NEXT GEN EMPLOYABILITY PROGRAM

CREATING A FUTURE-READY WORKFORCE

Student Name :
Vidushi Singh

Student ID :
2100290110192

College Name :
KIET Group Of Institutions

CAPSTONE PROJECT SHOWCASE

Project Title

Exploratory Data Analysis on Space Exploration Missions using Power BI

Abstract | Problem Statement | Project Overview | Proposed Solution | Technology Used | Modelling & Results | Conclusion | Q&A

Abstract

1. **Objective** :This project aims to perform exploratory data analysis (EDA) on space exploration missions using Power BI. The objective is to uncover trends, patterns, and insights within the dataset, shedding light on the dynamics of space exploration efforts.

2. **Data Scope:** The analysis encompasses a comprehensive dataset containing information on space missions, including launch dates, objectives, destinations, spacecraft types, and mission outcomes. The dataset provides a rich source of information for understanding the evolution and intricacies of space exploration.

3. **Analytical Approach**: Leveraging the analytical capabilities of Power BI, the project employs interactive dashboards, visualizations, and statistical techniques to explore the data. Through interactive visualization tools, we aim to uncover temporal trends, geographical distributions, mission success rates, and funding dynamics, among other key insights.

4. **Significance**: This project contributes to a deeper understanding of humanity's quest for knowledge beyond Earth. The findings have implications for policymakers, researchers and enthusiasts, offering valuable insights into the past, present and future of space exploration endeavors.

Problem Statement

This Project is about Exploratory Data Analysis on all Space Missions to know about overall Success Rate of the Missions, Total Budget, Companies/Institutes involved in these Missions, their success rate, Launch station, Rockets used and current position of them etc. Overall this Project gives complete insight about Space using Power BI , a powerful Data Analysis and Visualization tool.

Project Overview

- Space exploration missions generate vast amounts of data, encompassing mission details, spacecraft information, launch dates, objectives, outcomes, and more. However, the complexity and volume of this data pose significant challenges in effectively analyzing and extracting actionable insights. The problem overview on conducting exploratory data analysis (EDA) on space exploration missions using Power BI revolves around several key aspects:

