```python
import matplotlib.pyplot as plt
import numpy as np
import pandas as pd
import seaborn as sns
import matplotlib as mpl
```

```
/usr/local/lib/python3.6/dist-packages/statsmodels/tools/_testing.py:19: FutureWarning: pandas.util.testing is deprecat
  import pandas.util.testing as tm
```

```python
from google.colab import drive
drive.mount('/content/drive')
```

```
Go to this URL in a browser: https://accounts.google.com/o/oauth2/auth?client_id=947318989803-6bn6qk8qdgf4n4g3pfee6491h

Enter your authorization code:
..........
Mounted at /content/drive
```

▾ Scatter Plots

```python
# Recover default matplotlib settings
mpl.rcParams.update(mpl.rcParamsDefault)
%matplotlib inline
```

```python
insurance = pd.read_csv('/content/drive/My Drive/Python DataScience/Visualization/Seabo
insurance.head(10)
```

⤷

	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

```
#insurance.head(5)
```

	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

```
plt.figure(figsize=(7,7))
sns.scatterplot(x=insurance.bmi , y=insurance.charges )
plt.show()
```

⤷
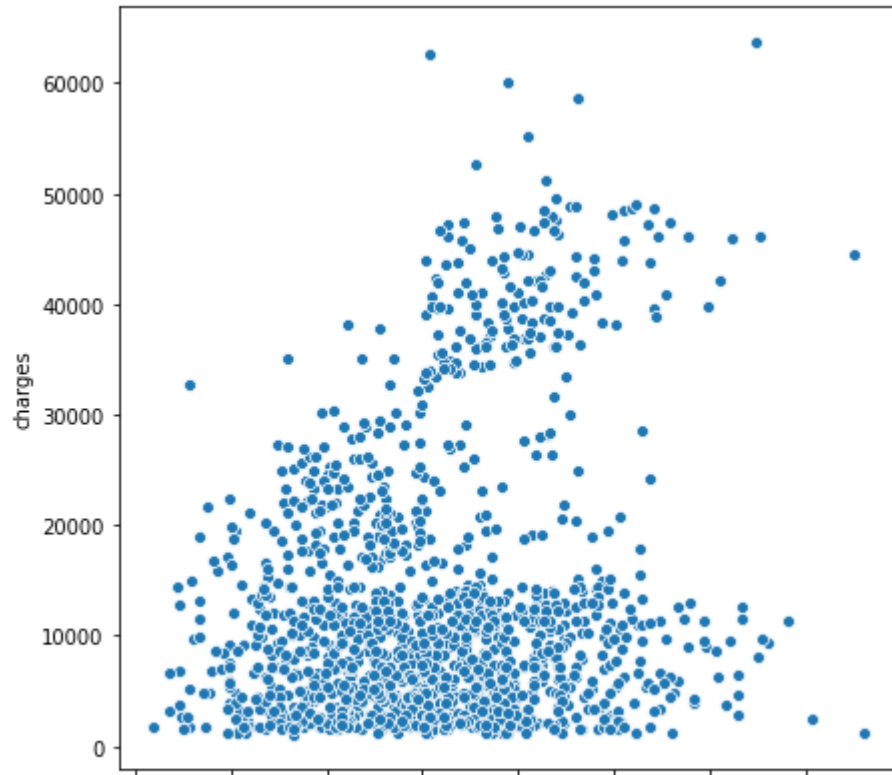
```
#Changing the color of data points using "color" parameter
plt.figure(figsize=(7,7))
sns.scatterplot(x=insurance.bmi , y=insurance.charges , color='#91bd3a')
plt.show()
```
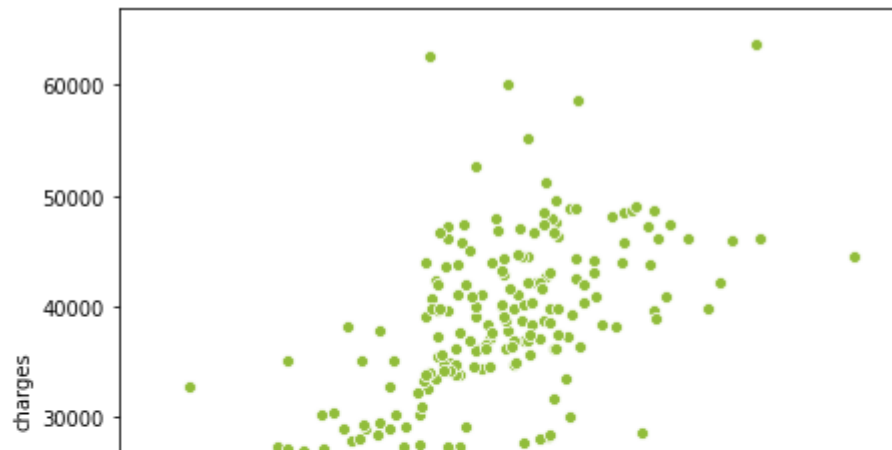
```
#Changing the shape of data points using "marker" parameter
plt.figure(figsize=(8,8))
sns.scatterplot(x=insurance.bmi , y=insurance.charges , color='#339900' , marker = ">"
plt.show()
```
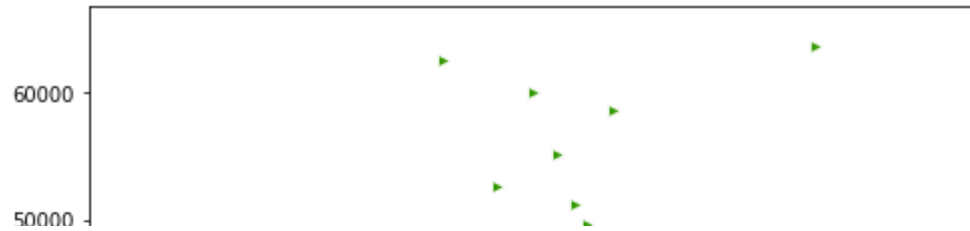
```
# Show groups with different colors using "hue"
plt.figure(figsize=(7,7))
sns.scatterplot(x=insurance.bmi , y=insurance.charges , hue=insurance.sex )
plt.show()
```
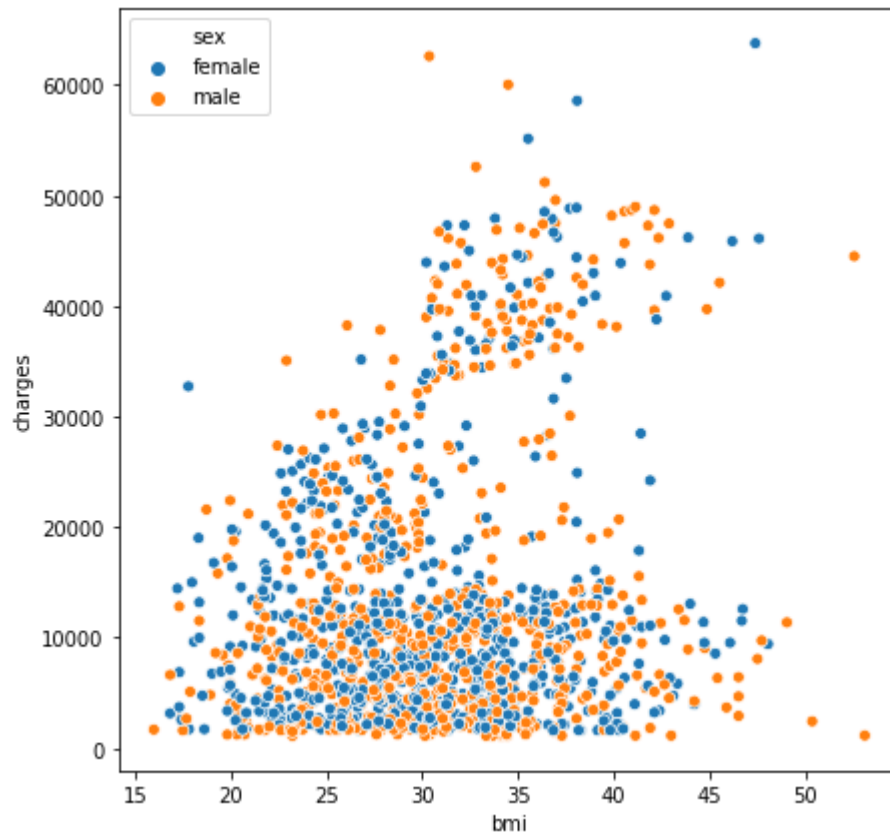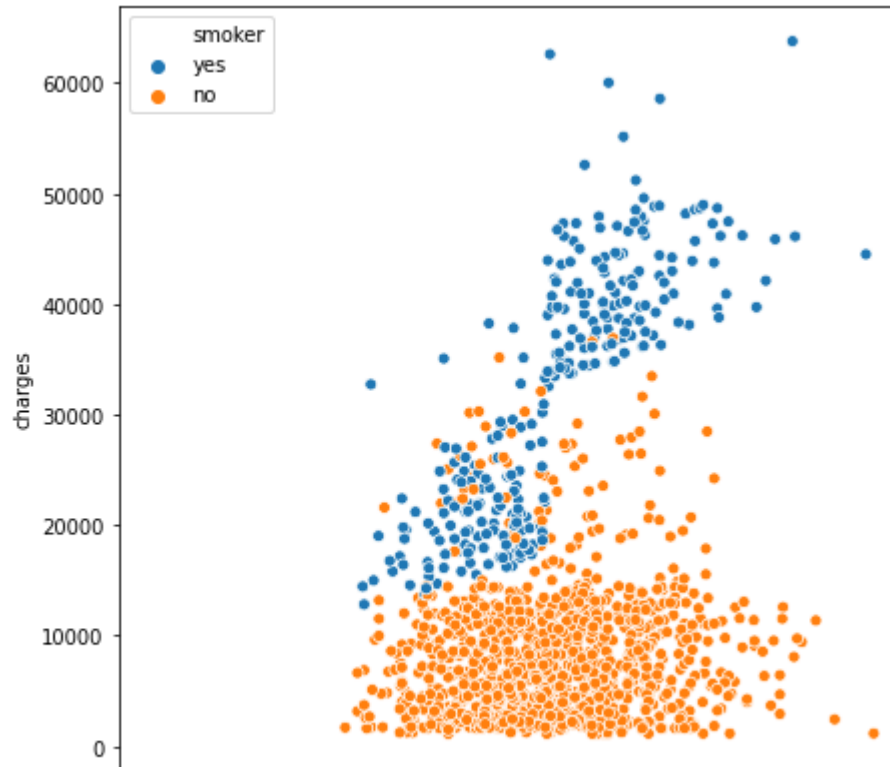


```
# Show groups with different colors using "hue"
```

```
plt.figure(figsize=(7,7))
sns.scatterplot(x=insurance.bmi , y=insurance.charges , hue=insurance.smoker)
plt.show()
```



```
#Setting X limit using "plt.xlim"
plt.figure(figsize=(7,7))
plt.xlim([0,55])
sns.scatterplot(x=insurance.bmi , y=insurance.charges , hue=insurance.smoker)
plt.show()
```

```
# Showing two different grouping variables using "hue" amd "style" parameter
plt.figure(figsize=(10,10))
plt.gcf().text(.5, .9, "Scatter Plot", fontsize = 40, color='Black' ,ha='center', va='c
sns.scatterplot(x=insurance.bmi , y=insurance.charges , hue=insurance.smoker,style=insu
plt.show()
```
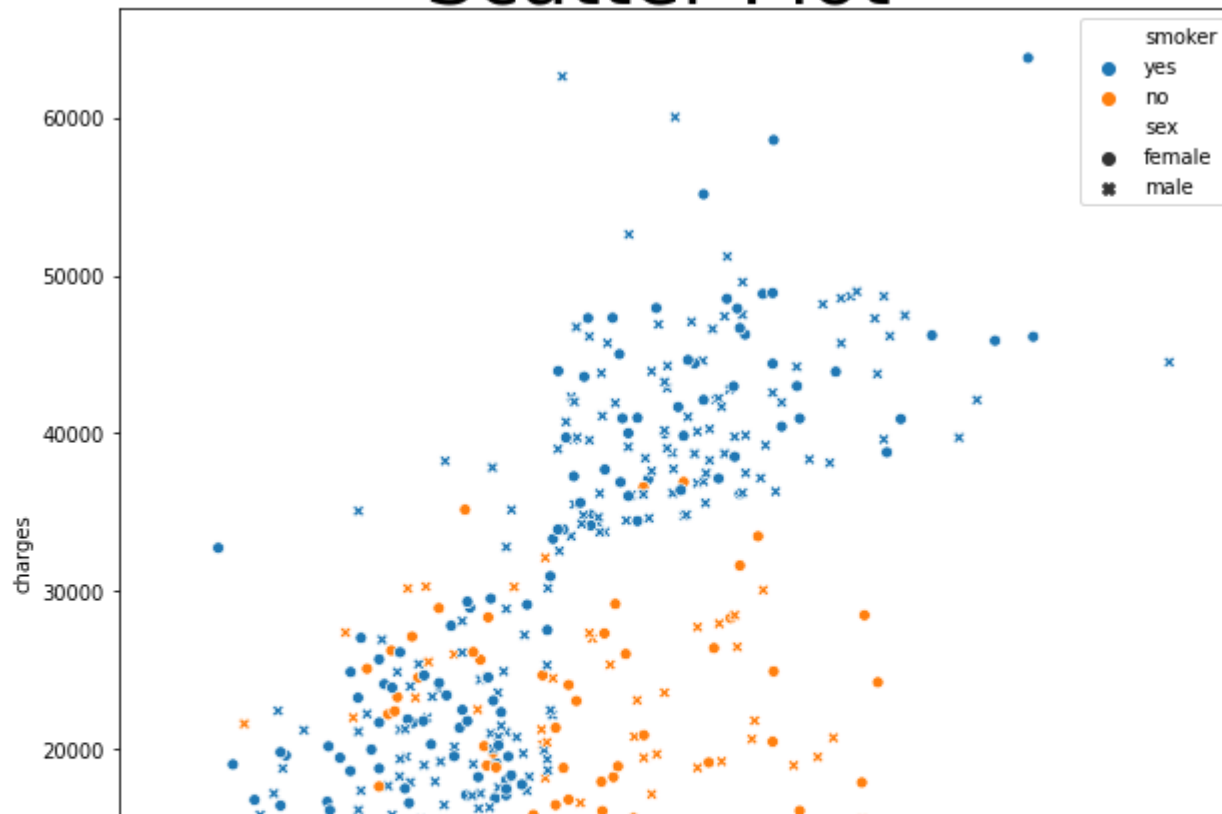
Scatter Plot


```
stdperf = pd.read_csv("/content/drive/My Drive/Python DataScience/Visualization/Seaborn
stdperf.head(10)
```

