

# practice-assignment-8

May 4, 2025

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

```
[2]: ds=sns.load_dataset('titanic')
ds
```

```
[2]:
```

|     | survived | pclass | sex    | age  | sibsp | parch | fare    | embarked | class  | \ |
|-----|----------|--------|--------|------|-------|-------|---------|----------|--------|---|
| 0   | 0        | 3      | male   | 22.0 | 1     | 0     | 7.2500  | S        | Third  |   |
| 1   | 1        | 1      | female | 38.0 | 1     | 0     | 71.2833 | C        | First  |   |
| 2   | 1        | 3      | female | 26.0 | 0     | 0     | 7.9250  | S        | Third  |   |
| 3   | 1        | 1      | female | 35.0 | 1     | 0     | 53.1000 | S        | First  |   |
| 4   | 0        | 3      | male   | 35.0 | 0     | 0     | 8.0500  | S        | Third  |   |
| ..  | ...      | ...    | ...    | ...  | ...   | ...   | ...     | ...      | ...    |   |
| 886 | 0        | 2      | male   | 27.0 | 0     | 0     | 13.0000 | S        | Second |   |
| 887 | 1        | 1      | female | 19.0 | 0     | 0     | 30.0000 | S        | First  |   |
| 888 | 0        | 3      | female | NaN  | 1     | 2     | 23.4500 | S        | Third  |   |
| 889 | 1        | 1      | male   | 26.0 | 0     | 0     | 30.0000 | C        | First  |   |
| 890 | 0        | 3      | male   | 32.0 | 0     | 0     | 7.7500  | Q        | Third  |   |

|     | who   | adult_male | deck | embark_town | alive | alone |
|-----|-------|------------|------|-------------|-------|-------|
| 0   | man   | True       | NaN  | Southampton | no    | False |
| 1   | woman | False      | C    | Cherbourg   | yes   | False |
| 2   | woman | False      | NaN  | Southampton | yes   | True  |
| 3   | woman | False      | C    | Southampton | yes   | False |
| 4   | man   | True       | NaN  | Southampton | no    | True  |
| ..  | ...   | ...        | ...  | ...         | ...   | ...   |
| 886 | man   | True       | NaN  | Southampton | no    | True  |
| 887 | woman | False      | B    | Southampton | yes   | True  |
| 888 | woman | False      | NaN  | Southampton | no    | False |
| 889 | man   | True       | C    | Cherbourg   | yes   | True  |
| 890 | man   | True       | NaN  | Queenstown  | no    | True  |

[891 rows x 15 columns]

```
[5]: print(ds.head())
print(ds.tail())
print(ds.info())
print(ds.describe(include="all"))
print(ds.shape)
print(ds.size)
```

|   | survived | pclass | sex    | age  | sibsp | parch | fare    | embarked | class \ |
|---|----------|--------|--------|------|-------|-------|---------|----------|---------|
| 0 | 0        | 3      | male   | 22.0 | 1     | 0     | 7.2500  | S        | Third   |
| 1 | 1        | 1      | female | 38.0 | 1     | 0     | 71.2833 | C        | First   |
| 2 | 1        | 3      | female | 26.0 | 0     | 0     | 7.9250  | S        | Third   |
| 3 | 1        | 1      | female | 35.0 | 1     | 0     | 53.1000 | S        | First   |
| 4 | 0        | 3      | male   | 35.0 | 0     | 0     | 8.0500  | S        | Third   |

|   | who   | adult_male | deck | embark_town | alive | alone |
|---|-------|------------|------|-------------|-------|-------|
| 0 | man   | True       | NaN  | Southampton | no    | False |
| 1 | woman | False      | C    | Cherbourg   | yes   | False |
| 2 | woman | False      | NaN  | Southampton | yes   | True  |
| 3 | woman | False      | C    | Southampton | yes   | False |
| 4 | man   | True       | NaN  | Southampton | no    | True  |

|     | survived | pclass | sex    | age  | sibsp | parch | fare  | embarked | class \ |
|-----|----------|--------|--------|------|-------|-------|-------|----------|---------|
| 886 | 0        | 2      | male   | 27.0 | 0     | 0     | 13.00 | S        | Second  |
| 887 | 1        | 1      | female | 19.0 | 0     | 0     | 30.00 | S        | First   |
| 888 | 0        | 3      | female | NaN  | 1     | 2     | 23.45 | S        | Third   |
| 889 | 1        | 1      | male   | 26.0 | 0     | 0     | 30.00 | C        | First   |
| 890 | 0        | 3      | male   | 32.0 | 0     | 0     | 7.75  | Q        | Third   |

|     | who   | adult_male | deck | embark_town | alive | alone |
|-----|-------|------------|------|-------------|-------|-------|
| 886 | man   | True       | NaN  | Southampton | no    | True  |
| 887 | woman | False      | B    | Southampton | yes   | True  |
| 888 | woman | False      | NaN  | Southampton | no    | False |
| 889 | man   | True       | C    | Cherbourg   | yes   | True  |
| 890 | man   | True       | NaN  | Queenstown  | no    | True  |

<class 'pandas.core.frame.DataFrame'>

RangeIndex: 891 entries, 0 to 890

Data columns (total 15 columns):

| # | Column   | Non-Null Count | Dtype    |
|---|----------|----------------|----------|
| 0 | survived | 891 non-null   | int64    |
| 1 | pclass   | 891 non-null   | int64    |
| 2 | sex      | 891 non-null   | object   |
| 3 | age      | 714 non-null   | float64  |
| 4 | sibsp    | 891 non-null   | int64    |
| 5 | parch    | 891 non-null   | int64    |
| 6 | fare     | 891 non-null   | float64  |
| 7 | embarked | 889 non-null   | object   |
| 8 | class    | 891 non-null   | category |

```

9   who      891 non-null    object
10  adult_male 891 non-null    bool
11  deck      203 non-null    category
12  embark_town 889 non-null    object
13  alive      891 non-null    object
14  alone      891 non-null    bool
dtypes: bool(2), category(2), float64(2), int64(4), object(5)
memory usage: 80.7+ KB
None

```

|        | survived   | pclass     | sex  | age        | sibsp      | parch      | \ |
|--------|------------|------------|------|------------|------------|------------|---|
| count  | 891.000000 | 891.000000 | 891  | 714.000000 | 891.000000 | 891.000000 |   |
| unique | NaN        | NaN        | 2    | NaN        | NaN        | NaN        |   |
| top    | NaN        | NaN        | male | NaN        | NaN        | NaN        |   |
| freq   | NaN        | NaN        | 577  | NaN        | NaN        | NaN        |   |
| mean   | 0.383838   | 2.308642   | NaN  | 29.699118  | 0.523008   | 0.381594   |   |
| std    | 0.486592   | 0.836071   | NaN  | 14.526497  | 1.102743   | 0.806057   |   |
| min    | 0.000000   | 1.000000   | NaN  | 0.420000   | 0.000000   | 0.000000   |   |
| 25%    | 0.000000   | 2.000000   | NaN  | 20.125000  | 0.000000   | 0.000000   |   |
| 50%    | 0.000000   | 3.000000   | NaN  | 28.000000  | 0.000000   | 0.000000   |   |
| 75%    | 1.000000   | 3.000000   | NaN  | 38.000000  | 1.000000   | 0.000000   |   |
| max    | 1.000000   | 3.000000   | NaN  | 80.000000  | 8.000000   | 6.000000   |   |

|        | fare       | embarked | class | who | adult_male | deck | embark_town | alive | \ |
|--------|------------|----------|-------|-----|------------|------|-------------|-------|---|
| count  | 891.000000 | 889      | 891   | 891 | 891        | 203  | 889         | 891   |   |
| unique | NaN        | 3        | 3     | 3   | 2          | 7    | 3           | 2     |   |
| top    | NaN        | S        | Third | man | True       | C    | Southampton | no    |   |
| freq   | NaN        | 644      | 491   | 537 | 537        | 59   | 644         | 549   |   |
| mean   | 32.204208  | NaN      | NaN   | NaN | NaN        | NaN  | NaN         | NaN   |   |
| std    | 49.693429  | NaN      | NaN   | NaN | NaN        | NaN  | NaN         | NaN   |   |
| min    | 0.000000   | NaN      | NaN   | NaN | NaN        | NaN  | NaN         | NaN   |   |
| 25%    | 7.910400   | NaN      | NaN   | NaN | NaN        | NaN  | NaN         | NaN   |   |
| 50%    | 14.454200  | NaN      | NaN   | NaN | NaN        | NaN  | NaN         | NaN   |   |
| 75%    | 31.000000  | NaN      | NaN   | NaN | NaN        | NaN  | NaN         | NaN   |   |
| max    | 512.329200 | NaN      | NaN   | NaN | NaN        | NaN  | NaN         | NaN   |   |

```

alone
count    891
unique    2
top      True
freq     537
mean     NaN
std      NaN
min      NaN
25%      NaN
50%      NaN
75%      NaN
max      NaN
(891, 15)

```

13365

```
[7]: print(ds.isnull())  
      print(ds.isnull().sum())
```

|     | survived | pclass | sex   | age   | sibsp | parch | fare  | embarked | class | \ |
|-----|----------|--------|-------|-------|-------|-------|-------|----------|-------|---|
| 0   | False    | False  | False | False | False | False | False | False    | False |   |
| 1   | False    | False  | False | False | False | False | False | False    | False |   |
| 2   | False    | False  | False | False | False | False | False | False    | False |   |
| 3   | False    | False  | False | False | False | False | False | False    | False |   |
| 4   | False    | False  | False | False | False | False | False | False    | False |   |
| ..  | ...      | ...    | ...   | ...   | ...   | ...   | ...   | ...      | ...   |   |
| 886 | False    | False  | False | False | False | False | False | False    | False |   |
| 887 | False    | False  | False | False | False | False | False | False    | False |   |
| 888 | False    | False  | False | True  | False | False | False | False    | False |   |
| 889 | False    | False  | False | False | False | False | False | False    | False |   |
| 890 | False    | False  | False | False | False | False | False | False    | False |   |

|     | who   | adult_male | deck  | embark_town | alive | alone |
|-----|-------|------------|-------|-------------|-------|-------|
| 0   | False | False      | True  | False       | False | False |
| 1   | False | False      | False | False       | False | False |
| 2   | False | False      | True  | False       | False | False |
| 3   | False | False      | False | False       | False | False |
| 4   | False | False      | True  | False       | False | False |
| ..  | ...   | ...        | ...   | ...         | ...   | ...   |
| 886 | False | False      | True  | False       | False | False |
| 887 | False | False      | False | False       | False | False |
| 888 | False | False      | True  | False       | False | False |
| 889 | False | False      | False | False       | False | False |
| 890 | False | False      | True  | False       | False | False |

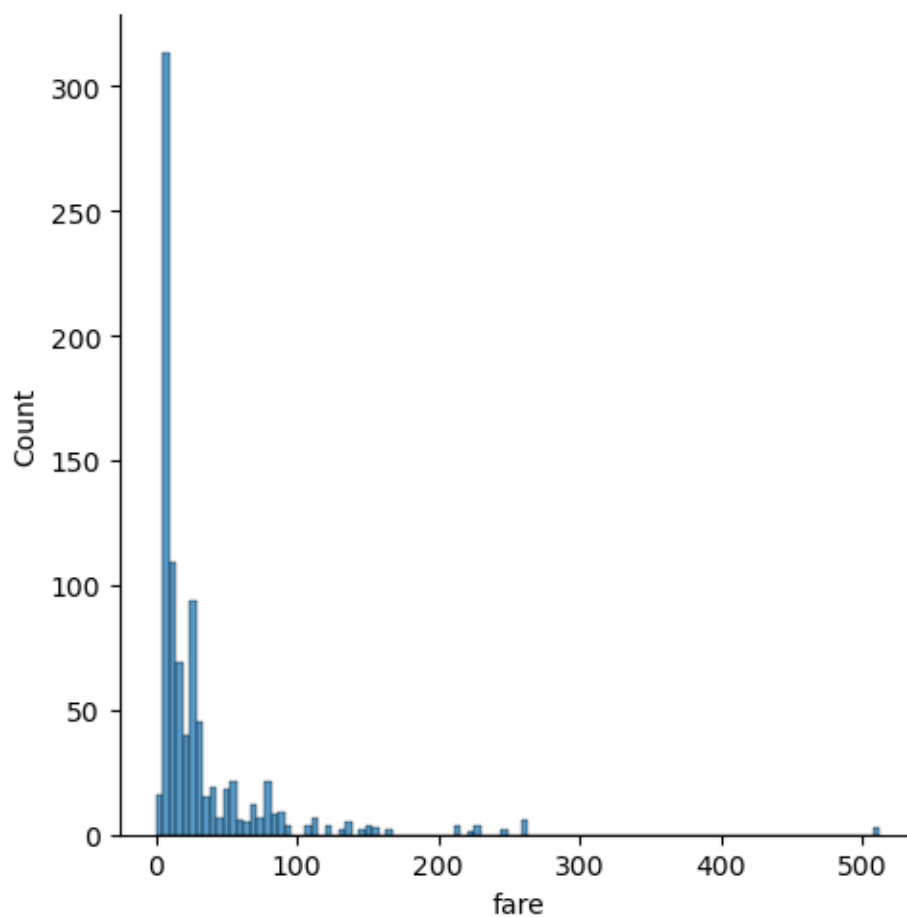
[891 rows x 15 columns]

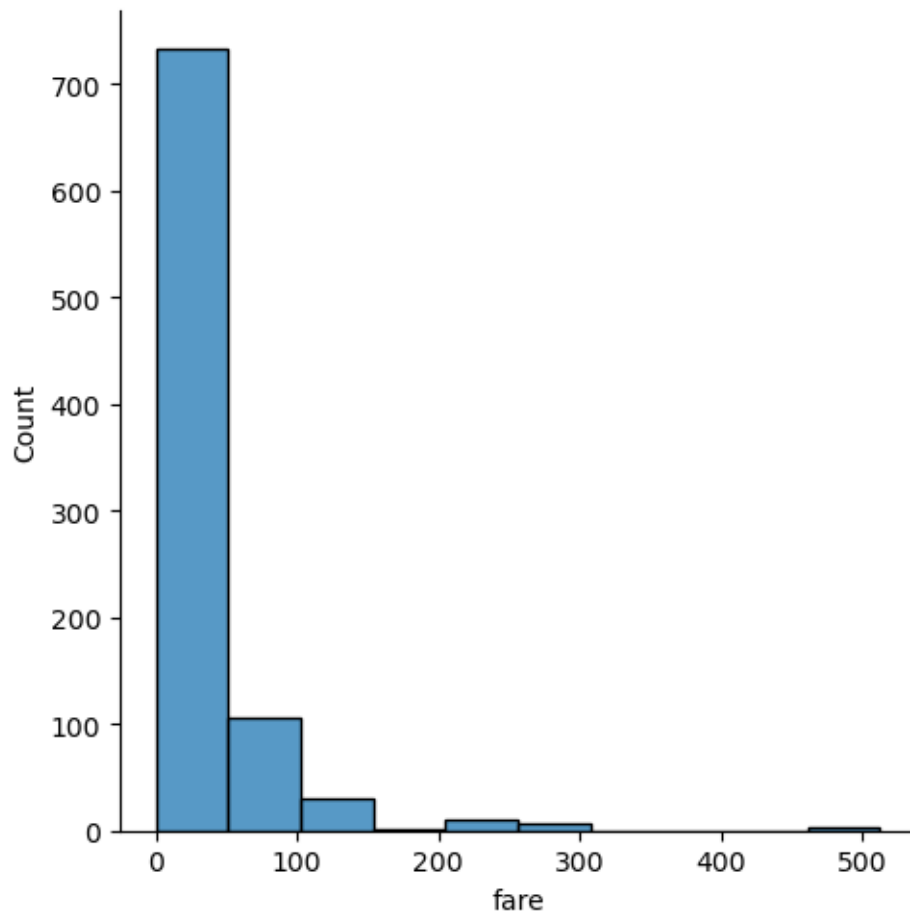
```
survived      0  
pclass        0  
sex           0  
age          177  
sibsp         0  
parch         0  
fare          0  
embarked      2  
class         0  
who           0  
adult_male    0  
deck         688  
embark_town   2  
alive         0  
alone         0  
dtype: int64
```

```
[9]: print(sns.displot(ds['fare']))  
      print(sns.displot(ds['fare'],kde=False,bins=10))
```

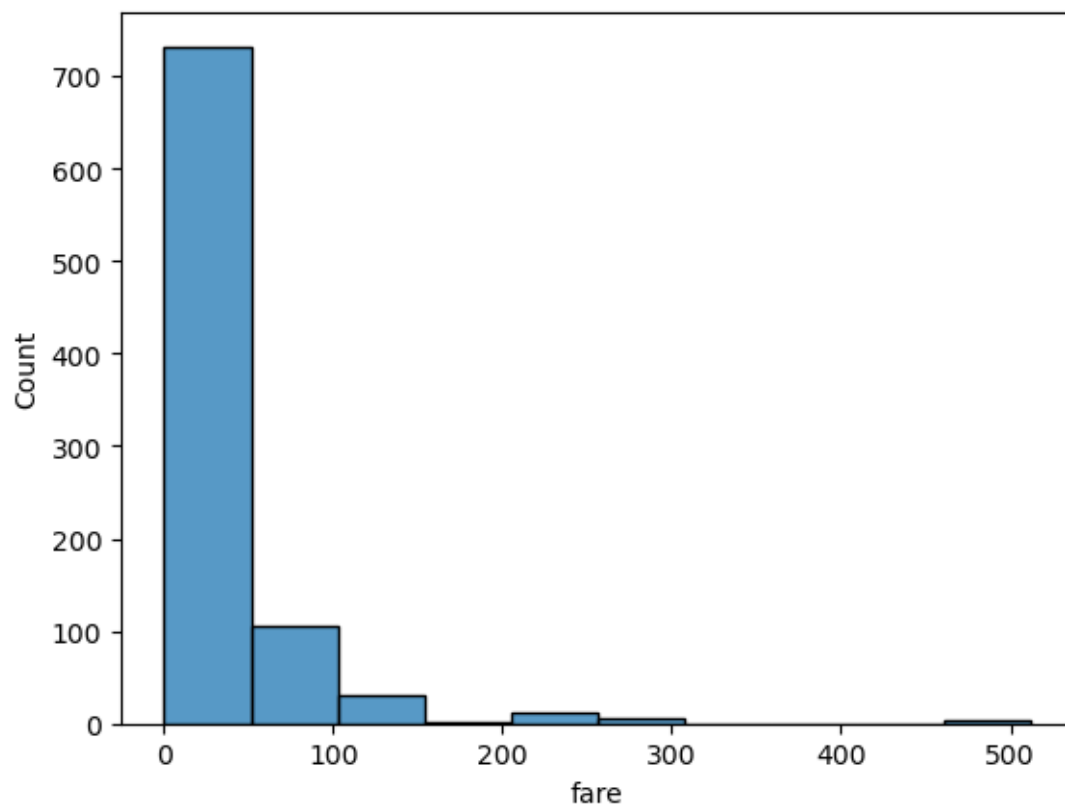
<seaborn.axisgrid.FacetGrid object at 0x00000200C38E6090>

<seaborn.axisgrid.FacetGrid object at 0x00000200C442B050>



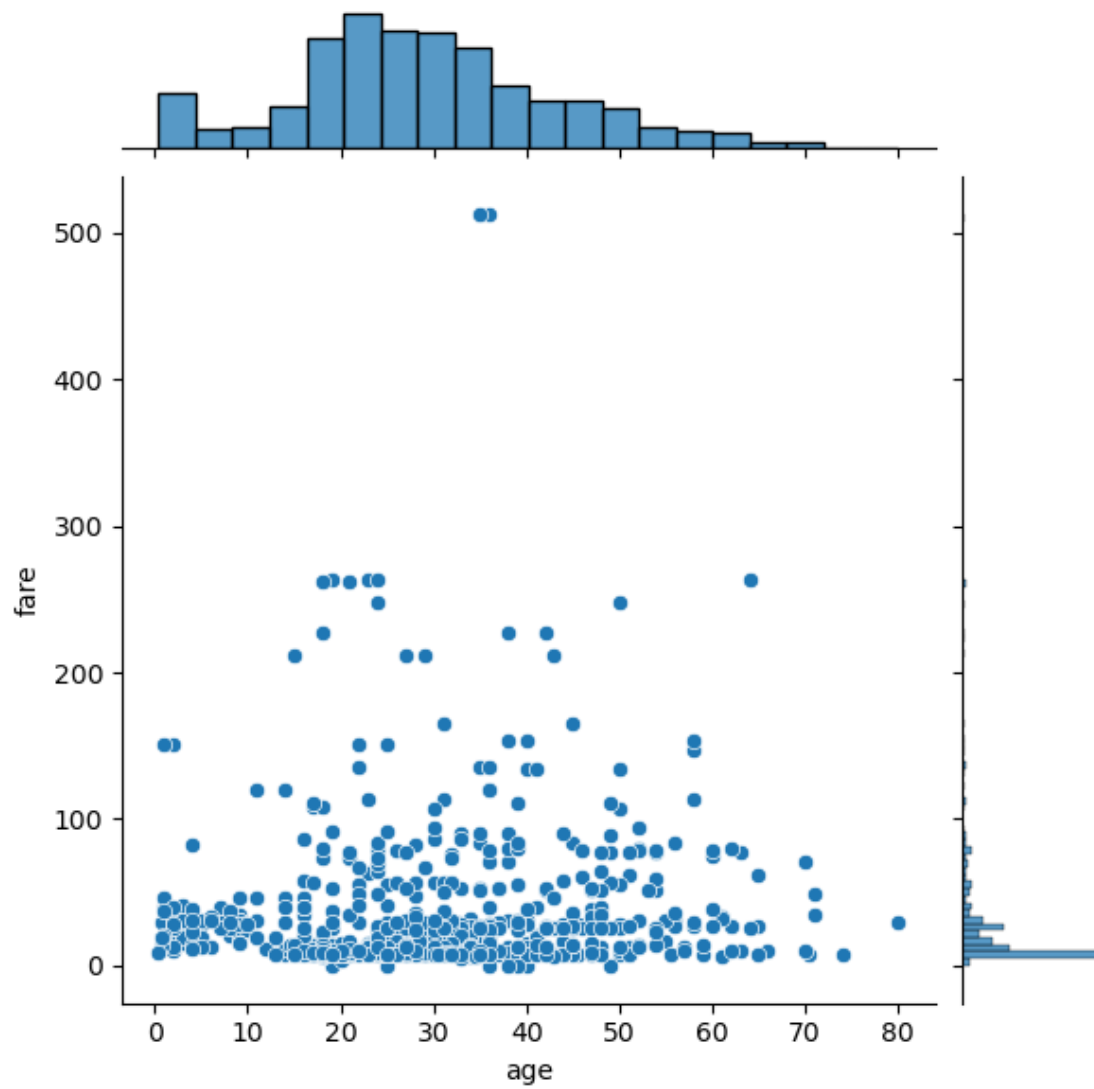


```
[11]: sns.histplot(ds['fare'], kde=False, bins=10)  
plt.show()
```



```
[13]: sns.jointplot(x='age', y='fare', data=ds)
```

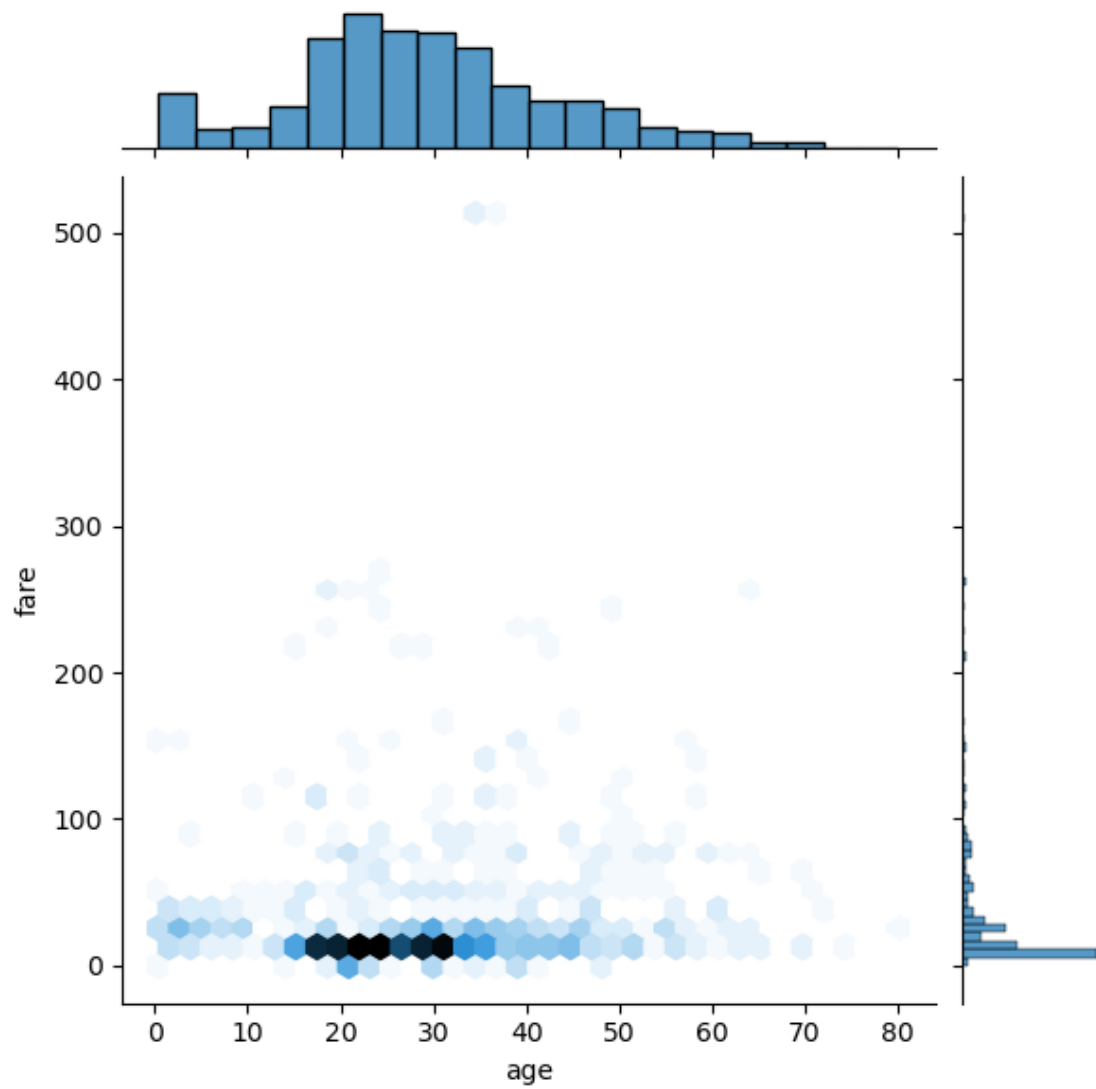
```
[13]: <seaborn.axisgrid.JointGrid at 0x200beefb4a0>
```



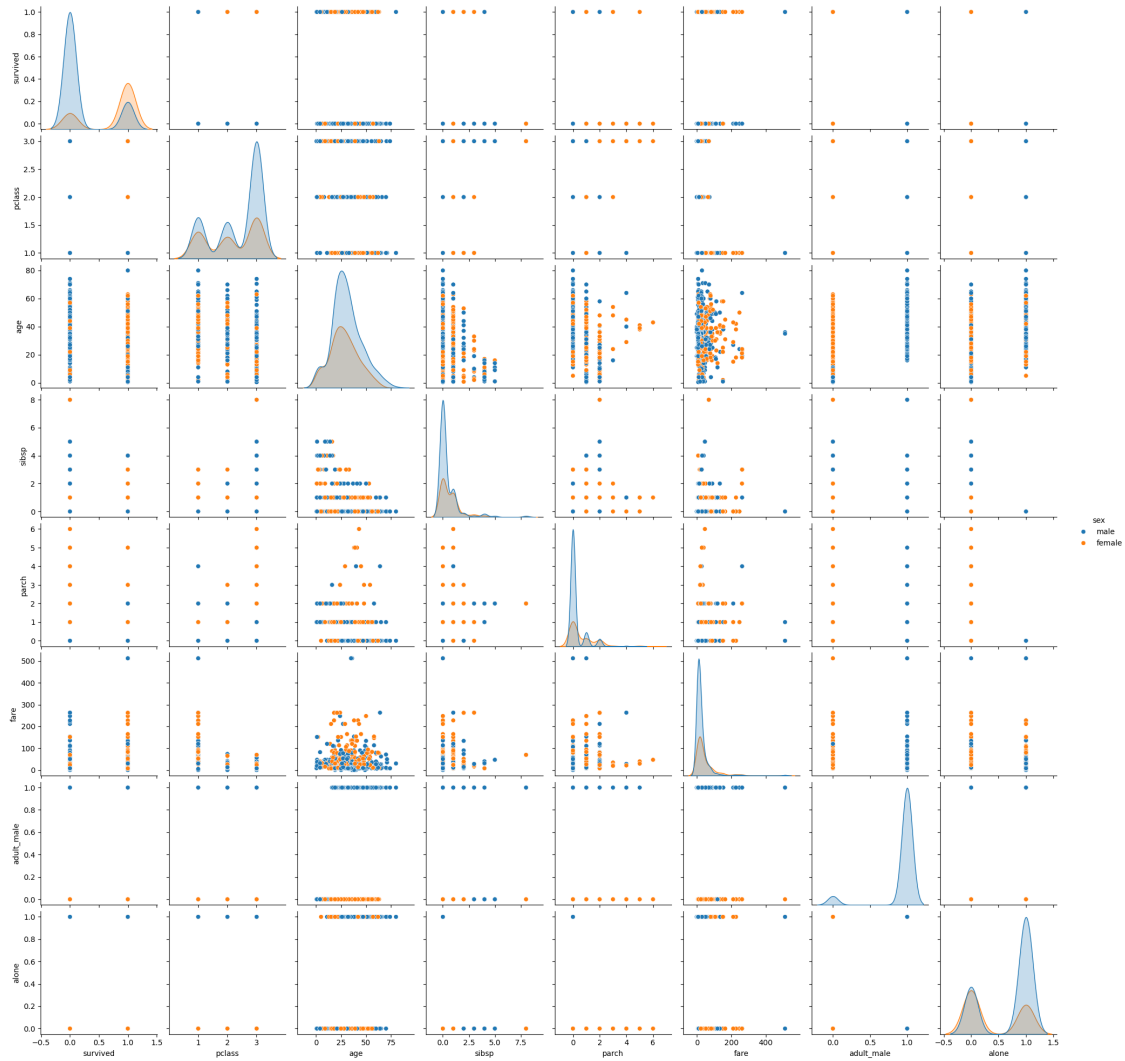
```
[15]: sns.jointplot(x='age', y='fare', data=ds, kind='hex')
```

```
[15]: <seaborn.axisgrid.JointGrid at 0x200c44e4560>
```

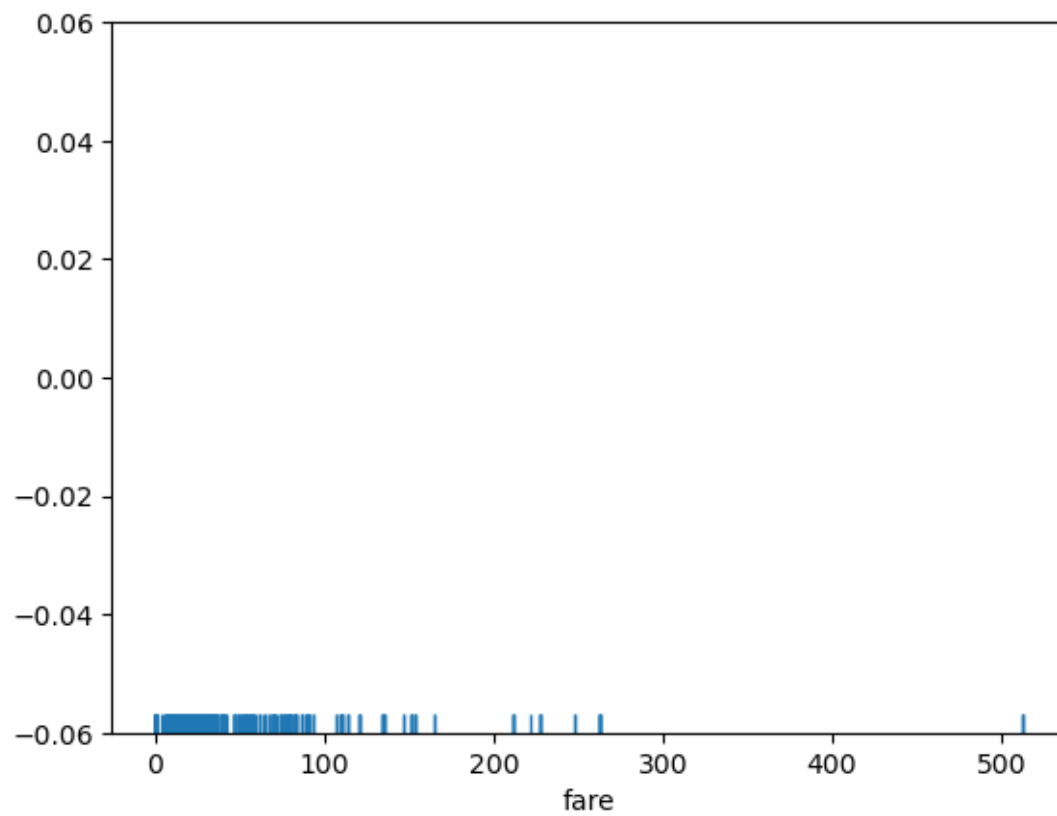




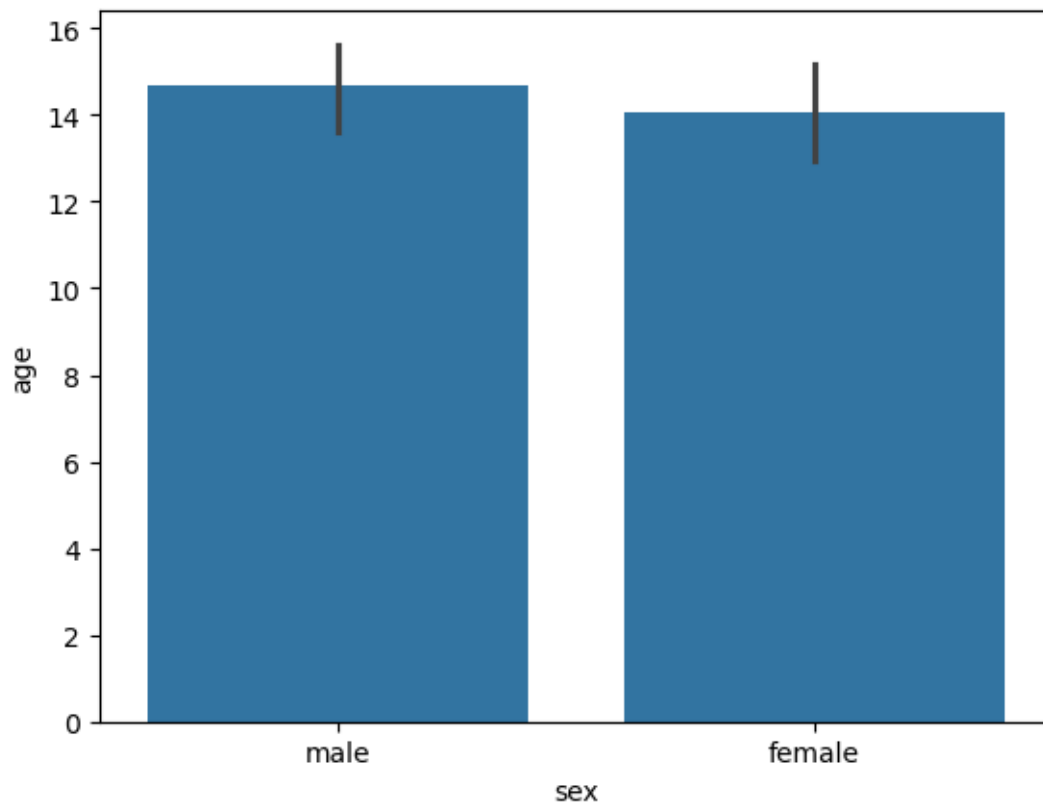
```
[17]: sns.pairplot(ds, hue='sex')  
plt.show()
```



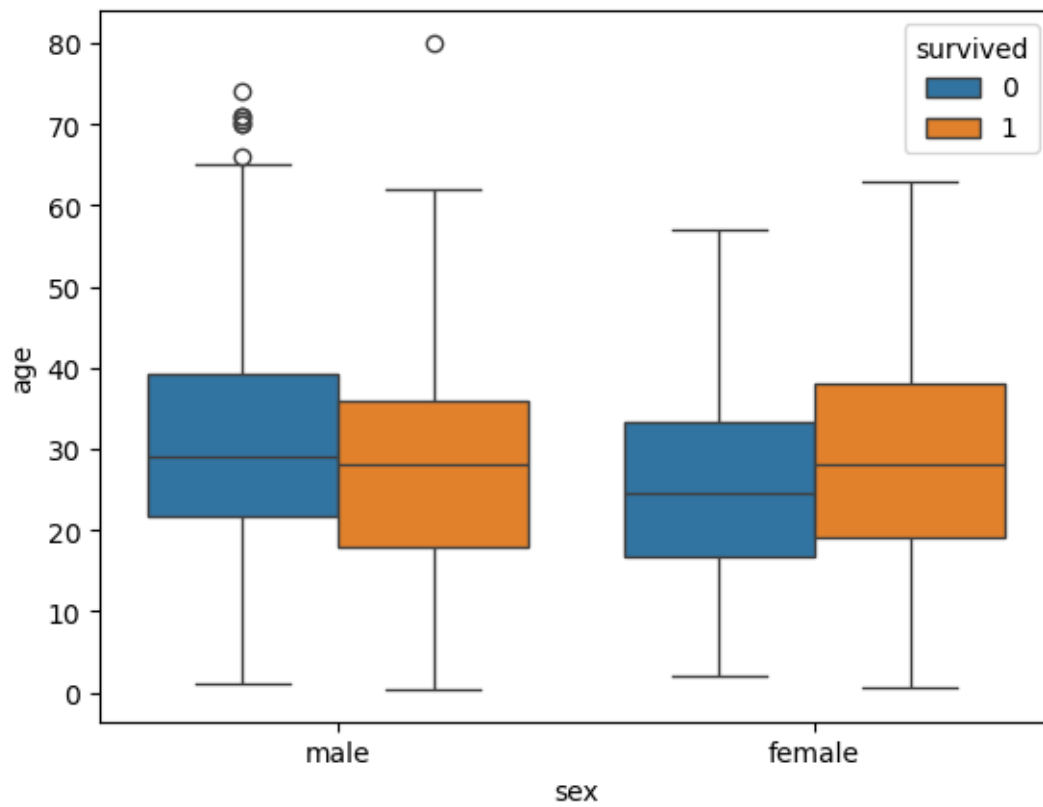
```
[18]: sns.rugplot(ds['fare'])
plt.show()
```



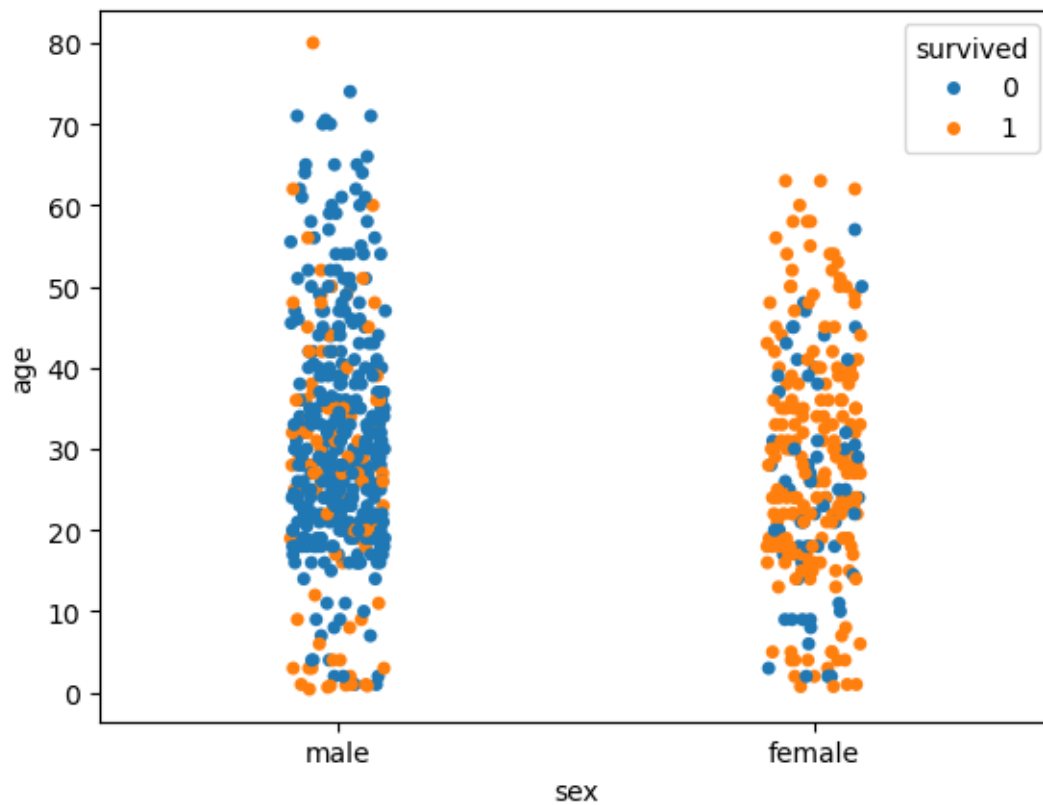
```
[25]: sns.barplot(x='sex', y='age', data=ds, estimator=np.std)  
plt.show()
```



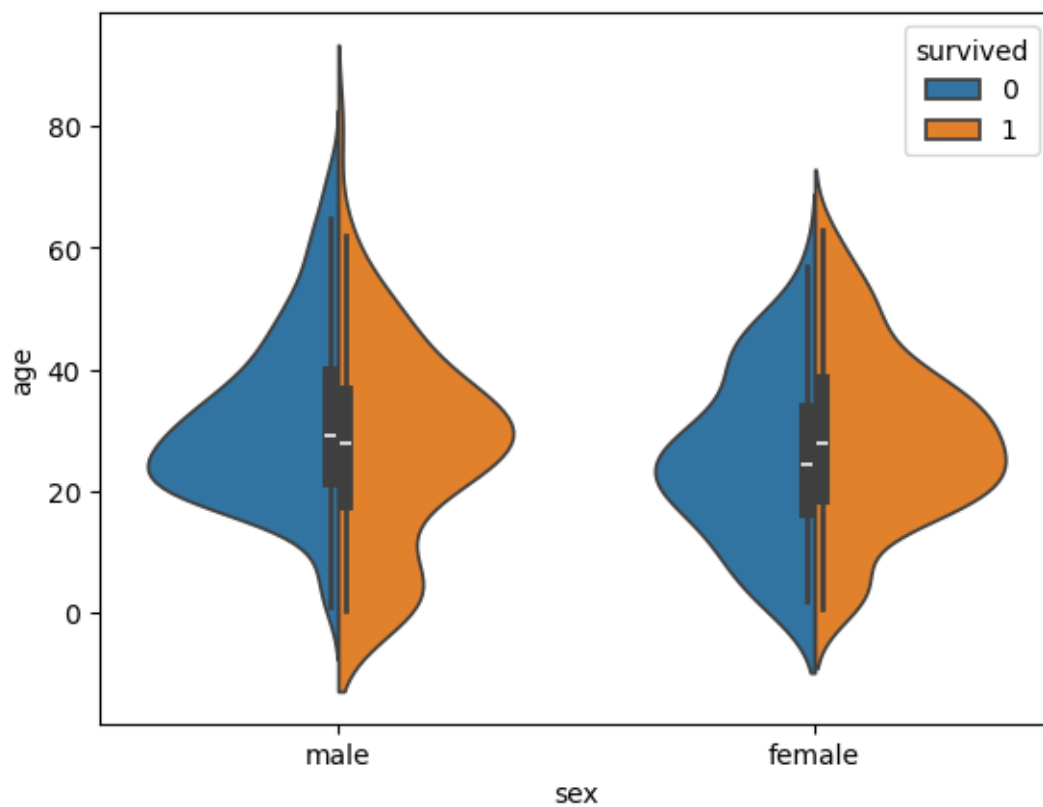
```
[20]: sns.boxplot(x='sex', y='age', data=ds, hue="survived")  
plt.show()
```



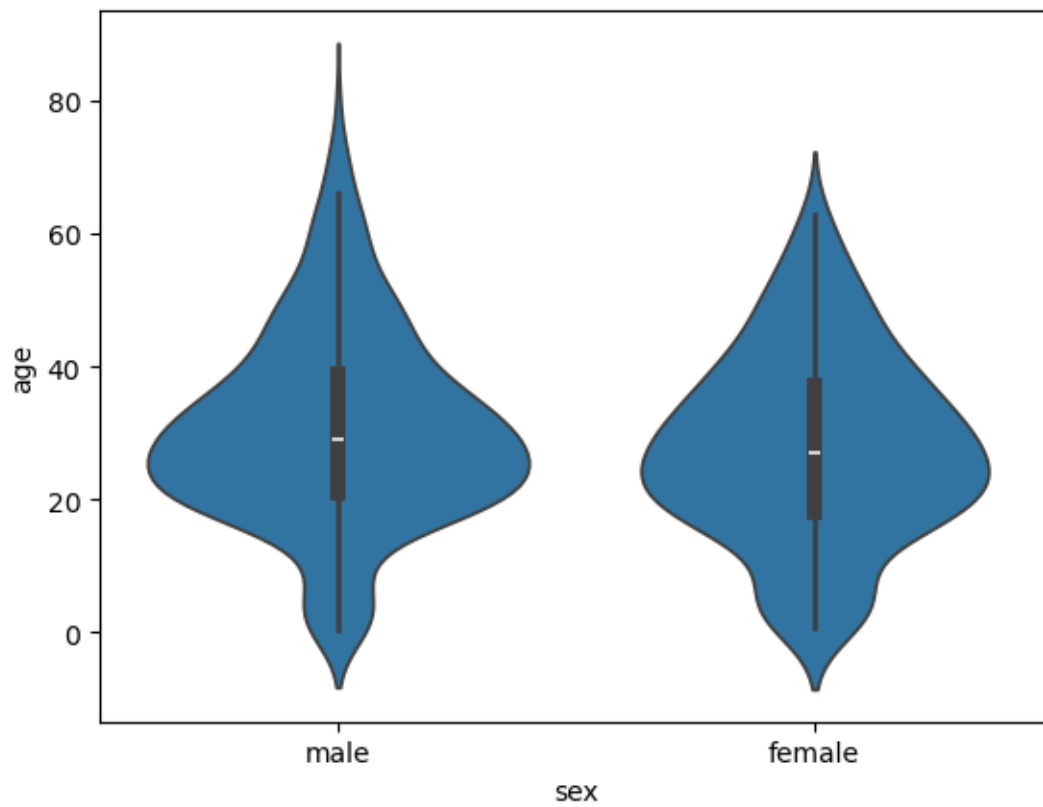
```
[27]: sns.stripplot(x='sex', y='age', data=ds, jitter=True, hue='survived')  
plt.show()
```



```
[29]: sns.violinplot(x='sex', y='age', data=ds, hue='survived', split=True)  
plt.show()
```

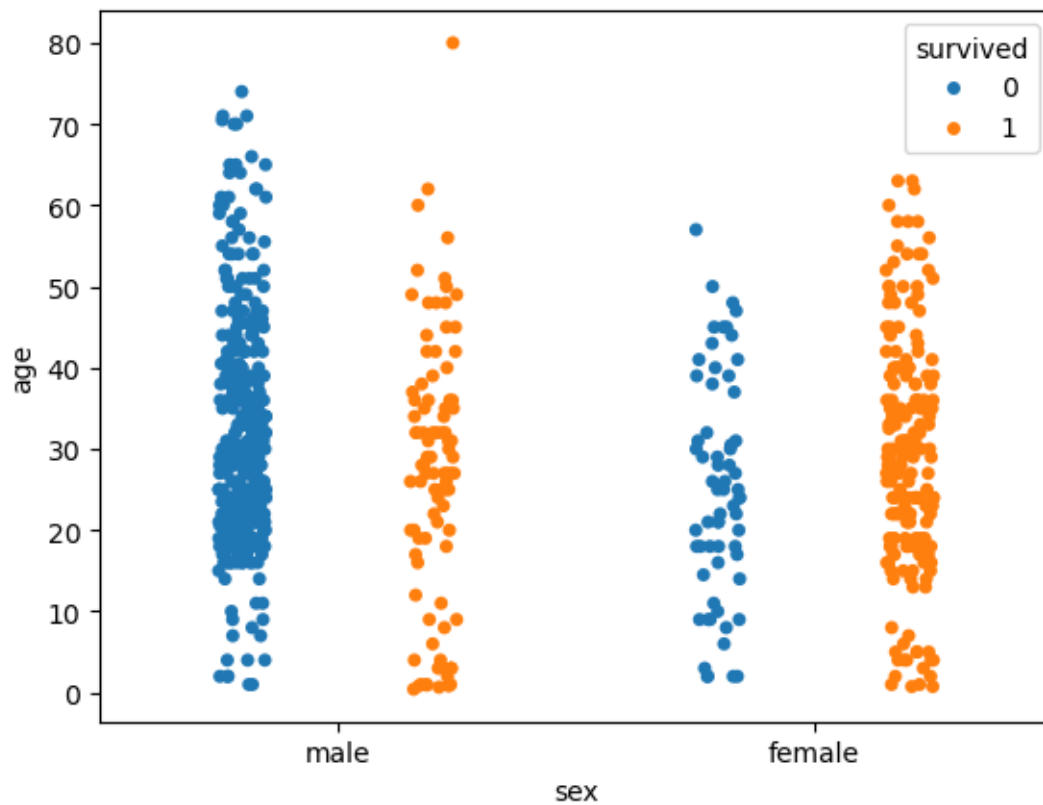


```
[33]: sns.violinplot(x='sex', y='age', data=ds)  
plt.show()
```

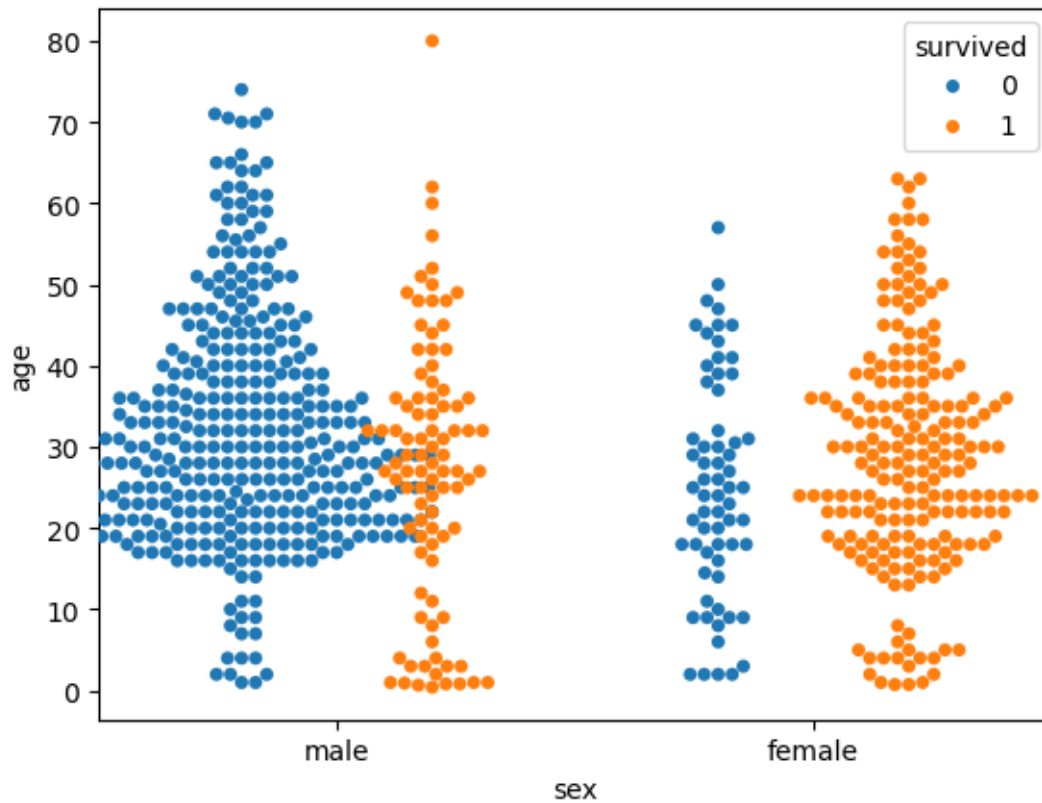


```
[43]: sns.stripplot(x='sex', y='age', data=ds, hue='survived', jitter=True, dodge=True)  
plt.show()
```



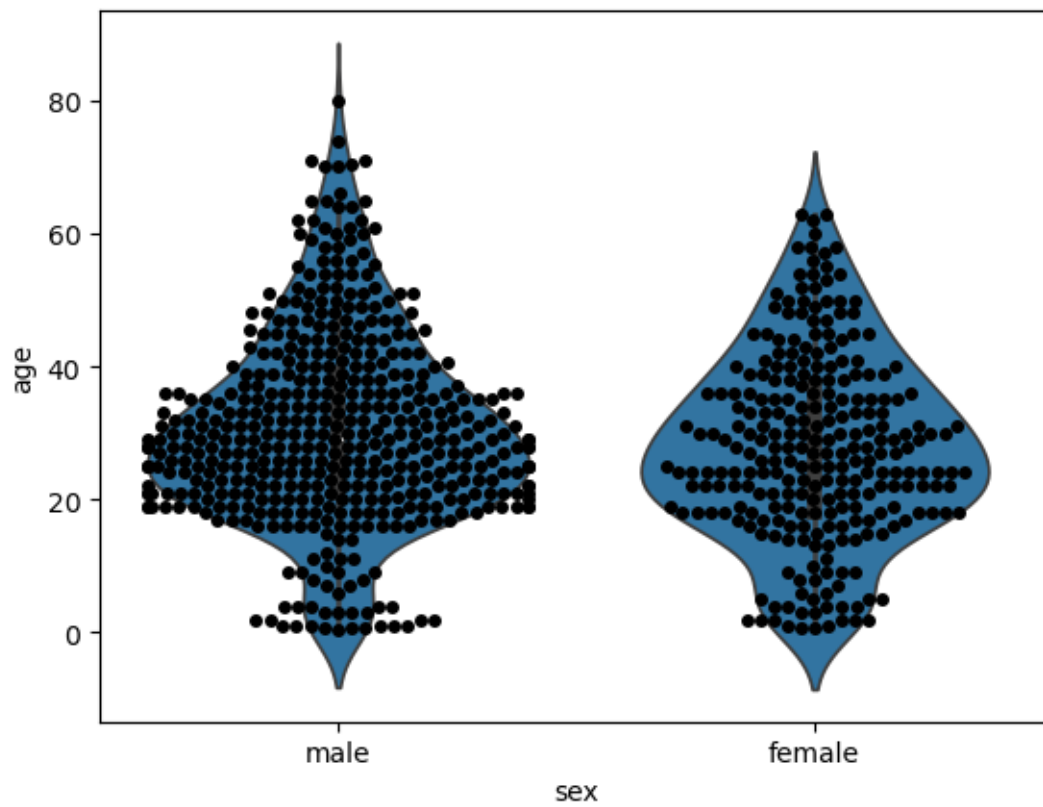


```
[37]: sns.swarmplot(x='sex', y='age', data=ds, hue='survived', dodge=True)
plt.show()
```



```
[45]: sns.violinplot(x='sex', y='age', data=ds)
sns.swarmplot(x='sex', y='age', data=ds, color='black')
plt.show()
```

C:\Users\Varad\anaconda3\Lib\site-packages\seaborn\categorical.py:3399:  
UserWarning: 5.7% of the points cannot be placed; you may want to decrease the  
size of the markers or use stripplot.  
warnings.warn(msg, UserWarning)



[ ]: