



# TITANIC EXPLORATION

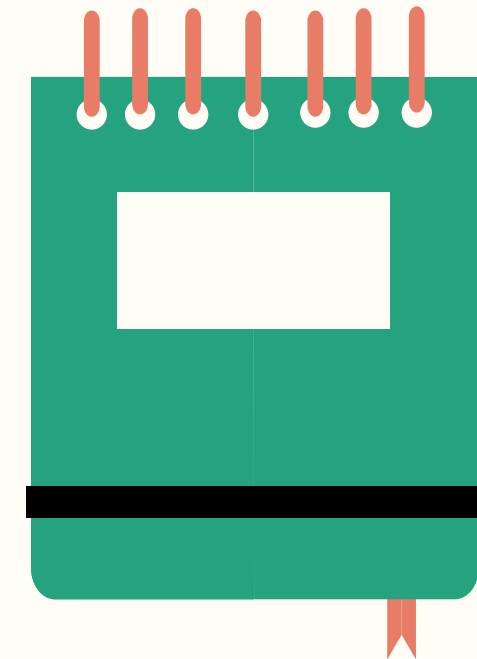
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# Introduction

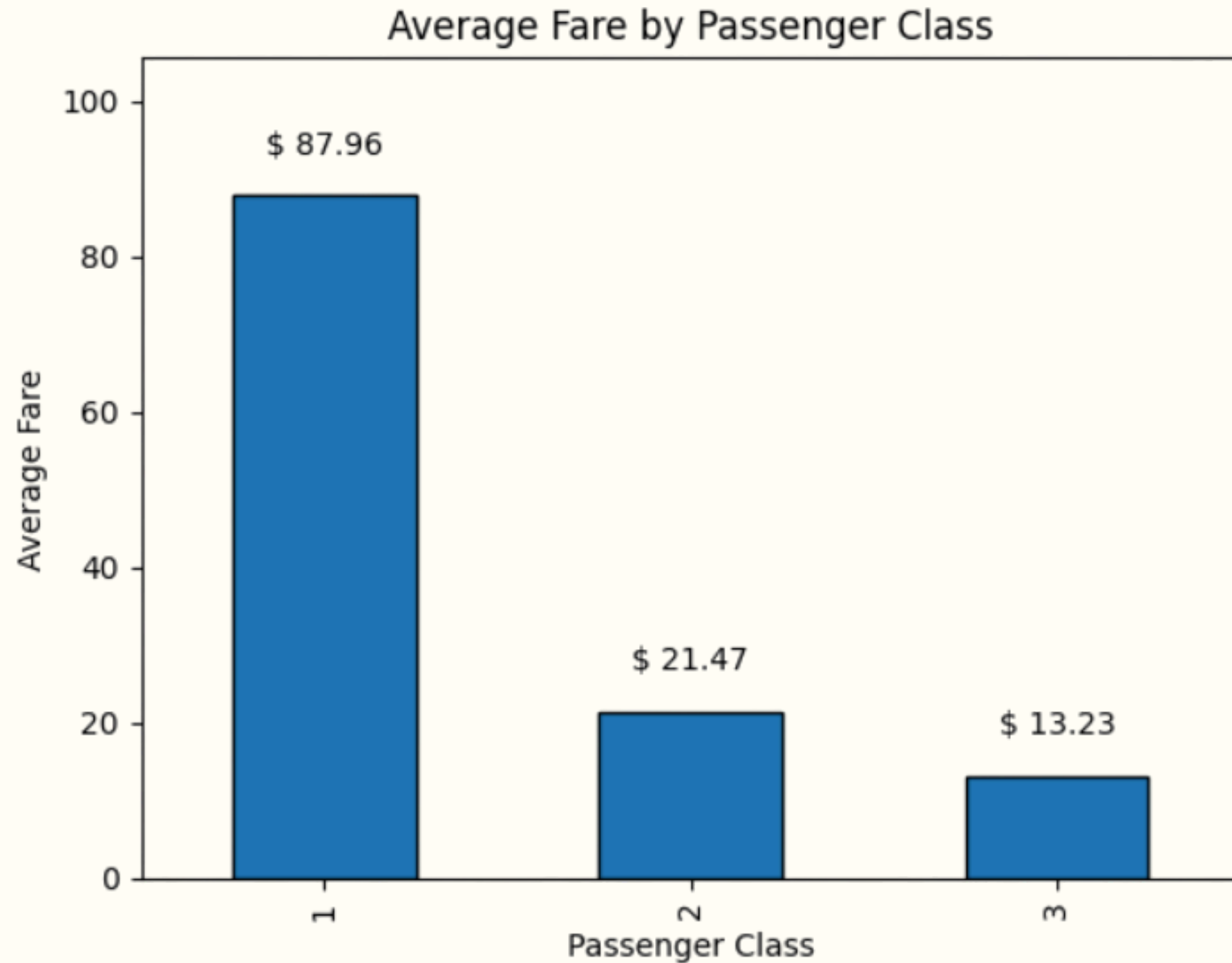
The Titanic disaster of 1912 provides a unique case study for exploring how social and demographic factors influence survival during crises.

By applying data analysis methods, this study aims to uncover patterns and insights that highlight broader themes of inequality, decision-making, and human behavior.

# Objective

The objective of this research is to apply analytical and machine learning approaches to historical data in order to identify patterns, extract meaningful insights, and demonstrate the value of data-driven exploration.

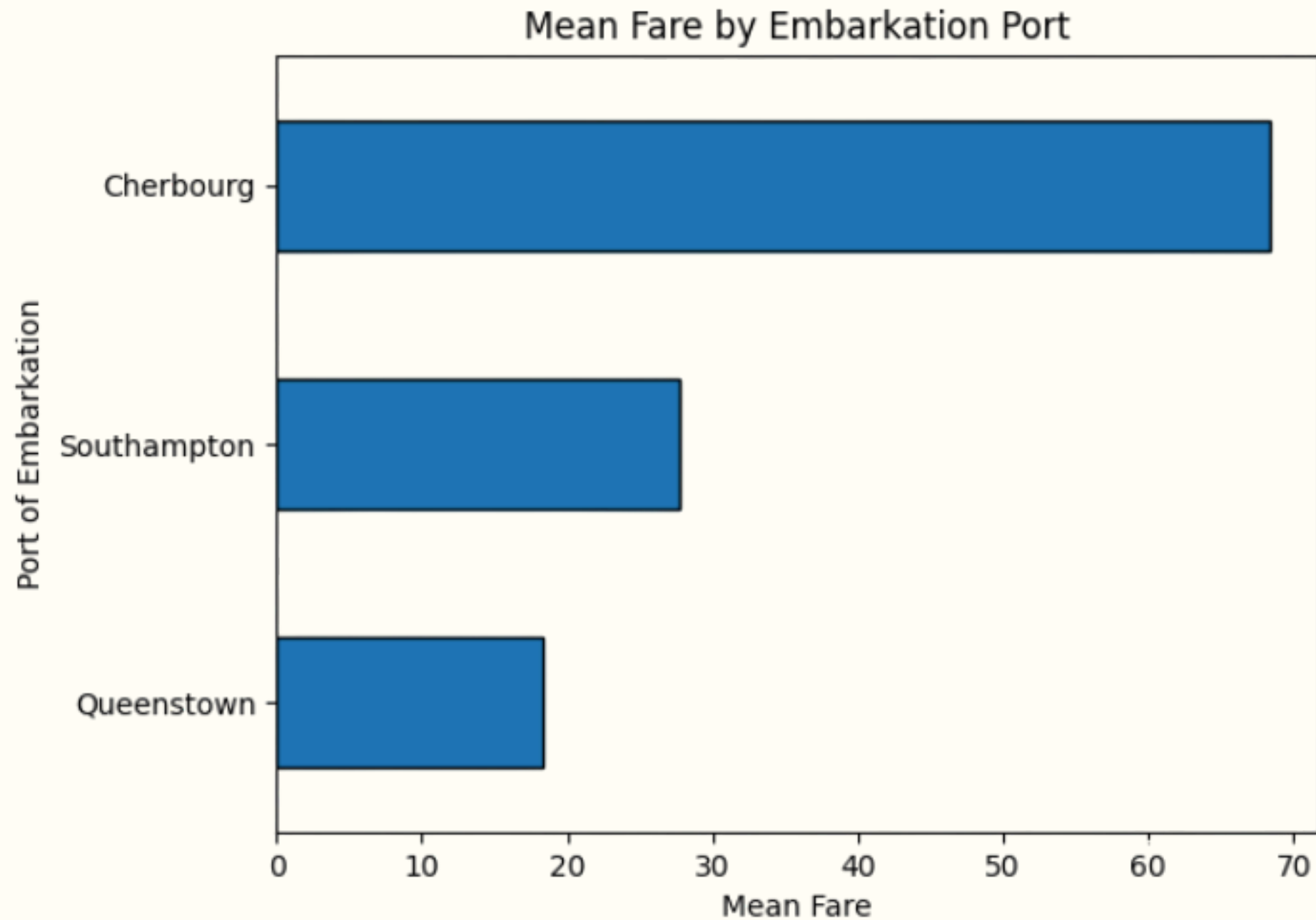
# Economical Analysis



## Class-Based Differences in Passenger Fares

- There is a significant gap in average ticket prices between 1st class and the other classes.
- On average, a **1st-class passenger pays about 6.65 times more than a 3rd-class passenger.**
- This highlights the large disparity in affordability and exclusivity between passenger classes.

