**1. describe() and info()**

* Age, Fare, SibSp, Parch are numerical.
* Many missing values in Age, Cabin.
* Survived, Pclass, Sex are key for survival prediction.

**2. value\_counts()**

* Likely used to inspect distribution of categorical features like Survived, Pclass, Sex.
  + More people **did not survive (Survived = 0)** than those who did.
  + Most passengers were in **3rd class**.

**3. Pairplot (sns.pairplot)**

This gives a grid of scatterplots and histograms for numeric columns.

**Observations:**

* **Fare** is positively skewed (many low fares, few very high ones).
* **Age vs Fare** shows no strong linear trend.
* You might see **clustering in Survived**: e.g., younger passengers possibly survived more.

**4. Heatmap (Correlation Matrix)**

Key correlations:

* Fare and Pclass: **Negative correlation** (higher class → higher fare).
* SibSp and Parch: moderately positively correlated (families traveled together).
* Survived has weak correlations with most numeric features, but:
  + Slight positive with Fare
  + Slight negative with Pclass

**Interpretation:**

* **People who paid higher fares (higher class) were more likely to survive.**
* Survival is **not strongly predicted** by just numerical columns—categorical features like Sex, Embarked are also important.

**5. Histogram of Age**

* Bell-shaped, but skewed to the right.
* Peak around **20–30 years old**.

| **Feature** | **Trend / Insight** |
| --- | --- |
| **Age** | Younger passengers dominate, but age alone doesn’t clearly predict survival. |
| **Fare** | Most passengers paid a low fare. High fare = more likely 1st class = better survival odds. |
| **Pclass** | More 3rd class passengers. Lower class → lower survival rate. |
| **Sex** | Not plotted here, but typically **females had higher survival** rates (check this with a bar plot). |
| **SibSp/Parch** | Passengers with small family groups (1–2) may have had higher survival. |

* Fewer older passengers.