**Titanic Dataset – Exploratory Data Analysis (EDA)**

🎯 **Objective**: Analyze the Titanic dataset to uncover meaningful insights using visual and statistical exploration techniques.

## Overview

This project focuses on performing Exploratory Data Analysis (EDA) on the **Titanic dataset**, which includes passenger information such as age, sex, ticket class, and survival status.

### The analysis covers:

* Data cleaning and structure overview
* Statistical summaries
* Visualizations to identify patterns
* Written observations and insights
* Final report summarizing findings

## 🛠️ Tools & Libraries

* **Python**
* **Pandas** – Data manipulation
* **NumPy** – Numerical operations
* **Matplotlib** – Basic visualizations
* **Seaborn** – Statistical graphics
* **Jupyter Notebook**

## 🔍Key Techniques Used

* **Data Exploration**: .info(), .describe(), .value\_counts()
* **Missing Values Handling**
* **Visual Analysis**:
  + sns.pairplot() to explore relationships
  + sns.heatmap() for correlation analysis
  + Histograms, boxplots, and scatterplots for distribution insights
* **Insights Writing** for each visualization

## 📊 Sample Insights

* Survival rates were higher among **females**, **children**, and **1st class** passengers
* Strong correlation between **fare** and **class**
* **Age** and **Cabin** fields had missing values and were handled appropriately

## 🚀 How to Run

1. Clone the repository:
2. git clone https://github.com/yourusername/Titanic\_EDA.git
3. Open the project folder:
4. cd Titanic\_EDA
5. Launch Jupyter Notebook:
6. jupyter notebook titanic\_eda.ipynb

## 📦 Dataset Source

* [Kaggle: Titanic](https://www.kaggle.com/c/titanic)

## 📄 License

This project is open-source and available for educational and research use.