```
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
```

```
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
```

Swarm Plot

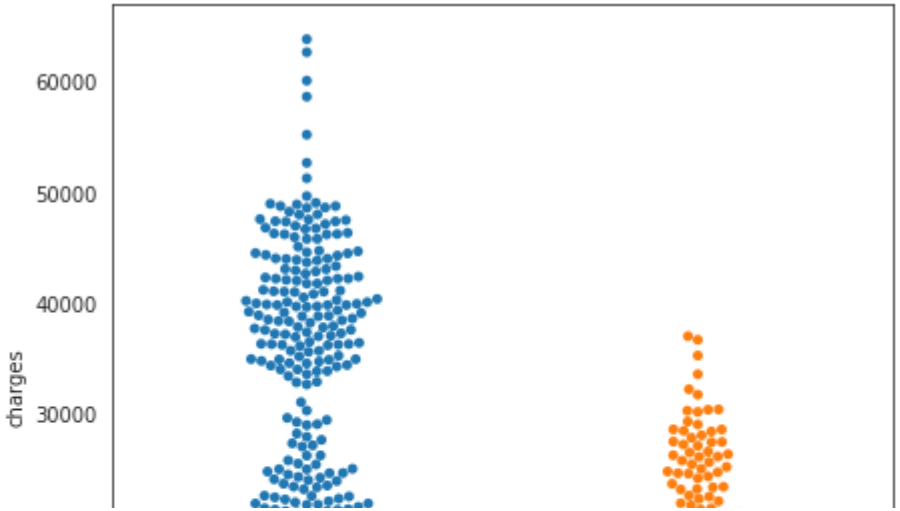
Swarm plot is a categorical scatterplot with non-overlapping points

```
# Recover default matplotlib settings
mpl.rcParams.update(mpl.rcParamsDefault)
%matplotlib inline
sns.set_style("white")
```

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

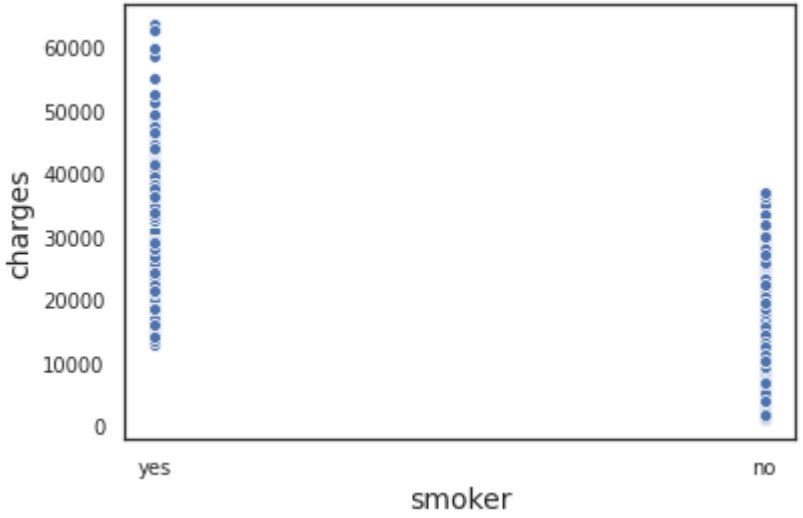
	age	sex	bmi	children	smoker	region	charges
0	19	female	27.900	0	yes	southwest	16884.92400
1	18	male	33.770	1	no	southeast	1725.55230
2	28	male	33.000	3	no	southeast	4449.46200
3	33	male	22.705	0	no	northwest	21984.47061
4	32	male	28.880	0	no	northwest	3866.85520
5	31	female	25.740	0	no	southeast	3756.62160
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

```
#Simple Swarm plot
plt.figure(figsize=(7,7))
sns.swarmplot(x=insurance.smoker, y=insurance.charges)
plt.show()
```