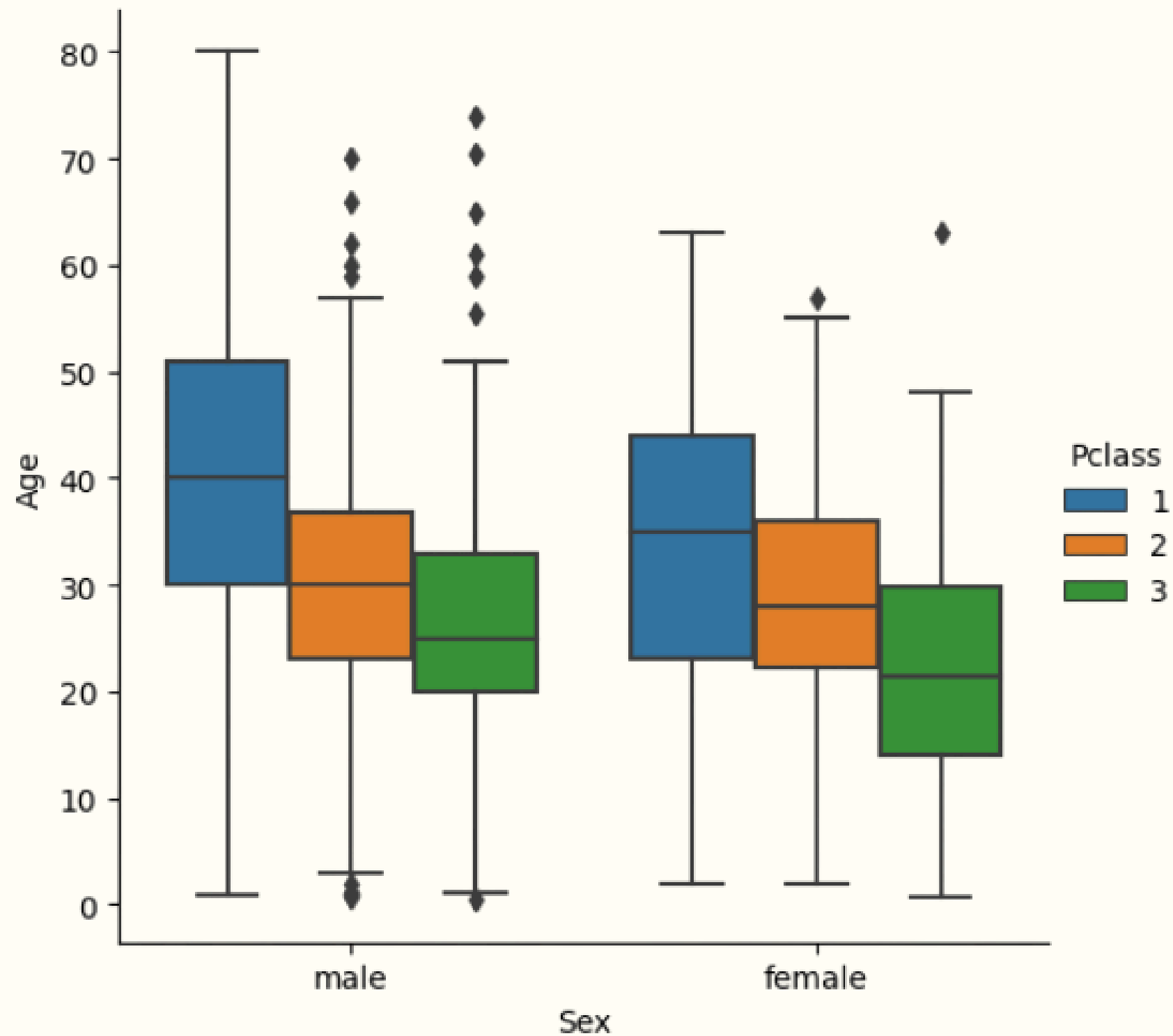
# Economical Analysis



## Wealth and Class Patterns by Embarkation Port

- Passengers from Cherbourg paid the highest fares, while those from Queenstown paid the lowest.
- A passenger's embarkation port strongly correlated with their wealth and class.
- Queenstown mainly served third-class emigrants, while Cherbourg attracted wealthier first-class travelers.

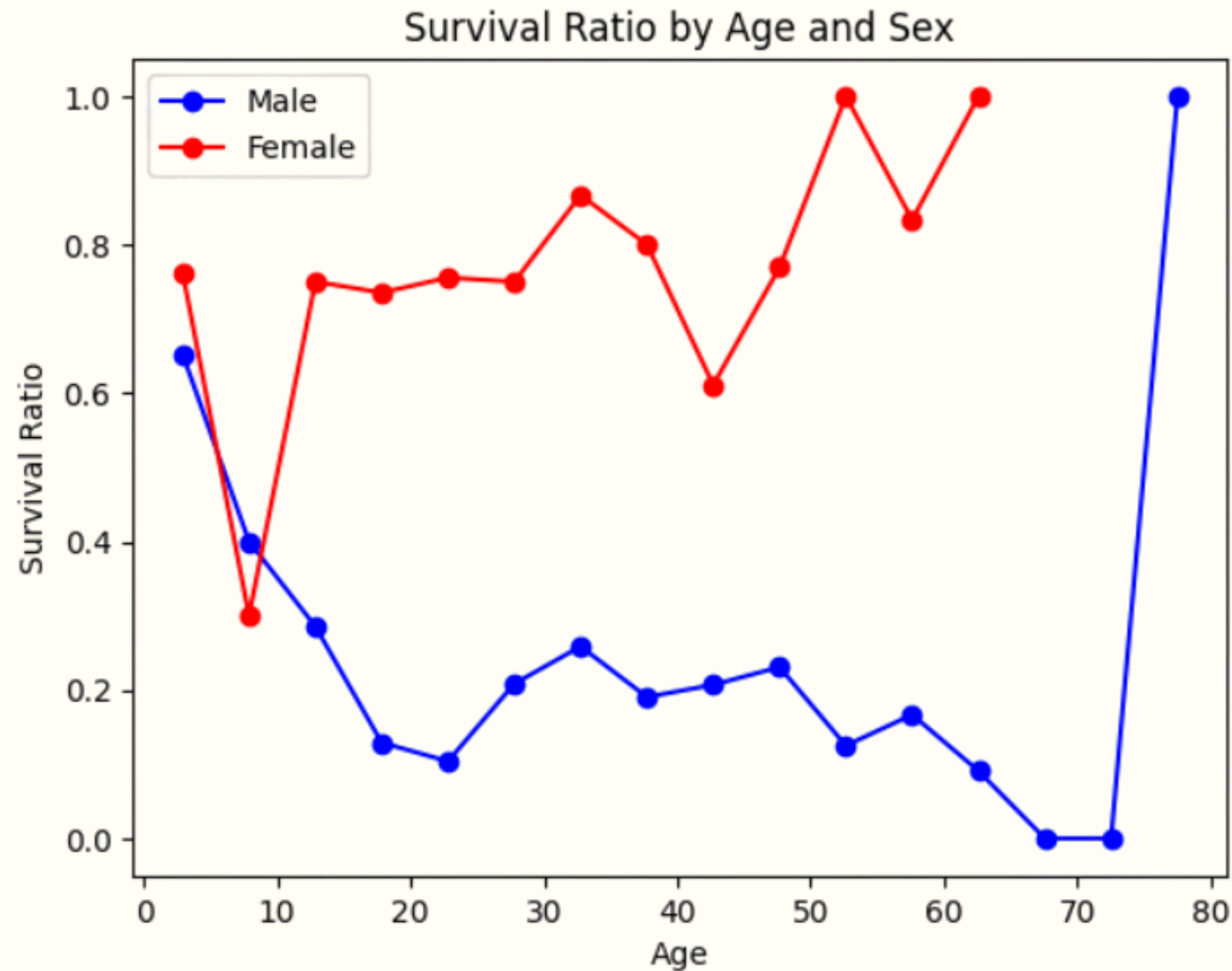
# Economical Analysis



## Economic Insights from Age and Class Structure

- 1<sup>st</sup> class passenger was skewed to be older than other classes
- The youthful profile of third class reflects emigrants— young individuals, couples, and families seeking new lives in America.
- Age differences were driven by class and not gender. Men and women within the same class had similar age profiles.

