

Exploratory Data Analysis – Titanic Dataset

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Task_5

Objective

- **To perform exploratory data analysis on the Titanic dataset.**
- **To identify patterns, trends, and relationships affecting survival.**
- **To understand feature distributions and correlations.**

Dataset Overview

- **Total Observations: 891 passengers**
- **Total Features (after dropping unnecessary columns): 9**
- **Target Variable: Survived (0 = Did Not Survive, 1 = Survived)**
- **Dataset Type: Binary Classification Dataset**

Key Features:

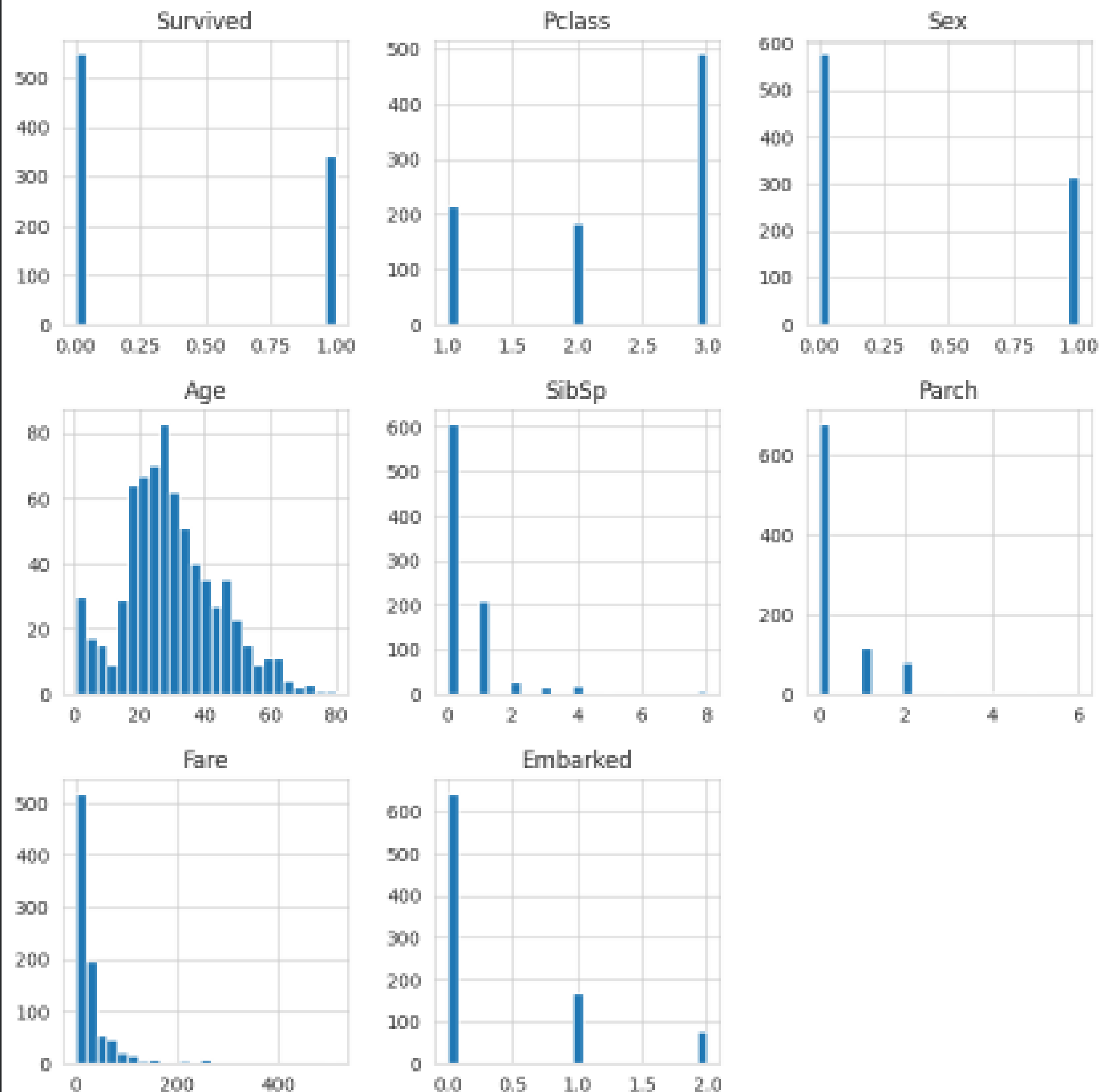
Pclass (Passenger Class), Sex, Age – Age in years, SibSp (Number of siblings/spouses aboard), Parch (Number of parents/children aboard), Fare – Ticket fare, Embarked – Port of boarding, Cabin – Cabin number

Statistical Summary Highlights:

Average Age \approx 29.7 years, Average Fare \approx 32.20, Survival Rate \approx 38.38%

Histograms

- Survival rate is around 38%.
- Majority passengers were from 3rd class and were male.
- Most passengers were aged 20–40 years.
- Most traveled alone (SibSp = 0, Parch = 0).
- Fare is highly positively skewed with noticeable outliers.
- Most passengers embarked from Southampton (S).



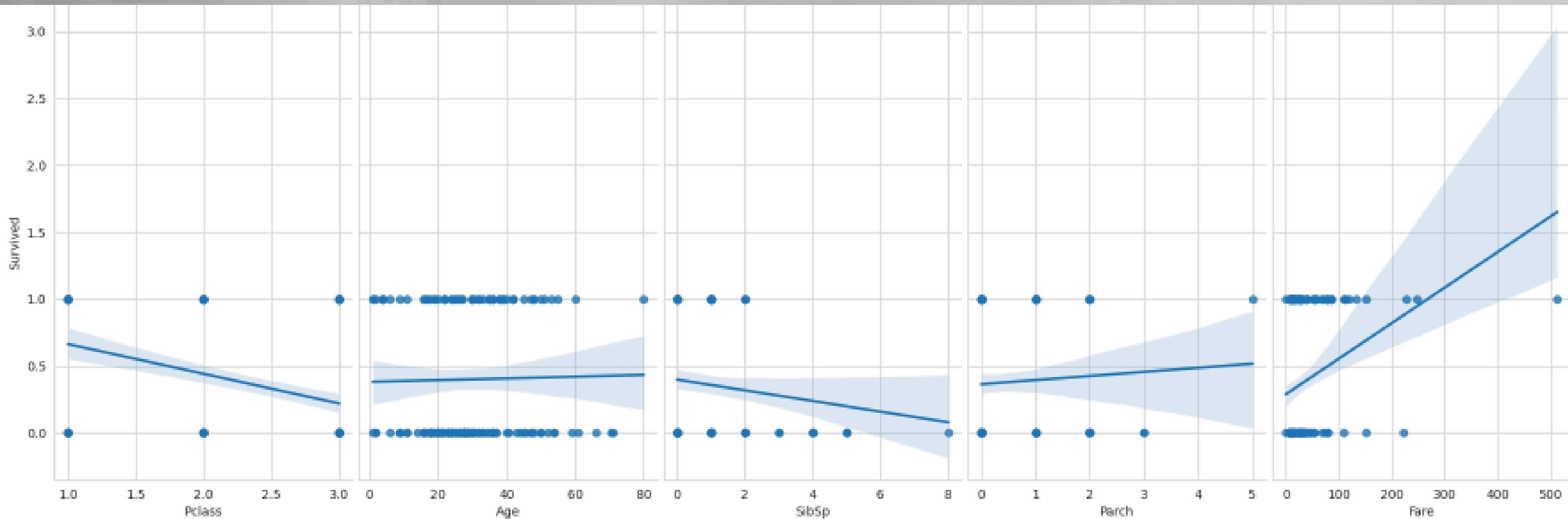
HeatMap

- Sex has strong positive correlation with Survival (~ 0.54).
- Pclass has moderate negative correlation with Survival (~ -0.34).
- Fare shows positive correlation with Survival (~ 0.26).
- Pclass and Fare are strongly negatively correlated (~ -0.55).
- SibSp and Parch show moderate positive correlation (~ 0.41).
- Age has weak correlation with Survival (~ -0.07).

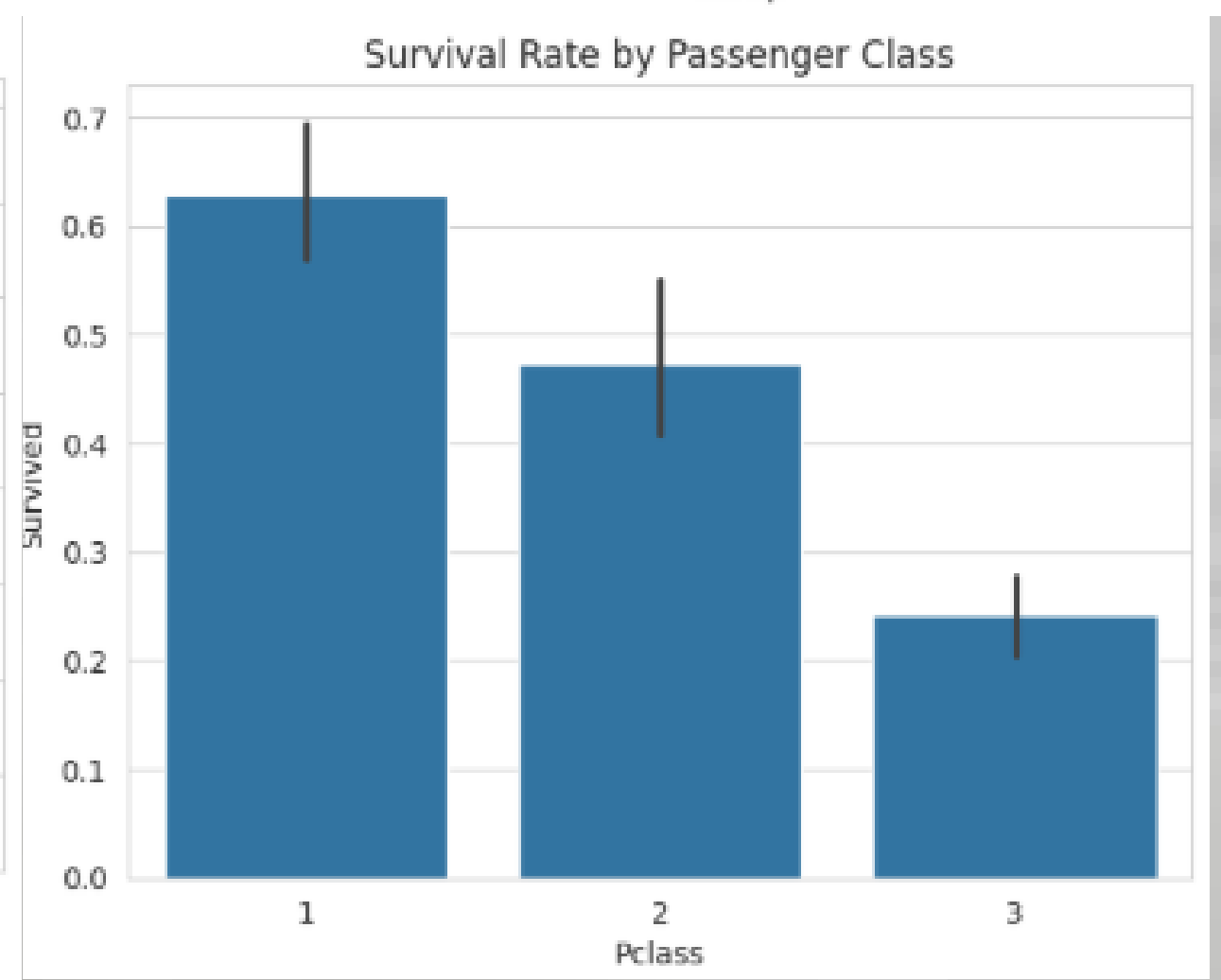
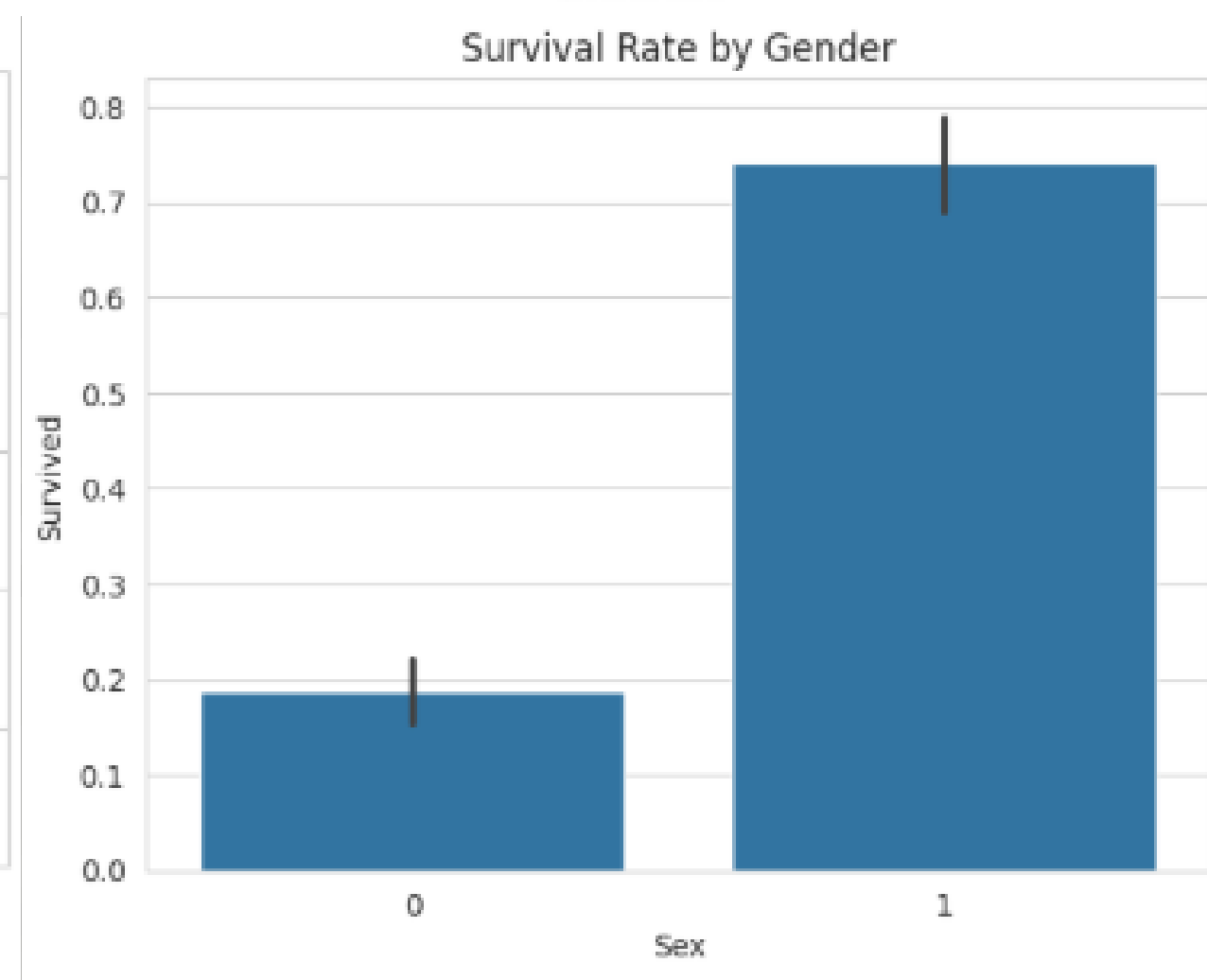
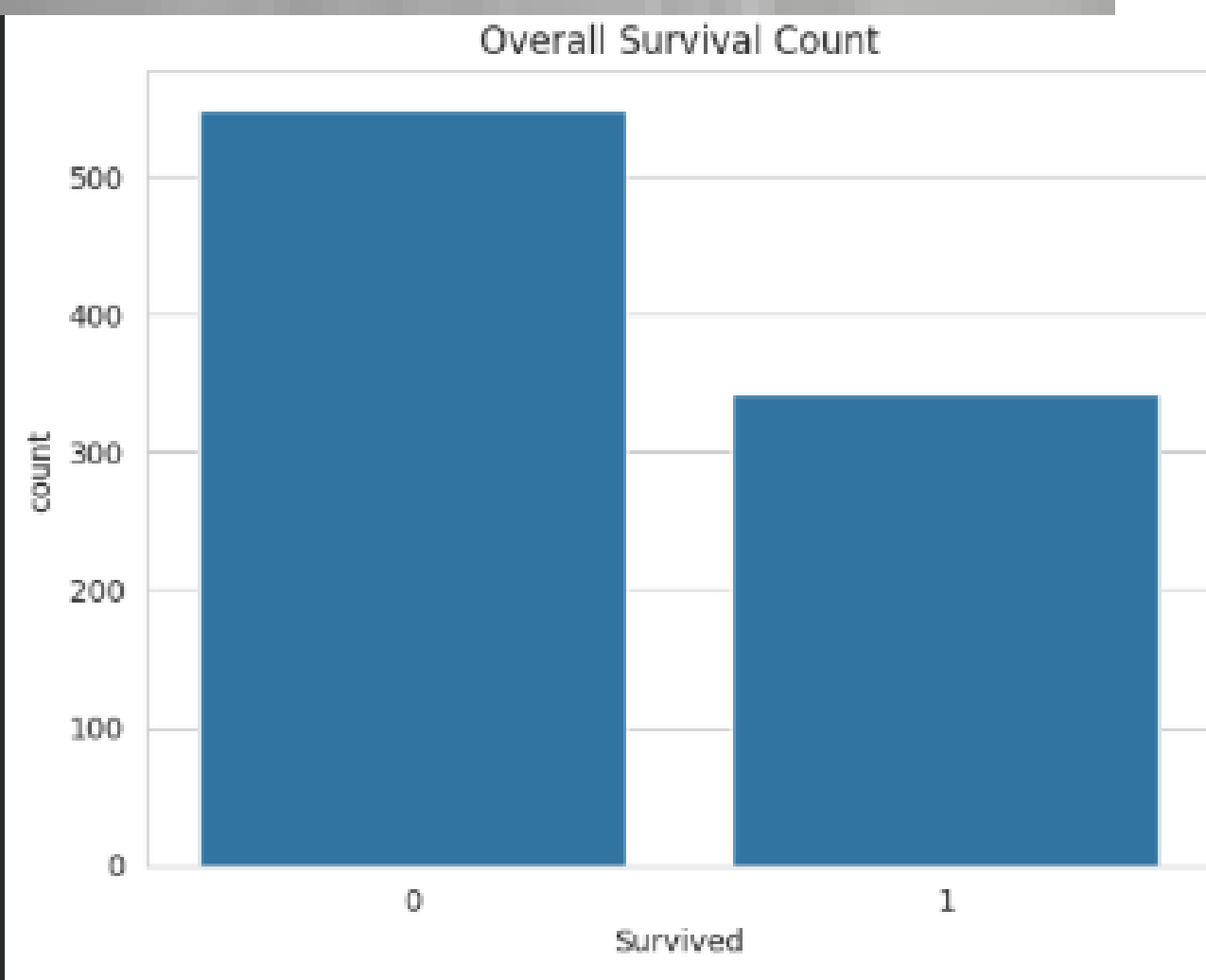
