

# Titanic EDA Report

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## 1. Survival Count

### Observation:

The majority of passengers (~62%) did not survive, while only ~38% survived the disaster.

This reflects the limited lifeboat capacity and chaotic evacuation process.

## 2. Survival Rate by Gender

### Observation:

Female passengers had a survival rate of about **82%**, while male passengers had a survival rate of only **13%**.

This shows gender was a major factor, with women being prioritized in rescue efforts (“women and children first”).

## 3. Survival Rate by Passenger Class

### Observation:

- **1st Class:** ~63% survival rate.
- **2nd Class:** ~47% survival rate.
- **3rd Class:** ~24% survival rate.

Wealth and cabin location played a key role in survival odds.

## 4. Age Distribution

### Observation:

Passenger ages ranged from infants to over 80 years old, with most passengers between **20–40 years**.

There is also a small peak in children under 10.

## 5. Average Age by Survival

### Observation:

Survivors were, on average, slightly younger than non-survivors, though the difference was not dramatic.

## 6. Average Fare by Survival

### Observation:

Survivors generally paid higher fares, suggesting that passengers in more expensive cabins had better access to lifeboats.

## 7. Correlation Heatmap

### Observation:

- Survival has a **negative correlation** with Pclass (-0.34) — higher classes are more likely to survive.
- Survival has a **positive correlation** with Fare (0.26).
- Sex has a strong correlation (-0.54), showing gender was a major factor.

## 8. Fare Outliers

### Observation:

A few passengers paid extremely high fares, likely indicating luxury first-class suites.

These passengers had some of the highest survival chances.

## Summary of Findings

1. **Overall survival rate** was low (~38%), with most passengers not surviving.
2. **Gender** was the most influential factor — women had a much higher survival rate.
3. **Passenger class** strongly impacted survival chances; wealthier passengers were safer.
4. **Fare price** is positively related to survival, reflecting socio-economic advantage.
5. **Age** had some influence — children and younger adults had slightly better odds.
6. The findings align with historical accounts of the Titanic tragedy, where social status and the “women and children first” policy shaped survival outcomes.