Titanic Data Analysis Report

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Summary of Findings

1. Univariate Analysis
- **Survival Rate**: About 38% of passengers survived.
- **Age Distribution**: Most passengers were between 20-40 years old.
- **Gender Distribution**: There were more male passengers than female.

2. Bivariate Analysis
- **Survival by Gender**: A significantly higher percentage of females survived compared to males.
- **Survival by Passenger Class**: First-class passengers had the highest survival rate.
- **Fare vs. Survival**: Survivors tended to have paid higher fares.

3. Multivariate Analysis
- **Age vs Fare by Survival and Gender**: Higher fares and mid-age group passengers had higher survival rates, with a strong gender influence.
- **Violin Plot - Age by Class and Survival**: Younger passengers in higher classes had better survival chances.
- **Pairplot**: Strong correlations seen between fare, class, and survival.

Conclusion
Gender, passenger class, and fare were significant indicators of survival. Female and first-class passengers had a much better chance of survival, highlighting potential prioritization during the evacuation.

This report is based on exploratory data analysis of the Titanic dataset using Python (Pandas, Seaborn, Matplotlib).