



SpaceX Falcon9

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Executive Summary

- This project aimed to analyze the Falcon9 landings based on each one's properties and circumstances
- We found out that some Falcon9 Airships are more stable than others



Introduction

- The purpose of this project is to check what it is that influenced the airships' landing and the completion of the landing based on their properties and company and predict the success rate of an airship to land
- We used many Machine Learning Algorithms to get the best prediction



Data Collection

- We collected all the data for the Falcon9 prediction from spacexdata.com
- We put all the data about Falcon9 into a Pandas Data Frame, removing the data about other Versions
- We used the `mean()` function to replace missing values
- 5 Payload masses modified



Data Wrangling

- We computed the number of launches for each site
- CCAFS SLC 40 55
- KSC LC 39A 22
- VAFB SLC 4E 13
- We computed the number and occurrence of mission outcome of the orbits
- We created a new label "Outcome" which describes if the outcome was a good one or not



SQL Notebook

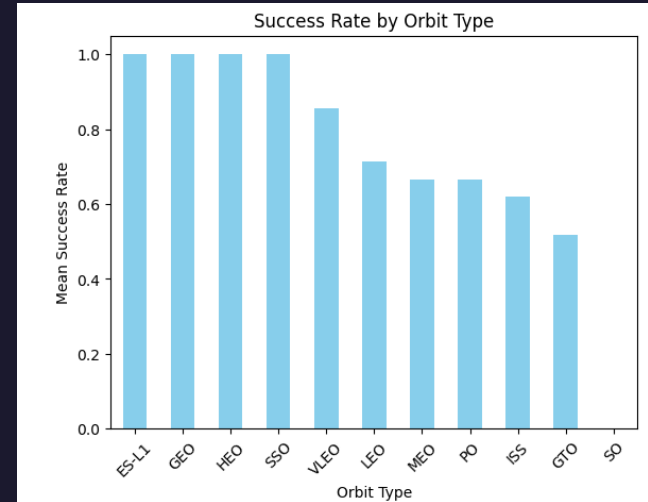
- We introduced our dataset into an SQL data base
- Selected different data to check how the dataset responds
- Ex: Landing outcomes and their count

Landing_Outcome	Outcome_Count
No attempt	10
Success (drone ship)	5
Failure (drone ship)	5
Success (ground pad)	3
Controlled (ocean)	3
Uncontrolled (ocean)	2
Failure (parachute)	2
Precluded (drone ship)	1

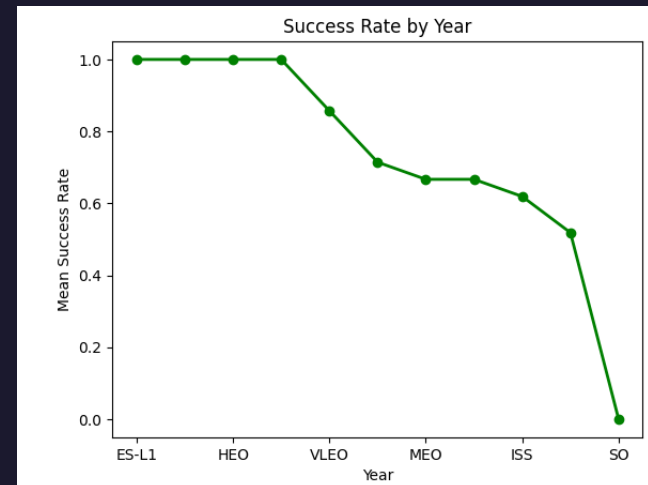


Data Visualisation

- We have the Success Rate by each Orbit Type



- We also displayed the Success Rate by Year



Prediction

- In this part, we tried to find the method that performs best using our test data
- The best parameters are found using the Logic Regression, with an accuracy of: 0.8333333333333334
- The other methods that we tried are:
 - - K Nearest Neighbours
 - - Support Vector Machine
 - - Decision Tree



Conclusion

- We found out the best method to predict whether an airship Falcon9 will successfully land or not
- We have seen the data and tested it
- We displayed different pieces of data using SQL
- We concluded the project using the SpaceX Falcon9 dataset