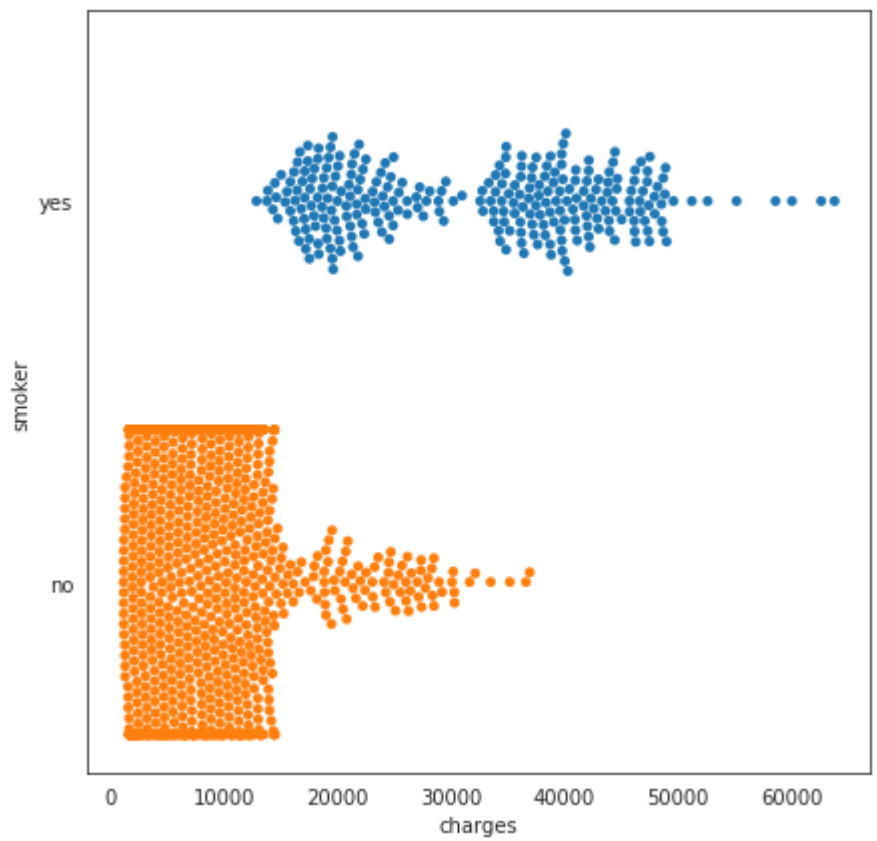



```
sns.scatterplot(x=insurance.smoker, y=insurance.charges)
```

```
<matplotlib.axes._subplots.AxesSubplot at 0x7f4c994fe358>
```