# Survival Analysis

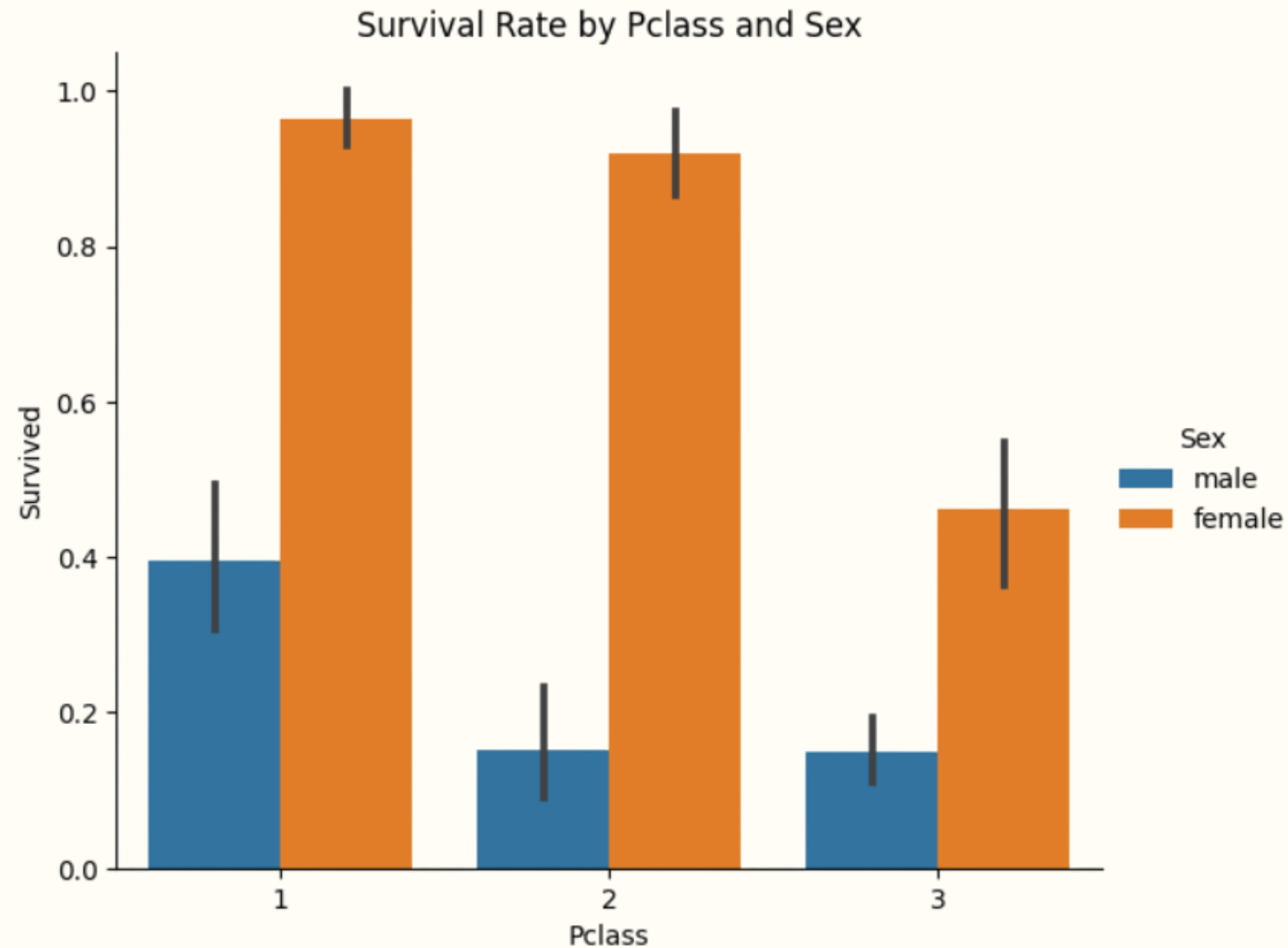


## Gender & Age-Based Survival Patterns on the Titanic

- Men had a much higher mortality rate than women on the Titanic.
- The survival rate of children was similar regardless of gender.
- For passengers aged 15 to 80, survival rates depended significantly on gender, making gender a strong factor.
- Women and children were prioritized during evacuation, following the “women and children first” policy.