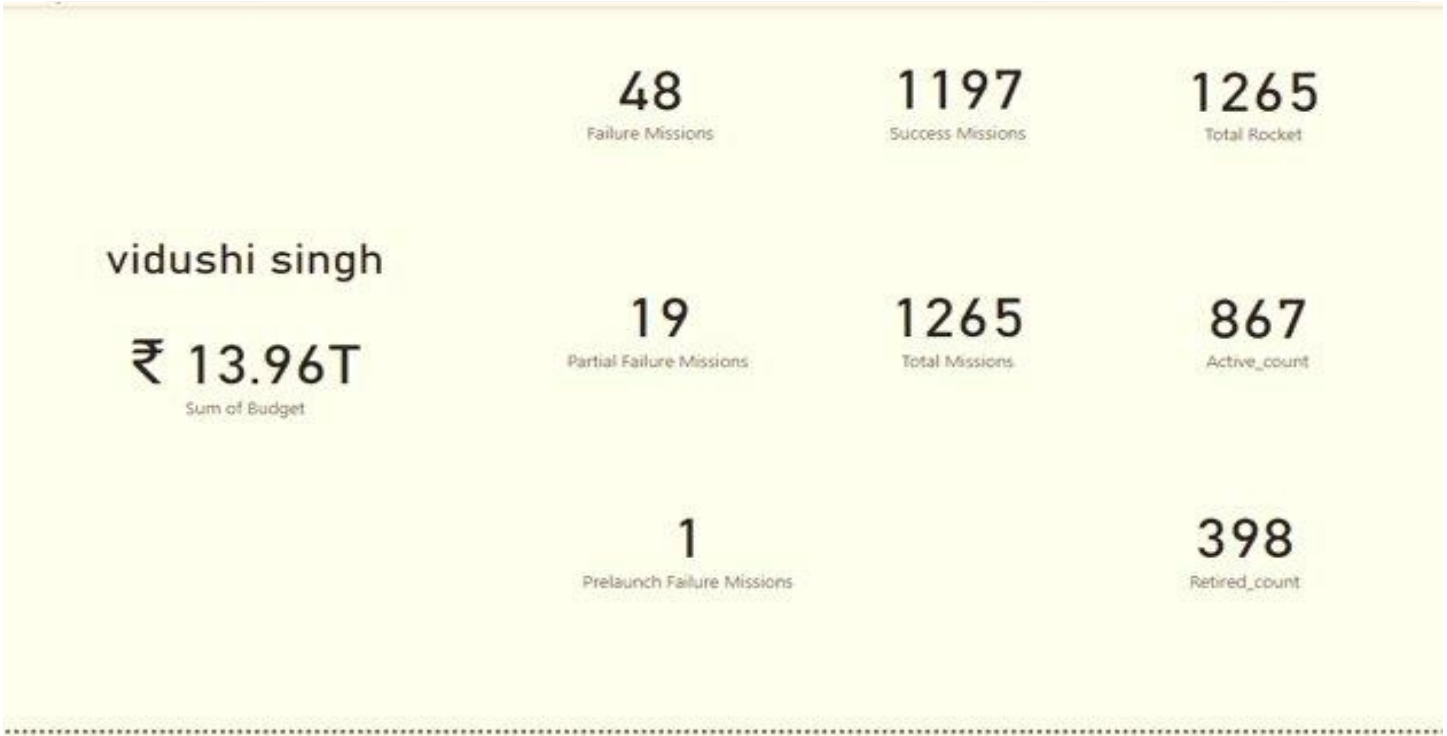
Proposed Solution

- **Data Collection and Preprocessing**: Gather data from various sources including space agencies, research institutions, and publicly available repositories. Preprocess the data to handle missing values, inconsistencies, and ensure data quality. This involves cleaning, transforming, and integrating the data into a unified dataset suitable for analysis.
- **Power BI Implementation**: Utilize the robust capabilities of Power BI to create interactive dashboards, visualizations, and reports. Power BI provides a user-friendly interface for data exploration and analysis, making it accessible to stakeholders with varying levels of technical expertise.
- **Exploratory Data Analysis (EDA)**: Perform comprehensive EDA using Power BI to uncover insights and trends within the dataset.
- **Interactive Visualization and Reporting**: Create interactive visualizations and reports within Power BI to present findings and insights derived from the EDA. These visualizations should allow stakeholders to interactively explore the data and gain a deeper understanding of space exploration missions.
- **Documentation and Communication**: Document the methodology, data sources, and analysis techniques employed in the project. Communicate findings and insights to stakeholders through presentations, reports, and workshops, ensuring that the results are accessible and understandable to a wide audience.

