

SPACE Y

*ALLOCATION OF RESEARCH
FUNDS INTO STAGE 1 OF
ROCKET LAUNCH*

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EXECUTIVE SUMMARY

As commercial space travel has become more popular, SpaceX reusable stage 1 rockets saves over \$60 million in rocket launch. As commercial space travel very expensive, should our company divert our research funds into reusable stage 1 rockets.

- Launching rockets into Polar, LEO and ISS, there is higher success in launches
- As number of flight increases, the launch is more successful as this is due to learning from mistake through previous launches
- There is relationship between success of launches and pay load mass, as pay load mass increases so does likely-hood of launch to be more successful.

OBJECTIVE

- We will look into SPACE X historical launch data to determine the success of stage 1 launch
- Extract relevant information for analysis
- Create visualization to identify any relationship or trend
- Create interactive dashboard
- Apply machine learning techniques to identify the best model for research purposes

RESEARCH METHODOLOGIES

Data Collection

Data was collected from SPACE X and Wikipedia through web scraping and connection through API

Data Wrangling

Applying filters into the data and adding flags so that it is easy to consume

EDA SQL

Loading data into SQL database and using select statements to explore data

EDA Visualization

Using Seaborn for initial analysis to identify any relationship between each variable

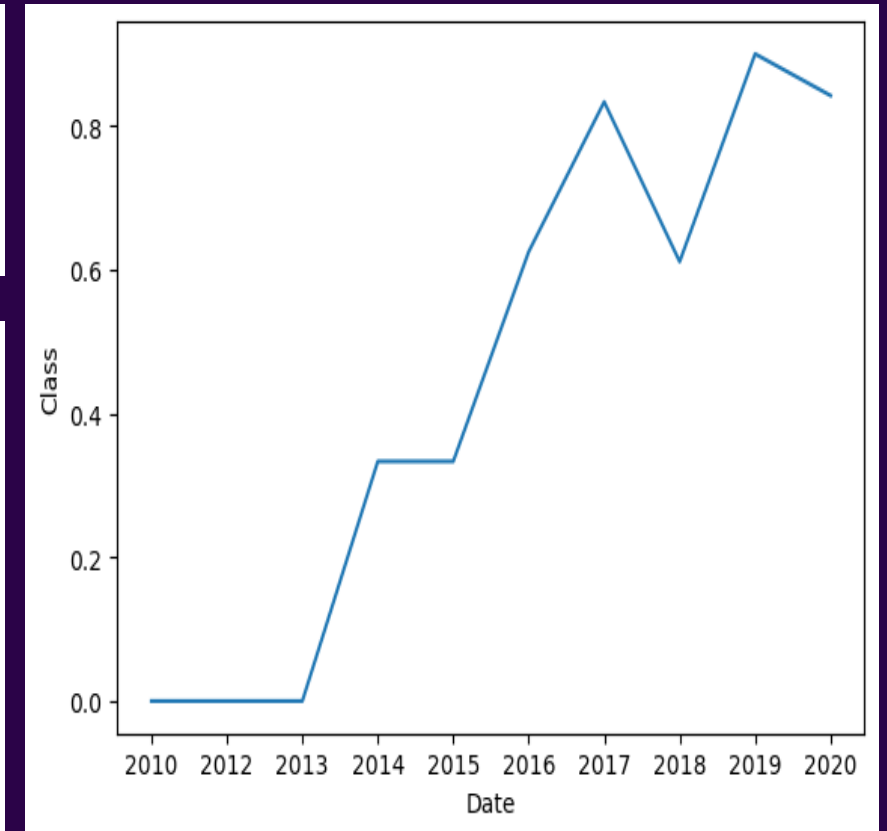
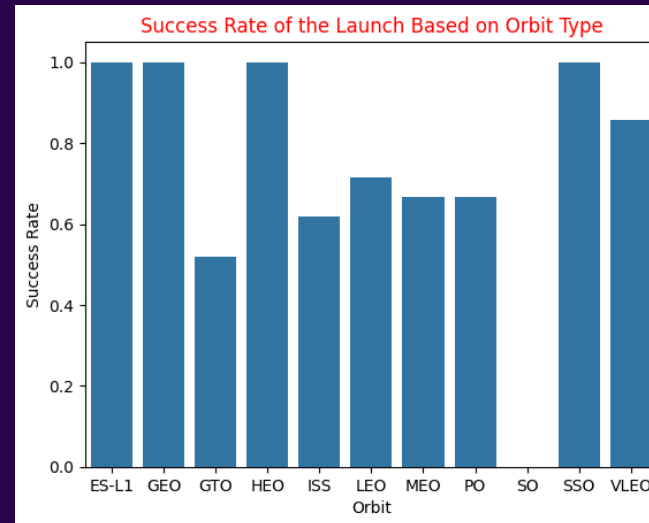
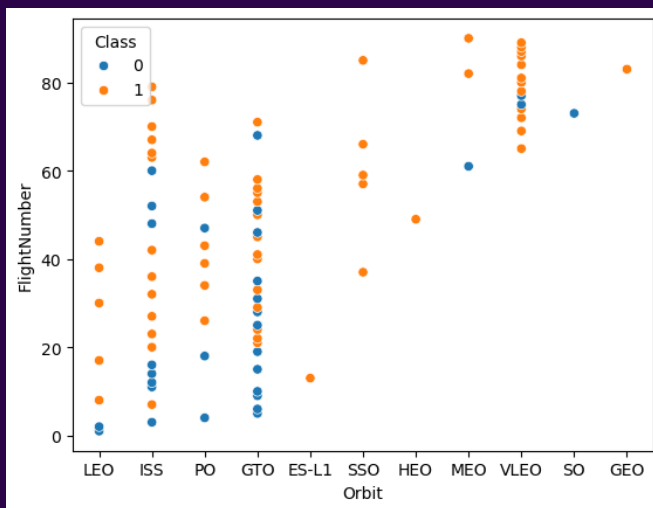
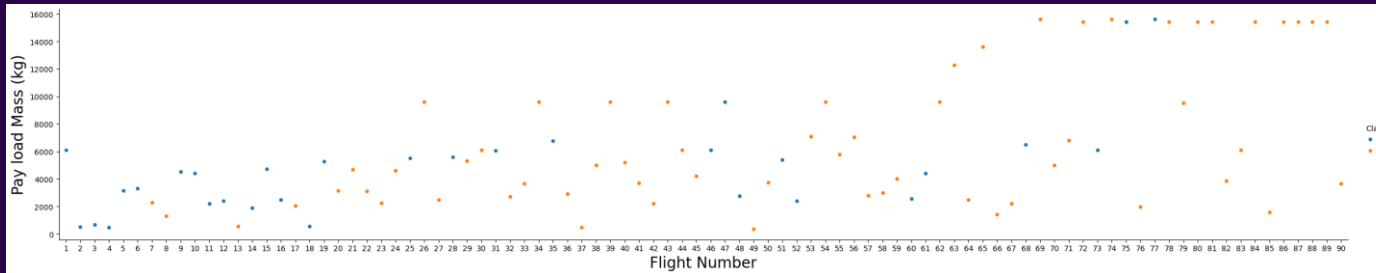
Interactive Dashboard

Created interactive Dashboard for further analysis

Machine Learning

Applied Logistic Regression, Decision Trees and K-nearest Neighbor to identify the best model

RESULTS



CONCLUSION

- There is relationship between payload-mass and success rate
- Certain orbits have higher success rate
- As number of flight increases so does the success rate as SPACE X learned from their past mistakes
- Decision tree is the best model to determine the success rate with as overall score 0.94