⤷

	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	standard	completed	69	90	88

```
#stdperf.head()
```

| **2** | female | group B | master's degree | standard | none | 90 | 95 | 93 |

```
plt.figure(figsize=(9,9))
sns.scatterplot(x= stdperf['reading score'] , y= stdperf['writing score'] ,
                hue=stdperf['test preparation course'],size = stdperf['math score'] , s
plt.show()
```

⤷

```
pokemon = pd.read_csv("/content/drive/My Drive/Python DataScience/Visualization/Seaborn
pokemon.head(10)
```

	#	Name	Type 1	Type 2	HP	Attack	Defense	Sp. Atk	Sp. Def	Speed	Generation	Legendary	Total
0	1	Bulbasaur	Grass	Poison	45	49	49	65	65	45	1	False	318
1	2	Ivysaur	Grass	Poison	60	62	63	80	80	60	1	False	405
2	3	Venusaur	Grass	Poison	80	82	83	100	100	80	1	False	525
3	3	VenusaurMega Venusaur	Grass	Poison	80	100	123	122	120	80	1	False	625
4	4	Charmander	Fire	NaN	39	52	43	60	50	65	1	False	309
5	5	Charmeleon	Fire	NaN	58	64	58	80	65	80	1	False	405
6	6	Charizard	Fire	Flying	78	84	78	109	85	100	1	False	534
7	6	CharizardMega Charizard X	Fire	Dragon	78	130	111	130	85	100	1	False	634

```
#pokemon.head()

# Varying the size of the points for a quantitative variable using "size" parameter
plt.figure(figsize=(9,9))
sns.scatterplot(x= pokemon['Speed'] , y= pokemon['Attack'] ,hue= pokemon['Legendary'] ,
                size = pokemon['Sp. Atk'] , sizes = (20,200))
```

```
plt.show()
```