Practical No, 08

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Data Visualization I

1. Use the inbuilt dataset 'titanic'. The dataset contains 891 rows and contains information

about the passengers who boarded the unfortunate Titanic ship. Use the Seaborn library to see if we can find any patterns in the data. 2. Write a code to check how the price of the ticket (column name: 'fare') for each passenger is distributed by plotting a histogram.

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

In [2]:
```
df = sb.load_dataset('titanic')
df.head()
```

Out[2]:

	survived	pclass	sex	age	sibsp	parch	fare	embarked	class	who	adult_male	deck	embark_town	alive	alone
0	0	3	male	22.0	1	0	7.2500	S	Third	man	True	NaN	Southampton	no	False
1	1	1	female	38.0	1	0	71.2833	C	First	woman	False	C	Cherbourg	yes	False
2	1	3	female	26.0	0	0	7.9250	S	Third	woman	False	NaN	Southampton	yes	True
3	1	1	female	35.0	1	0	53.1000	S	First	woman	False	C	Southampton	yes	False
4	0	3	male	35.0	0	0	8.0500	S	Third	man	True	NaN	Southampton	no	True

In [3]:
```
df.info()
```

```
<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
```

In [4]:
```
print("Missing Values")
print(df.isnull().sum())
```

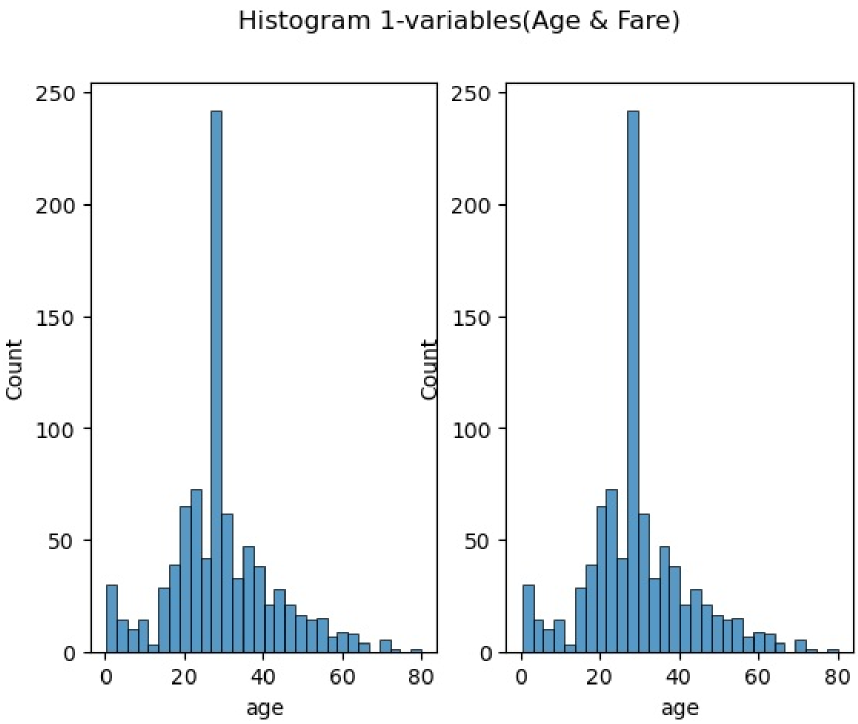
```
Missing Values
survived         0
pclass           0
sex              0
age            177
sibsp            0
parch            0
fare             0
embarked         2
class            0
who              0
adult_male       0
deck           688
embark_town      2
alive            0
alone          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

In [5]:
```
df['age'].fillna(df['age'].median(), inplace=True)
df.isnull().sum()
```

```
Out[5]: survived         0
        pclass           0
        sex              0
        age              0
        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
```

```
In [6]: fig, axes = plt.subplots(1,2)
fig.suptitle('Histogram 1-variables(Age & Fare)')
sb.histplot(data = df, x = 'age', ax = axes[0])
sb.histplot(data = df, x = 'age', ax = axes[1])
plt.show()
```

```
/home/kartik/anaconda3/lib/python3.11/site-packages/seaborn/_oldcore.py:1119: FutureWarning: use_inf_as_na optio
n is deprecated and will be removed in a future version. Convert inf values to NaN before operating instead.
  with pd.option_context('mode.use_inf_as_na', True):
/home/kartik/anaconda3/lib/python3.11/site-packages/seaborn/_oldcore.py:1119: FutureWarning: use_inf_as_na optio
n is deprecated and will be removed in a future version. Convert inf values to NaN before operating instead.
  with pd.option_context('mode.use_inf_as_na', True):
```




```
In [7]: fig, axes = plt.subplots(2,2)
fig.suptitle('Histogram 2-variables')
sb.histplot(data = df, x = 'age', hue = 'survived', multiple='dodge', ax = axes[0][0])
sb.histplot(data = df, x = 'fare', hue = 'survived', multiple='dodge', ax = axes[0][1])
sb.histplot(data = df, x = 'age', hue = 'sex', multiple='dodge', ax = axes[1][0])
sb.histplot(data = df, x = 'fare', hue = 'sex', multiple='dodge', ax = axes[1][1])
plt.show()
```

```
/home/kartik/anaconda3/lib/python3.11/site-packages/seaborn/_oldcore.py:1119: FutureWarning: use_inf_as_na optio
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n is deprecated and will be removed in a future version. Convert inf values to NaN before operating instead.
  with pd.option_context('mode.use_inf_as_na', True):
```