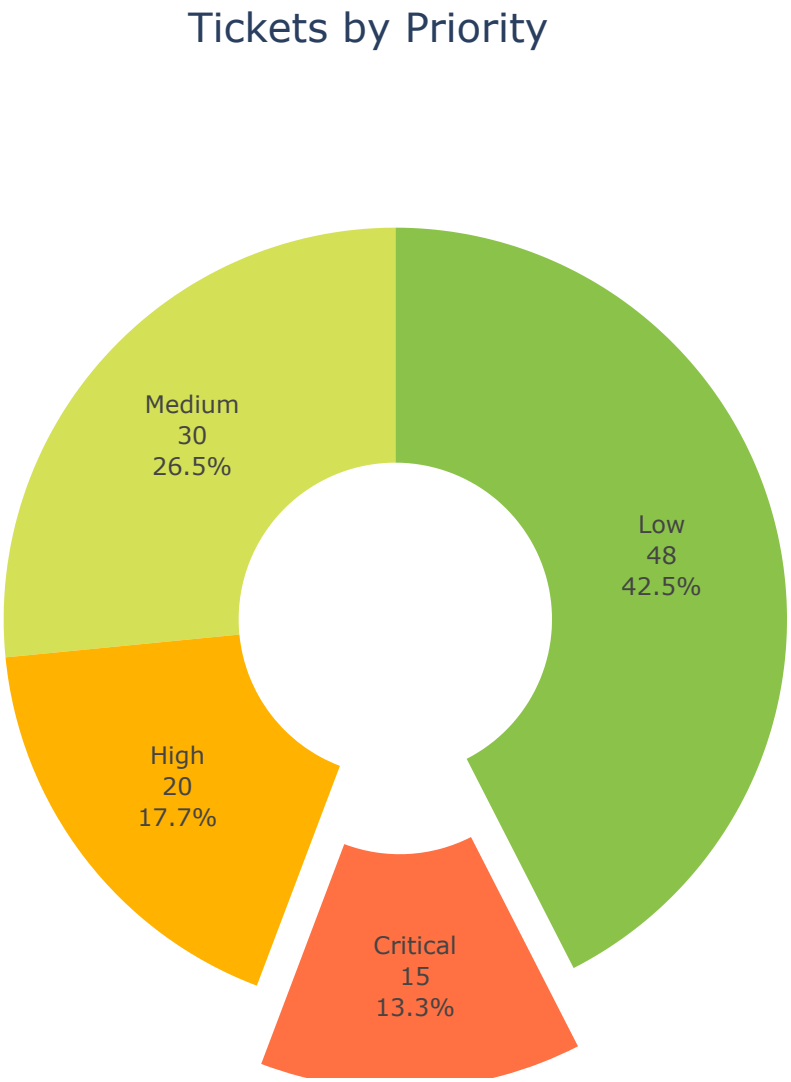
In [84]:
```
#Explode 3rd & 4th Slice using "pull" parameter
tickets = [48 , 30 , 20 , 15]
status = ['Low' , 'Medium' , 'High' , 'Critical']
colors = ['#8BC34A','#D4E157','#FFB300','#FF7043']
data = go.Pie(
              values= tickets,
              labels= status,
              marker=dict(colors=colors),
              textinfo='label+value+percent',
              pull=[0, 0, 0.2, 0.2]
              )


layout = go.Layout(
                   title=dict(text = "Tickets by Priority",x=0.46,y=0.95,font_siz
                   width=800,
                   height=650
                  )

fig = go.Figure(data=data,layout=layout)

fig.show()
```



In [85]:
```
# Simple Donut Chart
tickets = [48 , 30 , 20 , 15]
status = ['Low' , 'Medium' , 'High' , 'Critical']
colors = ['#8BC34A','#D4E157','#FFB300','#FF7043']
data = go.Pie(
              values= tickets,
              labels= status,
              marker=dict(colors=colors),
              textinfo='label+value+percent',
              hole=.4
              )


layout = go.Layout(
                   title=dict(text = "Tickets by Priority",x=0.46,y=0.95,font_siz
                   width=800,
                   height=650
                  )

fig = go.Figure(data=data,layout=layout)

fig.show()
```



In [86]:
```
#Explode 4th Slice using "pull" parameter
tickets = [48 , 30 , 20 , 15]
status = ['Low' , 'Medium' , 'High' , 'Critical']
colors = ['#8BC34A','#D4E157','#FFB300','#FF7043']
data = go.Pie(
              values= tickets,
              labels= status,
              marker=dict(colors=colors),
              textinfo='label+value+percent',
              hole=.4,
              pull=[0, 0, 0, 0.2]
              )


layout = go.Layout(
                   title=dict(text = "Tickets by Priority",x=0.46,y=0.95,font_siz
                   width=800,
                   height=650
                  )

fig = go.Figure(data=data,layout=layout)

fig.show()
```

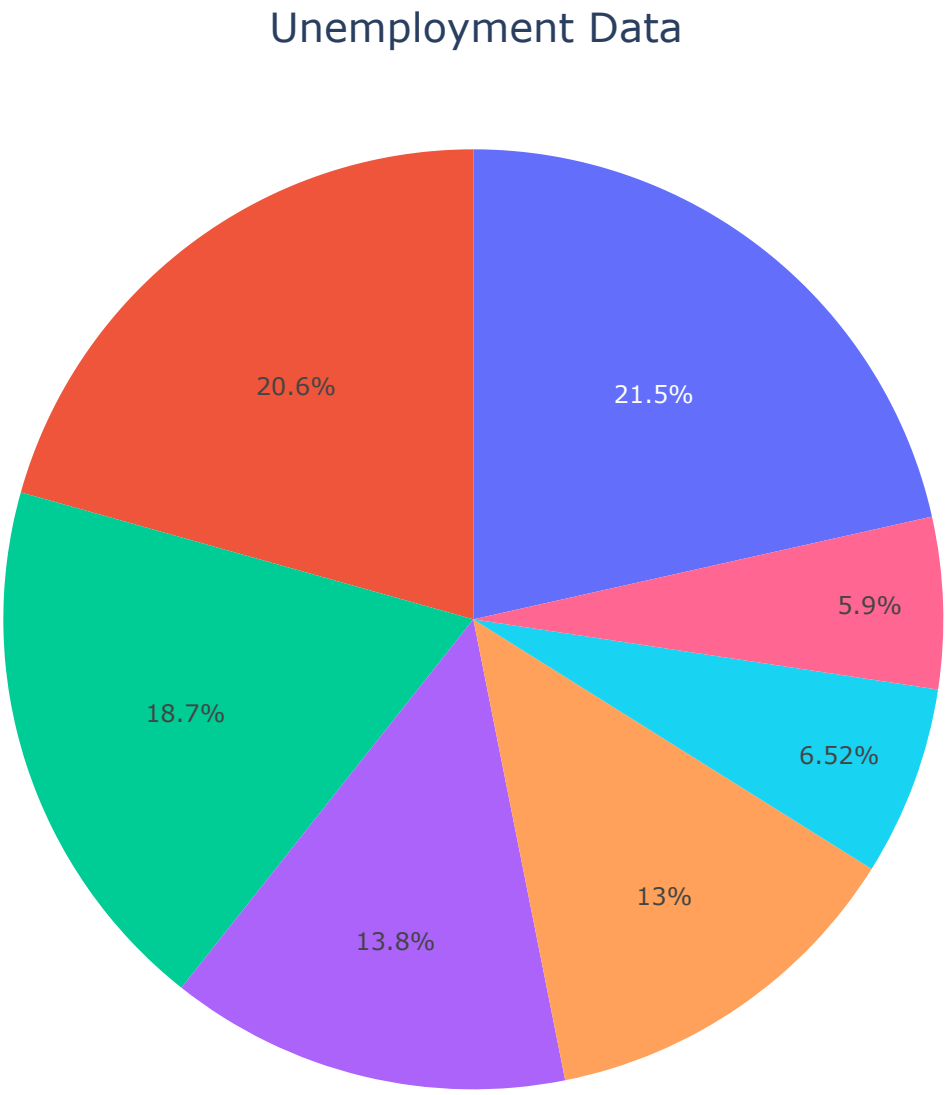


In [87]:
```
employment.head()
```

Out[87]:

	Age	Gender	Period	Unemployed
0	16 to 19 years	Men	2005-01-01	91000
1	20 to 24 years	Men	2005-01-01	175000
2	25 to 34 years	Men	2005-01-01	194000
3	35 to 44 years	Men	2005-01-01	201000
4	45 to 54 years	Men	2005-01-01	207000

In [88]:
```
data = go.Pie(
               values= employment.Unemployed,
               labels= employment.Age,
               textinfo='percent',
               hoverinfo='label+value'
               )
layout = go.Layout(
                    title=dict(text = "Unemployment Data",x=0.44,y=0.95,font_size=
                    width=800,
                    height=650
                   )

fig = go.Figure(data=data,layout=layout)

fig.show()
```

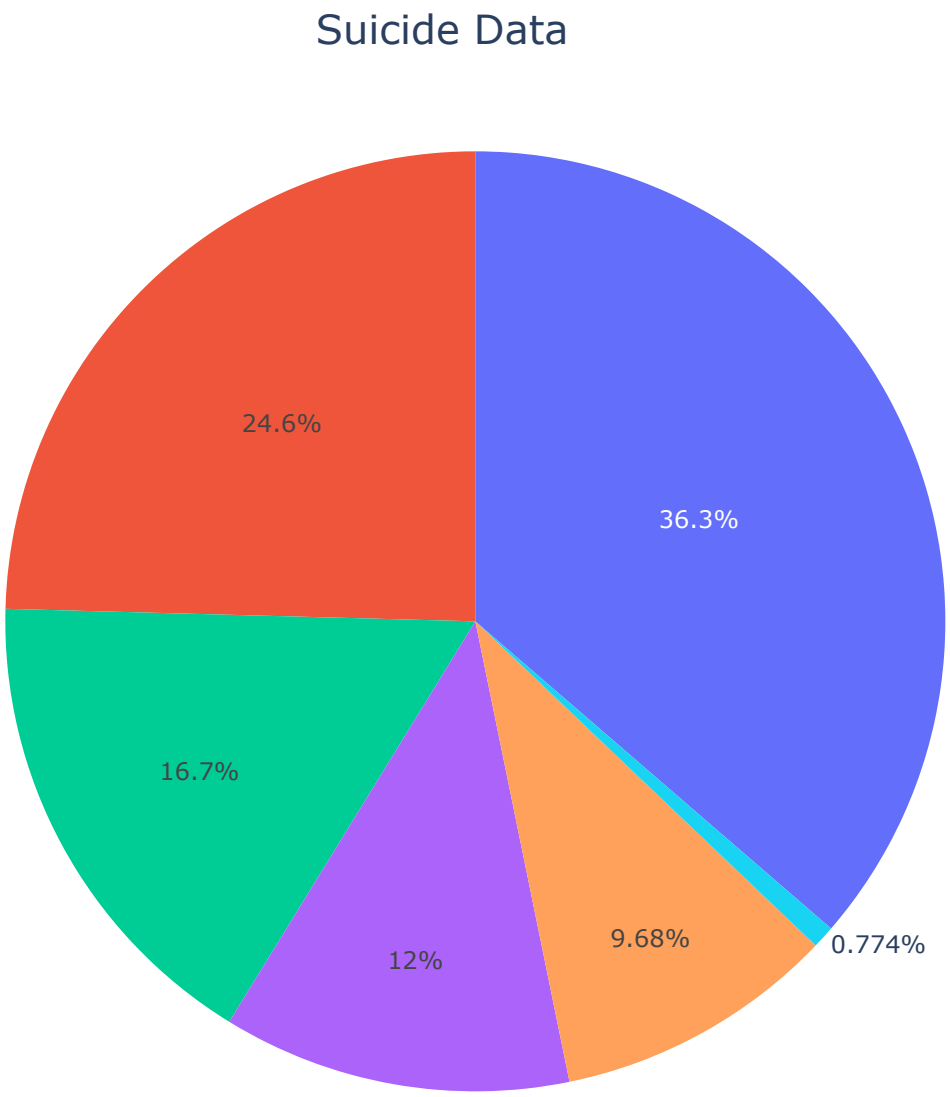


In [89]:
```
suicide.head()
```

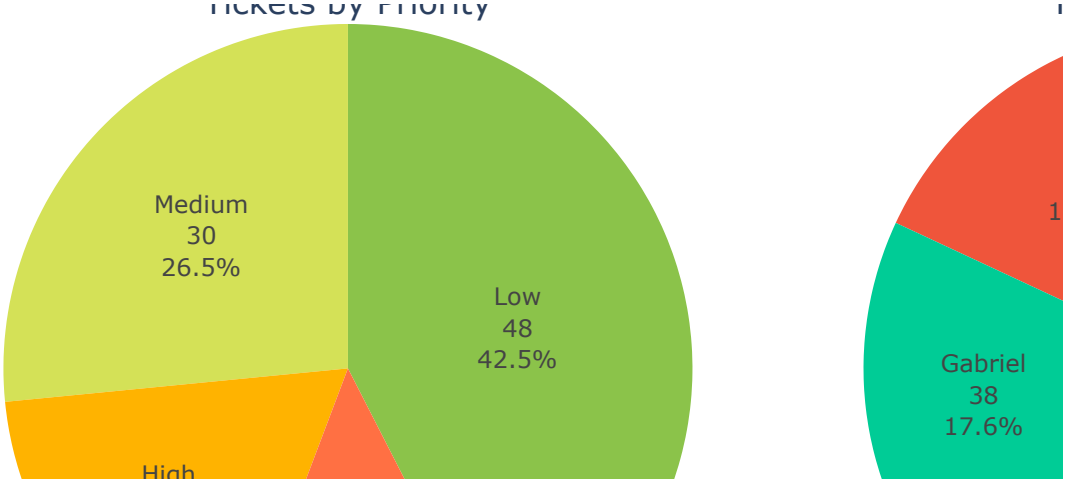
Out[89]:

	country	year	sex	age	suicides_no	population	suicides/100k pop	country-year	HDI for year	gdp_for
0	Albania	1987	male	15-24 years	21	312900	6.71	Albania1987	NaN	2,156,62
1	Albania	1987	male	35-54 years	16	308000	5.19	Albania1987	NaN	2,156,62
2	Albania	1987	female	15-24 years	14	289700	4.83	Albania1987	NaN	2,156,62
3	Albania	1987	male	75+ years	1	21800	4.59	Albania1987	NaN	2,156,62
4	Albania	1987	male	25-34 years	9	274300	3.28	Albania1987	NaN	2,156,62

In [90]:
```
data = go.Pie(
               values= suicide['suicides_no'],
               labels= suicide['age'],
               textinfo='percent',
               hoverinfo='label+value'
               )
layout = go.Layout(
                    title=dict(text = "Suicide Data",x=0.44,y=0.95,font_size=20),
                    width=800,
                    height=650
                   )

fig = go.Figure(data=data,layout=layout)

fig.show()
```

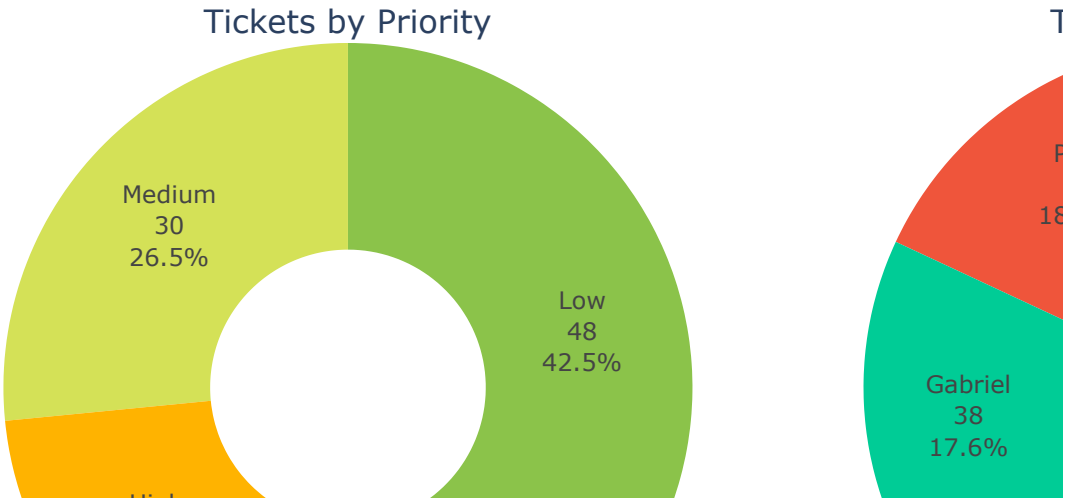


In [91]:
```
# Display multiple Pie plots in one figure using Subplots

tickets = [48 , 30 , 20 , 15]
status = ['Low' , 'Medium' , 'High' , 'Critical']
colors = ['#8BC34A','#D4E157','#FFB300','#FF7043']

Assignee = ['Asif','Basit','John','Batista', 'Gabriel' , 'Paul' , 'Ravi']
Open = [17,18,29,33,38,39,42]



#Subplot initialization
fig = make_subplots(
                     rows=1,
                     cols=2,
                     subplot_titles=("Tickets by Priority", "Tickets by Assignee'

                     specs=[[{'type':'domain'}, {'type':'domain'}]]
                   )


# Subplot - 1 (Add graph object trace to a figure)
fig.add_trace(go.Pie(
                     values= tickets,
                     labels= status,
                     marker=dict(colors=colors),
                     textinfo='label+value+percent'
                    ),
              row=1, col=1
             )


fig.add_trace(go.Pie(
                     values= Open,
                     labels= Assignee,
                     marker=dict(colors=colors),
                     textinfo='label+value+percent'
                    ),
              row=1, col=2
             )

fig.update_layout(
                    paper_bgcolor= '#FFFDE7',
                    plot_bgcolor= '#FFFDE7',
                    title=dict(text = "Help Desk",x=0.5,y=0.95),
                    title_font_size=30
                  )

fig.show()
```


