Titanic Survival Prediction Model

This project analyzes passenger data from the Titanic disaster to build a predictive model for survival. Using data science techniques, we aim to uncover patterns and make accurate predictions.

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Data Exploration

We examined a dataset of 891 Titanic passengers, including features like class, sex, age, and family size. Initial analysis showed 61.62% of passengers did not survive.

1 **Dataset Size**

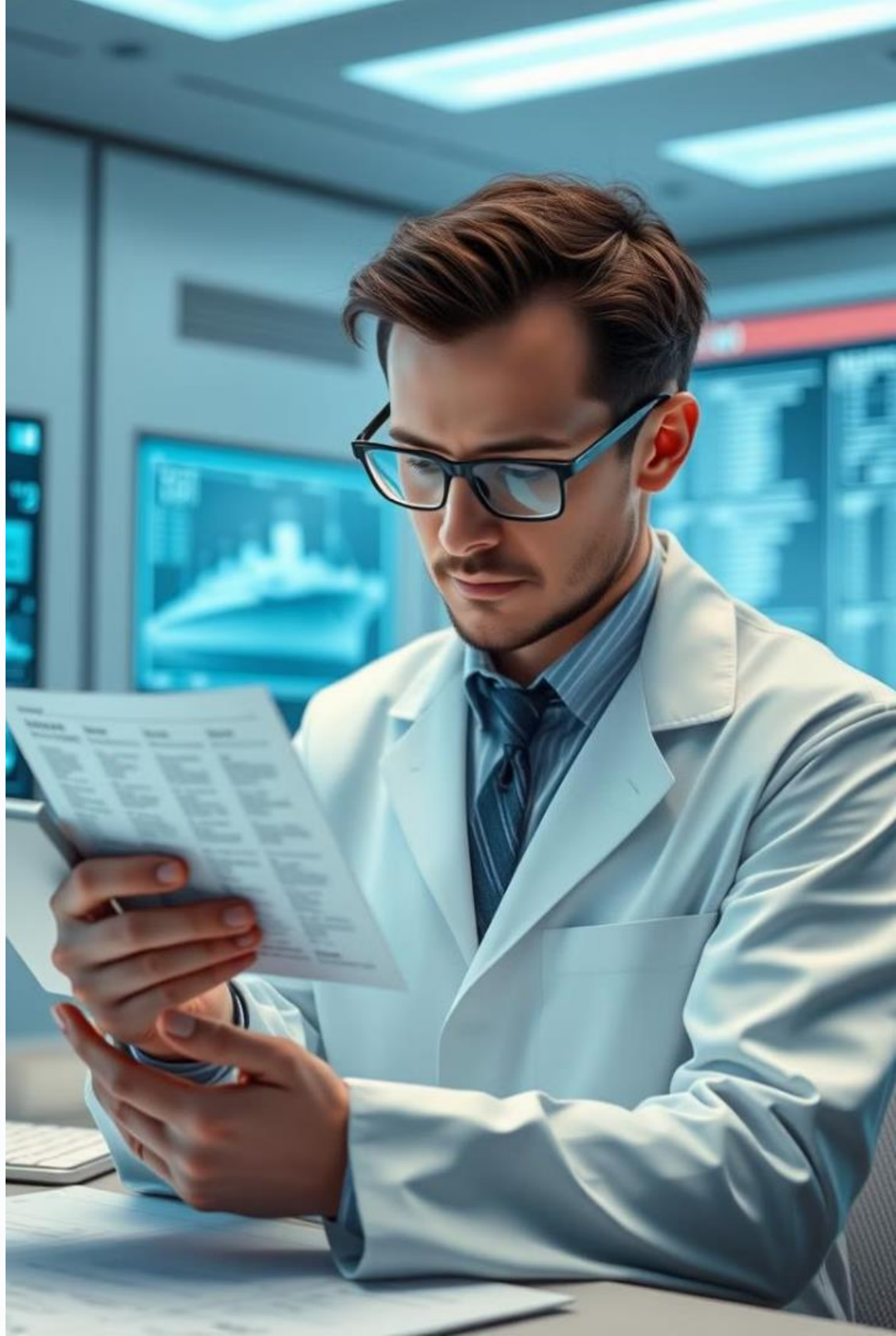
