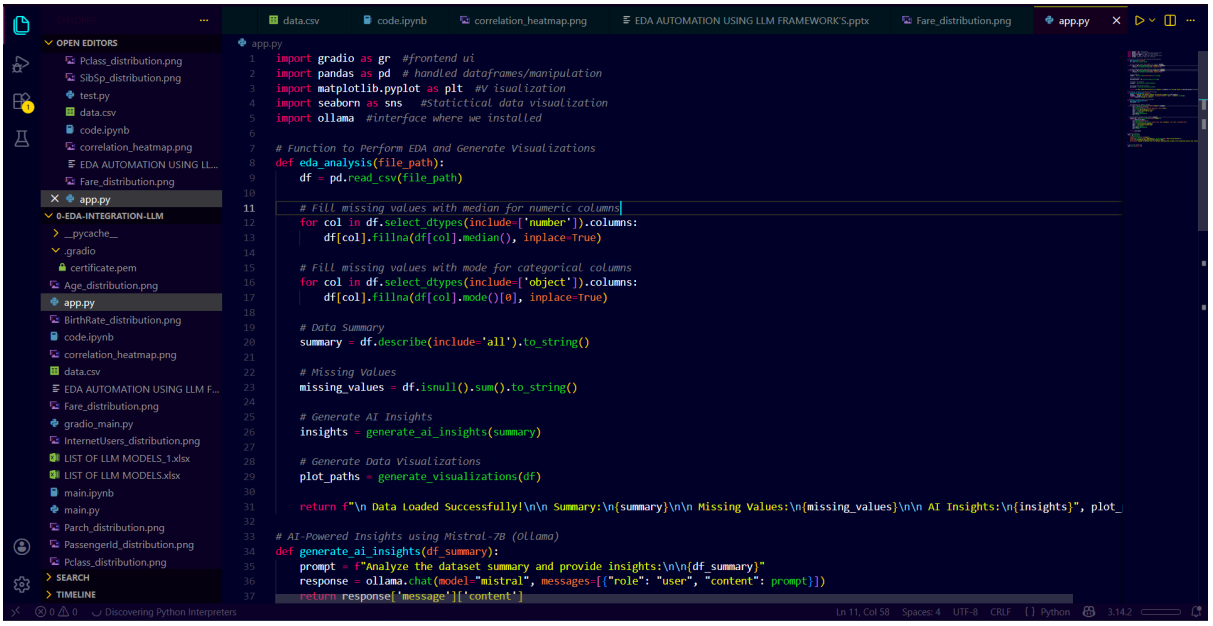
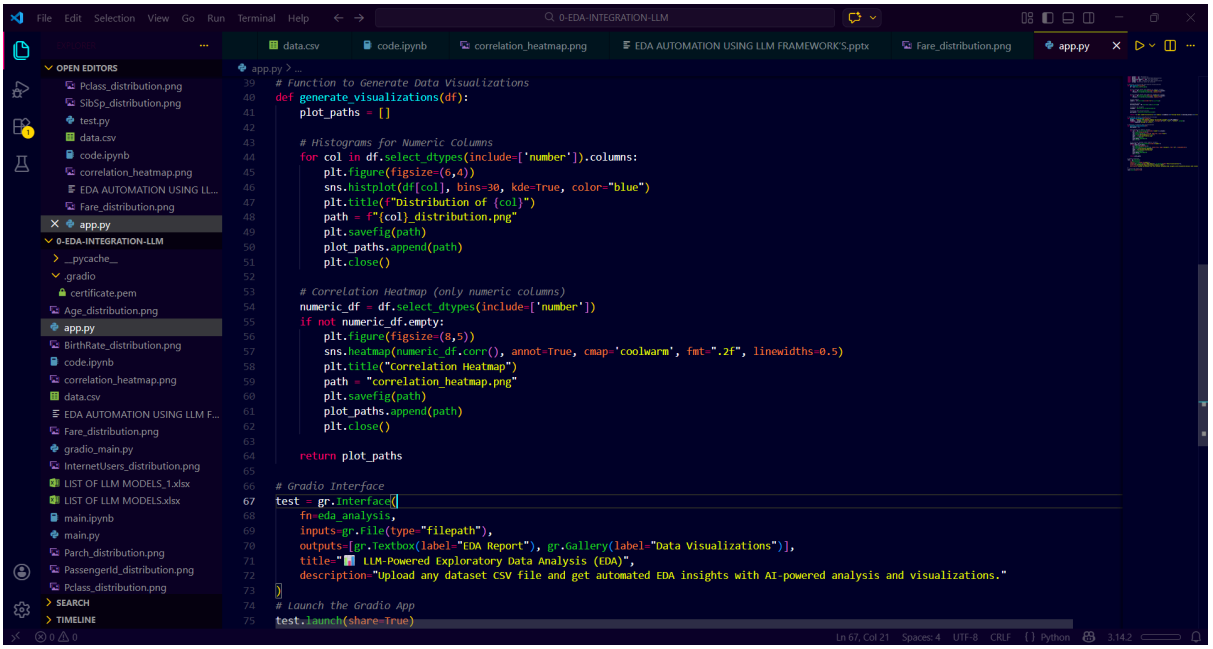
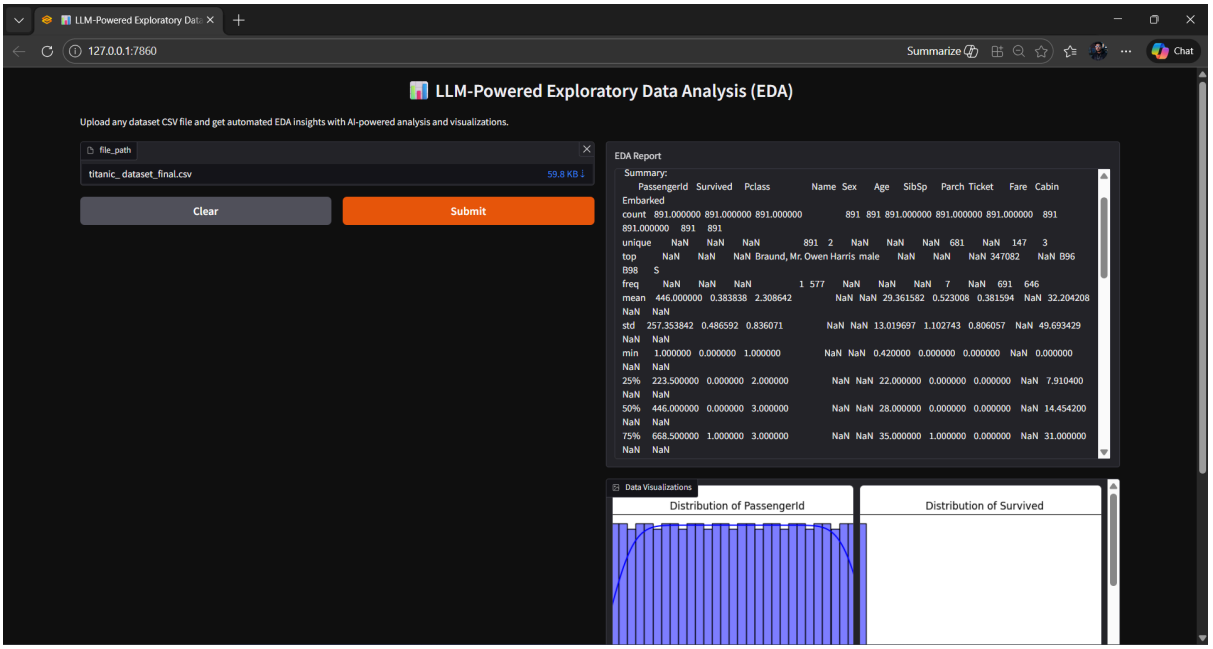
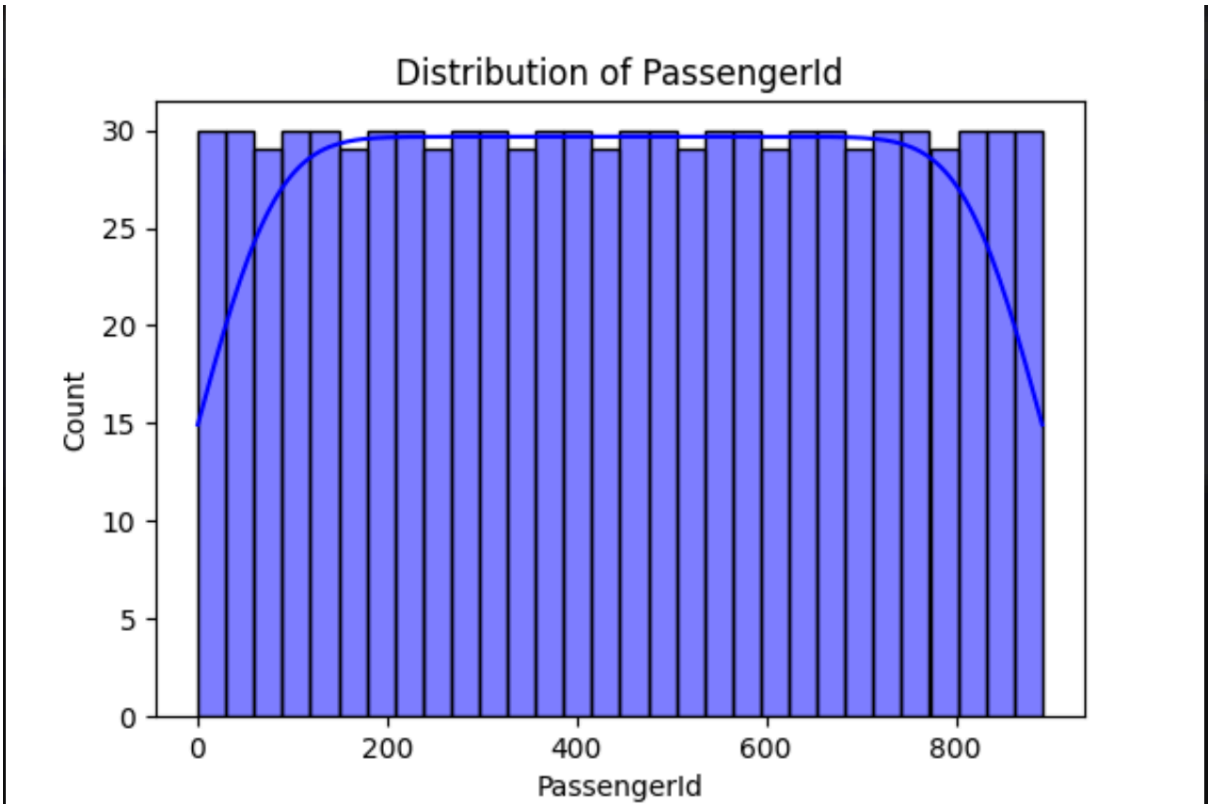


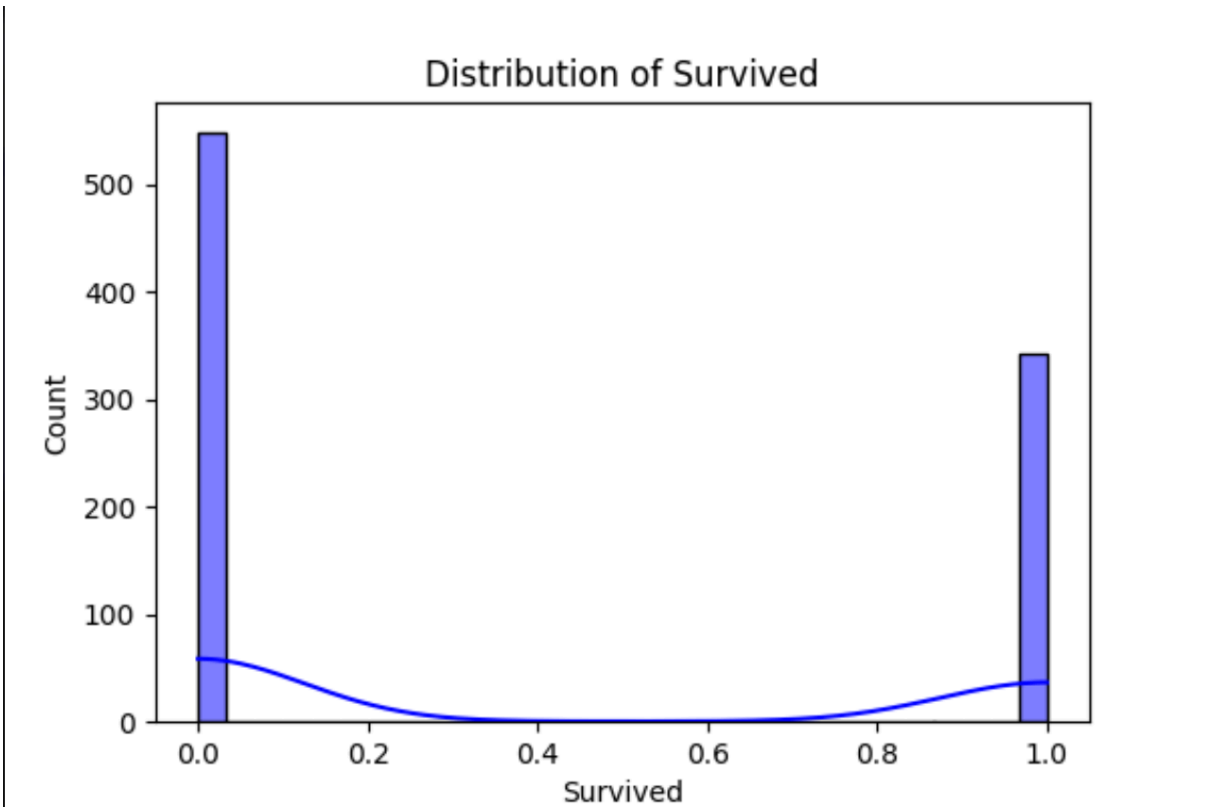
```python
import gradio as gr  #frontend ui
import pandas as pd  # handled dataframes/manipulation
import matplotlib.pyplot as plt  #V isualization
import seaborn as sns   #Statictical data visualization
import ollama  #interface where we installed

# Function to Perform EDA and Generate Visualizations
def eda_analysis(file_path):
    df = pd.read_csv(file_path)

    # Fill missing values with median for numeric columns
    for col in df.select_dtypes(include=['number']).columns:
        df[col].fillna(df[col].median(), inplace=True)

    # Fill missing values with mode for categorical columns
    for col in df.select_dtypes(include=['object']).columns:
        df[col].fillna(df[col].mode()[0], inplace=True)

    # Data Summary
    summary = df.describe(include='all').to_string()

    # Missing Values
    missing_values = df.isnull().sum().to_string()

    # Generate AI Insights
    insights = generate_ai_insights(summary)

    # Generate Data Visualizations
    plot_paths = generate_visualizations(df)

    return f"\n Data Loaded Successfully!\n\n Summary:\n{summary}\n\n Missing Values:\n{missing_values}\n\n AI Insights:\n{insights}", plot_

# AI-Powered Insights using Mistral-7B (OLLama)
def generate_ai_insights(df_summary):
    prompt = f"Analyze the dataset summary and provide insights:\n\n{df_summary}"
    response = ollama.chat(model="mistral", messages=[{"role": "user", "content": prompt}])
    return response['message']['content']
```

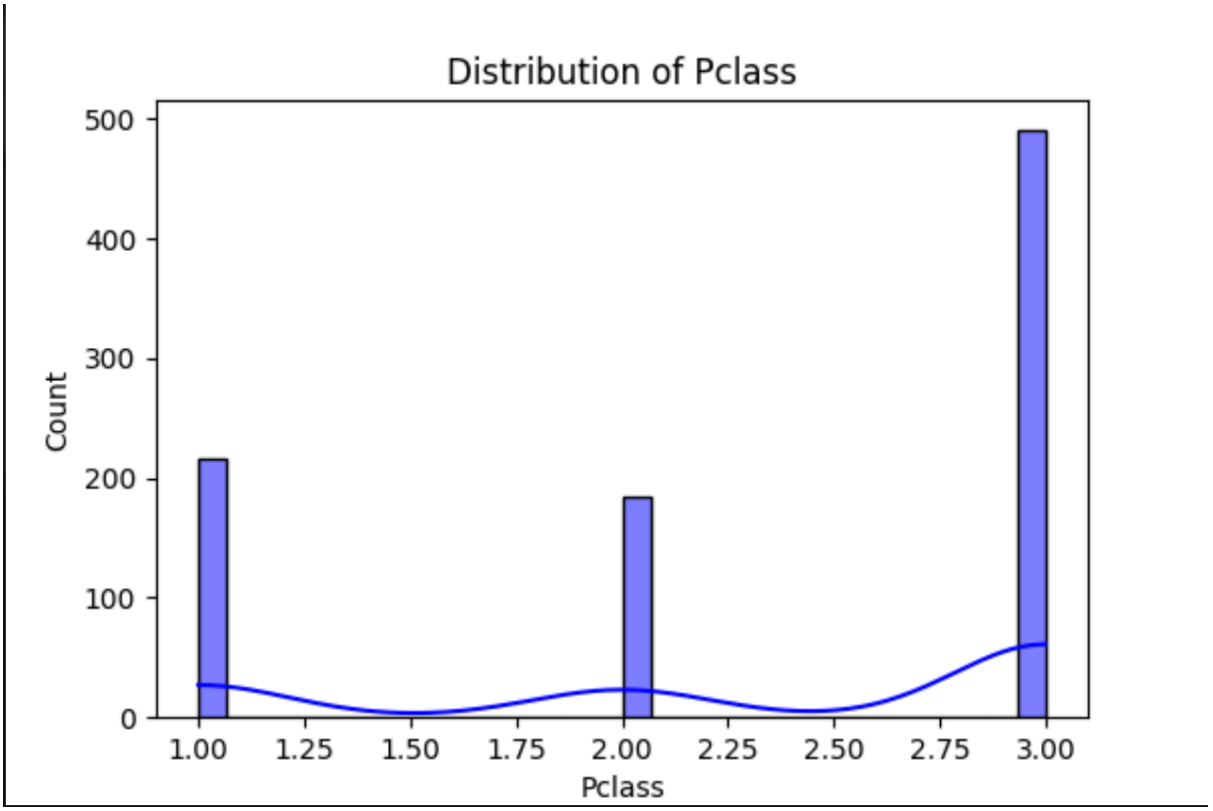


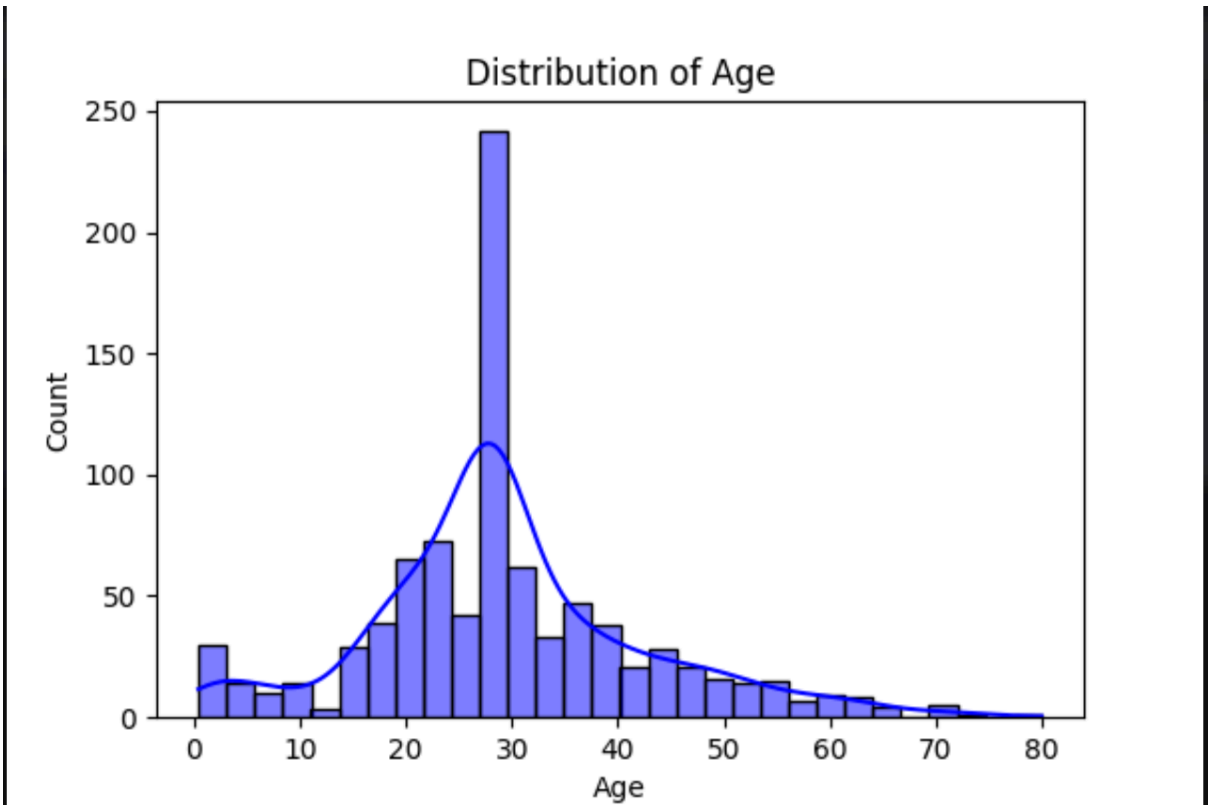
```python
# Function to Generate Data Visualizations
def generate_visualizations(df):
    plot_paths = []

    # Histograms for Numeric Columns
    for col in df.select_dtypes(include=['number']).columns:
        plt.figure(figsize=(6,4))
        sns.histplot(df[col], bins=30, kde=True, color="blue")
        plt.title(f"Distribution of {col}")
        path = f"{col}_distribution.png"
        plt.savefig(path)
        plot_paths.append(path)
        plt.close()

    # Correlation Heatmap (only numeric columns)
    numeric_df = df.select_dtypes(include=['number'])
    if not numeric_df.empty:
        plt.figure(figsize=(8,5))
        sns.heatmap(numeric_df.corr(), annot=True, cmap='coolwarm', fmt=".2f", linewidths=0.5)
        plt.title("Correlation Heatmap")
        path = "correlation_heatmap.png"
        plt.savefig(path)
        plot_paths.append(path)
        plt.close()

    return plot_paths

# Gradio Interface
test = gr.Interface(
    fn=eda_analysis,
    inputs=gr.File(type="filepath"),
    outputs=[gr.Textbox(label="EDA Report"), gr.Gallery(label="Data Visualizations")],
    title="📊 LLM-Powered Exploratory Data Analysis (EDA)",
    description="Upload any dataset CSV file and get automated EDA insights with AI-powered analysis and visualizations."
)
# Launch the Gradio App
test.launch(share=True)
```

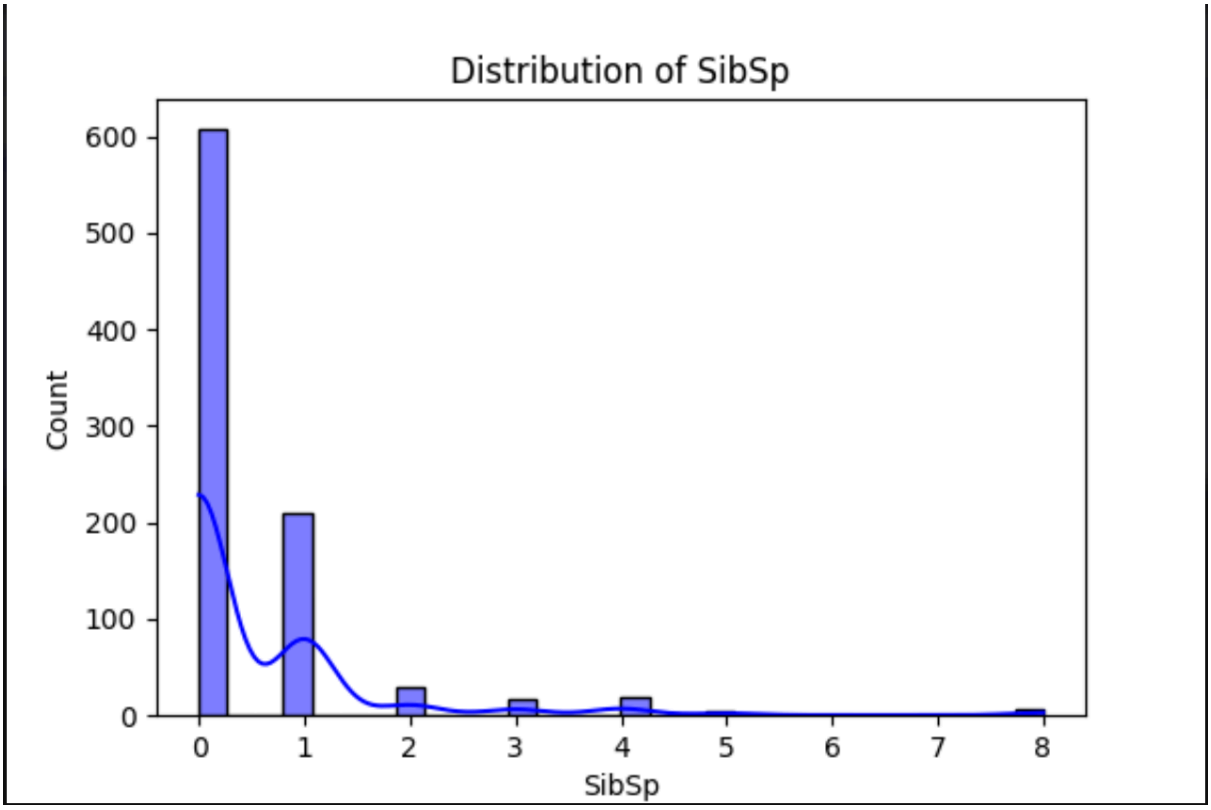

LLM-Powered Exploratory Dat
127.0.0.1:7860
Summarize
Chat
LLM-Powered Exploratory Data Analysis (EDA)
Upload any dataset CSV file and get automated EDA insights with AI-powered analysis and visualizations.