Medium
30
26.5%
Low
48
42.5%
Gabriel
38
17.6%

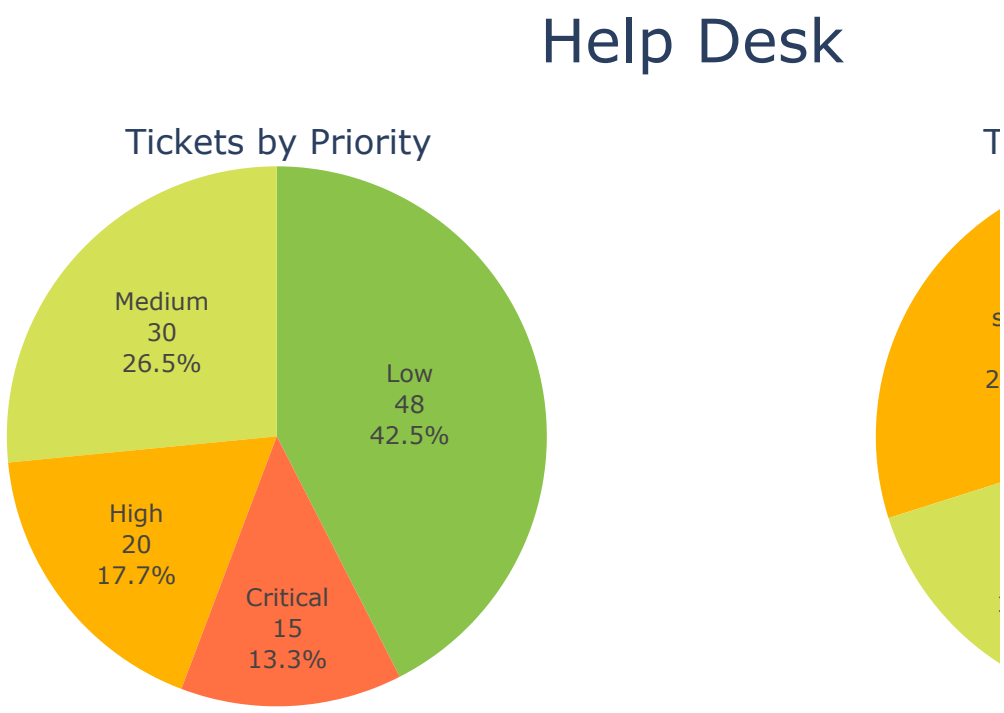
In [92]:
```
# Display multiple Donut charts in one figure using Subplots

tickets = [48 , 30 , 20 , 15]
status = ['Low' , 'Medium' , 'High' , 'Critical']
colors = ['#8BC34A','#D4E157','#FFB300','#FF7043']

Assignee = ['Asif','Basit','John','Batista', 'Gabriel' , 'Paul' , 'Ravi']
Open = [17,18,29,33,38,39,42]



#Subplot initialization
fig = make_subplots(
                     rows=1,
                     cols=2,
                     subplot_titles=("Tickets by Priority", "Tickets by Assignee"
                     specs=[[{'type':'domain'}, {'type':'domain'}]]
                    )


# Subplot - 1 (Add graph object trace to a figure)
fig.add_trace(go.Pie(
                     values= tickets,
                     labels= status,
                     hole = .4,
                     marker=dict(colors=colors),
                     textinfo='label+value+percent',
                     hoverinfo='label'
                    ),
              row=1, col=1
             )


fig.add_trace(go.Pie(
                     values= Open,
                     labels= Assignee,
                     hole = .4,
                     marker=dict(colors=colors),
                     textinfo='label+value+percent',
                     hoverinfo='label'
                    ),
              row=1, col=2
             )

fig.update_layout(
                    paper_bgcolor= '#FFFDE7',
                    plot_bgcolor= '#FFFDE7',
                    title=dict(text = "Help Desk",x=0.5,y=0.95),
                    title_font_size=30
                  )

fig.show()
```

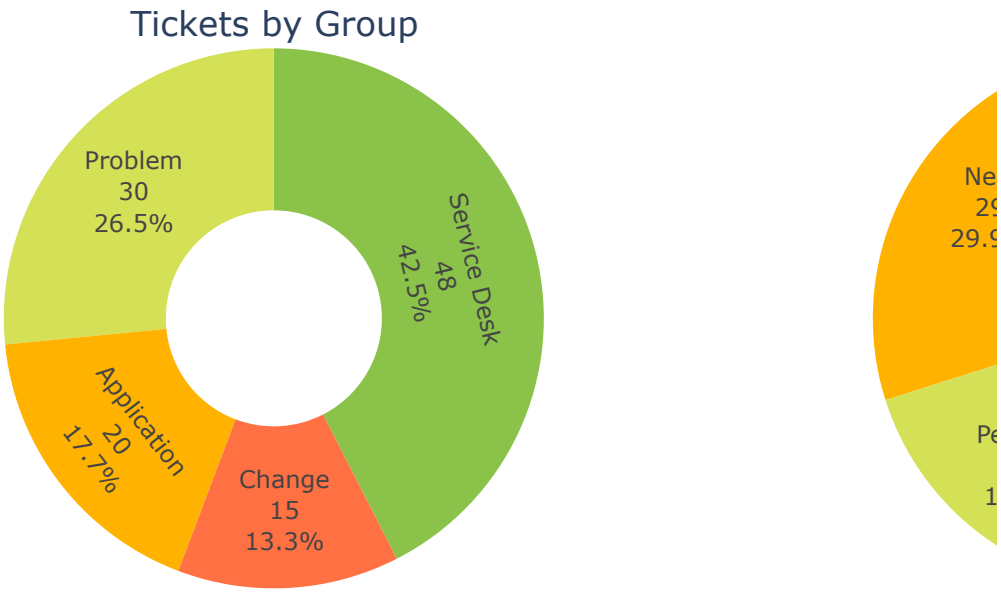
Help Desk


Tickets by Priority
Medium
30
26.5%
Low
48
42.5%
Gabriel
38
17.6%

In [93]:
```
# Display multiple Pie & Donut plots in one figure using Subplots

tickets = [48 , 30 , 20 , 15]
priority = ['Low' , 'Medium' , 'High' , 'Critical']
colors = ['#8BC34A','#D4E157','#FFB300','#FF7043']
group = ['Service Desk' , 'Problem' , 'Application' , 'Change']
status = ['Assigned', 'Pending' , 'New' , 'In Progress']
severity = ['Sev-4' , 'Sev-3' , 'sev-2' , 'sev-1']



#Subplot initialization
fig = make_subplots(
                    rows=2,
                    cols=2,
                    subplot_titles=("Tickets by Priority", "Tickets by Severity'
                                    "Tickets by Group", "Tickets by Status"),
                    specs=[[{'type':'domain'}, {'type':'domain'}],[{'type':'doma
                   )

#Change Subplot title font size
for i in fig['layout']['annotations']:
    i['font']['size'] = 17

# Subplot - 1 (Add graph object trace to a figure)
fig.add_trace(go.Pie(
                    values= tickets,
                    labels= priority,
                    marker=dict(colors=colors),
                    textinfo='label+value+percent',
                    hoverinfo='label',
                   ),
              row=1, col=1
             )


# Subplot - 2 (Add graph object trace to a figure)
fig.add_trace(go.Pie(
                    values= Open,
                    labels= severity,
                    marker=dict(colors=colors),
                    textinfo='label+value+percent',
                    hoverinfo='label',
                   ),
              row=1, col=2
             )


# Subplot - 3 (Add graph object trace to a figure)
fig.add_trace(go.Pie(
                    values= tickets,
                    labels= group,
                    hole = .4,
                    marker=dict(colors=colors),
                    textinfo='label+value+percent',
                    hoverinfo='label'
```

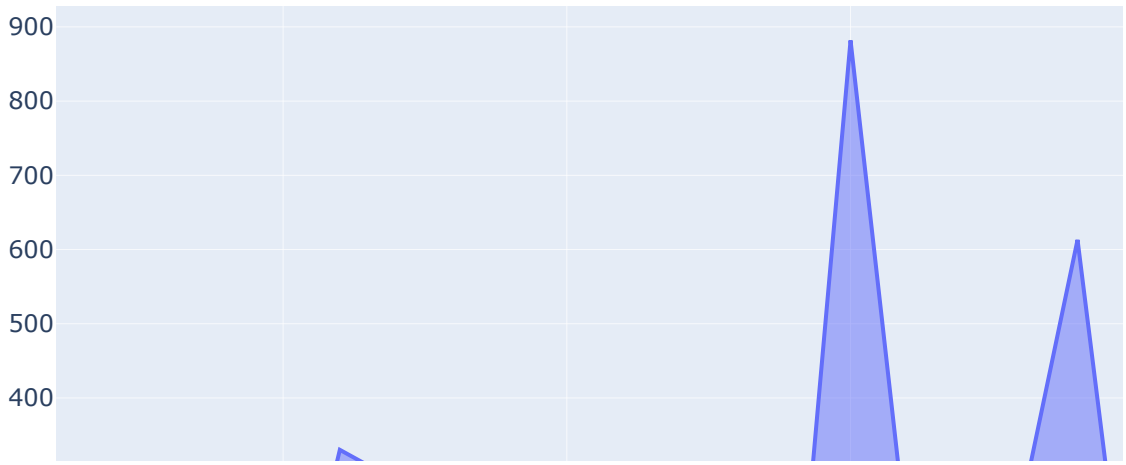
```
                    ),
                row=2, col=1
               )


# Subplot - 4 (Add graph object trace to a figure)
fig.add_trace(go.Pie(
                     values= Open,
                     labels= status,
                     hole = .4,
                     marker=dict(colors=colors),
                     textinfo='label+value+percent',
                     hoverinfo='label'
                    ),
                row=2, col=2
               )

fig.update_layout(
                    paper_bgcolor= '#FFFDE7',
                    plot_bgcolor= '#FFFDE7',
                    title=dict(text = "Help Desk",x=0.49,y=0.97,font_size=30),
                    width=950,
                    height=900,
                    showlegend=False
                  )

fig.show()
```



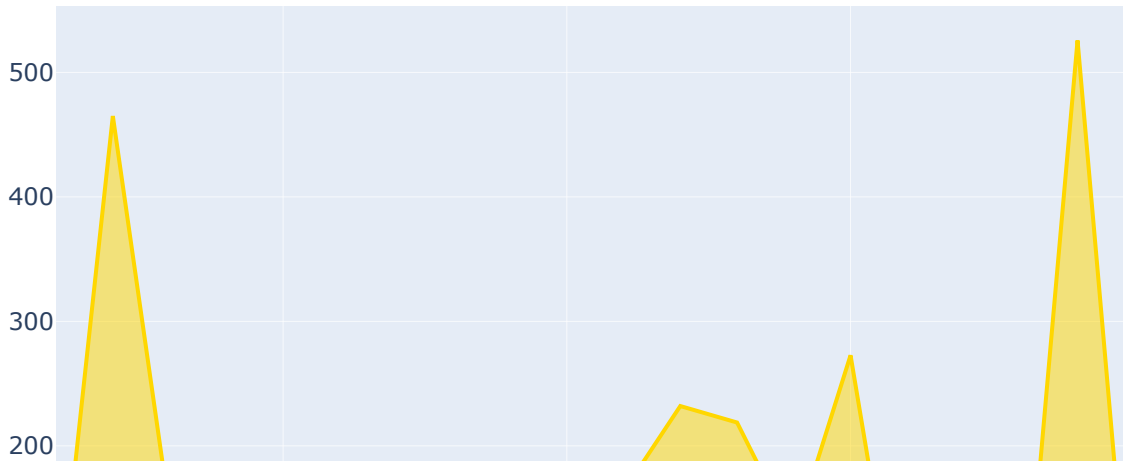

Tickets by Group
Problem
30
26.5%
Service Desk
48
42.5%
Application
20
17.7%
Change
15
13.3%

Area Plot

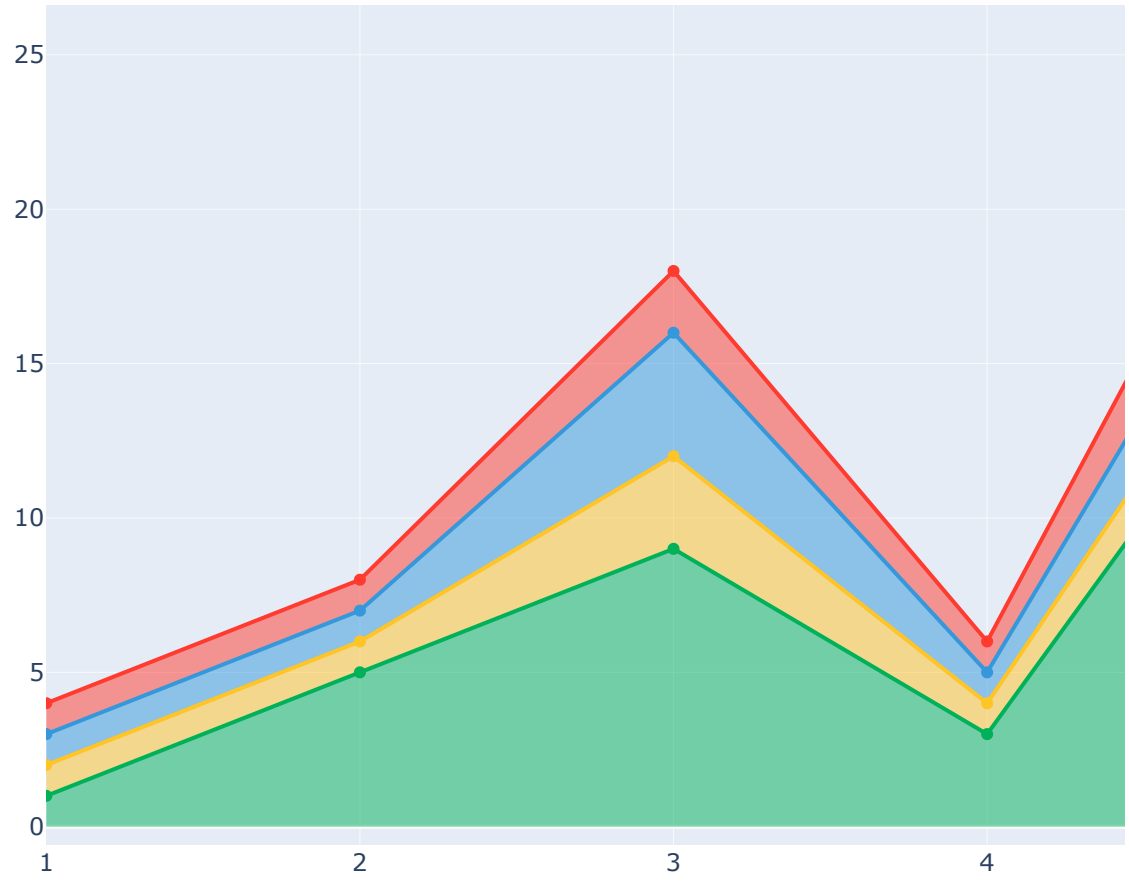
In [94]:
```
# Simple Area plot
x = np.arange(1,31)
y = np.random.normal(10,11,size=30)
y = np.square(y)
fig = go.Figure()
fig.add_trace(go.Scatter(x=x, y=y, fill='tozeroy')) # fill down to xaxis
fig.show()
```



