# 1)Survival Count

This plot shows the number of passengers who survived (1) and who didn't (0). It indicates that more people died than survived, which reflects the tragic nature of the Titanic disaster.

# 2)Gender Distribution

The Titanic had more male passengers than female. This difference plays an important role in survival analysis.

# 3)Passenger Class Distribution

The third class had the most passengers, followed by first and second class. Socioeconomic status likely impacted survival chances.

# 4)Age Distribution

Most passengers were between 20 and 40 years old. There are fewer children and elderly passengers.

# 5)Fare Distribution

The fare distribution is right-skewed, showing that most passengers paid a lower fare, but a few paid very high fares (likely first-class).

# 6)Survival Rate by Gender

Females had a significantly higher survival rate compared to males, suggesting a 'women and children first' policy was followed.

# 7)Survival Rate by Passenger Class

First-class passengers had the highest survival rate, followed by second and then third class. Wealthier passengers had better access to lifeboats.

# 8)Boxplot of Age by Survival

This shows the age distribution of those who survived and didn't. Younger passengers had slightly better survival rates.

# 9)Age Distribution by Survival Status

Younger passengers, especially children, had better survival chances. Many older passengers did not survive.

# 10)Pairplot of Survival, Age, Fare, Pclass

The pairplot helps visualize how variables like Age, Fare, and Pclass interact with survival. First-class passengers with higher fares had better survival.

# 11)Correlation Heatmap

The heatmap shows the correlation between numerical variables. Fare and Pclass are somewhat correlated with survival. Age shows a weaker correlation.

1. **Survival Count (Gender Submission Predictions)**

This is based on the gender\_submission.csv file, which assumes all female passengers survived and all male passengers did not. Under this assumption, more people are predicted not to survive than survive.

1. **Survival by Gender (Gender Submission Predictions)**

Since the file assumes that only females survive, the survival rate for females is 100%, and 0% for males. This simple rule is used to demonstrate a baseline prediction.

**14)Survival by Pclass (Gender Submission Predictions)**

These survival predictions do not directly use passenger class (Pclass) as a factor. However, since female passengers are predicted to survive and are distributed across all classes, you may still see apparent differences by class due to gender distribution—but it’s not due to class being considered in the predictions.

# Summary of Findings

* Females had a much higher survival rate than males.
* First-class passengers were more likely to survive compared to second and third class.
* Most passengers were young adults, and younger passengers had slightly better chances of survival.
* High fares and higher classes were associated with increased survival probability.
* Embarkation points varied, but most passengers boarded at Southampton.
* Missing data was handled appropriately by imputing or dropping, ensuring data quality.