file_path
titanic_ dataset_final.csv
59.8 KB
Clear
Submit
EDA Report
Summary:
PassengerId Survived Pclass Name Sex Age SibSp Parch Ticket Fare Cabin Embarked
count 891.000000 891.000000 891.000000 891 891 891.000000 891.000000 891.000000 891 891.000000 891 891
unique NaN NaN NaN 891 2 NaN NaN NaN 681 NaN 147 3
top NaN NaN NaN Braund, Mr. Owen Harris male NaN NaN NaN 347082 NaN B96 B98 S
freq NaN NaN NaN 1 577 NaN NaN NaN 7 NaN 691 646
mean 446.000000 0.383838 2.308642 NaN NaN 29.361582 0.523008 0.381594 NaN 32.204208 NaN NaN
std 257.353842 0.486592 0.836071 NaN NaN 13.019697 1.102743 0.806057 NaN 49.693429 NaN NaN
min 1.000000 0.000000 1.000000 NaN NaN 0.420000 0.000000 0.000000 NaN 0.000000 NaN NaN
25% 223.500000 0.000000 2.000000 NaN NaN 22.000000 0.000000 0.000000 NaN 7.910400 NaN NaN
50% 446.000000 0.000000 3.000000 NaN NaN 28.000000 0.000000 0.000000 NaN 14.454200 NaN NaN
75% 668.500000 1.000000 3.000000 NaN NaN 35.000000 1.000000 0.000000 NaN 31.000000 NaN NaN
Data Visualizations
Distribution of PassengerId
Distribution of Survived

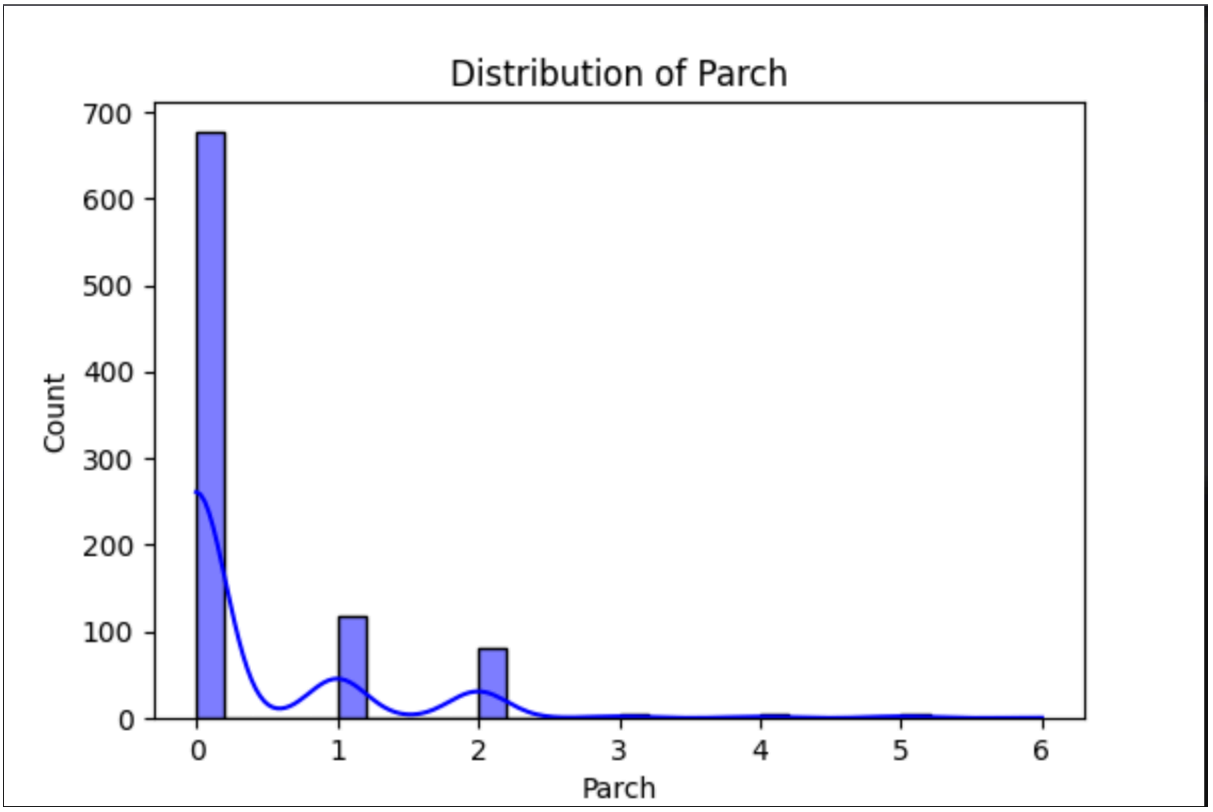

Distribution of PassengerId
Count
PassengerId
0
5
10
15
20
25
30
0
200
400
600
800

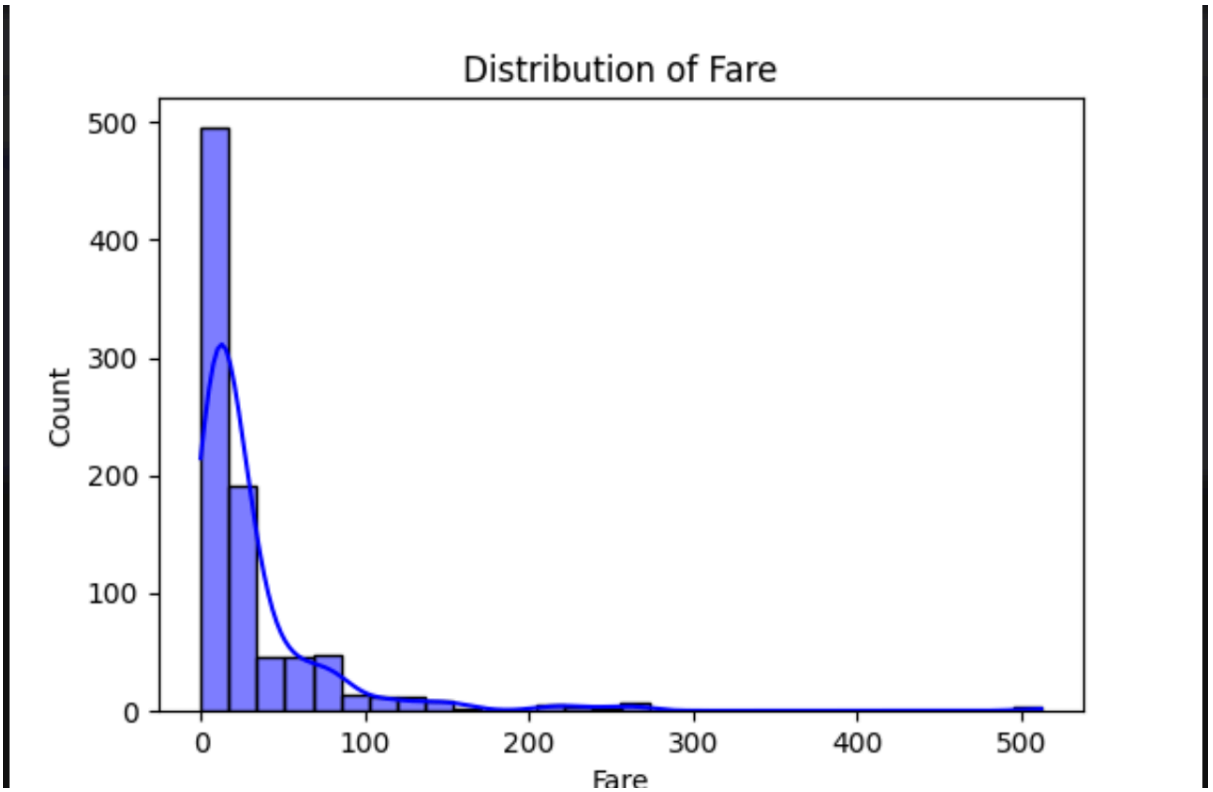

Distribution of Survived
Count
500
400
300
200
100
0
0.0
0.2
0.4
0.6
0.8
1.0
Survived


Distribution of Pclass
Count
500
400
300
200
100
0
1.00
1.25
1.50
1.75
2.00
2.25
2.50
2.75
3.00
Pclass


Distribution of Age
Count
Age
0
50
100
150
200
250
0
10
20
30
40
50
60
70
80


Distribution of SibSp
Count
SibSp
0
100
200
300
400
500
600
0
1
2
3
4
5
6
7
8


Distribution of Parch
Count
Parch
0
1
2
3
4
5
6
0
100
200
300
400
500
600
700


Distribution of Fare
Count
Fare
0
100
200
300
400
500