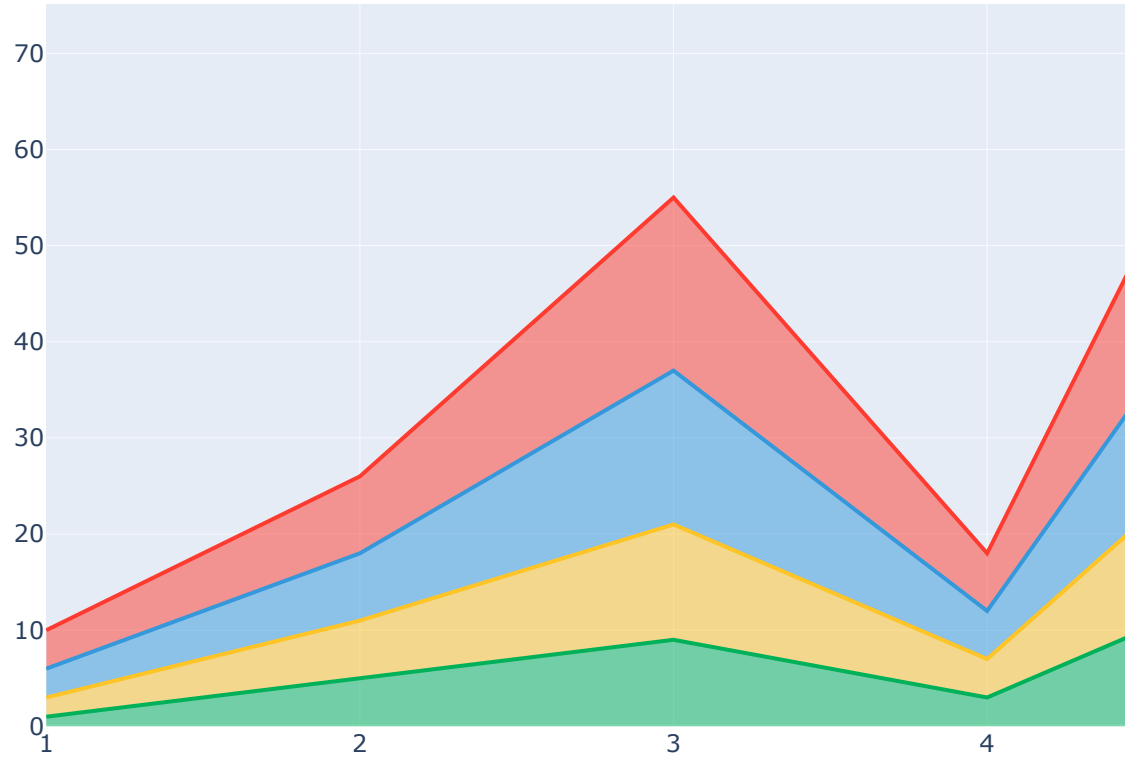
In [95]:
```
#Changing color of area plot using marker color
x = np.arange(1,31)
y = np.random.normal(10,11,size=30)
y = np.square(y)
fig = go.Figure()
fig.add_trace(go.Scatter(x=x, y=y, fill='tozeroy',marker = dict(color = 'gold')))
fig.show()
```



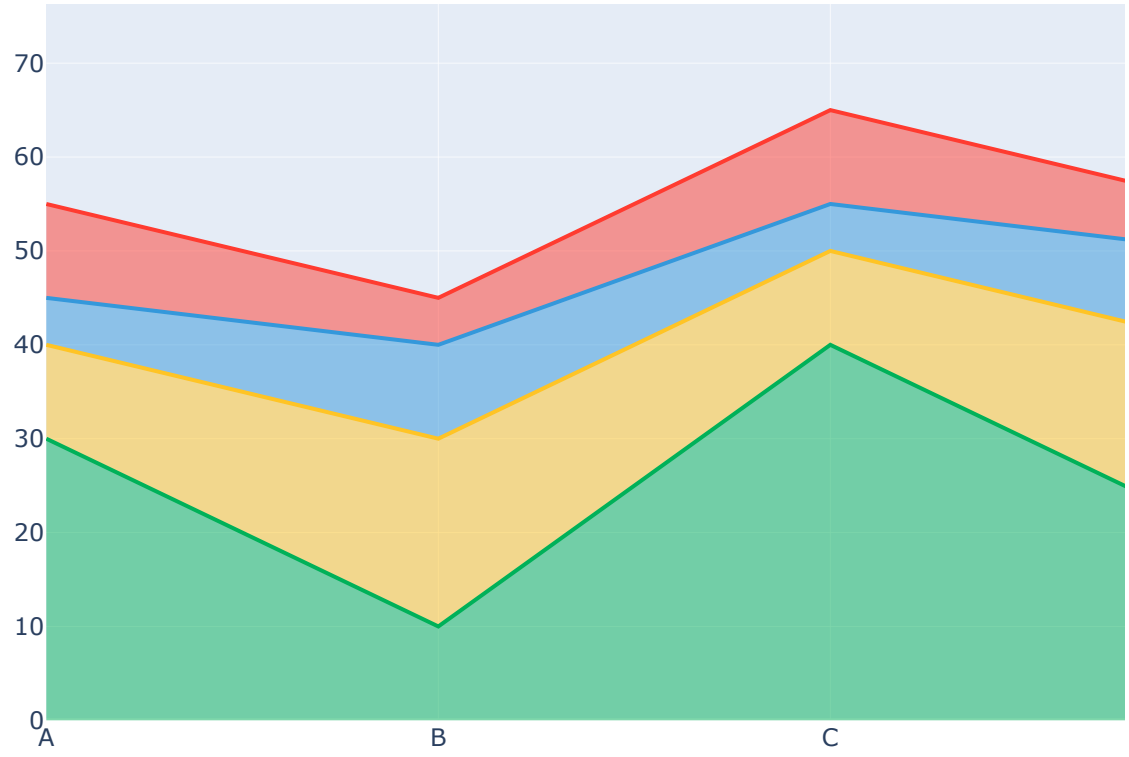
In [96]:
```
x=np.arange(1,7)
y1 =  np.array([1,5,9,3,17,1])
y2 = np.array([2,6,12,4,19,2])
y3 = np.array([3,7,16,5,22,1])
y4 = np.array([4,8,18,6,25,2])


fig = go.Figure()
fig.add_trace(go.Scatter(x=x, y=y1, fill='tozeroy',marker = dict(color = '#00b159
fig.add_trace(go.Scatter(x=x, y=y2, fill='tonexty',marker = dict(color = '#ffc425
fig.add_trace(go.Scatter(x=x, y=y3, fill='tonexty',marker = dict(color = '#3498DB
fig.add_trace(go.Scatter(x=x, y=y4, fill='tonexty',marker = dict(color = '#ff3b30
fig.update_layout(width = 980 , height = 600)
fig.show()
```



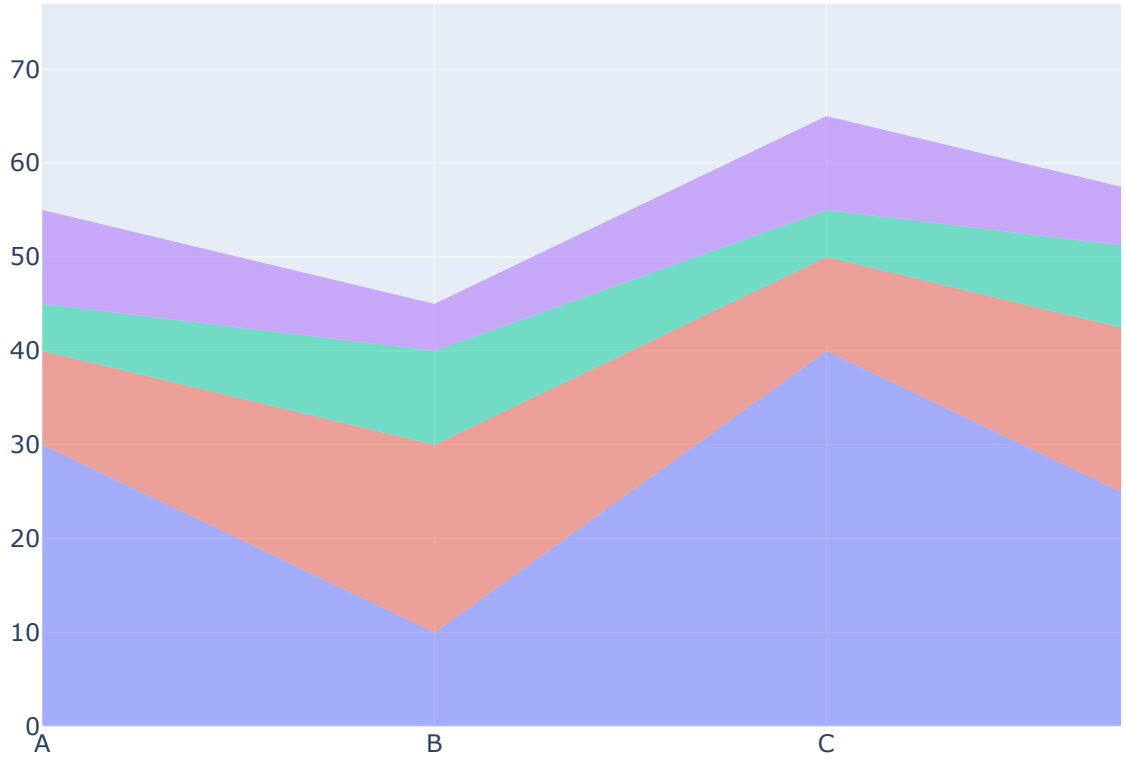
In [97]:
```
#Stacked Area Chart (Using stackgroup parameter)

x=np.arange(1,7)
y1 =  np.array([1,5,9,3,17,1])
y2 = np.array([2,6,12,4,19,2])
y3 = np.array([3,7,16,5,22,1])
y4 = np.array([4,8,18,6,25,2])


fig = go.Figure()
fig.add_trace(go.Scatter(
                            x=x,
                            y=y1,
                            marker = dict(color = '#00b159'),
                            stackgroup='one' # The stackgroup parameter is used to
                           )
              )

fig.add_trace(go.Scatter(
                            x=x,
                            y=y2,
                            marker = dict(color = '#ffc425'),
                            stackgroup='one'
                           )
              )


fig.add_trace(go.Scatter(
                            x=x,
                            y=y3,
                            marker = dict(color = '#3498DB'),
                            stackgroup='one'
                           )
              )


fig.add_trace(go.Scatter(
                            x=x,
                            y=y4,
                            marker = dict(color = '#ff3b30'),
                            stackgroup='one'
                           )
              )

fig.update_layout(width = 980 , height = 600)
fig.show()
```


70
60
50
40
30
20
10
0
1
2
3
4

In [98]:
```
#Stacked Area Chart

x=['A','B','C','D','E']
y1 =  np.array([30,10,40,20,60])
y2 = np.array([10,20,10,20,10])
y3 = np.array([5,10,5,10,5])
y4 = np.array([10,5,10,5,10])


fig = go.Figure()
fig.add_trace(go.Scatter(
                            x=x,
                            y=y1,
                            marker = dict(color = '#00b159'), # Color of trace0
                            stackgroup='one' # The stackgroup parameter is used to
                           )
              )

fig.add_trace(go.Scatter(
                            x=x,
                            y=y2,
                            marker = dict(color = '#ffc425'),
                            stackgroup='one'
                           )
              )


fig.add_trace(go.Scatter(
                            x=x,
                            y=y3,
                            marker = dict(color = '#3498DB'),
                            stackgroup='one'
                           )
              )


fig.add_trace(go.Scatter(
                            x=x,
                            y=y4,
                            marker = dict(color = '#ff3b30'),
                            stackgroup='one'
                           )
              )

fig.update_layout(width = 980 , height = 600)
fig.show()
```

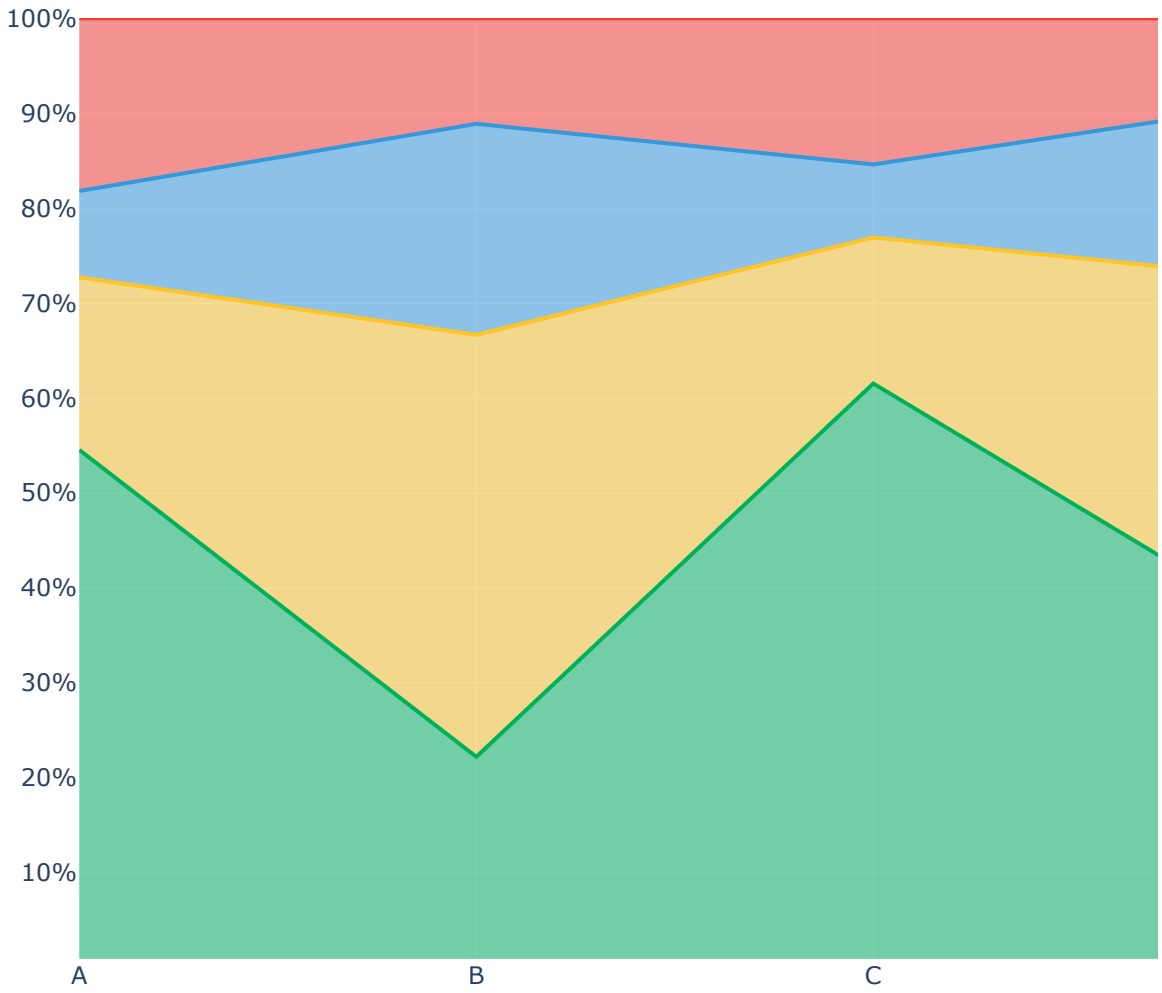

70
60
50
40
30
20
10
0
A
B
C

In [99]:
```
#Stacked Area Chart Without Boundary Lines (Using mode = 'none')

x=['A','B','C','D','E']
y1 =  np.array([30,10,40,20,60])
y2 = np.array([10,20,10,20,10])
y3 = np.array([5,10,5,10,5])
y4 = np.array([10,5,10,5,10])


fig = go.Figure()
fig.add_trace(go.Scatter(
                            x=x,
                            y=y1,
                            mode='none',
                            stackgroup='one'
                        )
             )

fig.add_trace(go.Scatter(
                            x=x,
                            y=y2,
                            mode='none',
                            stackgroup='one'
                        )
             )


fig.add_trace(go.Scatter(
                            x=x,
                            y=y3,
                            mode='none',
                            stackgroup='one'
                        )
             )


fig.add_trace(go.Scatter(
                            x=x,
                            y=y4,
                            mode='none',
                            stackgroup='one'
                        )
             )

fig.update_layout(width = 980 , height = 600)
fig.show()
```

