**The description**

**Sns.pairplot:**

The sns.pairplot() is a scatterplot matrix that visualizes the relationships between different numerical features in the dataset. In this chart, each variable is plotted against the others, with a diagonal showing the distribution of individual variables. The data points are colored based on the Survived column, which indicates whether the passenger survived or not.  
  
**Bar Plot(Survival Count):**  
In this bar plot it shows the distribution of the Survived variable, where the x-axis represents the survival status (0 = not survived, 1 = survived) and the y-axis represents the count of passengers in each category. The plot visually compares the number of survivors versus non-survivors in the dataset. From this plot, I have analyzed that majority of passengers did not survive, as the count for Survived = 0 is significantly higher than for Survived = 1.   
  
**Bar Plot (Survival by Passenger):**  
In this plot it shows the relationship between passenger class (Pclass) and survival status (Survived). The x-axis represents the different passenger classes (1, 2, and 3), while the y-axis shows the count of passengers in each class, with bars split by survival status (hue='Survived' and blue = ‘not survived’).

From this plot I have observed that passengers in **Pclass 1** (first class) had a much higher survival rate compared to those in **Pclass 3** (third class). Most of the survivors are from **Pclass 1**, while the majority of **Pclass 3** passengers did not survive. **Pclass 2** (second Class) shows an intermediate survival distribution.

**Histogram (Age Distribution):**

This chart shows the distribution of the "Age" column, with the x-axis representing ages and the y-axis showing their frequency. This histogram displays the counts, while a smooth kernel density estimate (KDE) curve highlights the overall shape of the distribution. The chart helps visualize the central tendency, spread, and any skewness in the age data.

**Histogram (Fare Distribution):**

This chart displays the distribution of the "Fare" column, with fare values on the x-axis and their frequency on the y-axis. This histogram shows the counts, while a KDE curve provides a smoothed view of the distribution, helping to highlight trends, peaks, spread, central tendency, and potential outliers.

**Box plot (Age vs Survived):**

In this chart it display the relationship between two variables, "Age" and "Survived," from a dataset using a boxplot. This chart is plotted with "Survived" as the categorical variable on the x-axis and "Age" as the continuous variable on the y-axis. The boxplot displays the distribution of ages for both groups of individuals—those who survived and those who did not.

**Box plot (Fare vs Survived):**

In this chart it compares the distribution of passenger Fare based on survival status in the dataset df. In this plot, the x-axis represents whether a passenger survived (typically 0 = did not survive, 1 = survived), and the y-axis represents the fare amount. From the box plot, it showed that passengers who survived generally paid higher fares than those who did not survive.  
  
**Scatter Plot (Age vs Survived):**  
In this plot it shows the relationship between passengers' age and the fare they paid, with the points colored according to survival status. The x-axis represents the age of the passengers, ranging from 0 to about 80 years, while the y-axis shows the fare amount, which goes up to over 500. Blue dots indicate passengers who did not survive, whereas orange dots represent those who survived.

**Heat Map:**  
In this Map it shows relationships between different variables in a dataset based on the variable names like *PassengerId*, *Survived*, *Pclass*, *Age*, *SibSp*, *Parch*, and *Fare*. Each cell in the heatmap contains a correlation coefficient ranging from -1 to 1, where 1 indicates a perfect positive correlation and -1 indicates a perfect negative correlation. The color scale on the right visually represents these values, with warmer colors (red) showing positive correlations and cooler colors (blue) showing negative correlations.