

## 1. Importing the Libraries

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

## 2. Importing and Loading the Dataset

```
In [3]: data = pd.read_csv("Titanic-Dataset.csv")
```

data												
data.head()												
	PassengerId	Survived	Pclass	Name	Sex	Age	SibSp	Parch	Ticket	Fare	Cabin	Embarked
0	1	0	3	Brund, Mr. Owen Harris	male	22.0	1	0	A/5 21171	7.2500	NaN	S
1	2	1	1	Cummings, Mrs. John Bradley (Florence Briggs Th...	female	38.0	1	0	PC 17599	71.2833	C85	C
2	3	3	1	Heikkinen, Mrs. Laina	female	26.0	0	0	STON/O2 310129	7.9250	NaN	S
3	4	1	1	Fureth, Mrs. Jacques Heath (Lily May Peel)	female	35.0	1	0	113803	53.1000	C123	S
4	5	0	3	Alken, Mr. William Henry	male	35.0	0	0	373450	8.0500	NaN	S
...	...	...	...	...	...	...	...	...	...	...	...	...
886	887	0	2	Norvala, Rev. Juozas	male	27.0	0	0	211536	13.0000	NaN	S
887	888	1	1	Graham, Miss. Margaret Edith	female	19.0	0	0	110303	30.0000	B42	S
888	889	0	3	Johnson, Miss. Catherine Helen "Carrie"	female	NaN	1	2	W/C 6607	23.4500	NaN	S
889	890	1	1	Behr, Mr. Karl Howell	male	26.0	0	0	111369	30.0000	C148	C
890	891	0	3	Dooley, Mr. Patrick	male	32.0	0	0	370376	7.7500	NaN	Q
891 rows x 12 columns												
In [5]: data.head()												
Out[5]:												
	PassengerId	Survived	Pclass	Name	Sex	Age	SibSp	Parch	Ticket	Fare	Cabin	Embarked
0	1	0	3	Brund, Mr. Owen Harris	male	22.0	1	0	A/5 21171	7.2500	NaN	S
1	2	1	1	Cummings, Mrs. John Bradley (Florence Briggs Th...	female	38.0	1	0	PC 17599	71.2833	C85	C
2	3	3	1	Heikkinen, Mrs. Laina	female	26.0	0	0	STON/O2 310129	7.9250	NaN	S

4

5

0

3

Allen, Mr. William Henry

male

35.0

0

0

373450

8.0500

NaN

S

In [6]:

```
data.info()

<class 'pandas.core.frame.DataFrame'>
RangeIndex: 891 entries, 0 to 890
Data columns (total 12 columns):
 #   Column                Non-Null Count  Dtype
---  --
 0   PassengerId           891 non-null    int64
 1   Survived              891 non-null    int64
 2   Pclass                891 non-null    int64
 3   Name                  891 non-null    object
 4   Sex                   891 non-null    object
 5   Age                   714 non-null    float64
 6   SibSp                 891 non-null    int64
 7   Parch                891 non-null    int64
 8   Ticket                891 non-null    object
 9   Fare                  891 non-null    float64
10   Cabin                284 non-null    object
11   Embarked              888 non-null    object
dtypes: float64(2), int64(5), object(5)
memory usage: 83.7+ KB
```

In [7]:

```
data.describe()
```

Out[7]:

	PassengerId	Survived	Pclass	Age	SibSp	Parch	Fare
count	891.000000	891.000000	891.000000	714.000000	891.000000	891.000000	891.000000
mean	446.000000	0.303030	2.305642	29.699138	0.523000	0.381964	32.204200
std	257.353842	0.486602	0.838071	14.526487	1.102743	0.806057	49.895429
min	1.000000	0.000000	1.000000	0.420000	0.000000	0.000000	0.000000
25%	223.500000	0.000000	2.000000	20.125000	0.000000	0.000000	7.910400
50%	446.000000	0.000000	3.000000	28.000000	0.000000	0.000000	14.454200
75%	668.500000	1.000000	3.000000	38.000000	1.000000	0.000000	31.000000
max	891.000000	1.000000	3.000000	80.000000	8.000000	6.000000	512.329000

### 3. Handling the NULL values

```
In [8]: # Checking for NULL values

data.isnull().any()

Out[8]: PassengerId    False
Survived      False
Pclass        False
Name          False
Sex           False
Age           True
SibSp         False
Parch         False
Ticket        False
Fare          False
Cabin         True
Embarked      True
dtype: bool
```

## 3. Handling the NULL values

Sex0  
Age177  
SibSp0  
Parch0  
Ticket0  
Fare0  
Cabin887  
Embarked2  
dtype: object

In [10]: data.drop('Cabin', axis=1)

In [10]:

PassengerId	Survived	Pclass	Name	Sex	Age	SibSp	Parch	Ticket	Fare	Cabin	Embarked
0	1	0	3	Brund, Mr. Owen Harris	male	22.0	1	0	A/5 21171	7.2500	S
1	2	1	1	Cummings, Mrs. John Bradley (Florence Briggs Th...	female	38.0	1	0	PC 17599	71.2833	C
2	3	3	1	Heikkinen, Mrs. Laina	female	26.0	0	0	STON/O2 3101292	7.9250	S
3	4	1	1	Fureth, Mrs. Jacques Heath (Lily May Peel)	female	35.0	1	0	113803	53.1000	C
4	5	0	3	Allen, Mr. William Henry	male	35.0	0	0	373450	8.0500	S
...	...	...	...	...	...	...	...	...	...	...	...
886	887	0	2	Norvala, Rev. Juozas	male	27.0	0	0	211536	13.0000	S
887	888	1	1	Graham, Miss. Margaret Edith	female	19.0	0	0	110303	30.0000	S
888	889	0	3	Johnson, Miss. Catherine Helen "Carrie"	female	NaN	1	2	W/C 6607	23.4500	S
889	890	1	1	Behr, Mr. Karl Howell	male	26.0	0	0	111369	30.0000	C
890	891	0	3	Dooley, Mr. Patrick	male	32.0	0	0	370376	7.7500	Q

891 rows x 11 columns

In [11]: data

In [11]:

PassengerId	Survived	Pclass	Name	Sex	Age	SibSp	Parch	Ticket	Fare	Cabin	Embarked	
0	1	0	3	Brund, Mr. Owen Harris	male	22.0	1	0	A/5 21171	7.2500	NAN	S
1	2	1	1	Cummings, Mrs. John Bradley (Florence Briggs Th...	female	38.0	1	0	PC 17599	71.2833	C85	C
2	3	3	1	Heikkinen, Mrs. Laina	female	26.0	0	0	STON/O2 3101292	7.9250	NAN	S
3	4	1	1	Fureth, Mrs. Jacques Heath (Lily May Peel)	female	35.0	1	0	113803	53.1000	C123	S
4	5	0	3	Allen, Mr. William Henry	male	35.0	0	0	373450	8.0500	NAN	S
...	...	...	...	...	...	...	...	...	...	...	...	
886	887	0	2	Norvala, Rev. Juozas	male	27.0	0	0	211536	13.0000	NAN	S
887	888	1	1	Graham, Miss. Margaret Edith	female	19.0	0	0	110303	30.0000	B42	S
888	889	0	3	Johnson, Miss. Catherine Helen "Carrie"	female	NaN	1	2	W/C 6607	23.4500	NAN	S
889	890	1	1	Behr, Mr. Karl Howell	male	26.0	0	0	111369	30.0000	C148	C
890	891	0	3	Dooley, Mr. Patrick	male	32.0	0	0	370376	7.7500	NAN	Q

891 rows x 12 columns

In [12]: data.dropna(inplace=True)

In [12]:

PassengerId	Survived	Pclass	Name	Sex	Age	SibSp	Parch	Ticket	Fare	Cabin	Embarked
-------------	----------	--------	------	-----	-----	-------	-------	--------	------	-------	----------

In [13]: data

In [13]:

1	2		Cummings, Mrs. John Bradley (Florence Briggs Th...	female	38.0	1	0	PC 17599	71.2833	C85	C	
2	3	4	1	Fureth, Mrs. Jacques Heath (Lily May Peel)	female	35.0	1	0	113803	53.1000	C123	S
6	7	0	1	McCarthy, Mr. Timothy J	male	54.0	0	0	17463	51.8625	E46	S
10	11	1	3	Sandstrom, Miss. Marguerite Rut	female	4.0	1	1	PP 9549	16.7000	G6	S
11	12	1	1	Bornell, Miss. Elizabeth	female	58.0	0	0	113793	26.5500	C103	S
...	...	...	...	...	...	...	...	...	...	...	...	...
871	872	1	1	Beckwith, Mrs. Richard Leonard (Sallie Montgomery)	female	47.0	1	1	11751	52.5542	D95	S
872	873	0	1	Catelson, Mr. James Crawford	male	53.0	0	0	169	53.0000	951 953 B96	S
877	880	1	1	Puttler, Mrs. Thomas Jr (Jey Akenside Wilson)	female	56.0	0	1	11747	83.1583	C50	C
879	888	1	1	Graham, Miss. Margaret Edith	female	19.0	0	0	110503	30.0000	B42	S
889	890	1	1	Behr, Mr. Karl Howell	male	26.0	0	0	111369	30.0000	C148	C

183 rows x 12 columns

```
In [15]: data.isnull().any()

Out[15]:
```

PassengerId	Survived	Pclass	Name	Sex	Age	SibSp	Parch	Ticket	Fare	Cabin	Embarked
0	False	False	False	False	False	False	False	False	False	False	False
1	False	False	False	False	False	False	False	False	False	False	False
2	False	False	False	False	False	False	False	False	False	False	False
3	False	False	False	False	False	False	False	False	False	False	False
4	False	False	False	False	False	False	False	False	False	False	False
5	False	False	False	False	False	False	False	False	False	False	False
6	False	False	False	False	False	False	False	False	False	False	False
7	False	False	False	False	False	False	False	False	False	False	False
8	False	False	False	False	False	False	False	False	False	False	False
9	False	False	False	False	False	False	False	False	False	False	False
10	False	False	False	False	False	False	False	False	False	False	False
11	False	False	False	False	False	False	False	False	False	False	False
12	False	False	False	False	False	False	False	False	False	False	False
13	False	False	False	False	False	False	False	False	False	False	False
14	False	False	False	False	False	False	False	False	False	False	False
15	False	False	False	False	False	False	False	False	False	False	False
16	False	False	False	False	False	False	False	False	False	False	False
17	False	False	False	False	False	False	False	False	False	False	False
18	False	False	False	False	False	False	False	False	False	False	False
19	False	False	False	False	False	False	False	False	False	False	False
20	False	False	False	False	False	False	False	False	False	False	False
21	False	False	False	False	False	False	False	False	False	False	False
22	False	False	False	False	False	False	False	False	False	False	False
23	False	False	False	False	False	False	False	False	False	False	False
24	False	False	False	False	False	False	False	False	False	False	False
25	False	False	False	False	False	False	False	False	False	False	False
26	False	False	False	False	False	False	False	False	False	False	False
27	False	False	False	False	False	False	False	False	False	False	False
28	False	False	False	False	False	False	False	False	False	False	False
29	False	False	False	False	False	False	False	False	False	False	False
30	False	False	False	False	False	False	False	False	False	False	False
31	False	False	False	False	False	False	False	False	False	False	False
32	False	False	False	False	False	False	False	False	False	False	False
33	False	False	False	False	False	False	False	False	False	False	False
34	False	False	False	False	False	False	False	False	False	False	False
35	False	False	False	False	False	False	False	False	False	False	False
36	False	False	False	False	False	False	False	False	False	False	False
37	False	False	False	False	False	False	False	False	False	False	False
38	False	False	False	False	False	False	False	False	False	False	False
39	False	False	False	False	False	False	False	False	False	False	False
40	False	False	False	False	False	False	False	False	False	False	False
41	False	False	False	False	False	False	False	False	False	False	False
42	False	False	False	False	False	False	False	False	False	False	False
43	False	False	False	False	False	False	False	False	False	False	False
44	False	False	False	False	False	False	False	False	False	False	False
45	False	False	False	False	False	False	False	False	False	False	False
46	False	False	False	False	False	False	False	False	False	False	False
47	False	False	False	False	False	False	False	False	False	False	False
48	False	False	False	False	False	False	False	False	False	False	False
49	False	False	False	False	False	False	False	False	False	False	False
50	False	False	False	False	False	False	False	False	False	False	False
51	False	False	False	False	False	False	False	False	False	False	False
52	False	False	False	False	False	False	False	False	False	False	False
53	False	False	False	False	False	False	False	False	False	False	False
54	False	False	False	False	False	False	False	False	False	False	False
55	False	False	False	False	False	False	False	False	False	False	False
56	False	False	False	False	False	False	False	False	False	False	False
57	False	False	False	False	False	False	False	False	False	False	False
58	False	False	False	False	False	False	False	False	False	False	False
59	False	False	False	False	False	False	False	False	False	False	False
60	False	False	False	False	False	False	False	False	False	False	False
61	False	False	False	False	False	False	False	False	False	False	False
62	False	False	False	False	False	False	False	False	False	False	False
63	False	False	False	False	False	False	False	False	False	False	False
64	False	False	False	False	False	False	False	False	False	False	False
65	False	False	False	False	False	False	False	False	False	False	False
66	False	False	False	False	False	False	False	False	False	False	False
67	False	False	False	False	False	False	False	False	False	False	False
68	False	False	False	False	False	False	False	False	False	False	False
69	False	False	False	False	False	False	False	False	False	False	False
70	False	False	False	False	False	False	False	False	False	False	False
71	False	False	False	False	False	False	False	False	False	False	False
72	False	False	False	False	False	False	False	False	False	False	False
73	False	False	False	False	False	False	False	False	False	False	False
74	False	False	False	False	False	False	False	False	False	False	False
75	False	False	False	False	False	False	False	False	False	False	False
76	False	False	False	False	False	False	False	False	False	False	False
77	False	False	False	False	False	False	False	False	False	False	False
78	False	False	False	False	False	False	False	False	False	False	False
79	False	False	False	False	False	False	False	False	False	False	False
80	False	False	False	False	False	False	False	False	False	False	False
81	False	False	False	False	False	False	False	False	False	False	False
82	False	False	False	False	False	False	False	False	False	False	False
83	False	False	False	False	False	False	False	False	False	False	False
84	False	False	False	False	False	False	False	False	False	False	False
85	False	False	False	False	False	False	False	False	False	False	False
86	False	False	False	False	False	False	False	False	False	False	False
87	False	False	False	False	False	False	False	False	False	False	False
88	False	False	False	False	False	False	False	False	False	False	False
89	False	False	False	False	False	False	False	False	False	False	False
90	False	False	False	False	False	False	False	False	False	False	False
91	False	False	False	False	False	False	False	False	False	False	False
92	False	False	False	False	False	False	False	False	False	False	False
93	False	False	False	False	False	False	False	False	False	False	False
94	False	False	False	False	False	False	False	False	False	False	False
95	False	False	False	False	False	False	False	False	False	False	False
96	False	False	False	False	False	False	False	False	False	False	False
97	False	False	False	False	False	False	False	False	False	False	False
98	False	False	False	False	False	False	False	False	False	False	False
99	False	False	False	False	False	False	False	False	False	False	False
100	False	False	False	False	False	False	False	False	False	False	False
101	False	False	False	False	False	False	False	False	False	False	False
102	False	False	False	False	False	False	False	False	False	False	False
103	False	False	False	False	False	False	False	False	False	False	False
104	False	False	False	False	False	False	False	False	False	False	False
105	False	False	False	False	False	False	False	False	False	False	False
106	False	False	False	False	False	False	False	False	False	False	False
107	False	False	False	False	False	False	False	False	False	False	False
108	False	False	False	False	False	False	False	False	False	False	False
109	False	False	False	False	False	False	False	False	False	False	False
110	False	False	False	False	False	False	False	False	False	False	False
111	False	False	False	False	False	False	False	False	False	False	False
112	False	False	False	False	False	False	False	False	False	False	False
113	False	False	False	False	False	False	False	False	False	False	False
114	False	False	False	False	False	False	False	False	False	False	False
115	False	False	False	False	False	False	False	False	False	False	False
116	False	False	False	False	False	False	False	False	False	False	False
117	False	False	False	False	False	False	False	False	False	False	False
118	False	False	False	False	False	False	False	False	False	False	False
119	False	False	False	False	False	False	False	False	False	False	False
120	False	False	False	False	False	False	False	False	False	False	False
121	False	False	False	False	False	False	False	False	False	False	False
122	False	False	False	False	False	False	False	False	False	False	False
123	False	False	False	False	False	False	False	False	False	False	False
124	False	False	False	False	False	False	False	False	False	False	False
125	False	False	False	False	False	False	False	False	False	False	False
126	False	False	False	False	False	False	False	False	False	False	False
127	False	False	False	False	False	False	False	False	False	False	False
128	False	False	False	False	False	False	False	False	False	False	False
129	False	False	False	False	False	False	False	False	False	False	False
130	False	False	False	False	False	False	False	False	False	False	False
131	False	False	False	False	False	False	False	False	False	False	False
132	False	False	False	False	False	False	False	False	False	False	False
133	False	False	False	False	False	False	False	False	False	False	False
134	False	False	False	False	False	False	False	False	False	False	False
135	False	False	False	False	False	False	False	False	False	False	False
136	False	False	False	False	False	False	False	False	False	False	False
137	False	False	False	False	False	False	False	False	False	False	False
138	False	False	False	False	False	False	False	False	False	False	False
139	False	False	False	False	False	False	False	False	False	False	False
140	False	False	False	False	False	False	False	False	False	False	False
141	False	False	False	False	False	False	False	False	False	False	False
142	False	False	False	False	False	False	False	False	False	False	False
143	False	False	False	False	False	False	False	False	False	False	False

	PassengerId	Survived	Pclass	Age	SibSp	Parch	Fare
PassengerId	1	0.15	-0.089	0.031	-0.083	-0.051	0.03
Survived	0.15	1	-0.035	-0.25	0.11	0.024	0.13
Pclass	-0.089	-0.035	1	-0.31	-0.1	0.047	-0.32
Age	-0.031	-0.25	-0.31	1	-0.16	-0.27	-0.092
SibSp	-0.083	0.11	-0.1	-0.16	1	0.26	0.29
Parch	-0.051	0.024	0.047	-0.27	0.26	1	0.39
Fare	0.03	0.13	-0.32	-0.092	0.29	0.39	1

1.0

0.8

0.6

0.4

0.2

0.0

-0.2

```
In [97]: sns.scatterplot(x="Survived",y="Pclass",data=data)
Out[97]: <AxesSubplot:xlabel='Survived', ylabel='Pclass'>
```

A scatter plot showing the relationship between 'Survived' (x-axis) and 'Pclass' (y-axis). The x-axis ranges from 0.0 to 1.0, and the y-axis ranges from 1.00 to 3.00. There are six data points plotted as blue dots. The points are located at (0.0, 1.00), (0.0, 2.00), (0.0, 3.00), (1.0, 1.00), (1.0, 2.00), and (1.0, 3.00).

Survived	Pclass
0.0	1.00
0.0	2.00
0.0	3.00
1.0	1.00
1.0	2.00
1.0	3.00

```

In [38]: sns.lineplot(x="Survived", y="Fare", data=data)

Out[38]: <AxesSubplot: xlabel='Survived', ylabel='Fare'>

```

Survived	Fare (Mean)	Fare (Lower Bound)	Fare (Upper Bound)
0	~65	~50	~81
1	~86	~74	~100

```
In [39]: sns.displot(data["fare"])
Out[39]: <seaborn.axisgrid.FacetGrid at 0x230d8859a0>
```

Survived	Count
0.0	23
0.1	25
0.2	45
0.3	25
0.4	28
0.5	15
0.6	10
0.7	5
0.8	2
0.9	1
1.0	1

```

In [40]: sns.bargplot(data=data, x="Pclass", y="Fare")

Out[40]: <AxesSubplot: xlabel='Pclass', ylabel='Fare'>

```