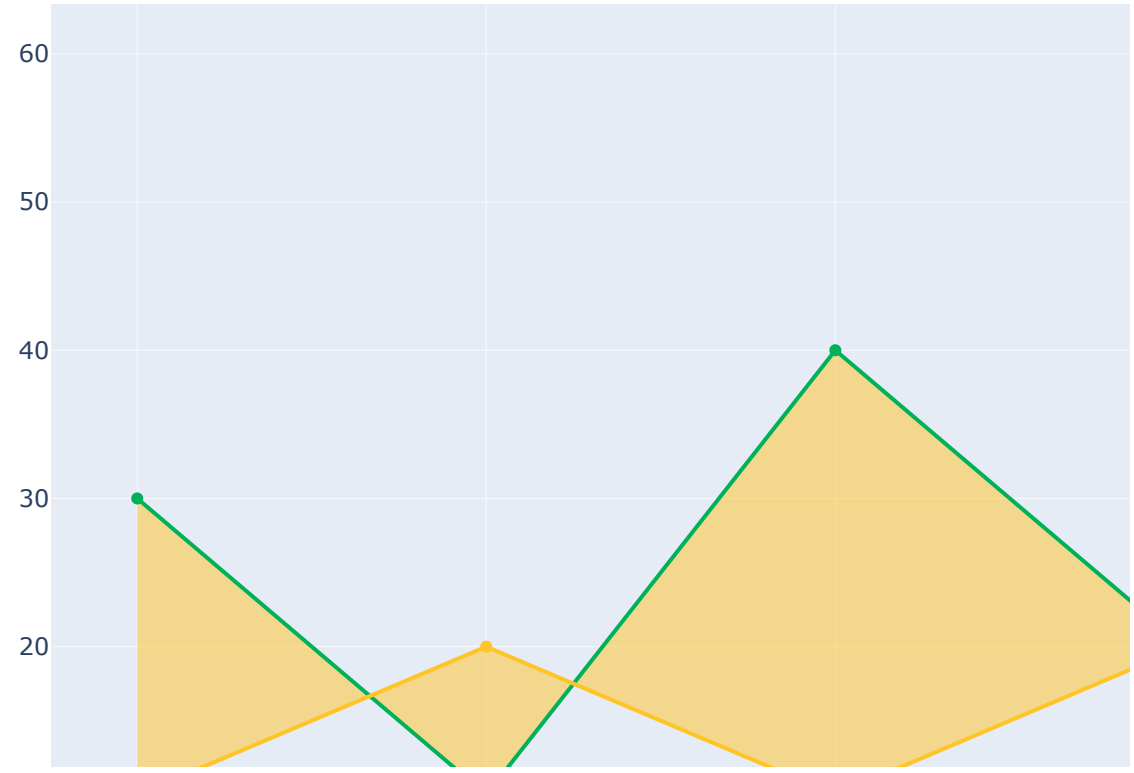

70
60
50
40
30
20
10
0
A
B
C

In [100]:
```
#100 Percent Stacked Area Chart (Using groupnorm parameter)


x=['A','B','C','D','E']
y1 =  np.array([30,10,40,20,60])
y2 = np.array([10,20,10,20,10])
y3 = np.array([5,10,5,10,5])
y4 = np.array([10,5,10,5,10])


fig = go.Figure()
fig.add_trace(go.Scatter(
                            x=x,
                            y=y1,
                            marker = dict(color = '#00b159'),
                            stackgroup='one',
                            groupnorm='percent' #normalization for the sum of the s
                           )
              )

fig.add_trace(go.Scatter(
                            x=x,
                            y=y2,
                            marker = dict(color = '#ffc425'),
                            stackgroup='one',
                            groupnorm='percent'
                           )
              )


fig.add_trace(go.Scatter(
                            x=x,
                            y=y3,
                            marker = dict(color = '#3498DB'),
                            stackgroup='one',
                            groupnorm='percent'
                           )
              )


fig.add_trace(go.Scatter(
                            x=x,
                            y=y4,
                            marker = dict(color = '#ff3b30'),
                            stackgroup='one',
                            groupnorm='percent'
                           )
              )

fig.update_layout(
                  width = 990,
                  height = 650,
                  xaxis_type='category',
                  yaxis=dict(
                             range=[1, 100],
                             ticksuffix='%'
```

```
                                )
                    )

fig.show()
```

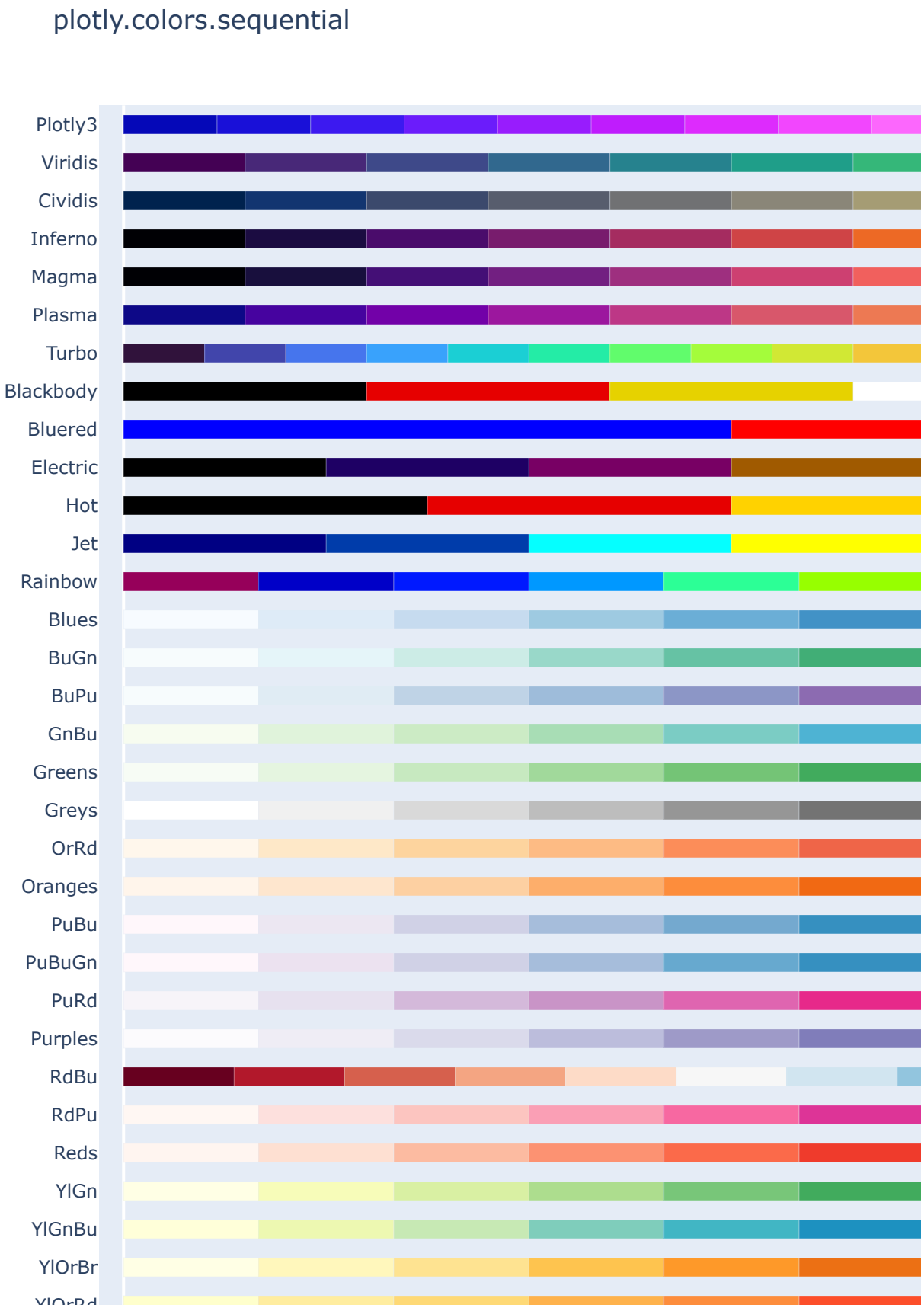


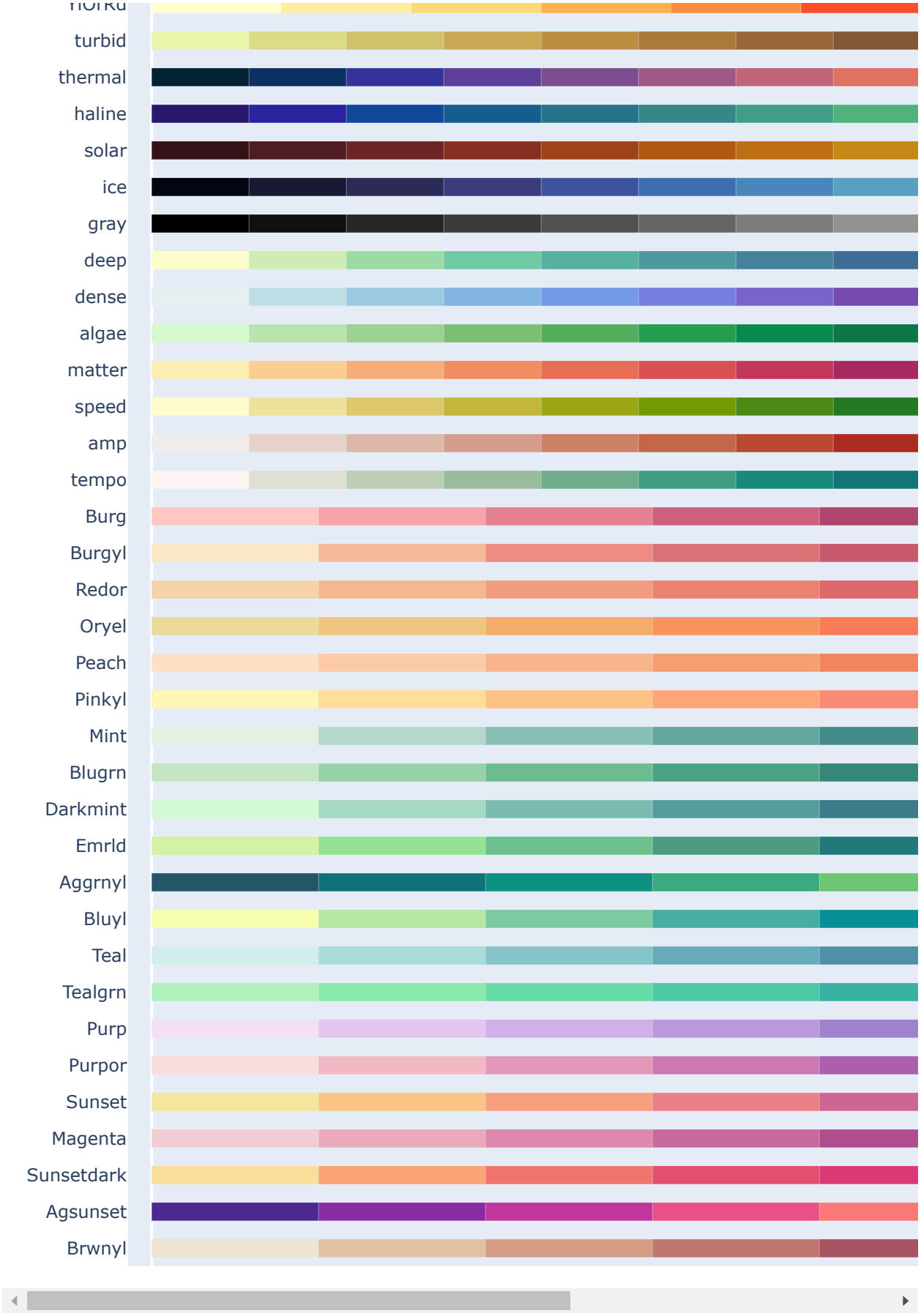
In [101]:
```
# Area Chart with interioir filling using  fill='tonexty'

x=['A','B','C','D','E']
y1 =  np.array([30,10,40,20,60])
y2 = np.array([10,20,10,20,10])


fig = go.Figure()
fig.add_trace(go.Scatter(
                            x=x,
                            y=y1,
                            marker = dict(color = '#00b159'),
                            fill = None
                           )
              )

fig.add_trace(go.Scatter(
                            x=x,
                            y=y2,
                            fill='tonexty', # fill to trace0 y
                            marker = dict(color = '#ffc425'),
                           )
              )


fig.update_layout(width = 980 , height = 600)
fig.show()
```



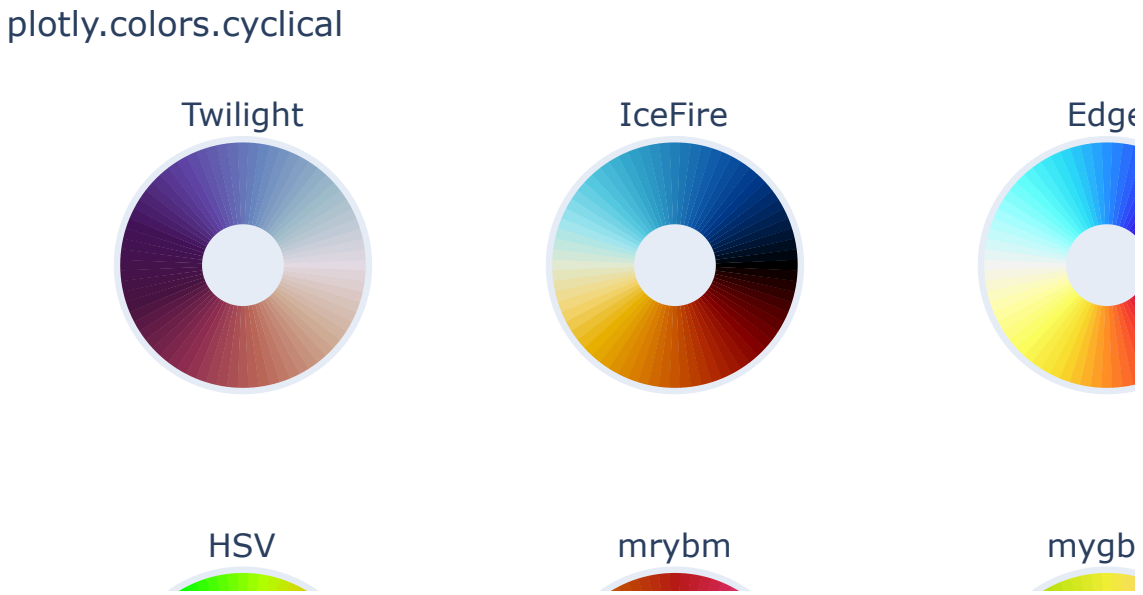
Color scales in Plotly Express

In [102]:
```
#Sequential Color scales
fig = px.colors.sequential.swatches()
fig.update_layout(width = 990 , height = 1760)
fig.show()
```

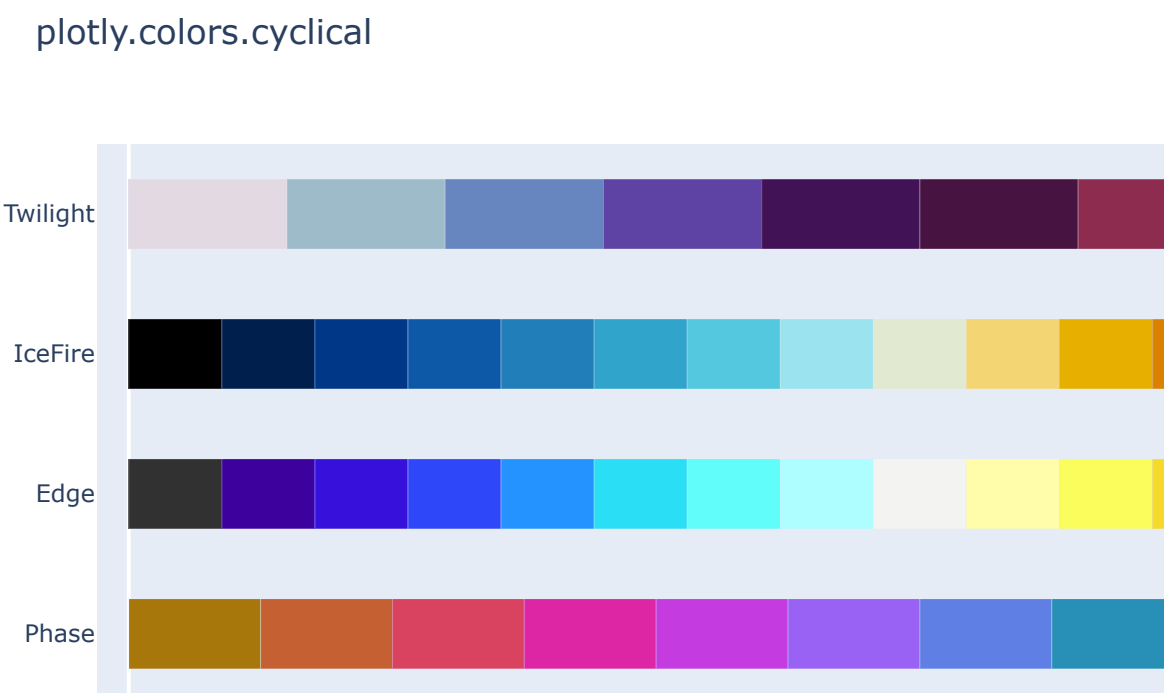



turbid
thermal
haline
solar
ice
gray
deep
dense
algae
matter
speed
amp
tempo
Burg
Burgyl
Redor
Oryel
Peach
Pinkyl
Mint
Blugrn
Darkmint
Emrld
Aggrnyl
Bluyl
Teal
Tealgrn
Purp
Purpor
Sunset
Magenta
Sunsetdark
Agsunset
Brwnyl

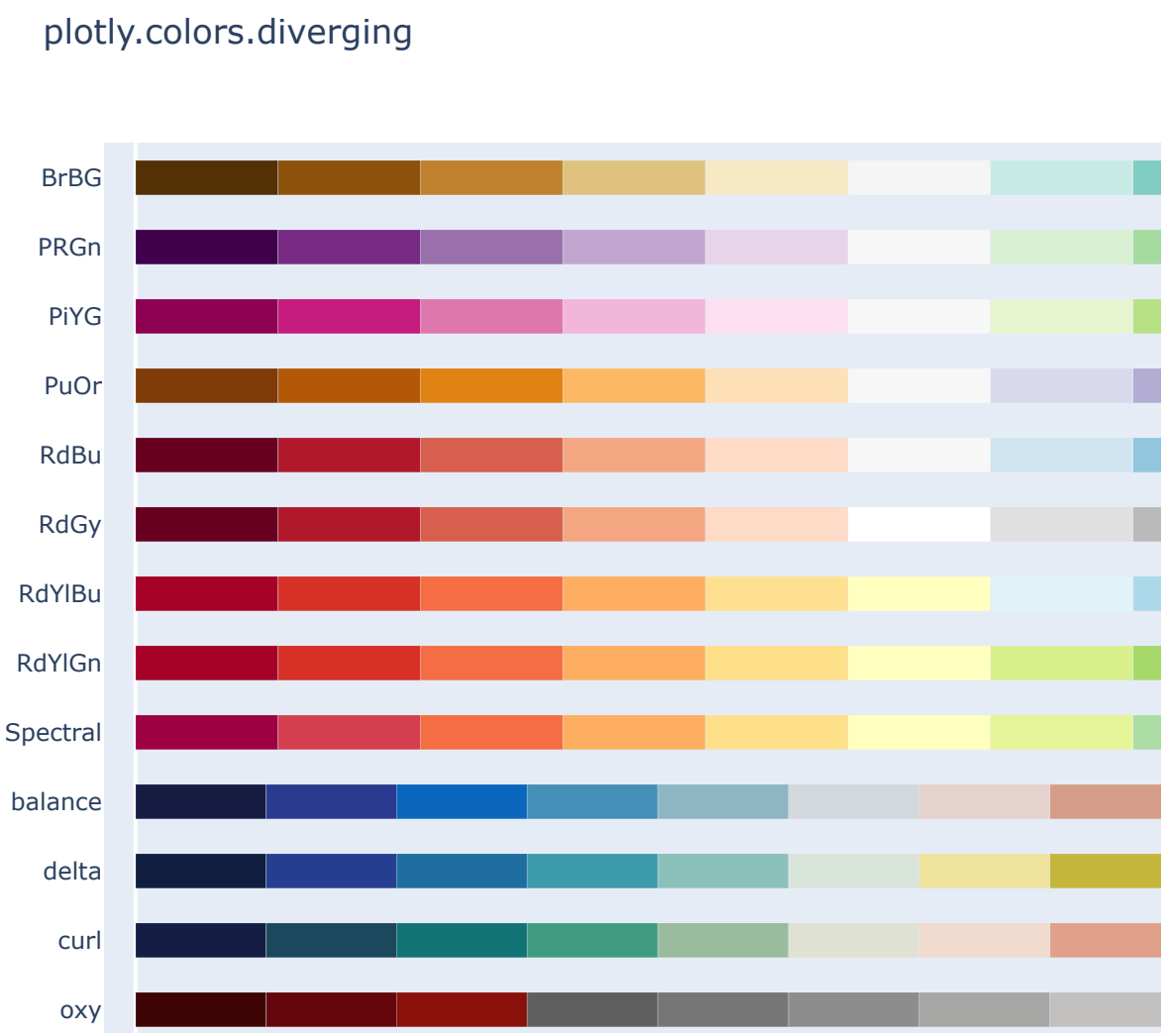
In [103]:
```
#Cyclical Color scales
fig = px.colors.cyclical.swatches_cyclical()
fig.show()
```



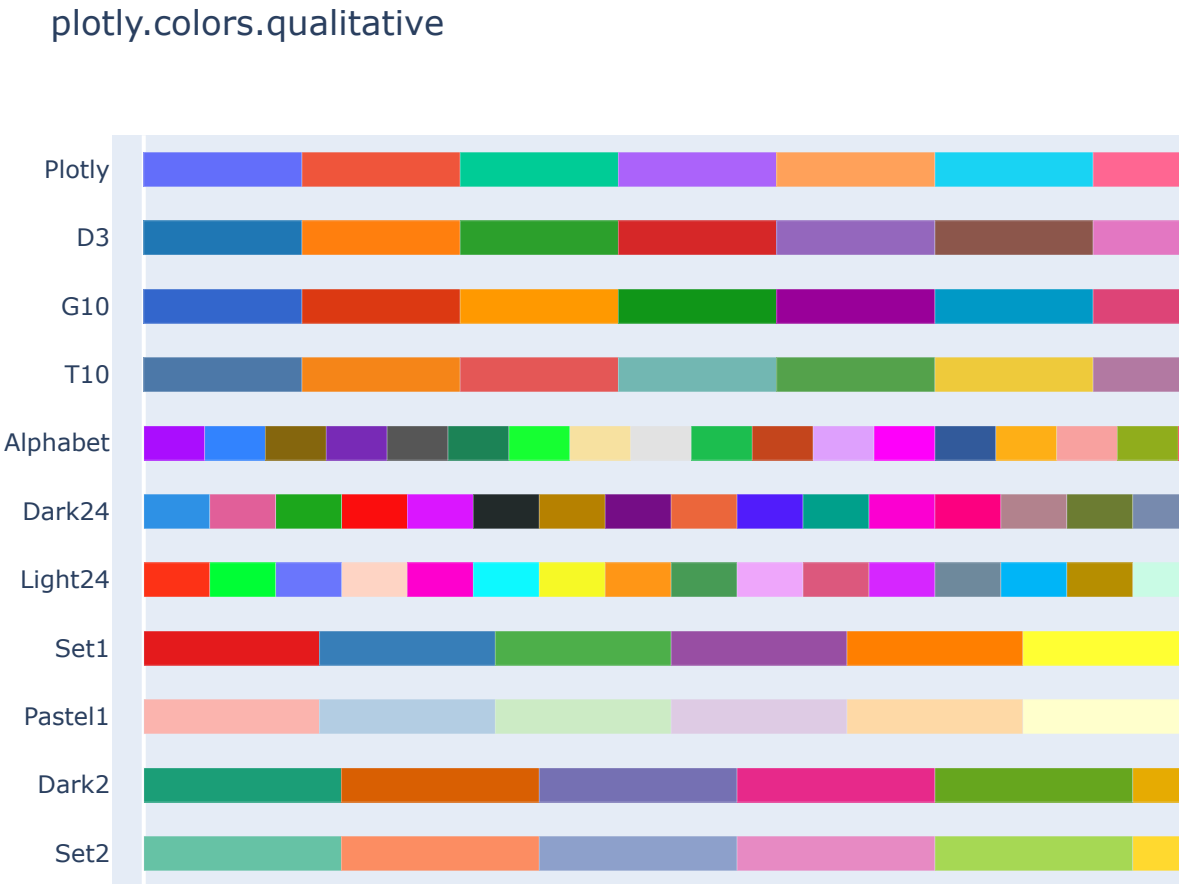
In [104]:
```
#Cyclical Color scales
fig = px.colors.cyclical.swatches()
fig.show()
```



In [105]:
```
#Diverging Color scales
fig = px.colors.diverging.swatches().update_layout(margin_b=10)
fig.show()
```



In [106]:
```
#Qualitative Color scales
fig = px.colors.qualitative.swatches()
fig.show()
```



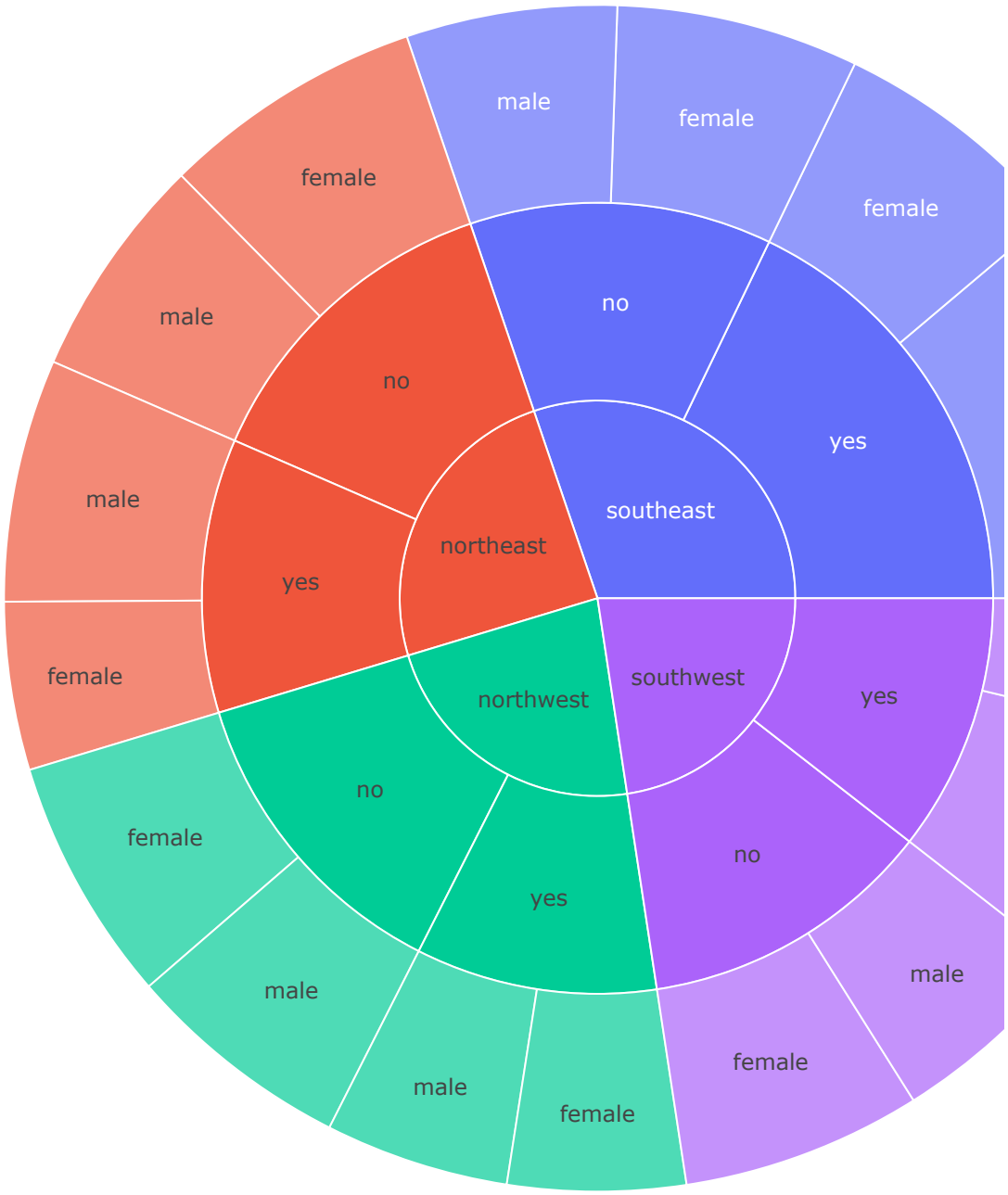
Sunburst Chart

In [107]:
```
insurance.head(10)
```

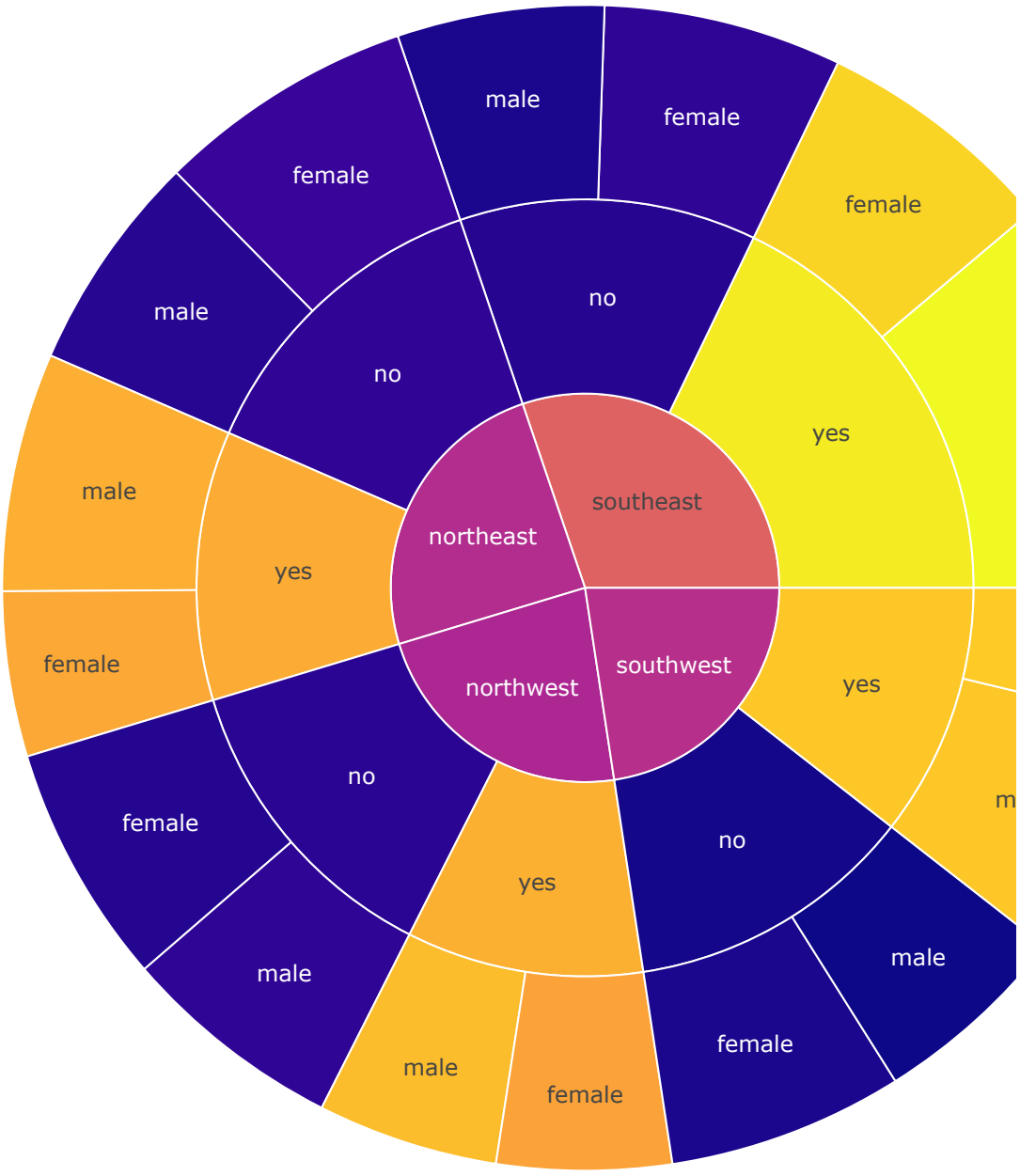
Out[107]:

	age	sex	bmi	children	smoker	region	charges
0	19	female	27.900	0	yes	southwest	16884.92400
1	18	male	33.770	1	no	southeast	1725.55230
2	28	male	33.000	3	no	southeast	4449.46200
3	33	male	22.705	0	no	northwest	21984.47061
4	32	male	28.880	0	no	northwest	3866.85520
5	31	female	25.740	0	no	southeast	3756.62160
6	46	female	33.440	1	no	southeast	8240.58960
7	37	female	27.740	3	no	northwest	7281.50560
8	37	male	29.830	2	no	northeast	6406.41070
9	60	female	25.840	0	no	northwest	28923.13692

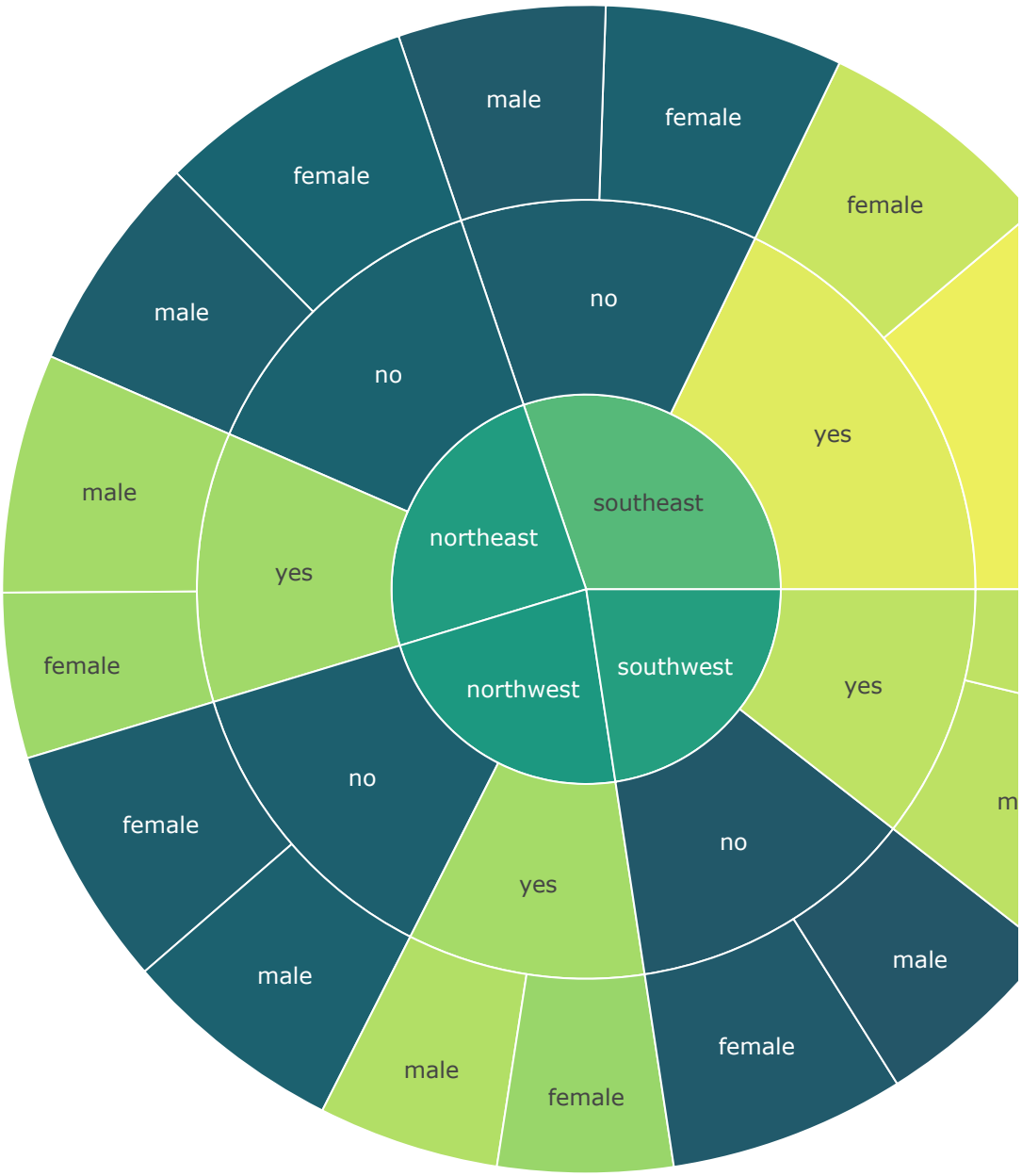
In [108]:
```
# Simple Sunburst Chart

fig = px.sunburst(insurance, path=['region', 'smoker' , 'sex'], values='charges')
fig.update_layout (height = 800 , width = 800)
fig.show()
```



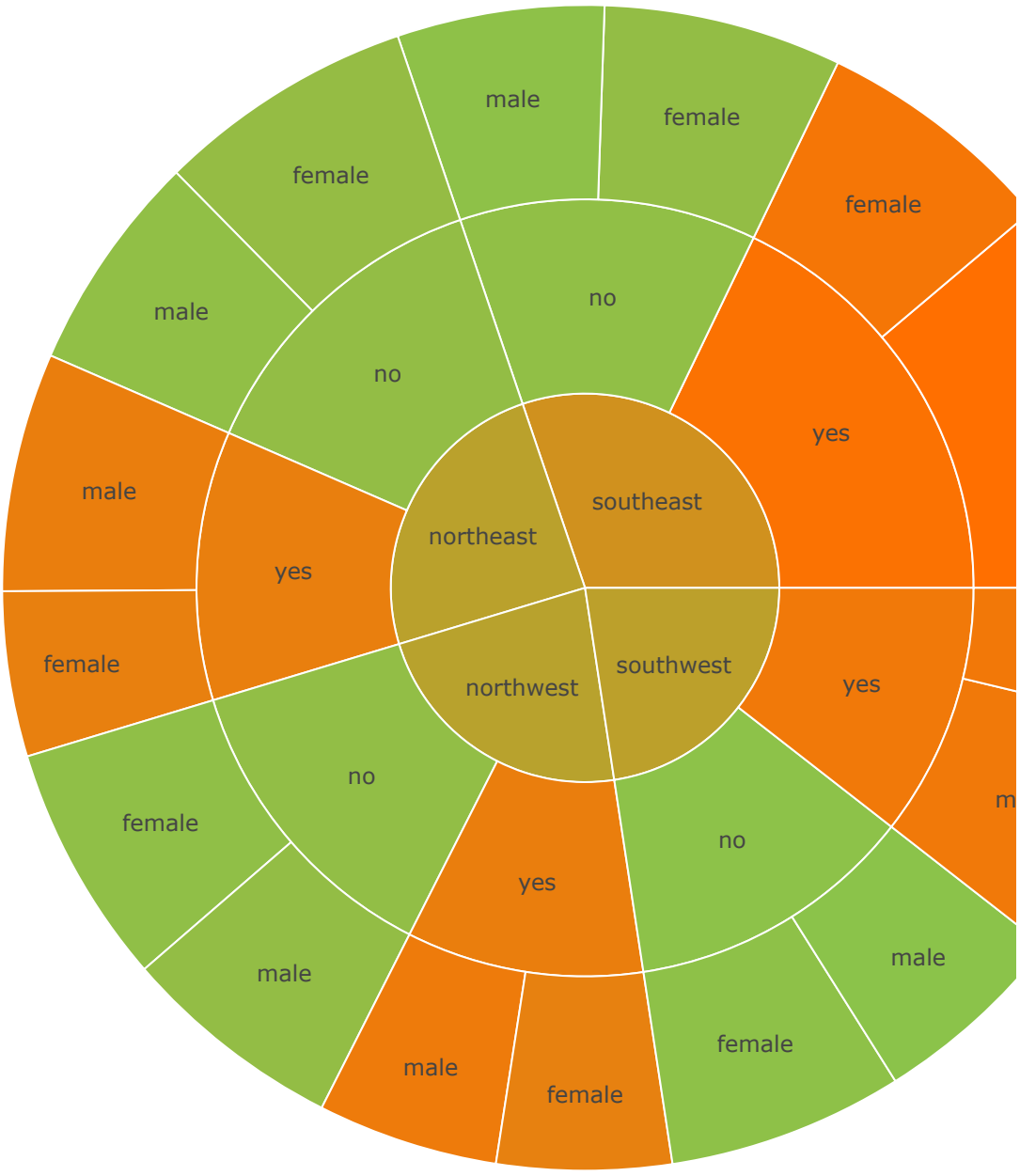
In [109]:
```
fig = px.sunburst(insurance, path=['region', 'smoker' , 'sex'], values='charges'
fig.update_layout (height = 800 , width = 800)
fig.show()
```



In [110]:
```
# Using inbuilt color scales in Sunburst Chart

fig = px.sunburst(
                    insurance,
                    path=['region', 'smoker' , 'sex'],
                    values='charges' , color= 'charges' ,
                    color_continuous_scale=px.colors.sequential.Aggrnyl
                  )

fig.update_layout (height = 800 , width = 800)
fig.show()
```



In [111]:
```
# Using color scales in Sunburst Chart

fig = px.sunburst(
                    insurance,
                    path=['region', 'smoker' , 'sex'],
                    values='charges' ,
                    color= 'charges' ,
                    color_continuous_scale=["#8BC34A", "#FF6F00"] #Explicitly Cons
                   )

fig.update_layout (height = 800 , width = 800)
fig.show()
```

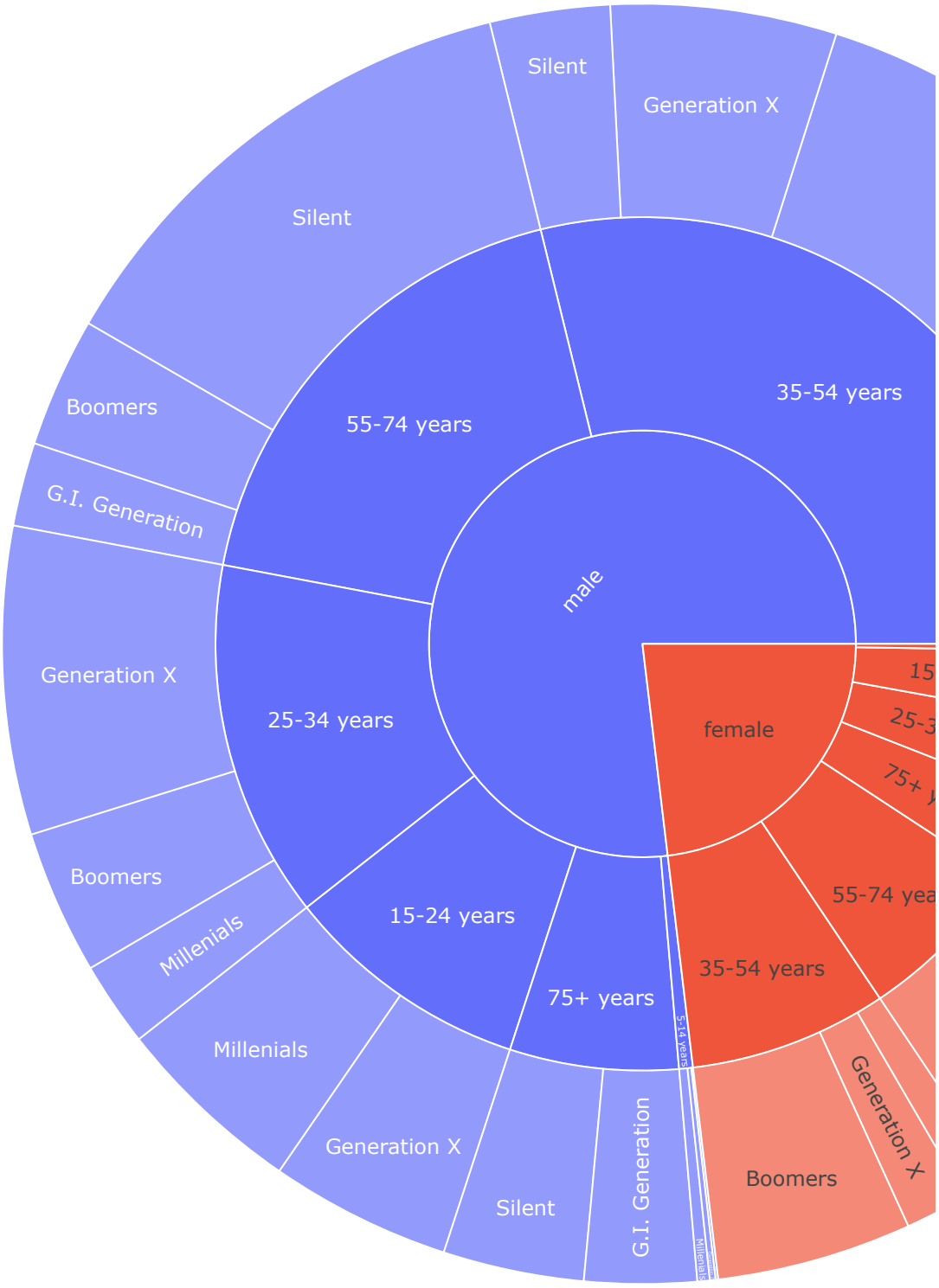


In [112]:
```
suicide.head(10)
```

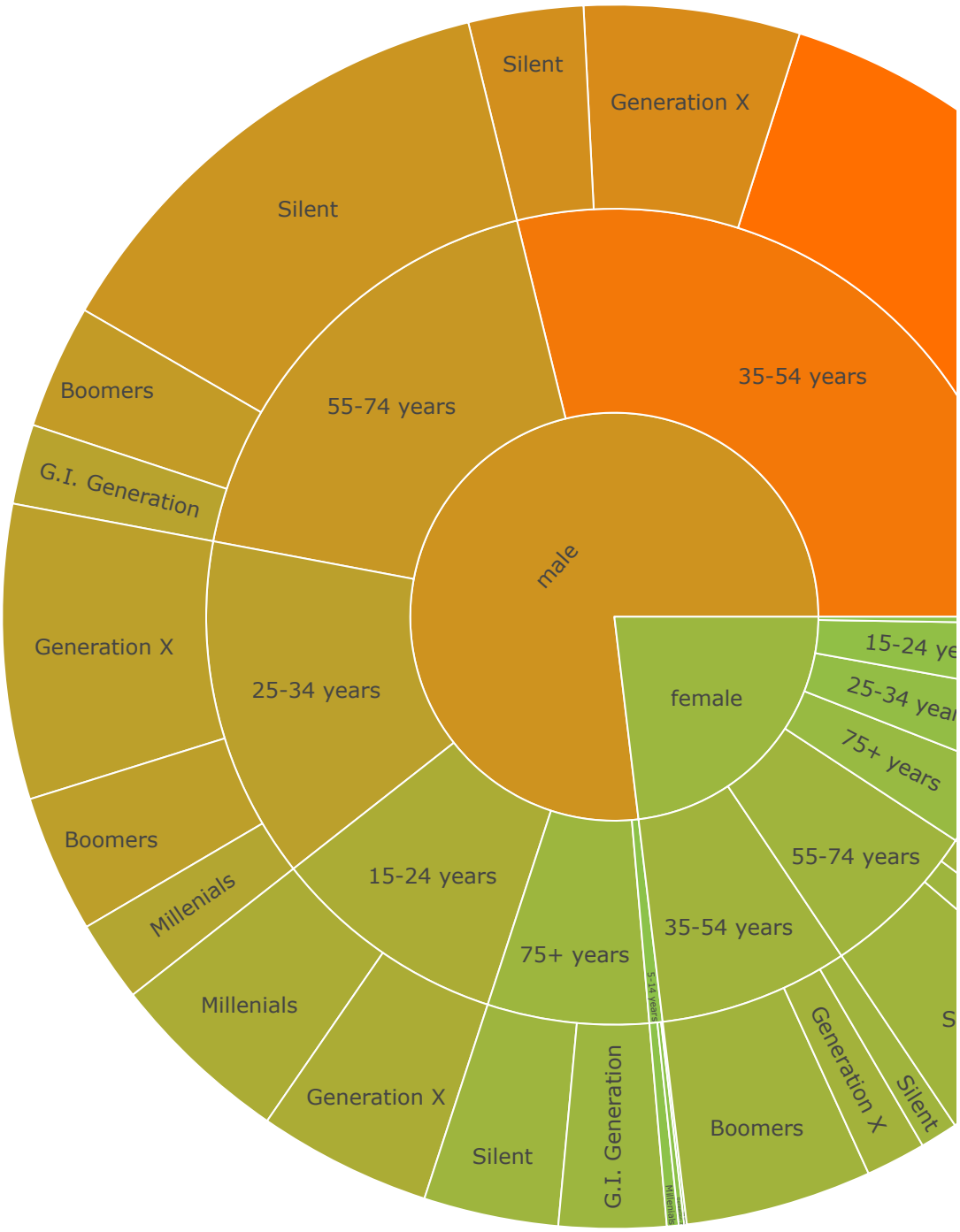
Out[112]:

	country	year	sex	age	suicides_no	population	suicides/100k pop	country-year	HDI for year	gdp_for
0	Albania	1987	male	15-24 years	21	312900	6.71	Albania1987	NaN	2,156,62
1	Albania	1987	male	35-54 years	16	308000	5.19	Albania1987	NaN	2,156,62
2	Albania	1987	female	15-24 years	14	289700	4.83	Albania1987	NaN	2,156,62
3	Albania	1987	male	75+ years	1	21800	4.59	Albania1987	NaN	2,156,62
4	Albania	1987	male	25-34 years	9	274300	3.28	Albania1987	NaN	2,156,62
5	Albania	1987	female	75+ years	1	35600	2.81	Albania1987	NaN	2,156,62
6	Albania	1987	female	35-54 years	6	278800	2.15	Albania1987	NaN	2,156,62
7	Albania	1987	female	25-34 years	4	257200	1.56	Albania1987	NaN	2,156,62
8	Albania	1987	male	55-74 years	1	137500	0.73	Albania1987	NaN	2,156,62
9	Albania	1987	female	5-14 years	0	311000	0.00	Albania1987	NaN	2,156,62

In [113]:
```
fig = px.sunburst(suicide, path=['sex', 'age' , 'generation'], values='suicides_r
fig.update_layout (height = 900 , width = 900)
fig.show()
```



In [114]:
```
fig = px.sunburst(
                    suicide, path=['sex', 'age' , 'generation'],
                    values='suicides_no' ,
                    color= 'suicides_no' ,
                    color_continuous_scale=["#8BC34A","#FF6F00"]
                  )

fig.update_layout (height = 900 , width = 900)
fig.show()
```



Tables & Figure Factory Tables

In [115]:
```
rating
```

Out[115]:

	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree	Total	Strongly Agree (%)	Agree (%)	Neutral (%)	Disagree (%)	S D
Python	428	111	70	101	80	790	54.18	14.05	8.86	12.78	
Java	370	222	80	104	70	846	43.74	26.24	9.46	12.29	
Julia	298	121	90	102	60	671	44.41	18.03	13.41	15.20	
C++	310	141	100	109	56	716	43.30	19.69	13.97	15.22	
C	400	121	110	107	78	816	49.02	14.83	13.48	13.11	

In [116]:
```
#Basic table in Plotly

fig = go.Figure(data=[go.Table(
                                header=dict(
                                            values=list(rating.columns),
                                           ),
                                cells=dict(values=[
                                                   rating['Strongly Agree'] ,
                                                   rating['Agree'] ,
                                                   rating['Neutral'] ,
                                                   rating['Disagree'] ,
                                                   rating['Strongly Disagree'],
                                                   rating['Total'],
                                                   rating['Strongly Agree (%)'],
                                                   rating['Agree (%)'],
                                                   rating['Neutral (%)'],
                                                   rating['Disagree (%)'],
                                                   rating['Strongly Disagree (%
                                                  ],
                                           )
                                   )
                        ]
               )

fig.show()
```

Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree	Total	Strongly Agree (%)
428	111	70	101	80	790	54.18
370	222	80	104	70	846	43.74
298	121	90	102	60	671	44.41
310	141	100	109	56	716	43.3
400	121	110	107	78	816	49.02

In [117]:
```
# Styled Table in Plotly
fig = go.Figure(data=[go.Table(
                                header=dict(
                                            values=list(rating.columns),
                                            fill_color='paleturquoise',
                                            align='left'
                                           ),
                                cells=dict(values=[
                                                   rating['Strongly Agree'] ,
                                                   rating['Agree'] ,
                                                   rating['Neutral'] ,
                                                   rating['Disagree'] ,
                                                   rating['Strongly Disagree'],
                                                   rating['Total'],
                                                   rating['Strongly Agree (%)'],
                                                   rating['Agree (%)'],
                                                   rating['Neutral (%)'],
                                                   rating['Disagree (%)'],
                                                   rating['Strongly Disagree (%
                                                  ],
                                           fill_color='lavender',
                                           align='center'))
                      ]
                )
fig.update_layout(width=990, height=350)
fig.show()
```

Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree	Total	Strongly Agree (%)	A (
428	111	70	101	80	790	54.18	
370	222	80	104	70	846	43.74	
298	121	90	102	60	671	44.41	
310	141	100	109	56	716	43.3	
400	121	110	107	78	816	49.02	

In [118]:
```
# Styled Table in Plotly

fig = go.Figure(data=[go.Table(
                                    header=dict(
                                                values=list(insurance.columns), # H
                                                line_color='black', # Line Color of
                                                fill_color='orange', # background c
                                                align='center', # Align header at c
                                                height=40, # Height of Header
                                                font=dict(color='white', size=18),
                                               ),
                                    cells=dict(values=[
                                                       insurance.age , # Column val
                                                       insurance.sex,
                                                       insurance.bmi,
                                                       insurance.children,
                                                       insurance.smoker,
                                                       insurance.region,
                                                       insurance.charges
                                                      ],
                                               line_color='darkgrey', # Line color c
                                               fill_color='lightcyan', # Color of th
                                               align='left'  # Align text to left in
                                              )
                                )
                    ]
                )

fig.show()
```

age	sex	bmi	children	smo
19	female	27.9	0	yes
18	male	33.77	1	no
28	male	33	3	no
33	male	22.705	0	no
32	male	28.88	0	no
31	female	25.74	0	no
46	female	33.44	1	no
37	female	27.74	3	no
37	male	29.83	2	no

In [119]:
```
# Styled Table in Plotly

rowEvenColor = 'lightgrey'
rowOddColor = 'white'
fig = go.Figure(data=[go.Table(  columnwidth = [80,80,80,80,80,80,120,80,80,80,12
                                 header=dict(
                                             values=[
                                                    '<b>Strongly Agree</b>',
                                                    '<b>Agree</b>',
                                                    '<b>Neutral</b>',
                                                    '<b>Disagree</b>',
                                                    '<b>Strongly Disagree</b>',
                                                    '<b>Total</b>',
                                                    '<b>Strongly Agree (%)</b>',
                                                    '<b>Agree (%)</b>',
                                                    '<b>Neutral (%)</b>',
                                                    '<b>Disagree (%)</b>',
                                                    '<b>Strongly Disagree (%)</b
                                                    ],
                                             fill_color='#8BC34A',
                                             line = dict(color = '#689F38' , wid
                                             align='center',
                                             font_size=12,
                                             font_color = 'white'
                                            ),
                                 cells=dict(values=[
                                                    rating['Strongly Agree'] ,
                                                    rating['Agree'] ,
                                                    rating['Neutral'] ,
                                                    rating['Disagree'] ,
                                                    rating['Strongly Disagree'],
                                                    rating['Total'],
                                                    rating['Strongly Agree (%)'],
                                                    rating['Agree (%)'],
                                                    rating['Neutral (%)'],
                                                    rating['Disagree (%)'],
                                                    rating['Strongly Disagree (%
                                                   ],
                                            fill_color = [[rowOddColor,rowEvenCo
                                            line = dict(color = 'lightgreen' , w
                                            align ='center',
                                            font_size=12,
                                            font = dict(color = 'darkslategray',
                                            height=40
                                           )
                                 )
                     ]
                )
fig.update_layout(width=990, height=500)
fig.show()
```

Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree	Total	Strongly Agree (%)	A (
428	111	70	101	80	790	54.18	1
370	222	80	104	70	846	43.74	2
298	121	90	102	60	671	44.41	1
310	141	100	109	56	716	43.3	1
400	121	110	107	78	816	49.02	1

In [120]:
```
# Create simple table using create_table function

fig = ff.create_table(insurance.tail(5))
fig.show()
```

age	sex	bmi	children	smoke
50	male	30.97	3	no
18	female	31.92	0	no
18	female	36.85	0	no

In [121]:
```
# Create simple table using create_table function

fig = ff.create_table(insurance.tail(5),height_constant=50)
fig.show()
```

age	sex	bmi	children	smoke
50	male	30.97	3	no
18	female	31.92	0	no
18	female	36.85	0	no

In [122]:
```
# Using color scales in table

colorscale = [[0, 'red'],[.5, '#DCE775'],[1, '#C0CA33']]
fig = ff.create_table(insurance.tail(5),height_constant=50,colorscale=colorscale)
fig.show()
```

age	sex	bmi	children	smoke
50	male	30.97	3	no
18	female	31.92	0	no
18	female	36.85	0	no

In [123]:
```
# Changing font color

colorscale = [[0, 'red'],[.5, '#DCE775'],[1, '#C0CA33']]
font=['white', '#212121' , 'red']
fig = ff.create_table(insurance.tail(5),height_constant=50,colorscale=colorscale,
fig.show()
```

age	sex	bmi	children	smoke
50	male	30.97	3	no
18	female	31.92	0	no
18	female	36.85	0	no

In [124]:
```
# Changing font size using "fig.layout.annotations[i].font.size"

colorscale = [[0, 'red'],[.5, '#DCE775'],[1, '#C0CA33']]
font=['white', '#212121' , 'red']
fig = ff.create_table(insurance.tail(5),height_constant=50,colorscale=colorscale,
for i in range(len(fig.layout.annotations)):
    fig.layout.annotations[i].font.size = 17
fig.show()
```

age	sex	bmi	children	smol
50	male	30.97	3	no
18	female	31.92	0	no
18	female	36.85	0	no

In [125]:
```
colorscale = [[0, 'red'],[.5, '#DCE775'],[1, '#C0CA33']]
font=['white', '#212121' , 'red']
fig = ff.create_table(insurance.tail(5),height_constant=50,colorscale=colorscale,
for i in range(len(fig.layout.annotations)):
    fig.layout.annotations[i].font.size = 12
fig.show()
```

age	sex	bmi	children	smoke
50	male	30.97	3	no
18	female	31.92	0	no
18	female	36.85	0	no

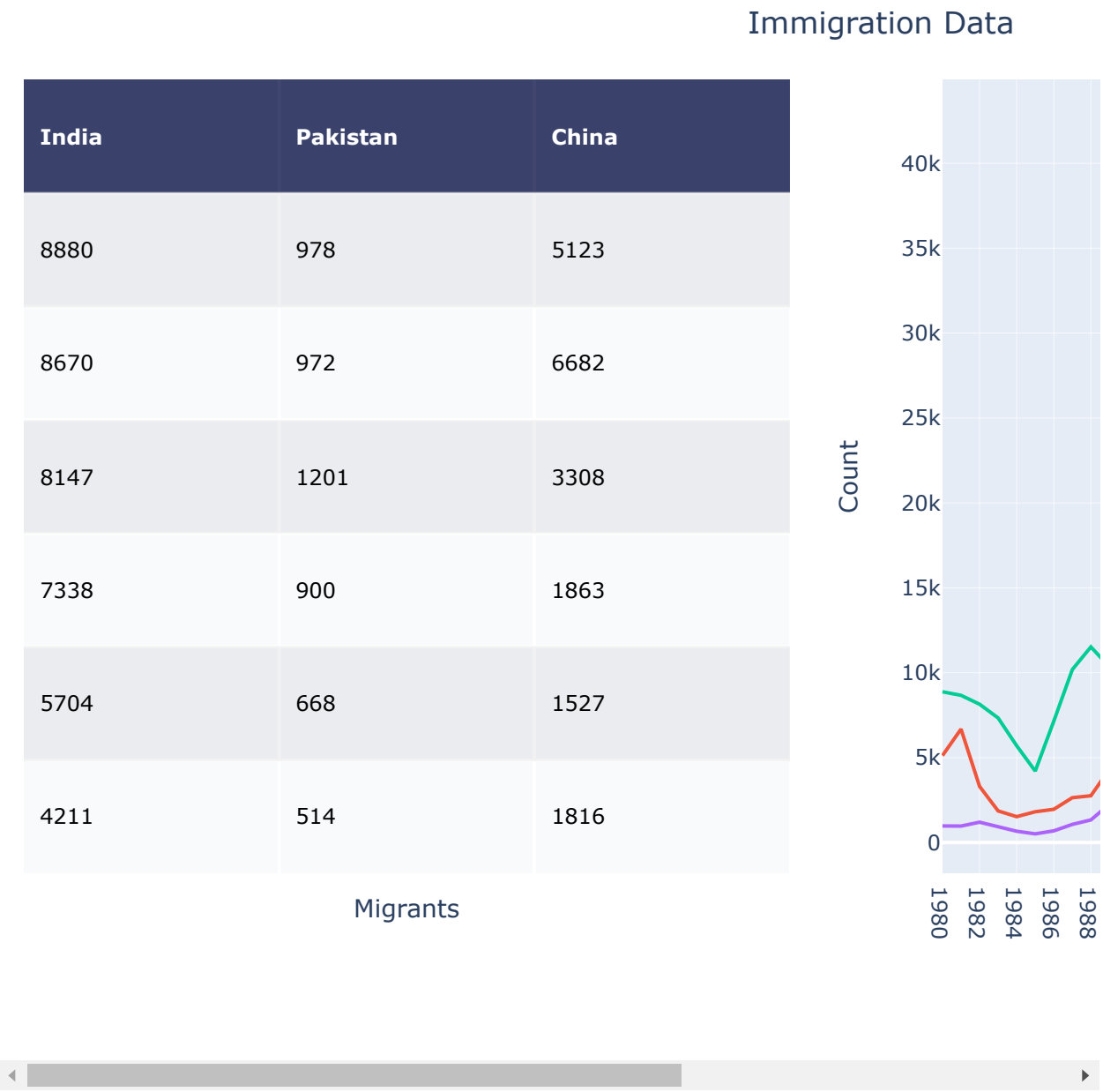
In [126]:
```
canada.loc[:, ['India','Pakistan','China']].head(6)
```

Out[126]:

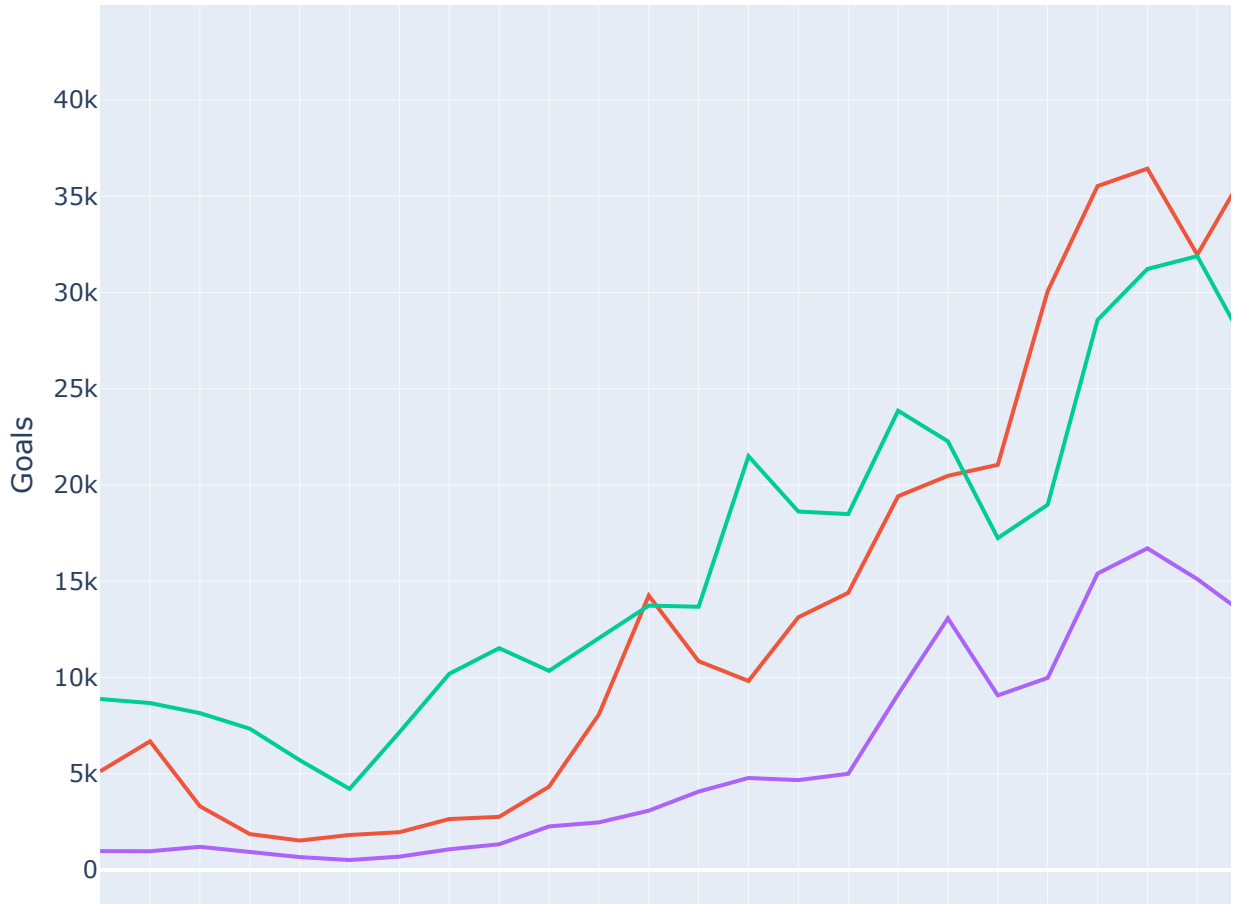
	India	Pakistan	China
1980	8880	978	5123
1981	8670	972	6682
1982	8147	1201	3308
1983	7338	900	1863
1984	5704	668	1527
1985	4211	514	1816

In [127]:
```
# Displaying tables along with graphs

import plotly.graph_objs as go
import plotly.figure_factory as ff

# Add table data
table_data = canada.loc[:, ['India','Pakistan','China']].head(6)


# Initialize a figure with ff.create_table(table_data)
fig = ff.create_table(table_data, height_constant=60)


# Make traces for graph
fig.add_trace( go.Scatter(
                    x = canada.index.values,
                    y = canada['China'],
                    mode = 'lines',
                    name = 'China',
                    xaxis='x2', yaxis='y2'
                   )
              )


# Make traces for graph
fig.add_trace( go.Scatter(
                    x = canada.index.values,
                    y = canada['India'],
                    mode = 'lines',
                    name = 'India',
                    xaxis='x2', yaxis='y2'
                   )
             )

# Make traces for graph
fig.add_trace( go.Scatter(
                       x = canada.index.values,
                       y = canada['Pakistan'],
                       mode = 'lines',
                       name = 'Pakistan',
                       xaxis='x2', yaxis='y2'
                      )
             )



fig.update_layout(
                    title=dict(text = "Immigration Data",x=0.5,y=0.98), # Figure
                    paper_bgcolor= '#dbdbdb', # Figure background
                    margin = {'t':50, 'b':100},
                    xaxis = {'domain': [0, .5] , 'title' : 'Migrants'},
                    xaxis2 = {'domain': [0.6, 1.] , 'title' : 'Year'},
                    yaxis2 = {'anchor': 'x2', 'title': 'Count'},
                    width = 990,
                    height = 600
                   )
```

```
fig.show()
```

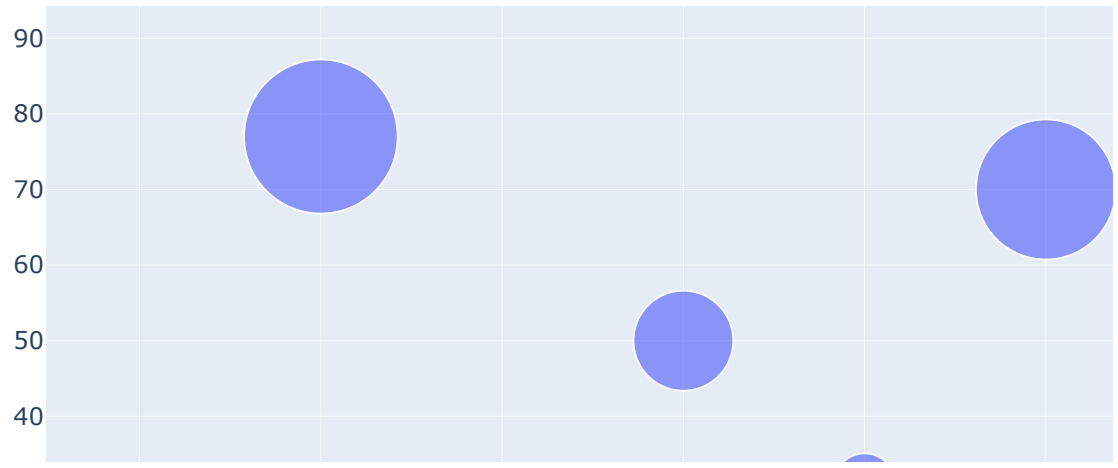

Immigration Data
India
Pakistan
China
8880
978
5123
8670
972
6682
8147
1201
3308
7338
900
1863
5704
668
1527
4211
514
1816
Migrants
Count
40k
35k
30k
25k
20k
15k
10k
5k
0
1980
1982
1984
1986
1988

In [128]:
```
# Displaying tables along with graphs

import plotly.graph_objs as go
import plotly.figure_factory as ff

# Add table data
table_data = canada.loc[:, ['India','Pakistan','China' , 'Australia' , 'Germany'


# Initialize a figure with ff.create_table(table_data)
fig = ff.create_table(table_data, height_constant=60)


# Make traces for graph
fig.add_trace( go.Scatter(
                    x = canada.index.values,
                    y = canada['China'],
                    mode = 'lines',
                    name = 'China',
                    xaxis='x2', yaxis='y2'
                   )
              )

fig.add_trace( go.Scatter(
                    x = canada.index.values,
                    y = canada['India'],
                    mode = 'lines',
                    name = 'India',
                    xaxis='x2', yaxis='y2'
                   )
             )

fig.add_trace( go.Scatter(
                       x = canada.index.values,
                       y = canada['Pakistan'],
                       mode = 'lines',
                       name = 'Pakistan',
                       xaxis='x2', yaxis='y2'
                     )
             )



fig.update_layout(
    title_text = '2016 Hockey Stats',
    height = 800,
    margin = {'t':50, 'l':20},
    yaxis = {'domain': [0, .3]},
    yaxis2 = {'domain': [.4, 1], 'anchor': 'x2', 'title': 'Goals'},
    xaxis2 = {'anchor': 'y2'},
)


fig.show()
```

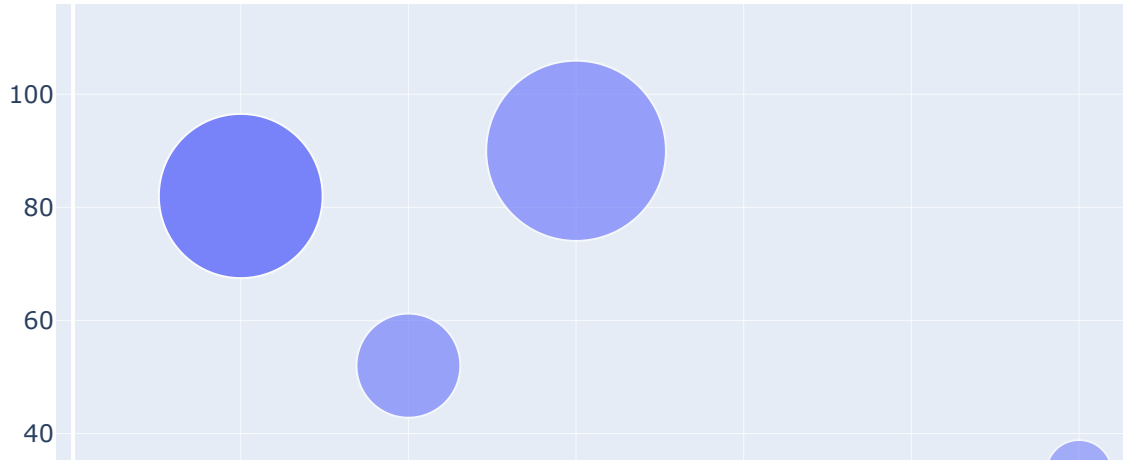


Bubble Chart

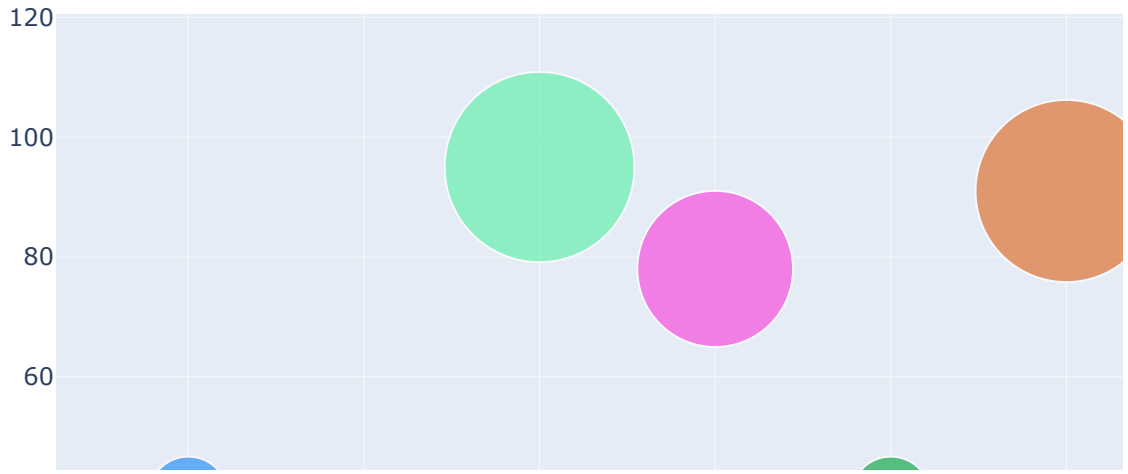
In [129]:
```
#Simple Bubble Chart
x = np.arange(1,10)
y = np.random.randint(1,100,9)
op = np.random.uniform(0.2,1 ,9)
data = go.Scatter(
                  x = x,
                  y = y,
                  mode = 'markers',
                  marker = dict(size = y),
                 )

fig = go.Figure(data=data)
fig.show()
```



In [130]:
```
x = np.arange(1,10)
y = np.random.randint(1,100,9)
op = np.random.uniform(0.2,1 ,9)
data = go.Scatter(
                  x = x,
                  y = y,
                  mode = 'markers',
                  marker = dict(size = y,opacity = op), # Changing opacity & size
                  )

fig = go.Figure(data=data)
fig.show()
```



In [131]:
```
x = np.arange(1,10)
y = np.random.randint(1,100,9)
op = np.random.uniform(0.2,1 ,9)
hexval = [hex(x) for x in np.random.randint(0,16777215,10)]
hexval = ['#' + hexval[i][2:] for i in range(0,10)] #Generate Hex color list
data = go.Scatter(
                  x = x,
                  y = y,
                  mode = 'markers',
                  marker = dict(size = y,color = hexval) # Changing color & size
                  )

fig = go.Figure(data=data)
fig.show()
```

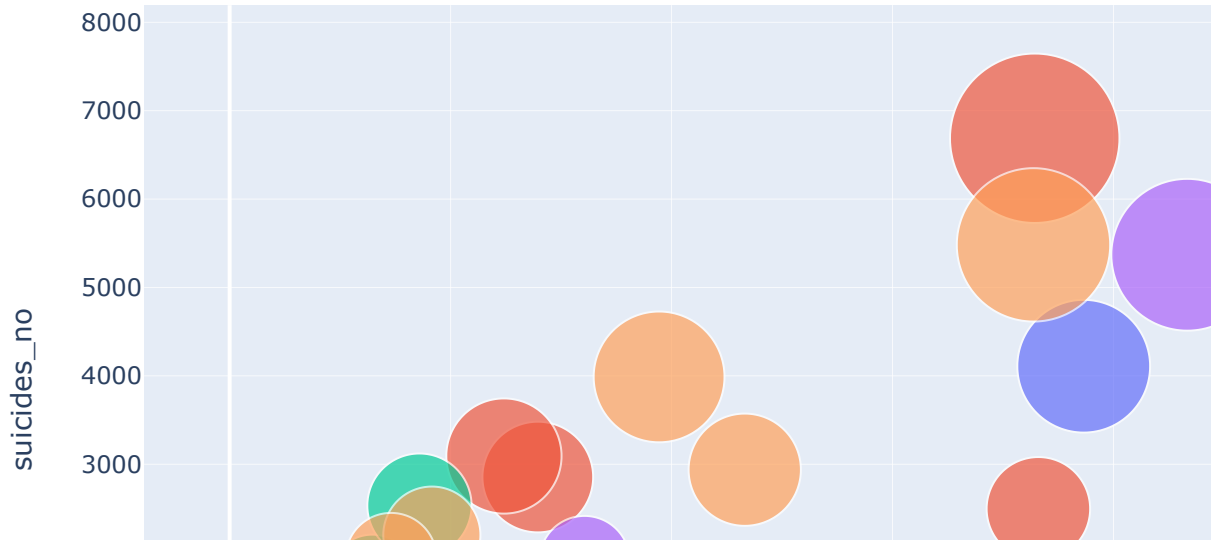


In [132]:
```
suicide.head()
```

Out[132]:

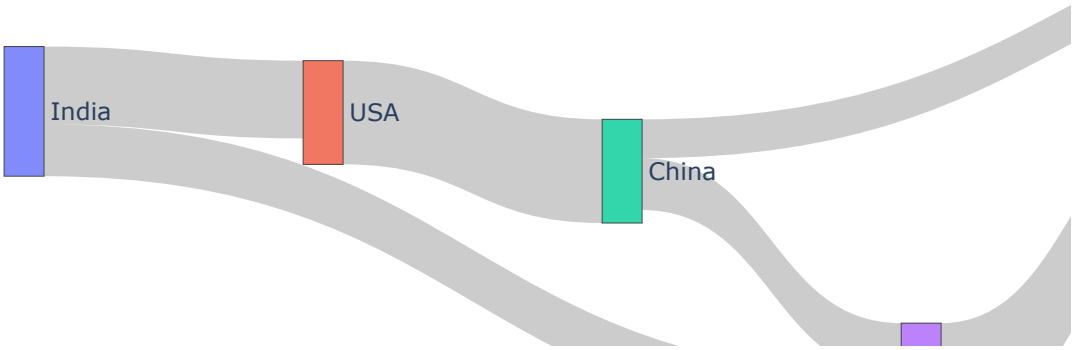
	country	year	sex	age	suicides_no	population	suicides/100k pop	country-year	HDI for year	gdp_for
0	Albania	1987	male	15-24 years	21	312900	6.71	Albania1987	NaN	2,156,62
1	Albania	1987	male	35-54 years	16	308000	5.19	Albania1987	NaN	2,156,62
2	Albania	1987	female	15-24 years	14	289700	4.83	Albania1987	NaN	2,156,62
3	Albania	1987	male	75+ years	1	21800	4.59	Albania1987	NaN	2,156,62
4	Albania	1987	male	25-34 years	9	274300	3.28	Albania1987	NaN	2,156,62

In [133]:
```
# Bubble Chart using plotly.express
fig = px.scatter(
                 suicide.query("year==1987"),
                 x="population",
                 y="suicides_no",
                 size="suicides_no",
                 color="age",
                 hover_name="country",
                 size_max=60
                )
fig.show()
```

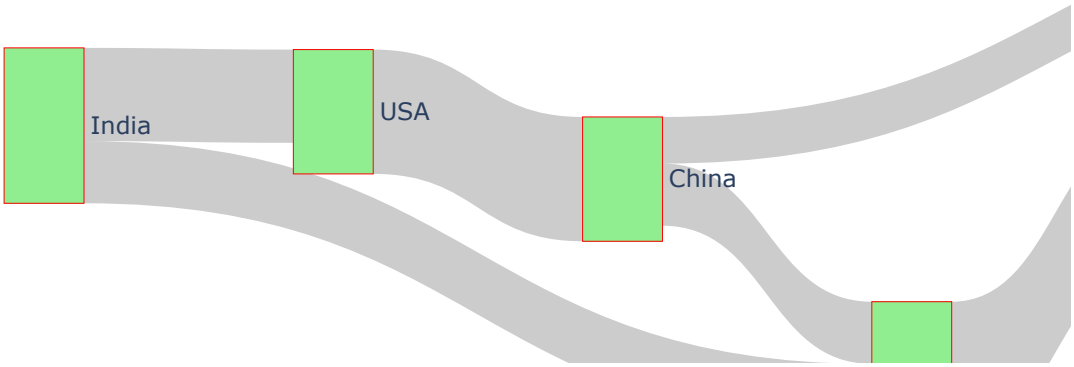


Sankey Diagram

In [134]:
```
#Simple Sankey Diagram

fig = go.Figure(
                  go.Sankey(
                              node = {
                                       "label": ["India", "USA", "China", "Pakistar
                                      },
                              link = {
                                       "source": [0, 1, 2, 3, 4, 0, 2, 5],
                                       "target": [1, 2, 3, 4, 5, 3, 5, 3],
                                       "value": [300, 400, 200, 450, 700, 200,150, 2
                                      }
                            )
                )

fig.show()
```



In [135]:
```
#Simple Sankey Diagram

fig = go.Figure(
                  go.Sankey(
                            node = dict(
                                        thickness = 40, # Changing thickness of
                                        color = "lightgreen", # Changing color
                                        line = dict(color = "red", width = 0.5)
                                        label = ["India", "USA", "China", "Paki

                                       ),
                            link = {
                                    "source": [0, 1, 2, 3, 4, 0, 2, 5],
                                    "target": [1, 2, 3, 4, 5, 3, 5, 3],
                                    "value": [300, 400, 200, 450, 550, 200,150, 2
                                   }
                           )
               )

fig.show()
```



In [136]:
```
#Simple Sankey Diagram

fig = go.Figure(
                  go.Sankey(
                              node = {
                                        "label": ["Married: NO", "Married: Yes",
                                                  "Pet: No", "Pet: Yes",
                                                  "Happy: Yes", "Happy: No"],
                                        "color" : px.colors.qualitative.Set3 # Node
                                      },
                              link = dict(
                                           source = [0, 0, 1, 1, 2, 2, 3, 5],
                                           target = [2, 3, 2, 3, 5, 4, 4, 3],
                                           value = [200, 300, 400, 600, 150, 350,70
                                           color = px.colors.qualitative.Set2 # Col
                                          )
                            )
                )

fig.show()
```

END

In [ ]: