OUTPUTS FOR INTERNSHIP (TASK 5)

OUTPUT FOR .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        204 non-null    object
 11  Embarked     889 non-null    object
dtypes: float64(2), int64(5), object(5)
memory usage: 83.7+ KB
```

OUTPUT FOR .DESCRIBE()

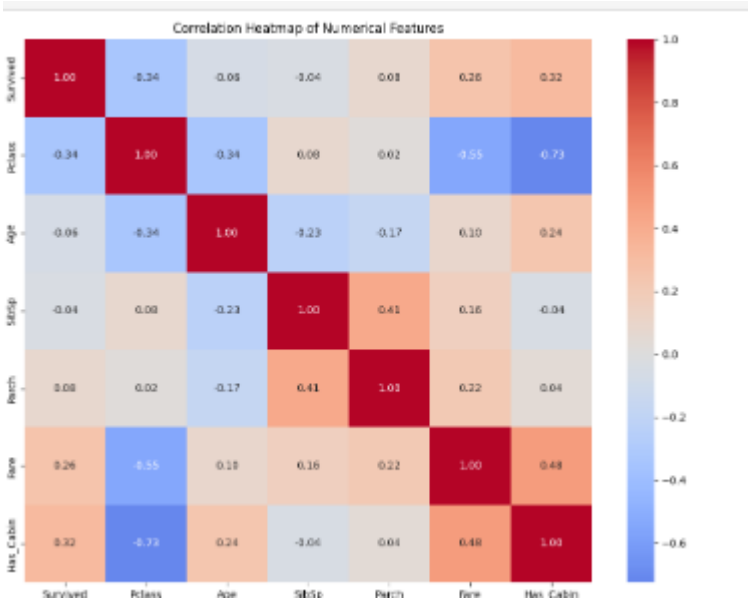
Descriptive Statistics:

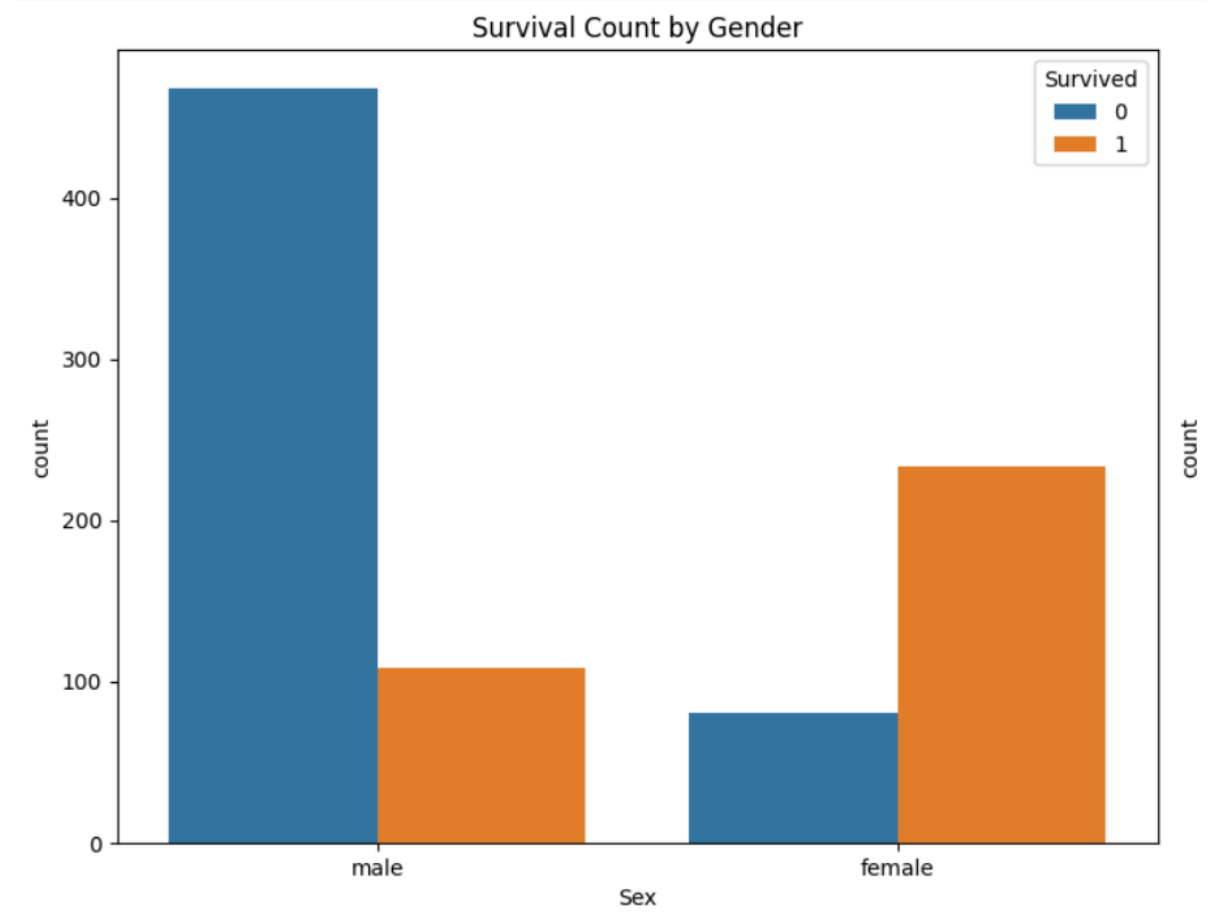
	PassengerId	Survived	Pclass	Age	SibSp	Parch	Fare
count	891.000000	891.000000	891.000000	714.000000	891.000000	891.000000	891.000000
mean	446.000000	0.383838	2.308642	29.699118	0.523008	0.381594	32.204208
std	257.353842	0.486592	0.836071	14.526497	1.102743	0.806057	49.693429
min	1.000000	0.000000	1.000000	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	512.329200

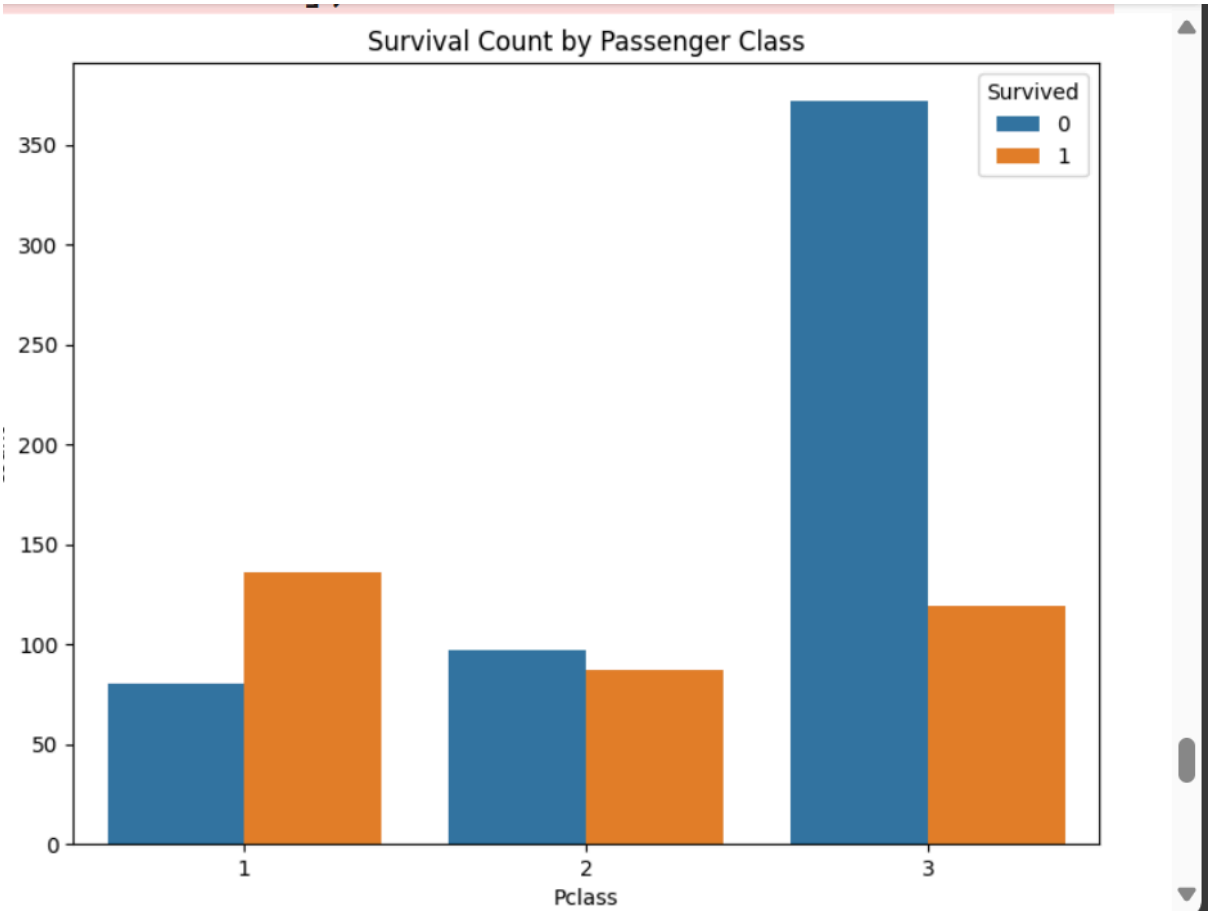
OUTPUT FOR HANDLING MISSING VALUES

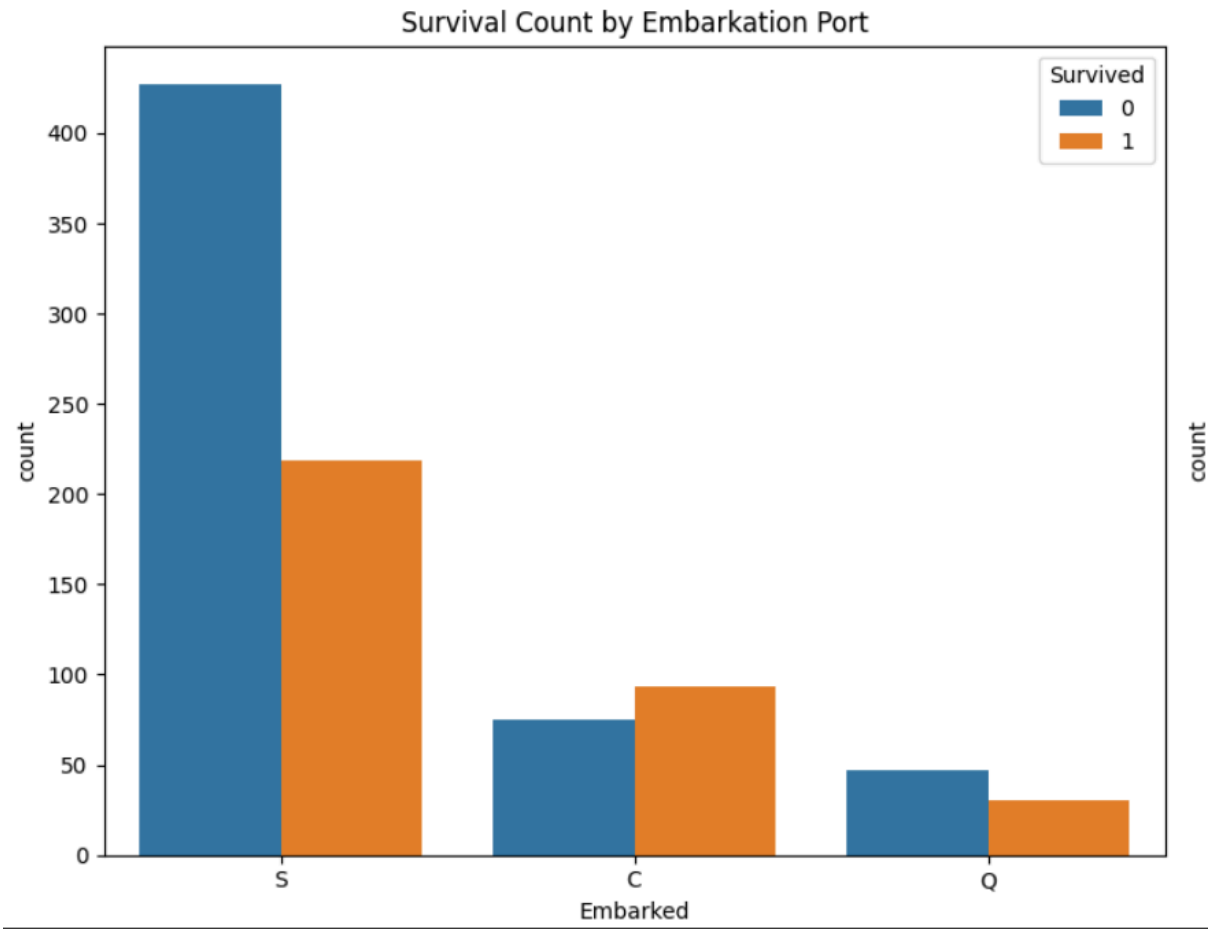
```
Missing Values:
PassengerId      0
Survived         0
Pclass           0
Name             0
Sex              0
Age            177
SibSp            0
Parch            0
Ticket           0
Fare             0
Cabin          687
Embarked         2
dtype: int64
```

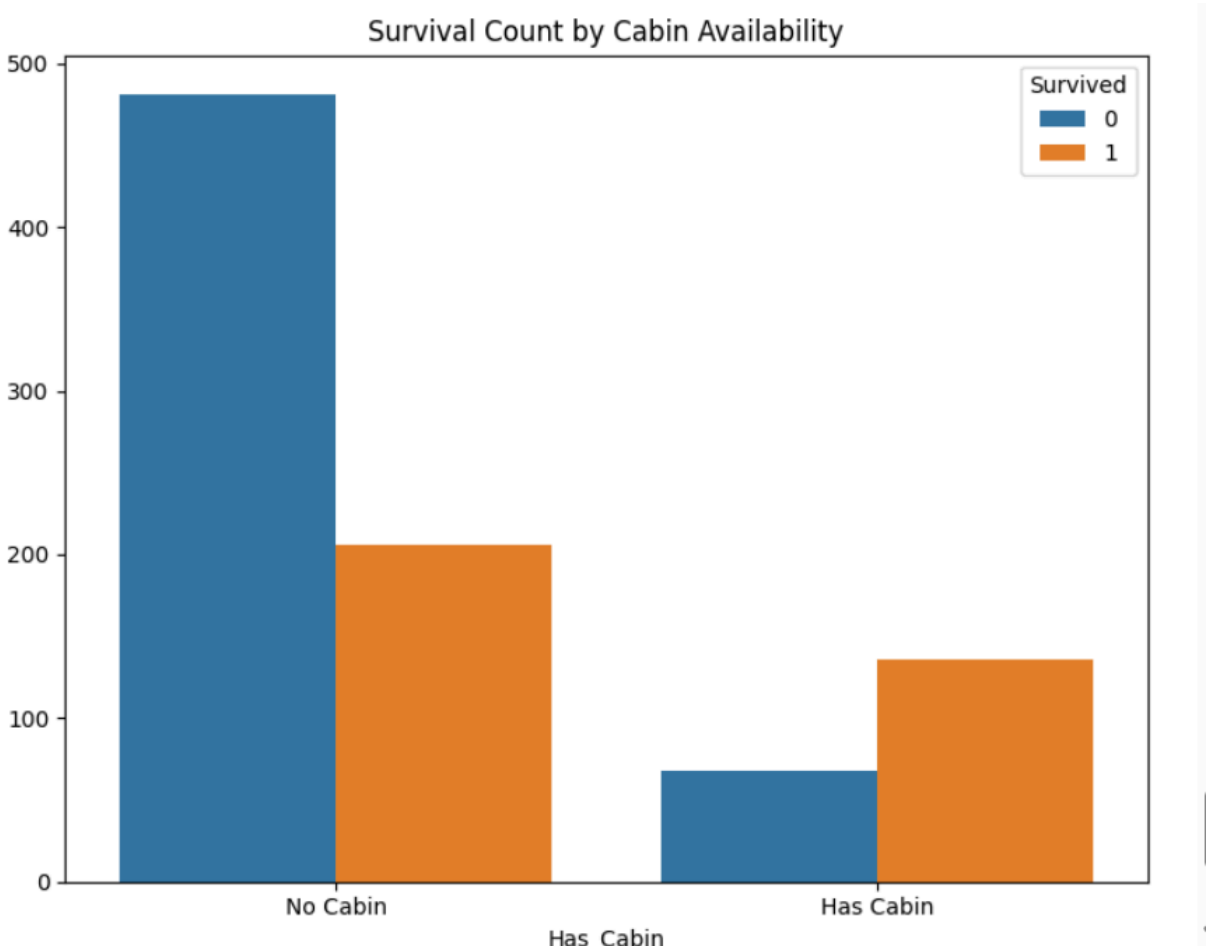
VISUALIZATIONS

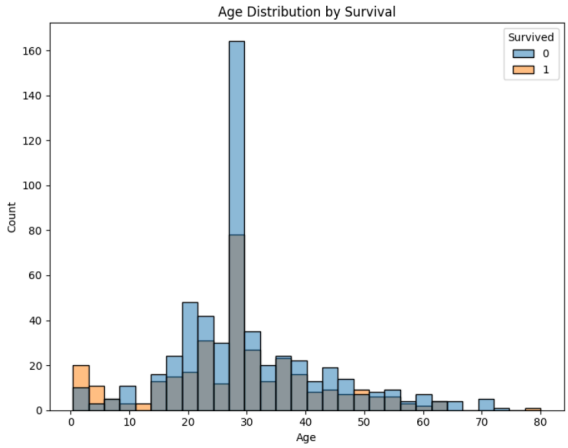


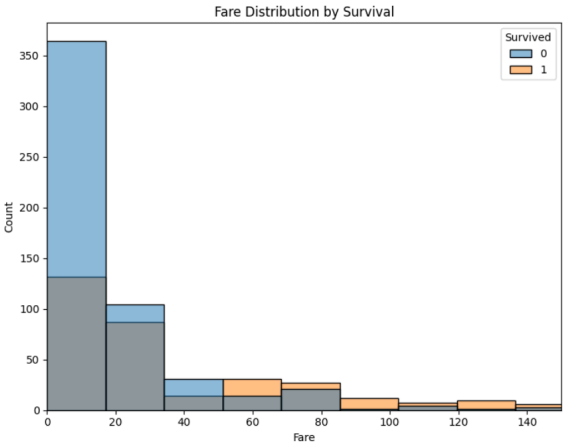

Survival Count by Gender
Survived
0
1
400
300
200
100
0
count
count
male
female
Sex

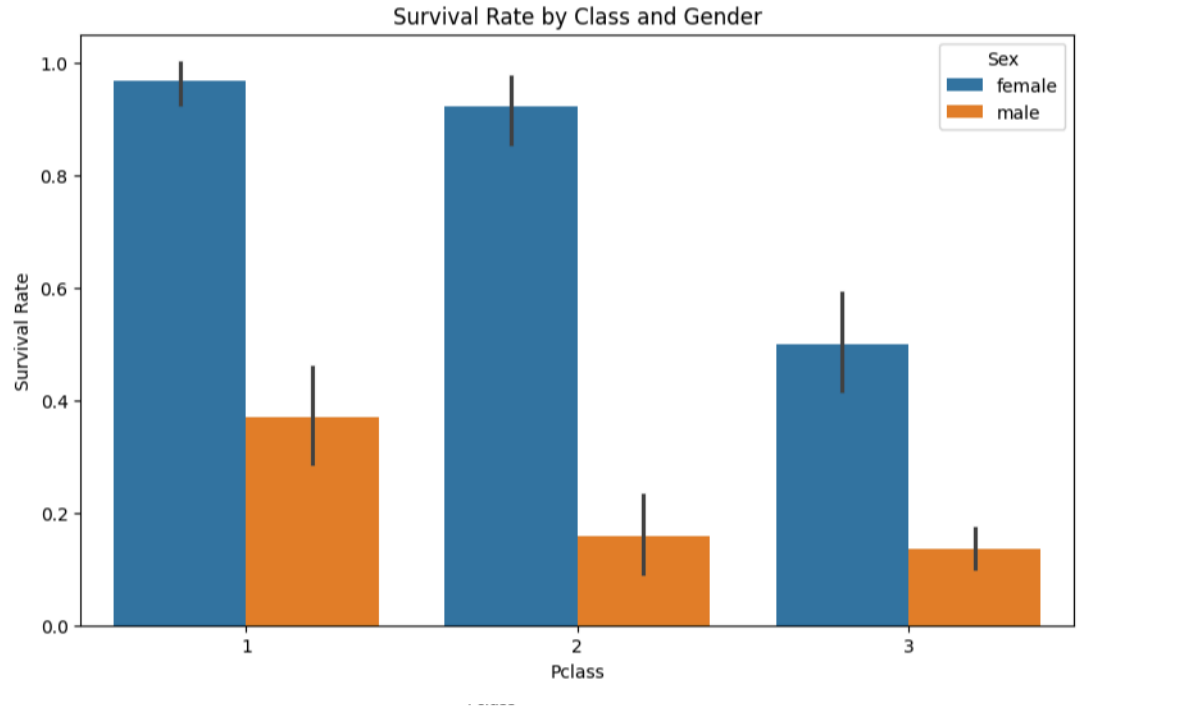

Survival Count by Passenger Class
Survived
0
1
350
300
250
200
150
100
50
0
1
2
3
Pclass

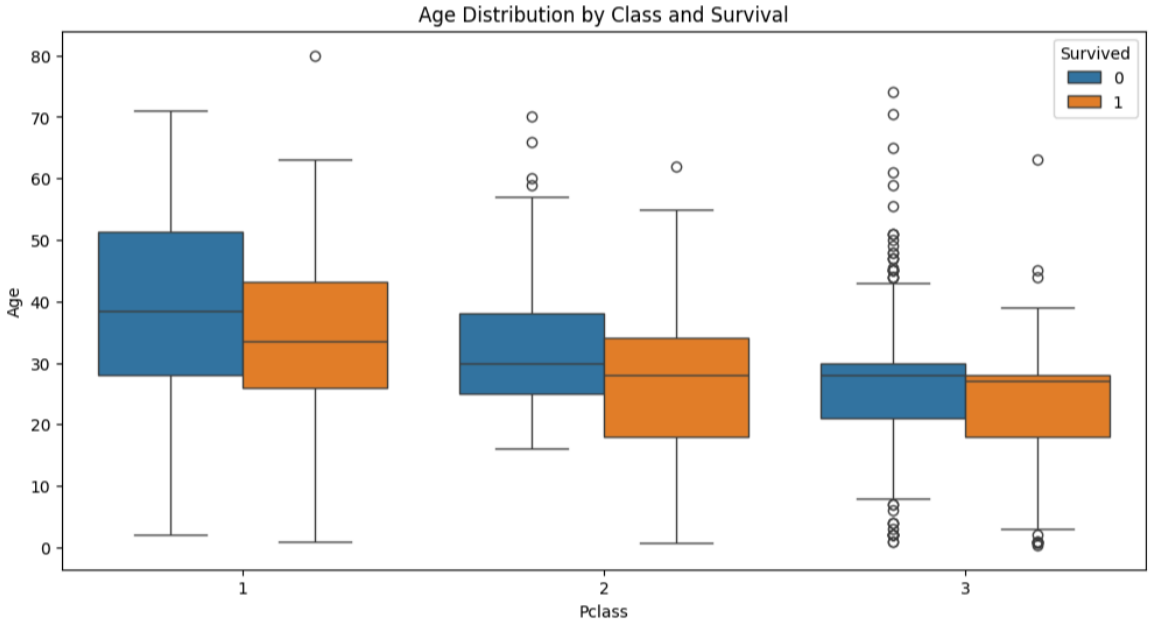

Survival Count by Embarkation Port
Survived
0
1
count
400
350
300
250
200
150
100
50
0
S
C
Q
Embarked
count


Survival Count by Cabin Availability
Survived
0
1
500
400
300
200
100
0
No Cabin
Has Cabin
Has_Cabin


Age Distribution by Survival
Survived
0
1
Count
Age
0
10
20
30
40
50
60
70
80
0
20
40
60
80
100
120
140
160


Fare Distribution by Survival
Survived
0
1
Count
Fare
0
20
40
60
80
100
120
140
0
50
100
150
200
250
300
350


Survival Rate by Class and Gender
Sex
female
male
Survival Rate
1.0
0.8
0.6
0.4
0.2
0.0
1
2
3
Pclass


Age Distribution by Class and Survival
Survived
0
1
Age
80
70
60
50
40
30
20
10
0
1
2
3
Pclass

CONCLUSION

Looking at the data from the Titanic passenger list, a clear and stark story emerges about who survived and who didn't. The overall chance of survival was bleak, with only about 38% of passengers making it. This wasn't a random tragedy; survival was heavily influenced by a passenger's sex, wealth, and social standing.

The most powerful factor was gender. The "women and children first" protocol was clearly followed. Women had a remarkably high survival rate of about 74%, meaning nearly three out of every four women were saved. In stark contrast, the survival rate for men was tragically low, at only about 19%. Put simply, a woman on the Titanic was almost four times more likely to survive than a man.

Social class was another critical divider. A passenger's ticket class was a strong indicator of their fate. First-class passengers had a strong advantage, with a survival rate of about 63%. For second class, the rate dropped to 47%, and for those in third class, it plummeted to just 24%. This means a first-class passenger was more than two and a half times more likely to survive than someone in steerage. This was likely due to their cabins being closer to the lifeboat decks and a possible prioritization during the evacuation.

Money and location on the ship also played a role. Passengers who had a cabin assigned in the records—which typically cost more—had a 67% survival rate, compared to just 30% for those without a designated cabin. Furthermore, passengers who paid higher fares, which is closely linked to their class, had a significantly better chance of survival.

The data also reveals something about family. Passengers traveling completely alone had a lower survival rate (30%) compared to those with at least one family member (28%). Interestingly, the survival rate was highest for those with medium-sized families, suggesting that having relatives to help navigate the chaos was beneficial, but a very large family might have been a hindrance.

Age was a factor, but not as dramatic as one might expect. Children under 18 had a slightly better chance (54%) than adults (38%), which aligns with the evacuation protocol, though the difference is not as large as the gap between genders or classes.

In the end, the data paints a clear picture: if you were a wealthy woman in first class, your chances of survival were high. If you were a man in third class traveling alone, the odds were overwhelmingly stacked against you. The sinking of the Titanic was not just a disaster; it was a social drama where pre-existing hierarchies of gender and class played out with fatal consequences.