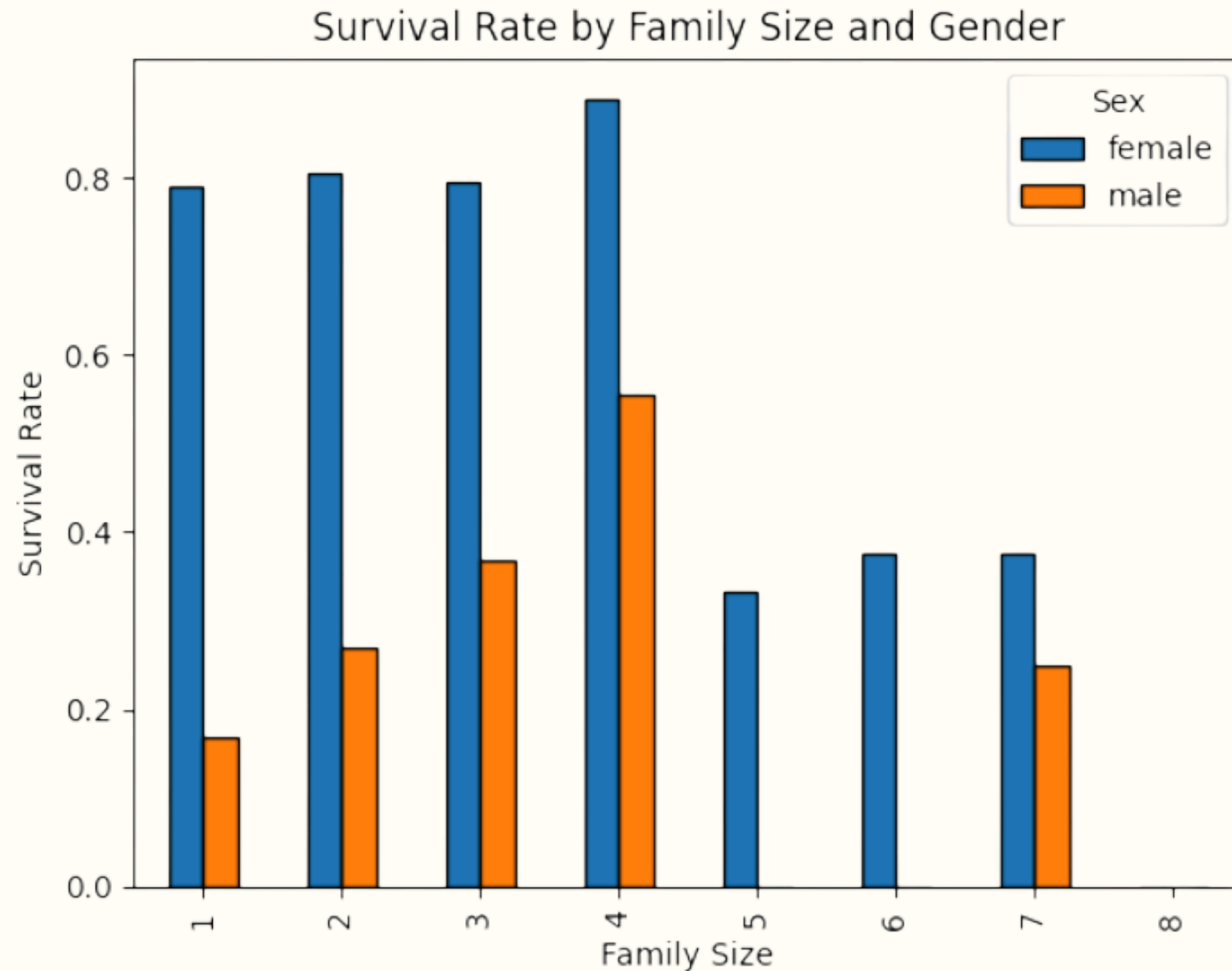
# Survival Analysis



## Class-Based Survival Patterns on the Titanic

- Survival rates consistently decreased as class went down. **First-class passengers of both genders had the best survival odds**, while third-class passengers had the worst.
- A woman in third class had a better chance of surviving (~50%) than a man in first class (~40%).

# Survival Analysis



## Impact of Family Size on Survival Outcomes

- Family size of 2–4 was optimal: small enough to stay together, but with support for survival.
- Men in small families had better survival chances than men alone, who were lowest priority.
- Women were prioritized regardless of family size.
- Large families (5+) show lower survival, but counts are too small for strong conclusions.



# Conclusion

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- Survival strongly correlated with **class, gender, and age**.
- **Wealth and embarkation port** shaped passenger demographics and outcomes.
- **Women and children** were consistently prioritized.
- **Family size** influenced survival, with smaller groups faring better.