

```
In [1]: import pandas as pd
import numpy as np
import seaborn as sns
import matplotlib.pyplot as plt
```

```
In [2]: df=pd.read_csv(r"C:\Users\berid\OneDrive\Desktop\mydata\insurance.csv")
pd.set_option("display.max_columns",100)
```

```
In [3]: df.age.value_counts(bins=[10,20,30,40,50,60,70],sort=False,normalize=True).reset_index()
df
```

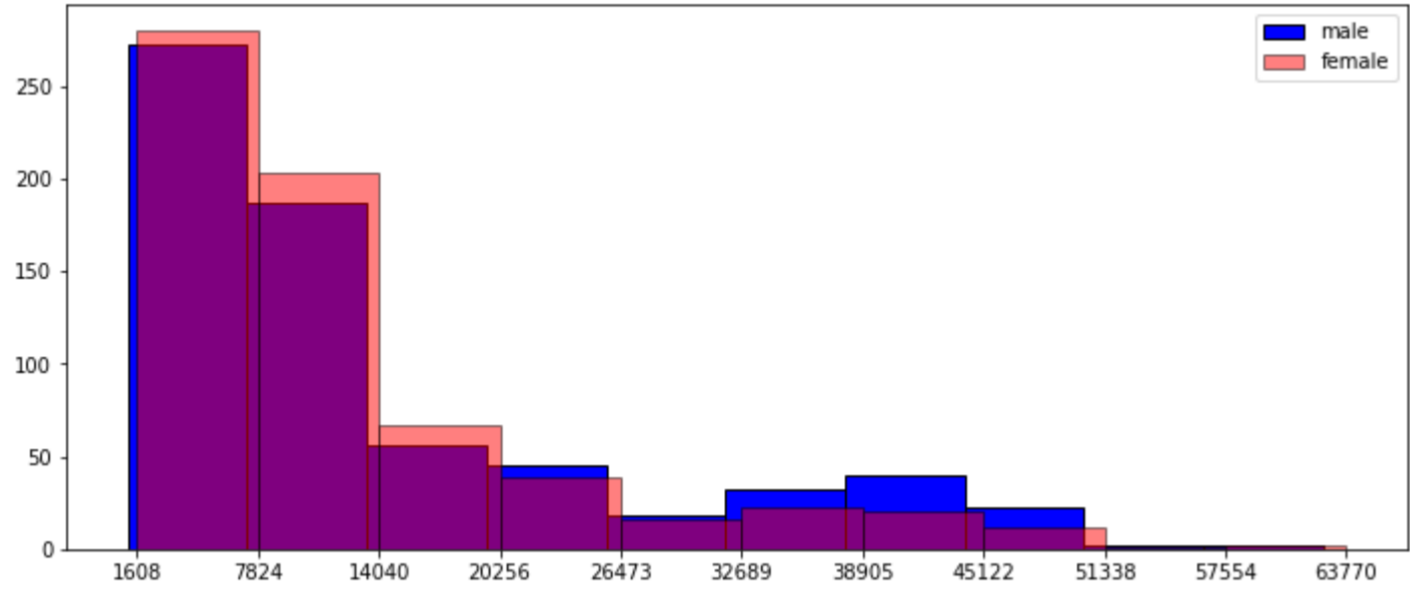
Out[3]:

	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
...	...	...	...	...	...	...	...
1333	50	male	30.970	3	no	northwest	10600.54830
1334	18	female	31.920	0	no	northeast	2205.98080
1335	18	female	36.850	0	no	southeast	1629.83350
1336	21	female	25.800	0	no	southwest	2007.94500
1337	61	female	29.070	0	yes	northwest	29141.36030

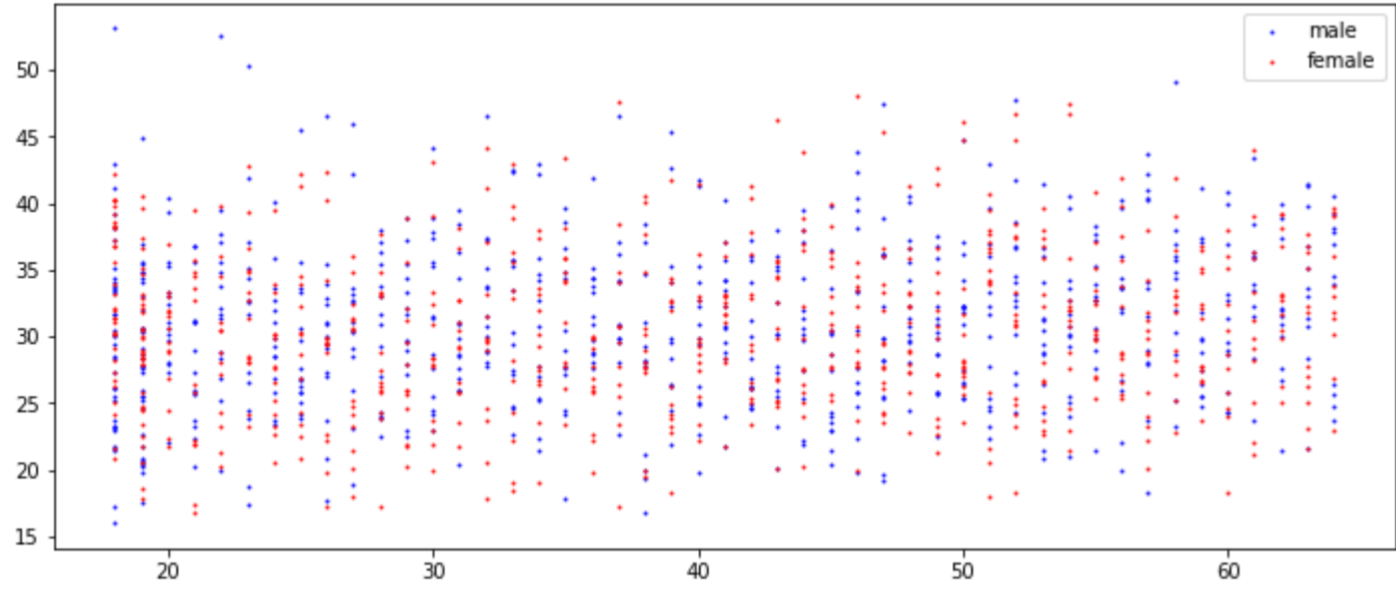
1338 rows × 7 columns

```
In [4]: male=df[df.sex=="male"]
female=df[df.sex=="female"]
```

```
In [5]: plt.figure(figsize=(12,5))
n,bins,edges=plt.hist(male.charges,ec="k",color="b",bins=10,label="male")
n,bins,edges=plt.hist(female.charges,ec="k",color="r",bins=10,alpha=0.5,label="female")
plt.xticks(bins)
plt.legend()
plt.show()
```



```
In [6]: plt.figure(figsize=(12,5))
plt.scatter(male.age,male.bmi,color="b",label="male",s=1)
plt.scatter(female.age,female.bmi,color="r",label="female",s=1)
plt.legend()
plt.show()
```



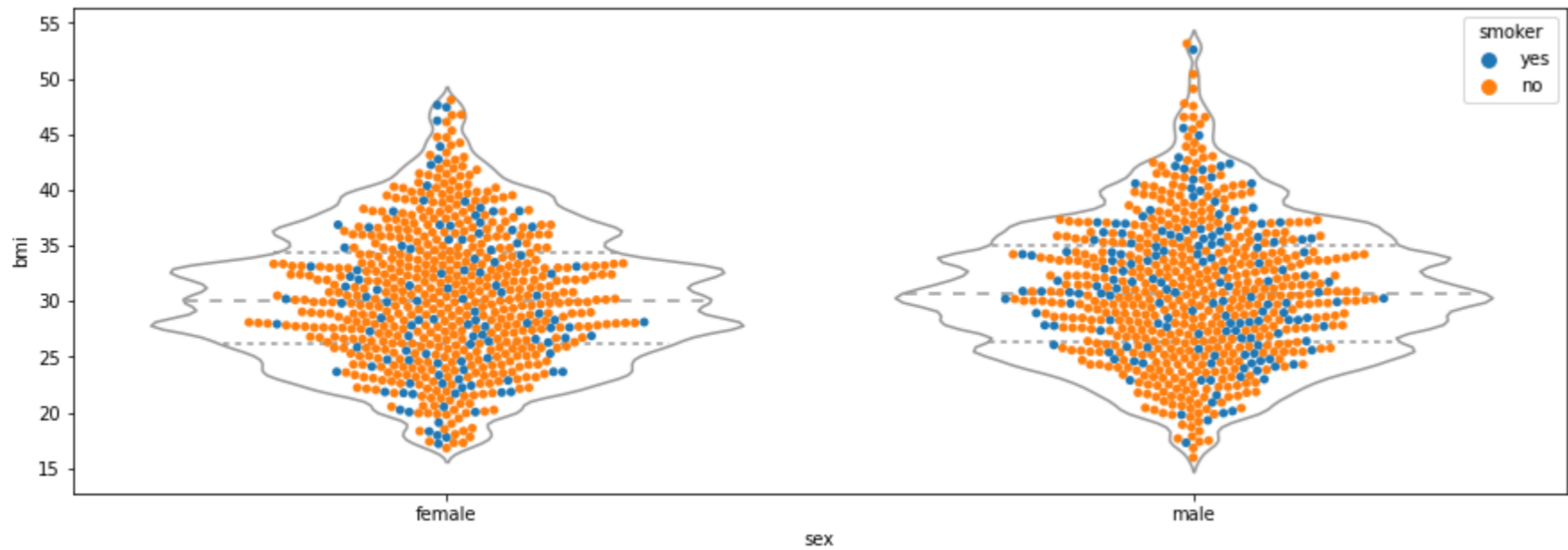
```
In [18]: plt.figure(figsize=(15,5))
sns.swarmplot(df.sex,df.bmi,hue=df.smoker)
sns.violinplot(df.sex,df.bmi,color="white",inner="quartile",bw=0.1)
plt.show()
```

C:\Users\berid\AppData\Local\Programs\Python\Python39\lib\site-packages\seaborn\\_decorators.py:36: FutureWarning: Pass the following variables as keyword args: x, y. From version 0.12, the only valid positional argument will be `data`, and passing other arguments without an explicit keyword will result in an error or misinterpretation.

warnings.warn(

C:\Users\berid\AppData\Local\Programs\Python\Python39\lib\site-packages\seaborn\\_decorators.py:36: FutureWarning: Pass the following variables as keyword args: x, y. From version 0.12, the only valid positional argument will be `data`, and passing other arguments without an explicit keyword will result in an error or misinterpretation.

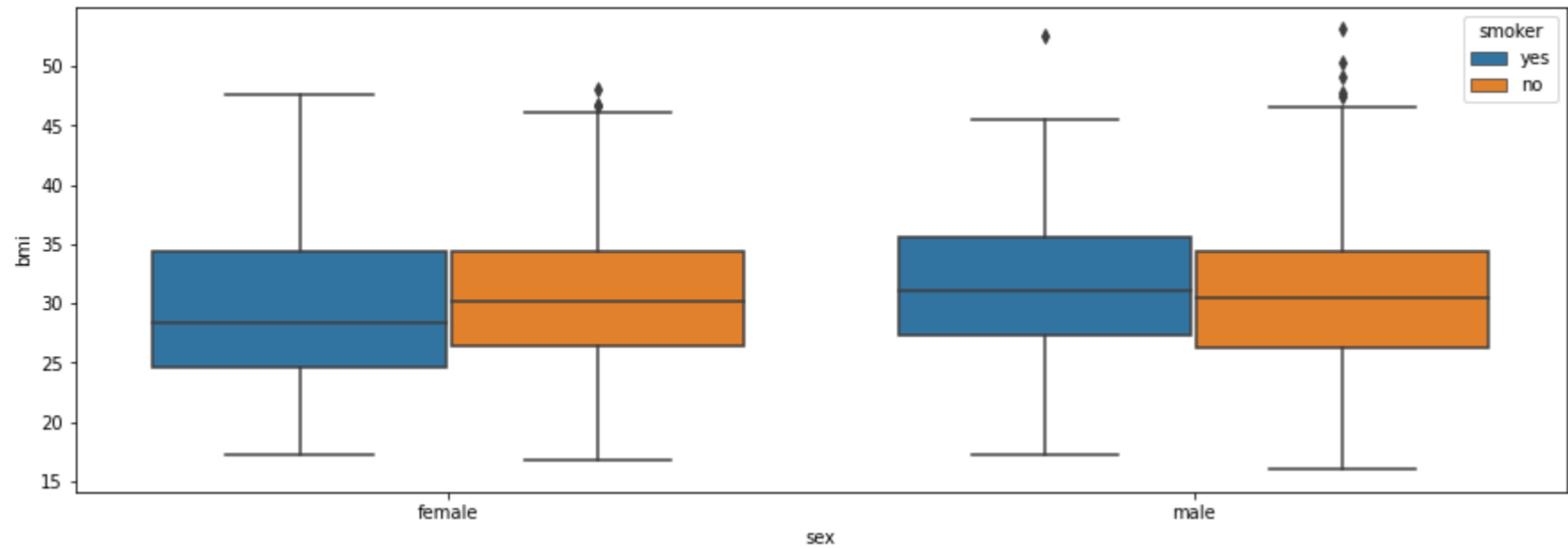
warnings.warn(



```
In [17]: plt.figure(figsize=(15,5))
sns.boxplot(df.sex,df.bmi,hue=df.smoker)
plt.show()
```

C:\Users\berid\AppData\Local\Programs\Python\Python39\lib\site-packages\seaborn\\_decorators.py:36: FutureWarning: Pass the following variables as keyword args: x, y. From version 0.12, the only valid positional argument will be `data`, and passing other arguments without an explicit keyword will result in an error or misinterpretation.

warnings.warn(



```
In [ ]:
```