891 passengers

2 **Features**

Class, sex, age, family size

3 **Baseline Survival Rate**

38.38%



Gender Analysis

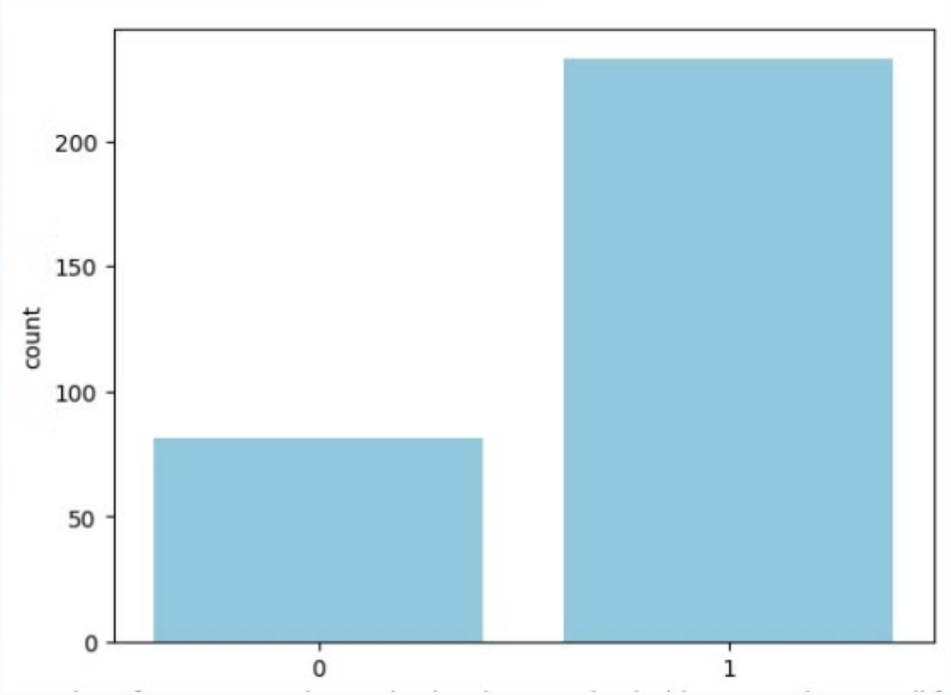
Gender was a significant factor in survival. A majority of female passengers survived, while most male passengers did not.

Female Survival

Most women survived the sinking

Male Survival

Most men did not survive



Age Analysis

Age played a role in survival rates, especially for male passengers. Males under 10 had higher survival rates than older males.