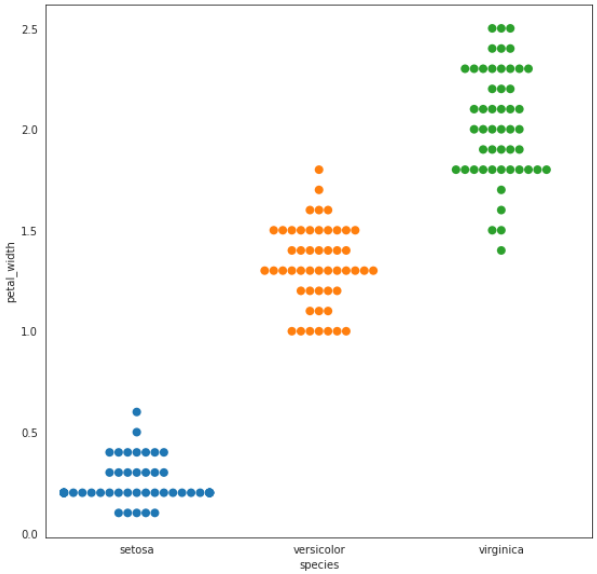


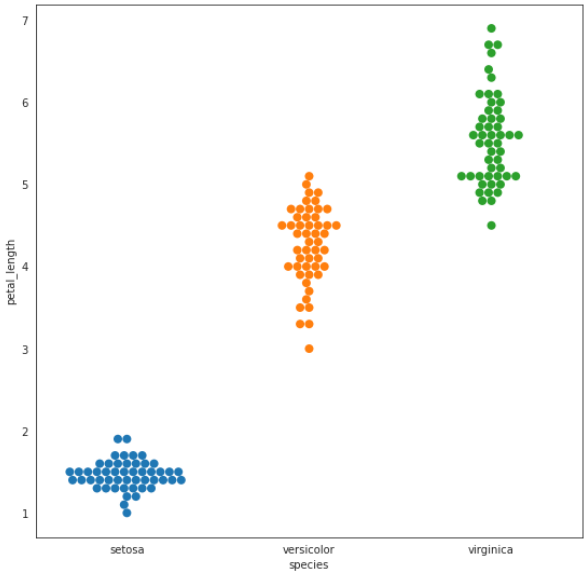

```
# Draw horizontal swarm plot
plt.figure(figsize=(7,7))
sns.swarmplot(x=insurance.charges , y=insurance.smoker)
plt.show()
```

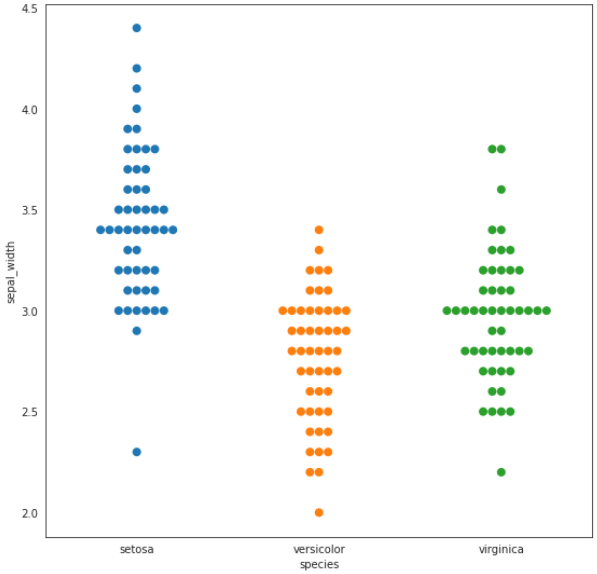


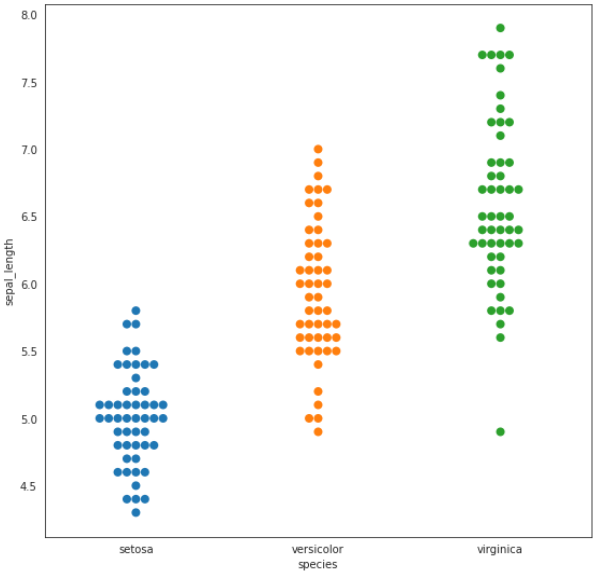

```
iris = sns.load_dataset("iris")
plt.figure(figsize=(7,7))
sns.swarmplot(x="species" , y = "petal_width" ,data=iris , size=6)
plt.show()
```


```
# Displaying multiple swarmplots using subplot function.
fig1 , axes = plt.subplots(nrows=2,ncols=2 , figsize = (20,20))
sns.swarmplot(x="species" , y = "petal_width" , ax = axes[0,0] ,data=iris , size=8)
sns.swarmplot(x="species" , y = "petal_length" ,ax = axes[0,1] , data=iris , size=8)
sns.swarmplot(x="species" , y = "sepal_width" , ax = axes[1,0] , data=iris, size=8)
sns.swarmplot(x="species" , y = "sepal_length" , ax = axes[1,1] , data=iris , size=8)
plt.show()
```


petal_width
2.5
2.0
1.5
1.0
0.5
0.0
setosa
versicolor
virginica
species


petal_length
7
6
5
4
3
2
1
setosa
versicolor
virginica
species


sepal_width
4.5
4.0
3.5
3.0
2.5
2.0
setosa
versicolor
virginica
species

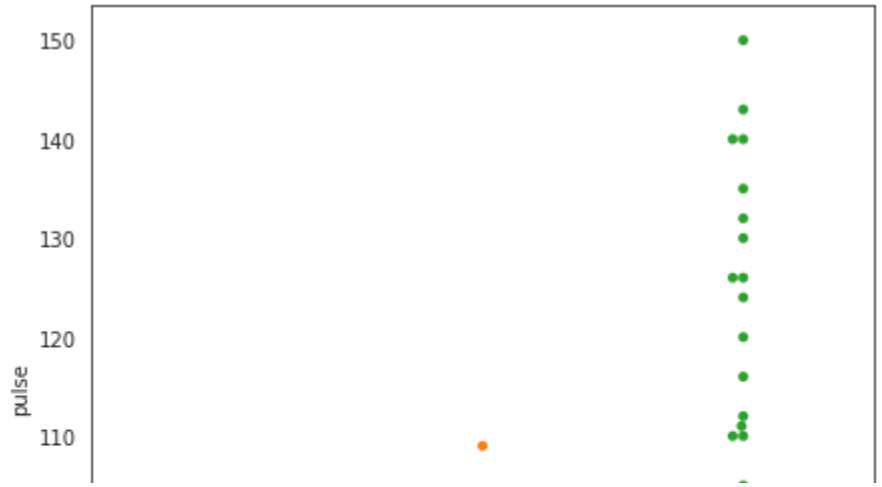

sepal_length
8.0
7.5
7.0
6.5
6.0
5.5
5.0
4.5
setosa
versicolor
virginica
species

```
exercise = pd.read_csv("/content/drive/My Drive/Python DataScience/Visualization/Seabor
exercise.head()
```

	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

```
plt.figure(figsize=(7,7))
sns.swarmplot(x= "kind",  y = "pulse", data = exercise)
```

```
<matplotlib.axes._subplots.AxesSubplot at 0x7f4c99801be0>
```

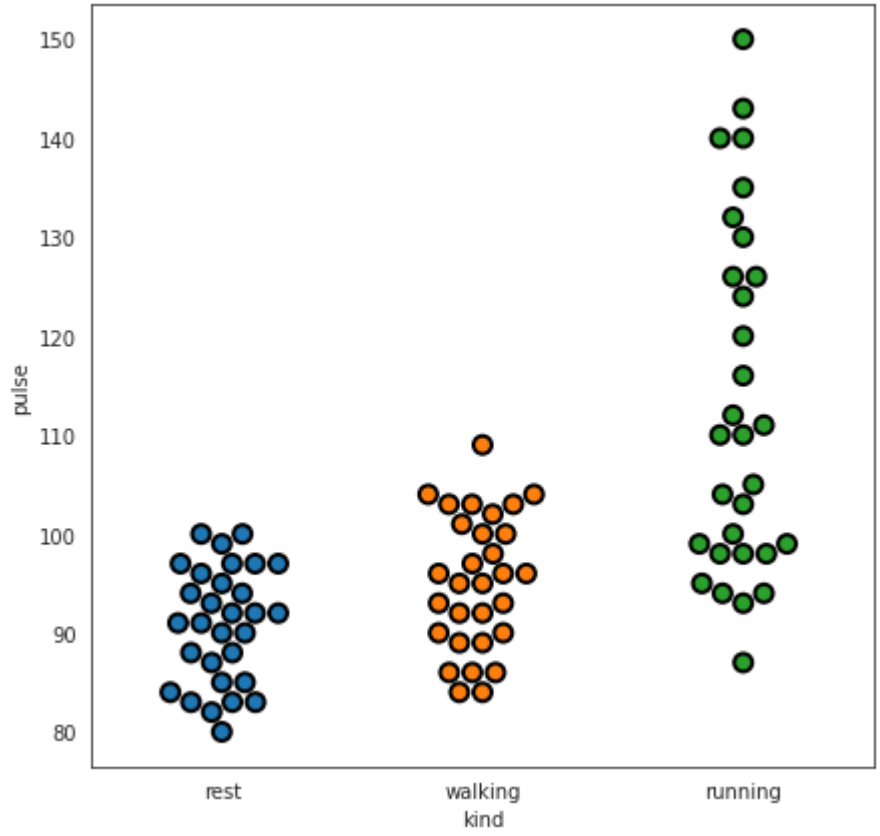



```
# Changing size of data points using "size"parameter
plt.figure(figsize=(7,7))
sns.swarmplot(x= "kind",  y = "pulse", size = 9, data = exercise)
```

```
<matplotlib.axes._subplots.AxesSubplot at 0x7f4c997d1550>
```


```
#Changing edge color , size and linewidth of data points
plt.figure(figsize=(7,7))
sns.swarmplot(x= "kind",  y = "pulse", size = 9 , linewidth= 2 , edgecolor="black" , da
```

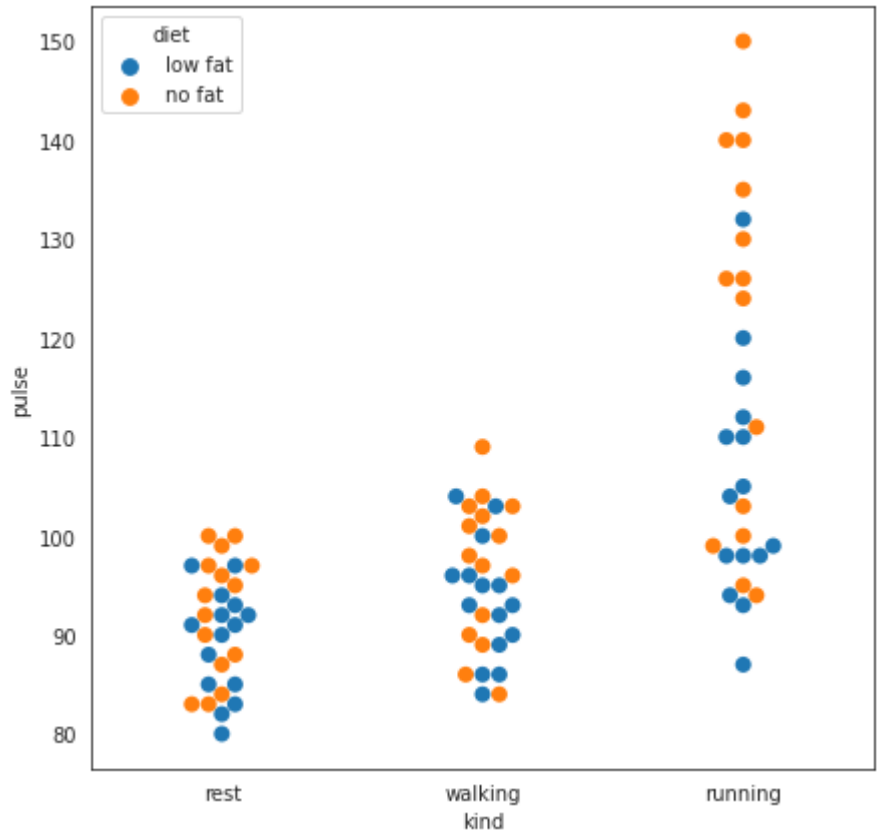
```
<matplotlib.axes._subplots.AxesSubplot at 0x7f4c996621d0>
```




```
# Show groups with different colors using "hue"
plt.figure(figsize=(7,7))
sns.swarmplot(x= "kind",  y = "pulse", hue="diet", size = 8 , data = exercise)
```

```
sns.swarmplot(x = "kind", y = "pulse", hue = "diet", size = 6, data = exercise)
```

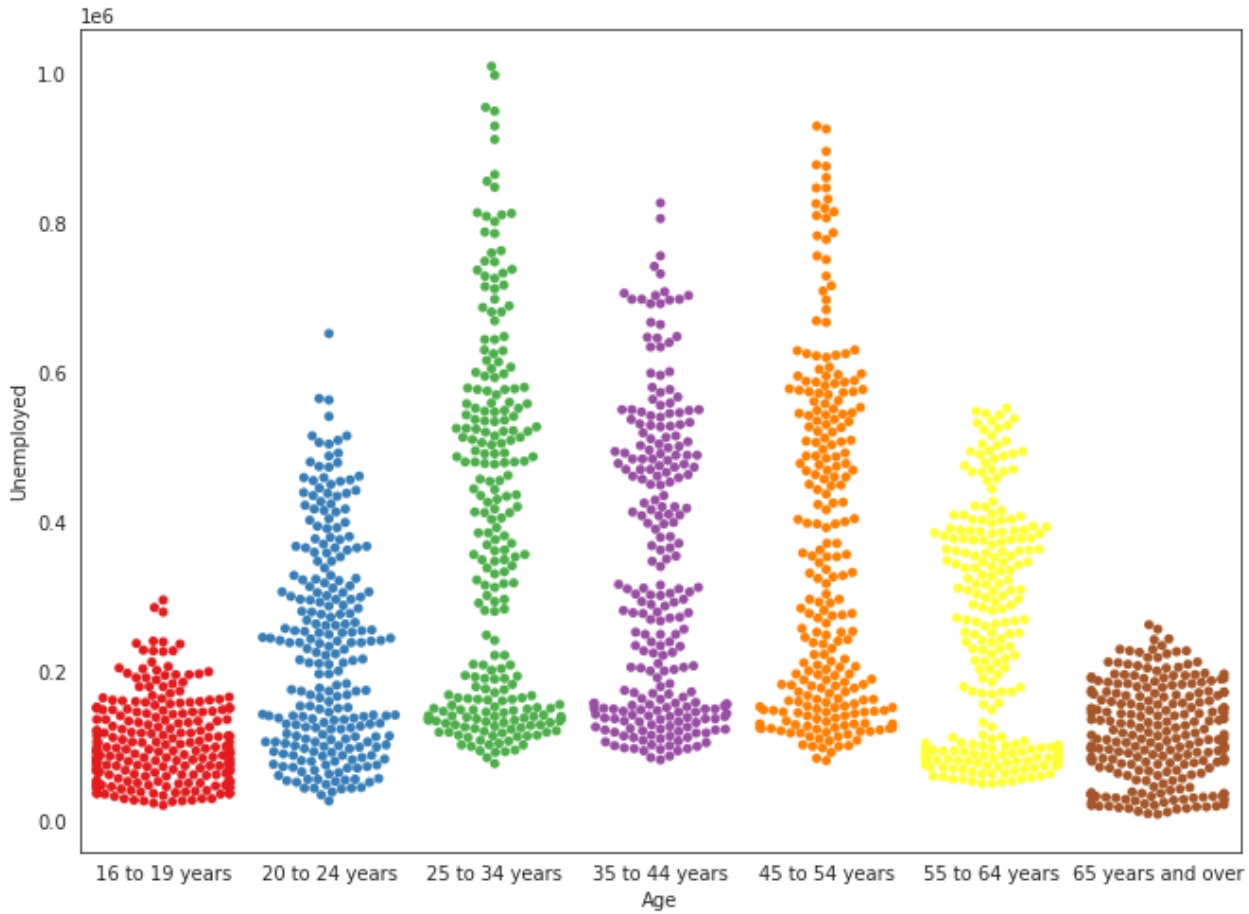
```
<matplotlib.axes._subplots.AxesSubplot at 0x7f4c997d9588>
```




```
employment = pd.read_excel("/content/drive/My Drive/Python DataScience/Visualization/Se
employment.head()
```