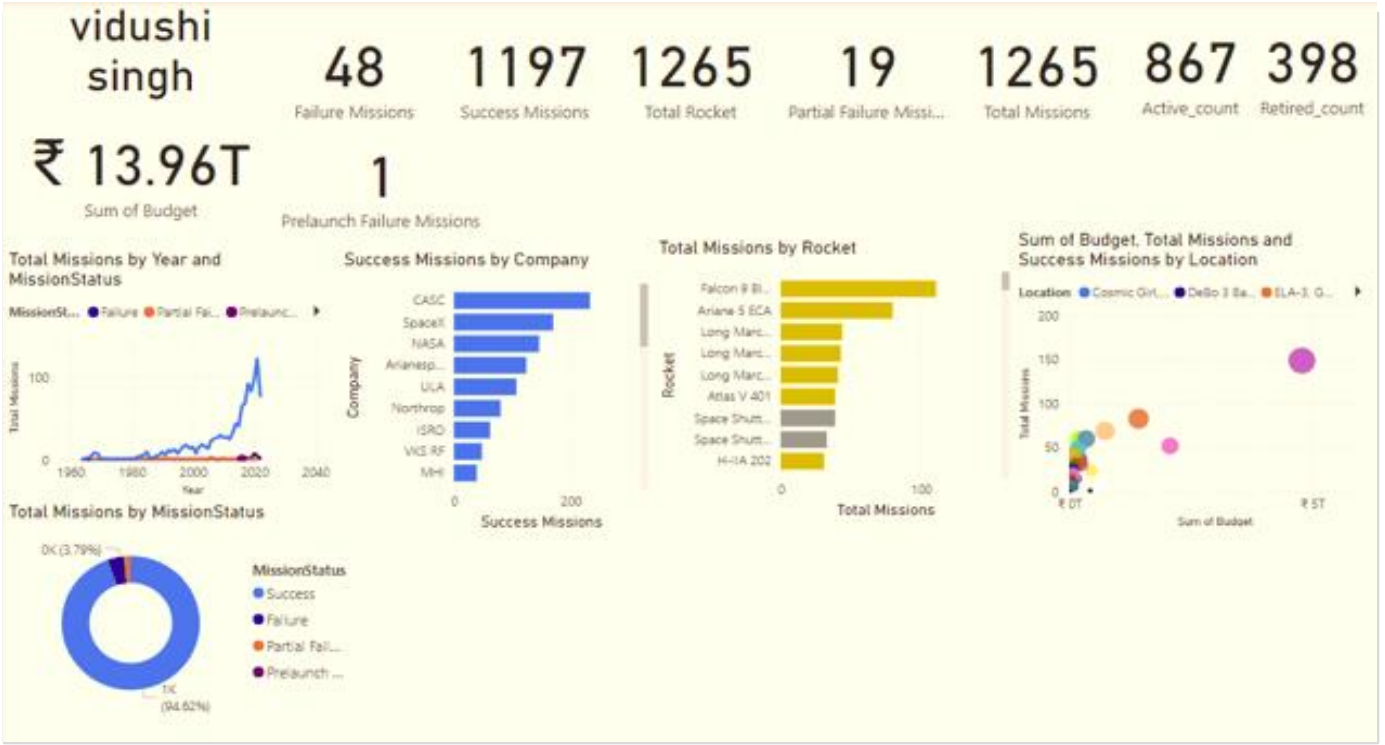
Technology used

- Python
- EDA(Exploratory Data Analysis)
- Power BI
- Data Visualization

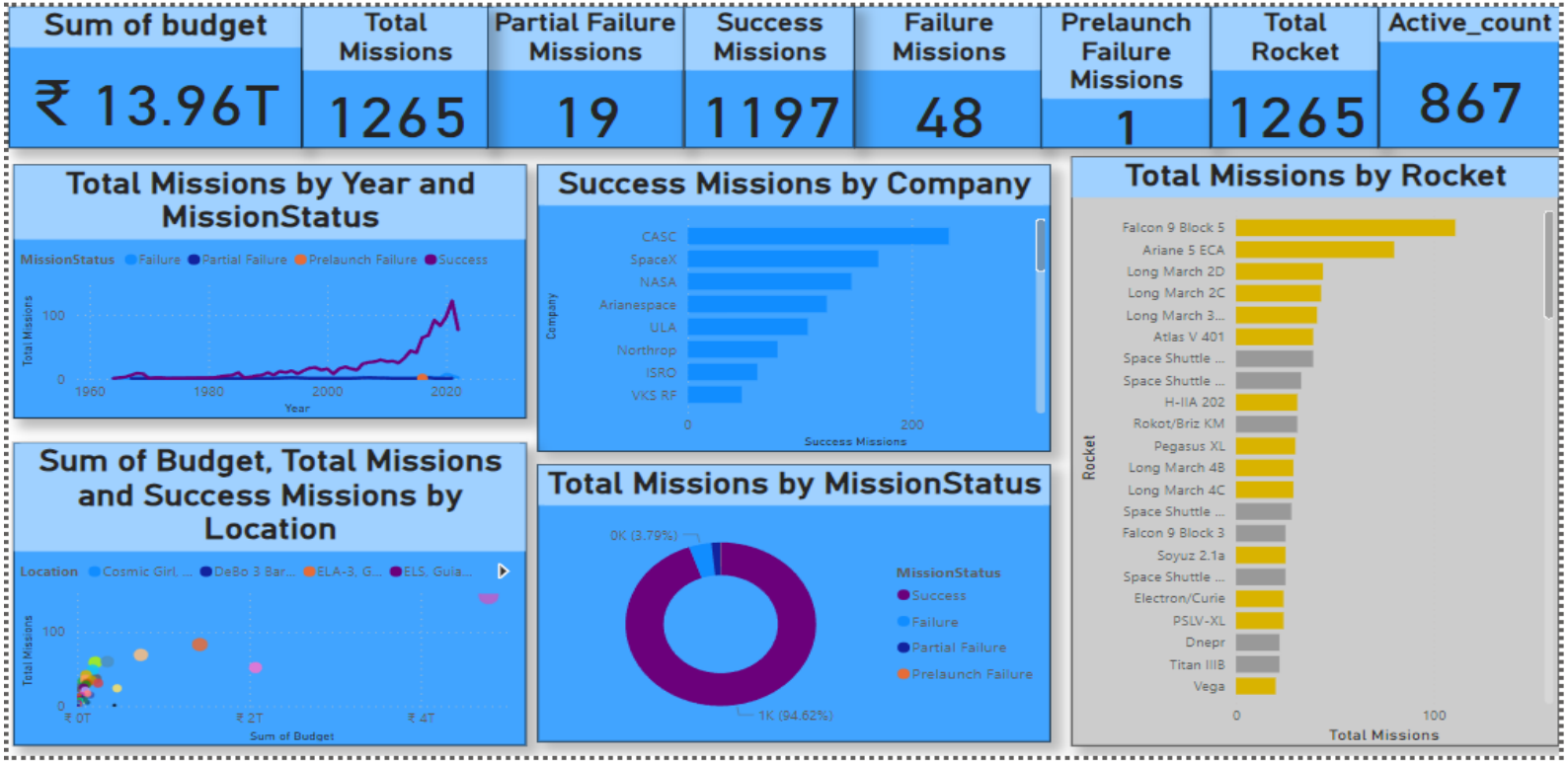
Modelling & Result



Modelling & Result

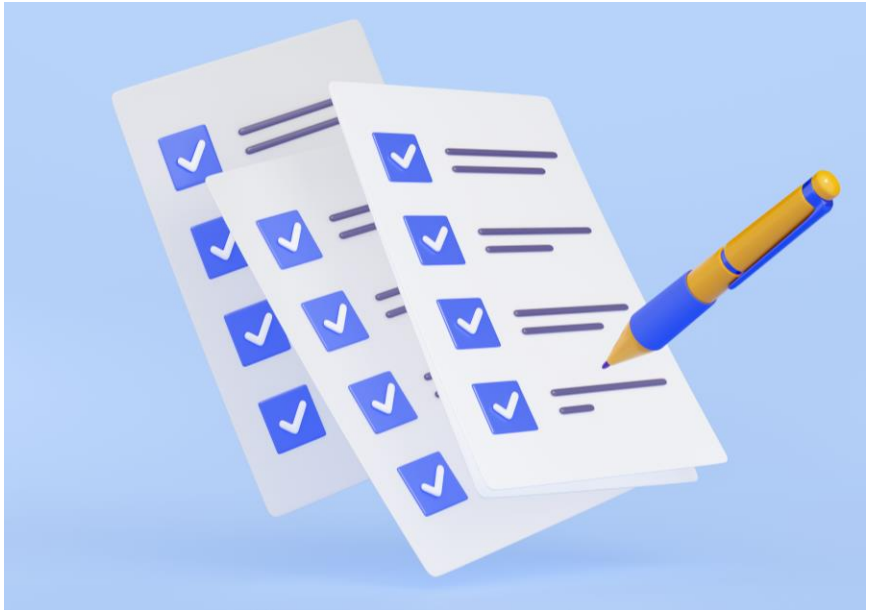


Modelling & Result



Conclusion

- Through the implementation of Power BI's robust capabilities, we have been able to navigate the complexities of space exploration data, from launch dates and mission objectives to success rates and funding dynamics. Our analysis has provided valuable insights into temporal trends, mission objectives evolution, geographic distribution of missions, and factors influencing mission outcomes.
- By leveraging Power BI's interactive dashboards and visualizations, stakeholders can explore the data in a user-friendly and intuitive manner, gaining deeper insights into space exploration efforts. From space agencies and policymakers to researchers and enthusiasts, the findings derived from EDA using Power BI have the potential to inform decision-making, drive future exploration strategies, and inspire new discoveries.



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