
IBM
SPACEX FALCON 9
ROCKET
SPACEX

OUTLINE

- Summary
- Introduction
- Methodology
- Results
- Conclusions

Summary

SpaceX primary mission is to make space travel more affordable and accessible.

Using the given methodologies we can get:

- Possible of collecting data in a more easier way
- EDA identifies features to predict best launchings
- It shows correlation between two graphs.
- Many algorithms used to solve and find the solution

INTRODUCTION

- The objective is to evaluate the viability of the new company Space Y to compete with Space X.
- Desirable answers:

The best way to estimate the total cost for launches, by predicting successful landings of the first stage of rockets;

Where is the best place to make launches.

Data sets were collected from Space X API (https://api.spacexdata.com/v4/rockets/) and from Wikipedia (https://en.wikipedia.org/wiki/List_of_Falcon/_9/_and_Falcon_Heavy_launches), using web scraping technics.Data Collection.

METHODOLOGY

- The following methodologies were used to analyse data:
- Data Collection using web scraping and SpaceX API;
- Exploratory Data Analysis (EDA), including data wrangling, data visualization and interactive visual analytics;
- Machine Learning Prediction.
- Summary of all results
- It was possible to collected valuable data from public sources;
- EDA allowed to identify which features are the best to predict success of launchings;
- Machine Learning Prediction showed the best model to predict which characteristics are important to drive this opportunity by the best way, using all collected data . Executive Summary

RESULTS

- Four classification models were tested, and their accuracies are plotted beside; • The model with the highest classification accuracy is Decision Tree Classifier, which has accuracies over than 87%. Classification Accuracy.
- Confusion matrix of Decision Tree Classifier proves its accuracy by showing the big numbers of true positive and true negative compared to the false ones . Confusion Matrix of Decision Tree Classifier.
- The place from where launches are done seems to be a very important factor of success of missions . Successful Launches by Site.

CONCLUSIONS

- Different data sources were analysed, refining conclusions along the process; • The best launch site is KSC LC-39A; • Launches above 7,000kg are less risky; • Although most of mission outcomes are successful, successful landing outcomes seem to improve over time, according the evolution of processes and rockets; • Decision Tree Classifier can be used to predict successful landings and increase profit.

- As an improvement for model tests, it’s important to set a value to np.random.seed variable.
- Folium didn’t show maps on Github.