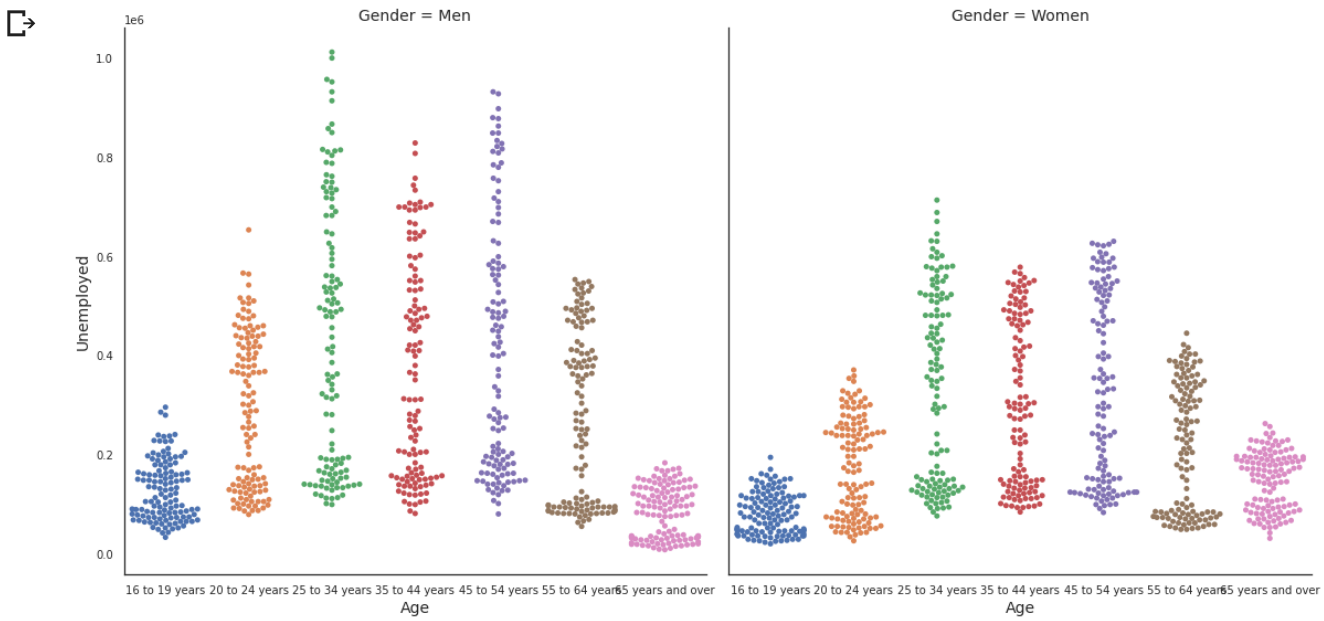
```
Age  Gender     Period  Unemployed
```

```
plt.figure(figsize=(11,8))
sns.swarmplot(x=employment.Age ,palette="Set1", y = employment.Unemployed)
plt.show()
```




```
# Facet along the columns to show a categorical variable using "col" parameter
sns.set(rc={'xtick.labelsize':10,'ytick.labelsize':10,'axes.labelsize':14})
sns.set_style("white")
```

```
sns.catplot(x="Age" , y = "Unemployed" , col= "Gender" , data=employment, kind="swarm"
plt.show()
```