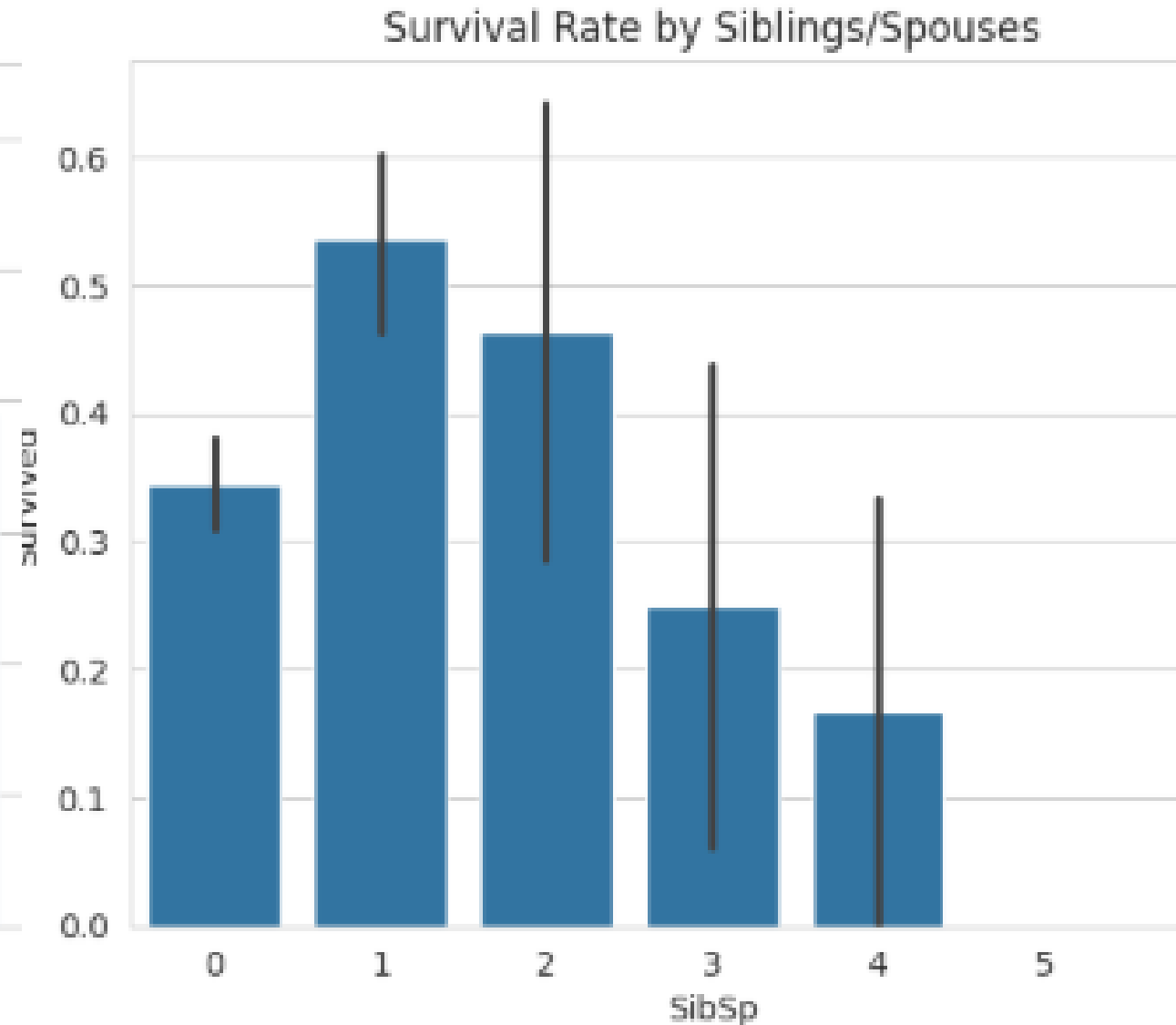
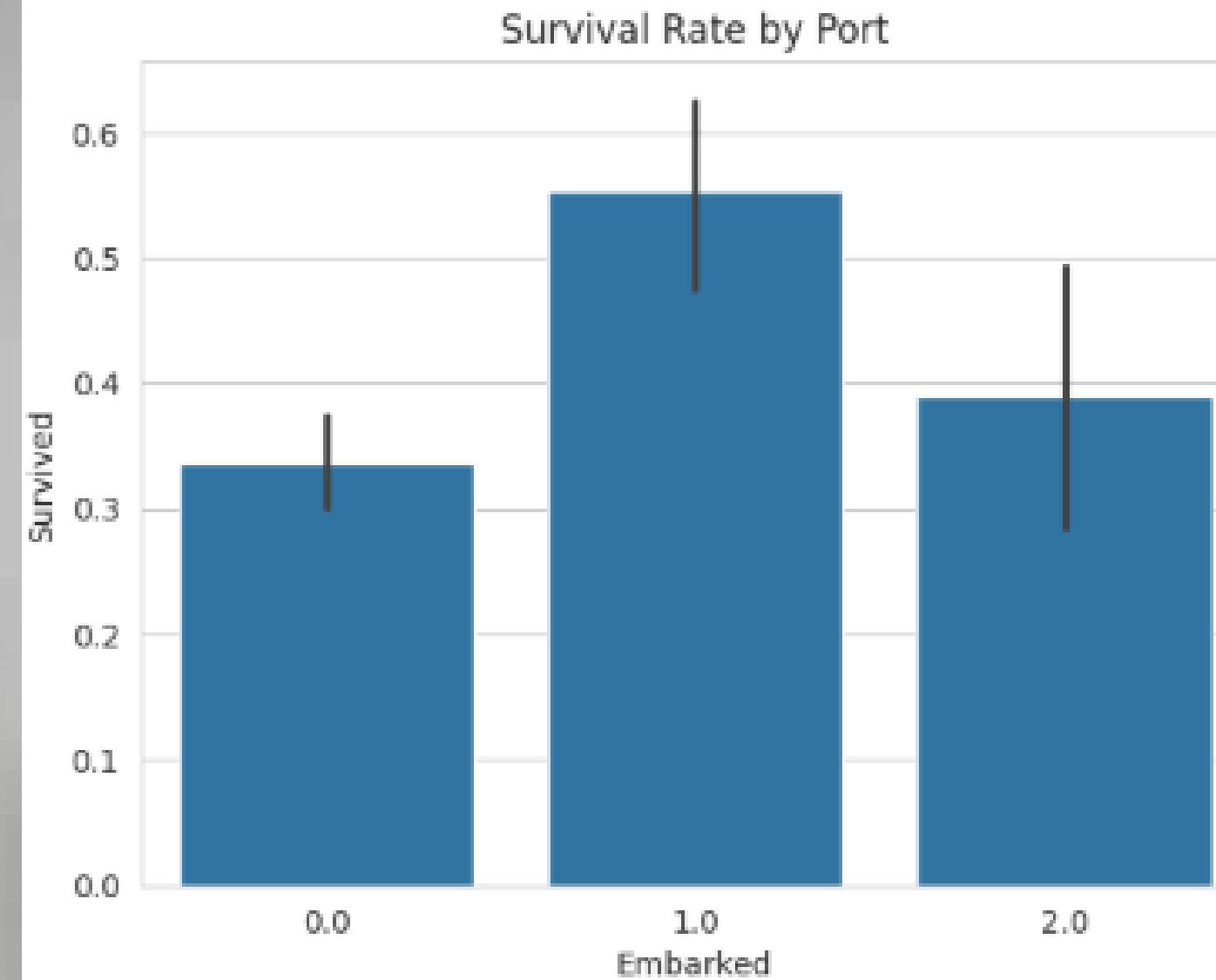


Scatter plot

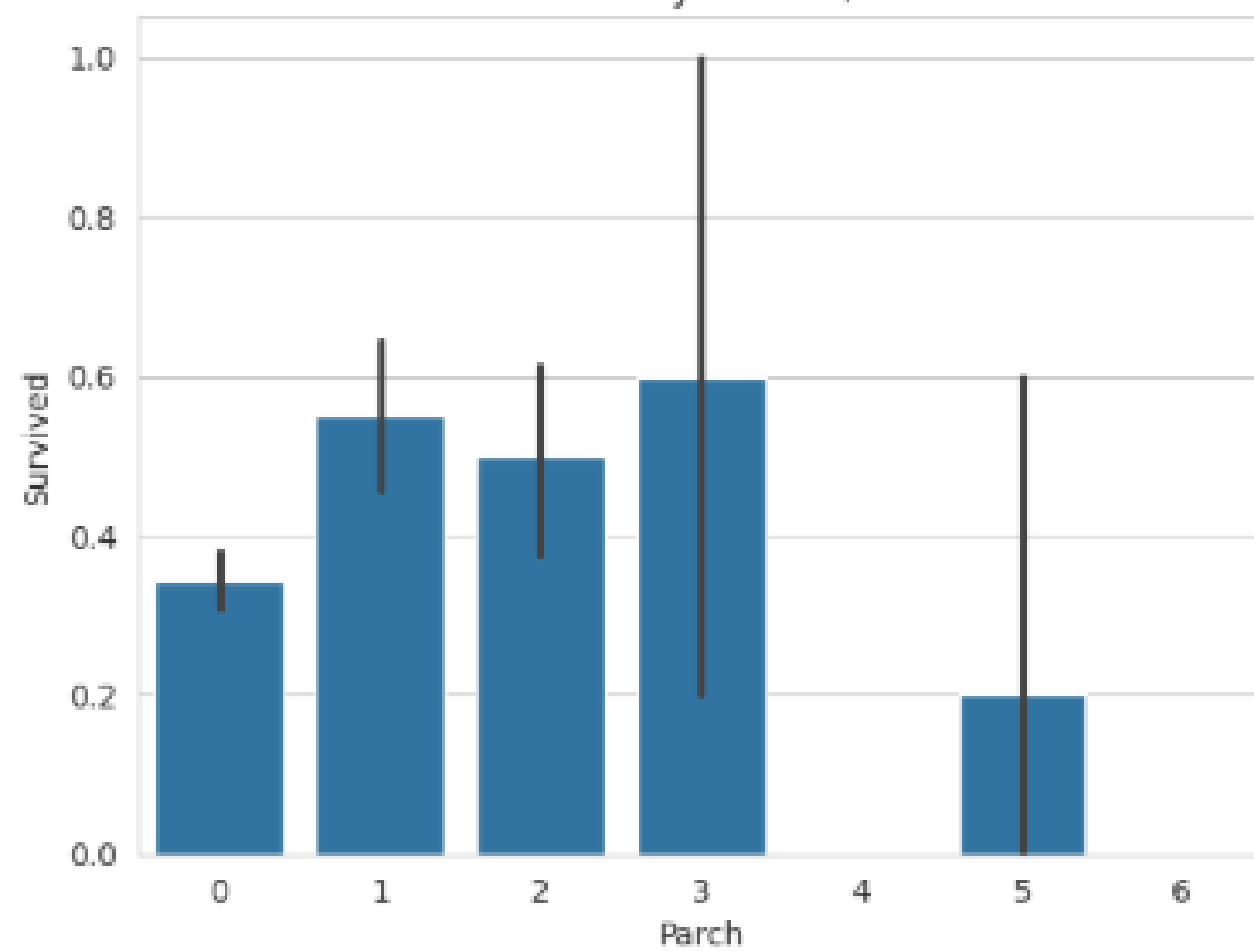
- Survival is higher for 1st class and high-fare passengers, while age and family size show weak influence on survival.