1. **Under 10**

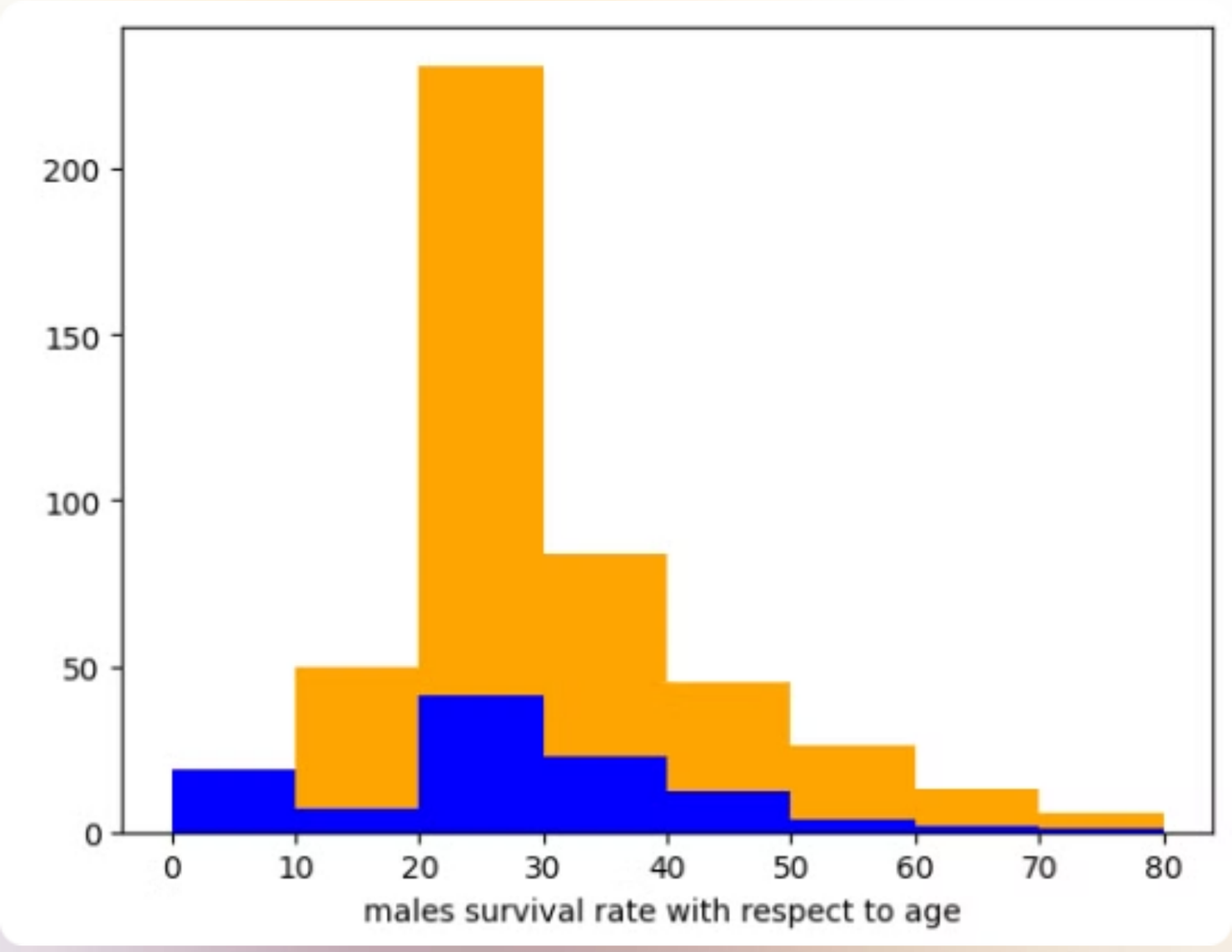
   Higher survival rate for males

2. **10-30**

   Lower survival rate

3. **Over 30**

   Lowest survival rate



Family Size Impact

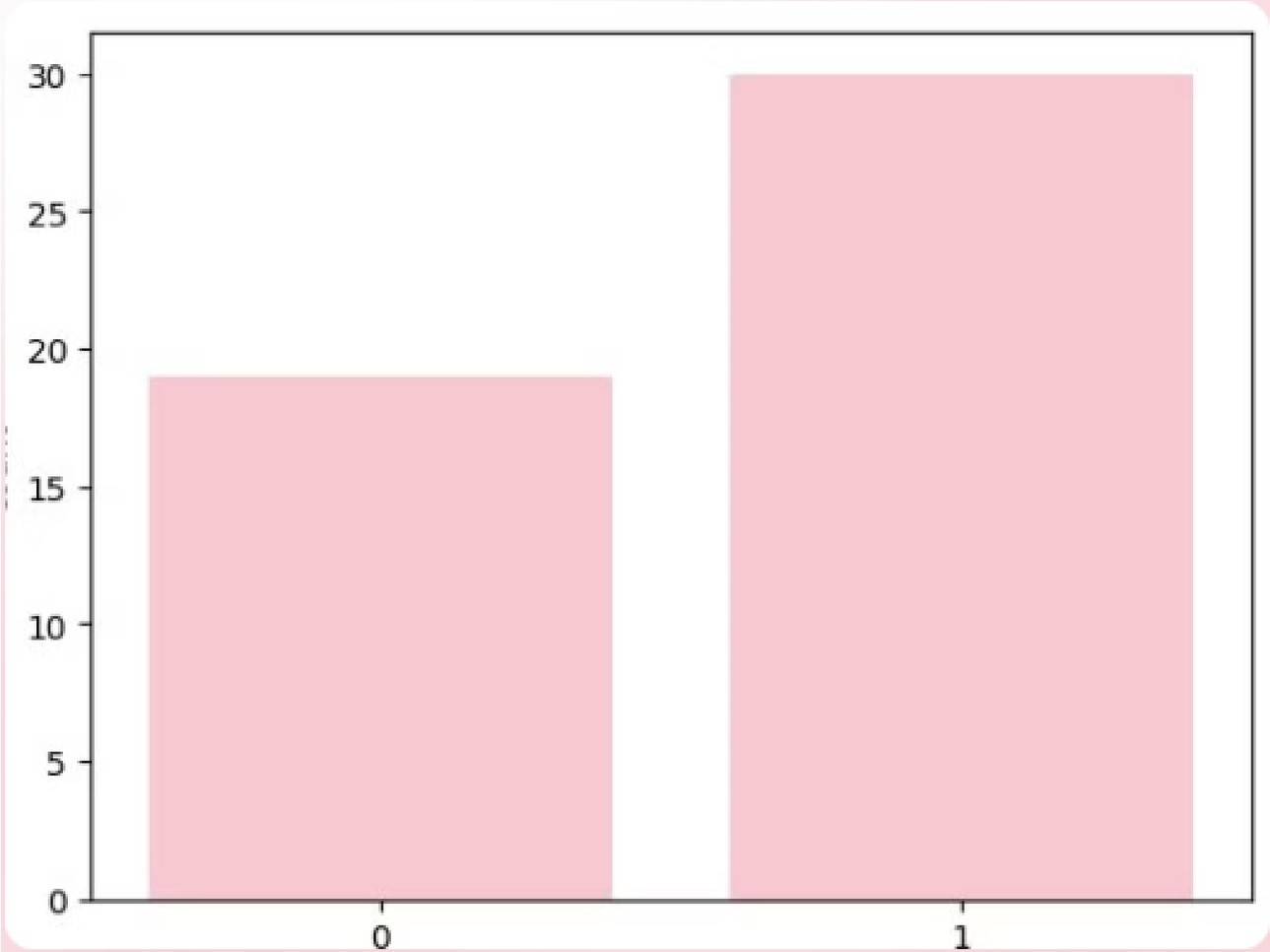
The number of parents/children (Parch) affected female survival rates. Women with fewer than 4 Parch had higher survival rates.

Parch 0-3

Higher female survival rate

Parch 4+

Lower female survival rate



Passenger Class Analysis

Passenger class influenced survival rates, particularly for male passengers. First-class male passengers had higher survival rates than those in other classes.

1

First Class

Higher male survival rate

2

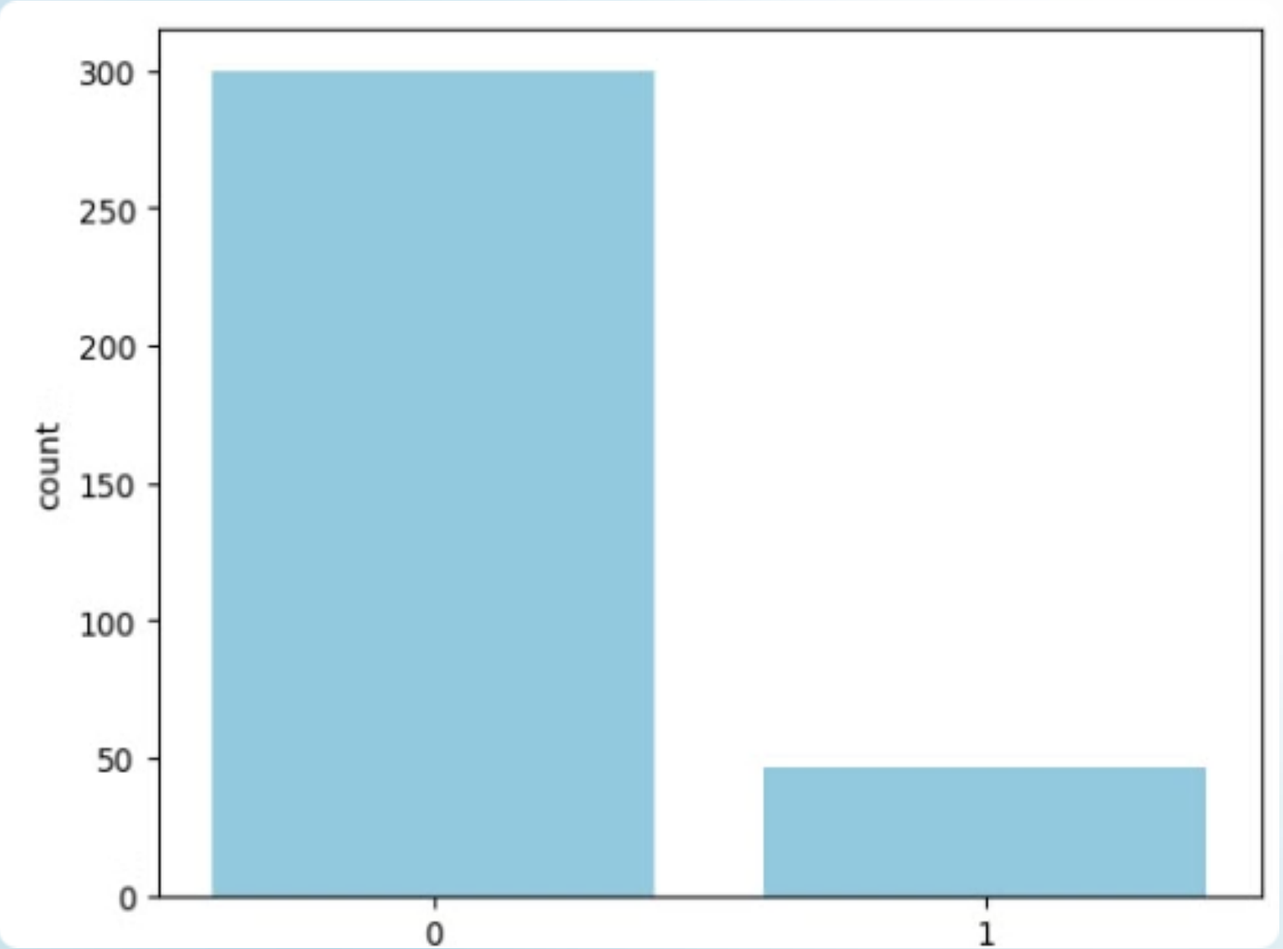
Second Class

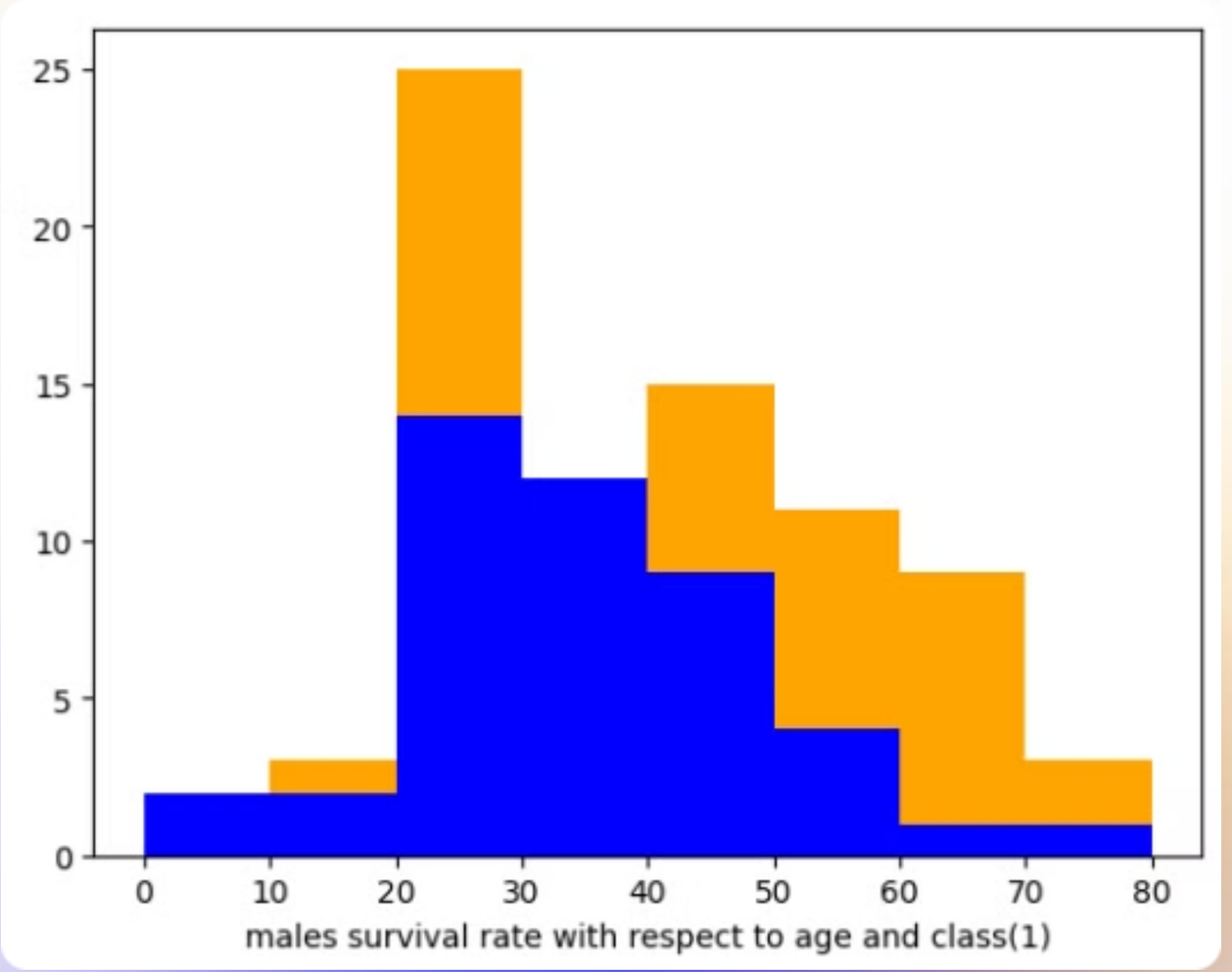
Lower male survival rate

3

Third Class

Lowest male survival rate





Age and Class Interaction

For first-class male passengers, those aged 31-38 had higher survival rates compared to other age groups.

Age Group	Survival Rate
Under 31	Lower
31-38	Higher
Over 38	Lower

Final Prediction Model

The final model predicts survival based on gender, age, class, and family size. It achieved an accuracy of 80.47% on the training data.

Female

Survived if Parch < 4

Male Child

Survived if under 10

First Class Male

Survived if 31-38 years old

Conclusion

Our Titanic survival prediction model achieved an impressive 80.47% accuracy. This demonstrates the power of data science in understanding complex events and making informed predictions.

This analysis provides valuable historical context and can be used to inform future disaster preparedness strategies.

Presentation

Sharing insights from the Titanic survival prediction model

Impact

Using data science to honor and understand historical events

Questions Time

Thank You