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

	#	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

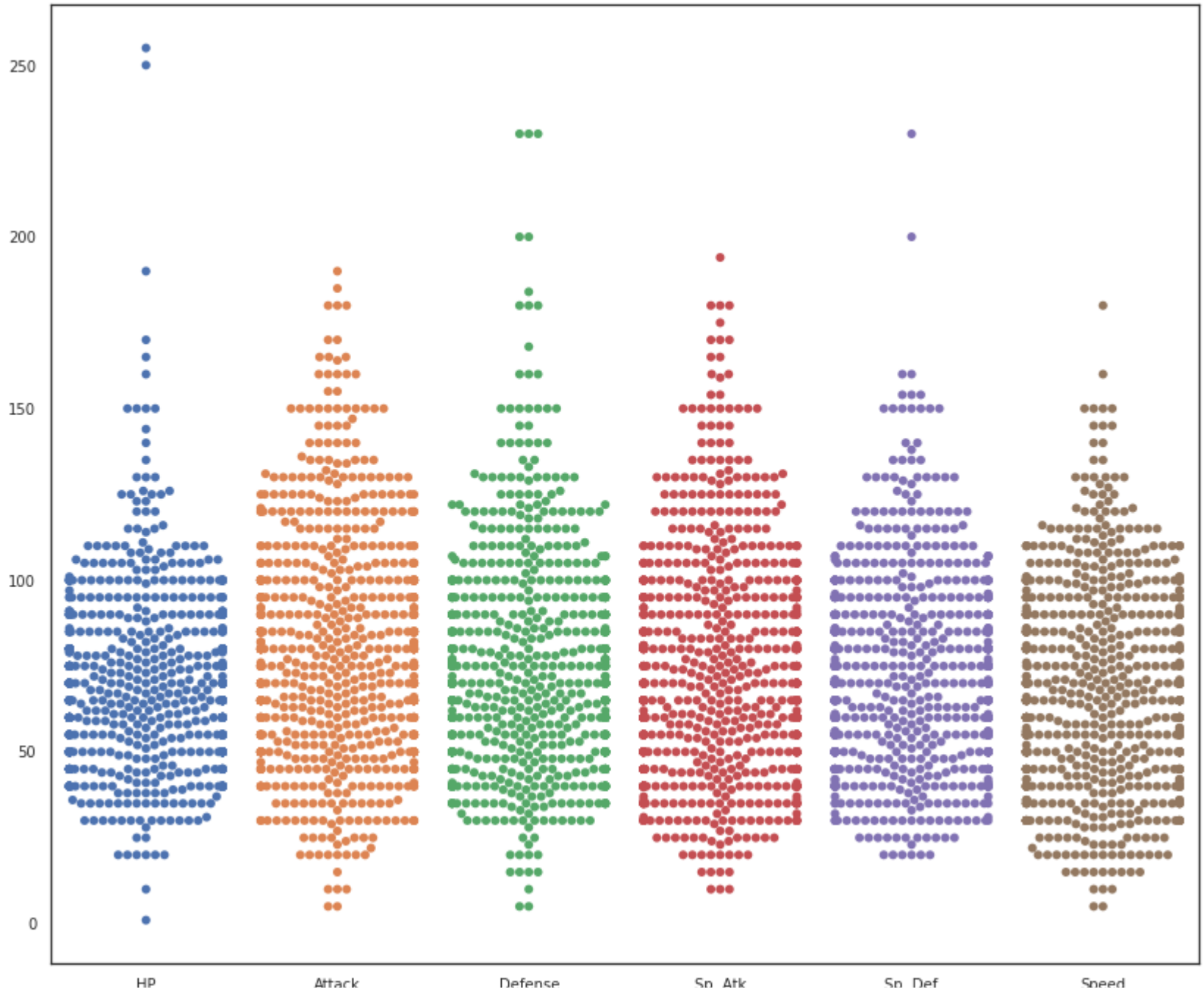
```
pokemon.columns
```

```
Index(['#', 'Name', 'Type 1', 'Type 2', 'HP', 'Attack', 'Defense', 'Sp. Atk',
       'Sp. Def', 'Speed', 'Generation', 'Legendary', 'Total'],
      dtype='object')
```

```
pokemon1 = pokemon[[ 'HP', 'Attack', 'Defense', 'Sp. Atk','Sp. Def', 'Speed']]
pokemon1.head()
```

	HP	Attack	Defense	Sp. Atk	Sp. Def	Speed
0	45	49	49	65	65	45
1	60	62	63	80	80	60
2	80	82	83	100	100	80
3	80	100	123	122	120	80
4	39	52	43	60	50	65

```
plt.figure(figsize=(14,12))
sns.swarmplot(data=pokemon1,size=6)
plt.show()
```


250
200
150
100
50
0
HP
Attack
Defense
Sp. Atk
Sp. Def
Speed