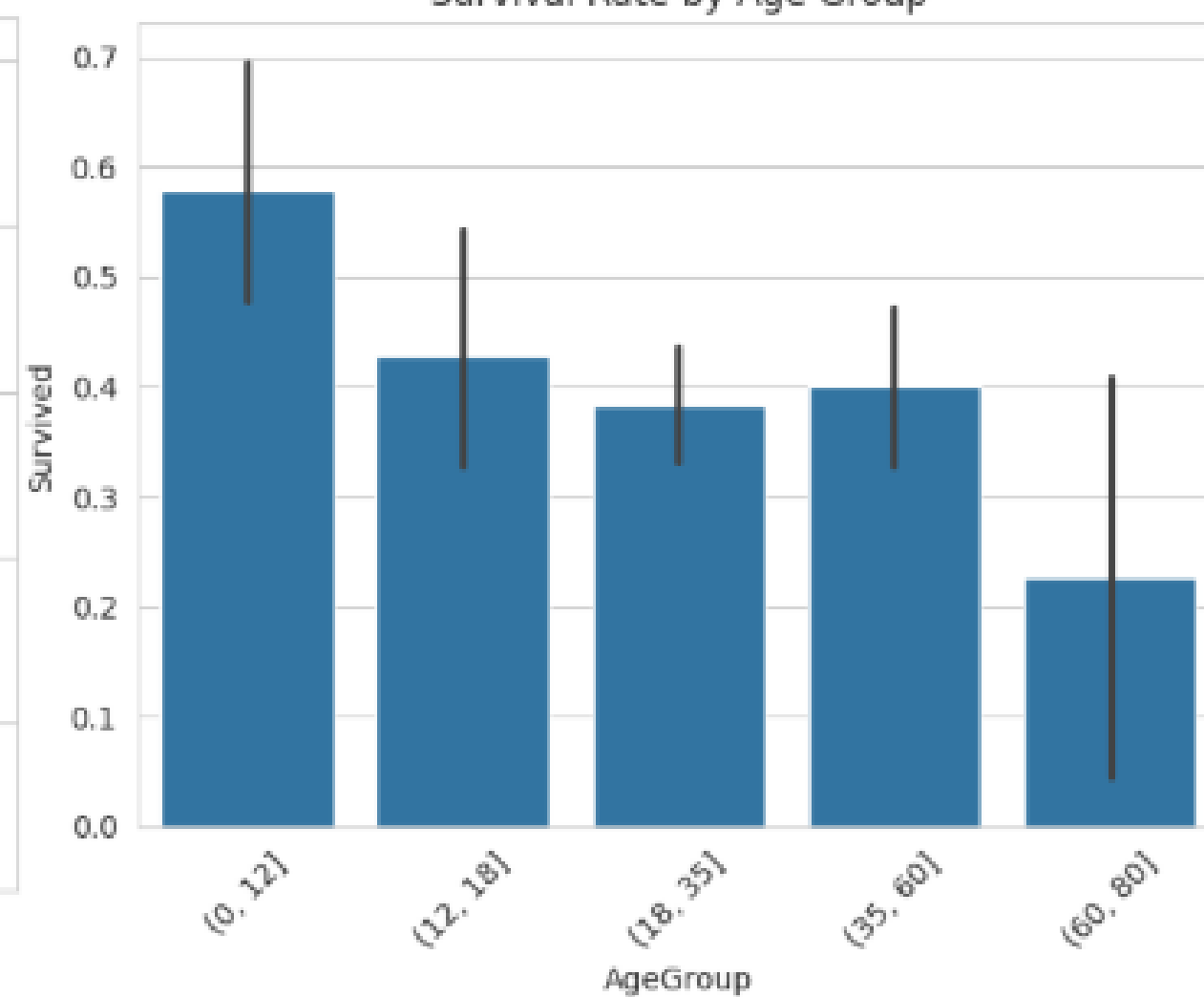
Survival Count Plot, Target vs Feature section



