

Step E: Observations for Each Visual

1. Histogram of Age and Fare

Observations:

- **Age:**
 - Most passengers were between **20 and 40 years old**.
 - Very few children and elderly passengers.
 - **Fare:**
 - Extremely **right-skewed distribution**.
 - Majority of fares are below **\$100**, with a few outliers above **\$500**.
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2. Boxplots: Age & Fare by Survival

Observations:

- **Age vs Survival:**
 - Slightly **lower median age** among survivors.
 - Wider age range among those who did not survive.
 - **Fare vs Survival:**
 - Survivors paid **significantly higher fares**.
 - More **high-fare outliers** among survivors — indicating wealth (and likely class) played a big role.
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3. Scatterplot: Age vs Fare (Hue = Survival)

Observations:

- High survival seen among **younger passengers** with **higher fares**.
 - **Low fare + older age** correlates with lower survival.
 - Clear cluster of survivors around **low age & mid-to-high fare** — possibly wealthy families with children.
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4. Survival Rate by Port of Embarkation

Observations:

- **Cherbourg (C)** passengers had the **highest survival rate**.

- **Southampton (S)** passengers had the **lowest**.
 - This trend reflects a possible correlation with **ticket class** — wealthier passengers (more likely to survive) may have embarked from Cherbourg.
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5. Survival Rate by Class and Sex

Observations:

- **First-class passengers** survived significantly more than those in third class.
 - **Females** had much higher survival rates — a strong gender-based survival bias.
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Step F: Summary of Findings

1. Key Determinants of Survival

Feature	Influence on Survival
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Sex	Females more likely to survive
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Pclass	Higher class → higher survival
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Fare	Higher fare correlates with survival
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Age	Younger passengers (especially children) had higher survival
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Embarked	Cherbourg passengers survived more
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2. Strongest Predictive Features

- Sex, Pclass, Fare are the strongest indicators.
 - Visuals showed **clear separation in survival rates** across these features.
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3. Outliers & Skews

- Fare data is **highly skewed**.
 - Some outliers exist in both Fare and Age, especially among survivors.
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4. Correlations

- Strong correlation between Pclass and Fare.
- Sex and Survived are strongly related — suggesting gender-based boarding/rescue policies.

✓ **Final Insight:**

Survival on the Titanic was **heavily influenced by social status (class), gender, and fare paid** — reflecting a historic bias in survival favoring wealthy, female passengers.