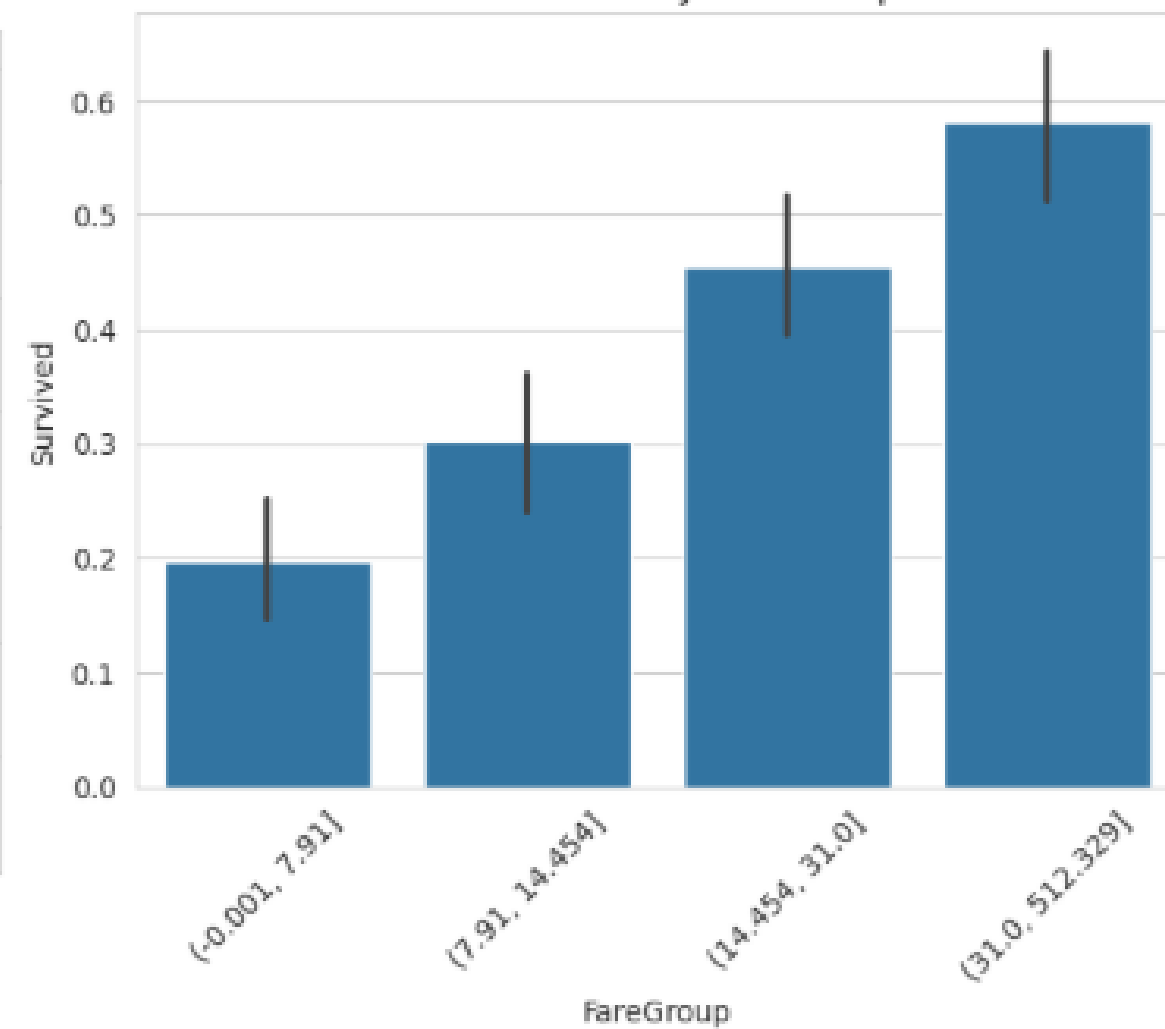
Survival Rate by Parents/Children



Survival Rate by Age Group



Survival Rate by Fare Group



THANK YOU!