Tesla Launch Site Success Rates

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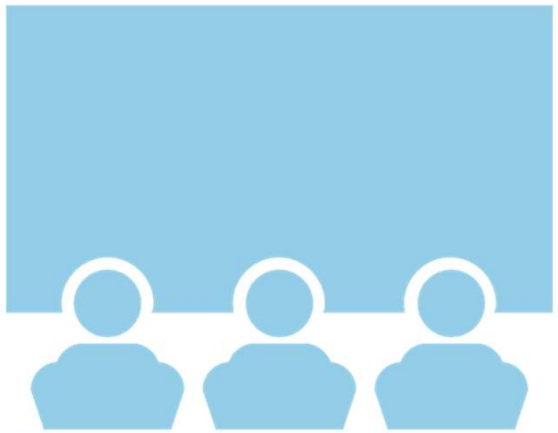
Outline

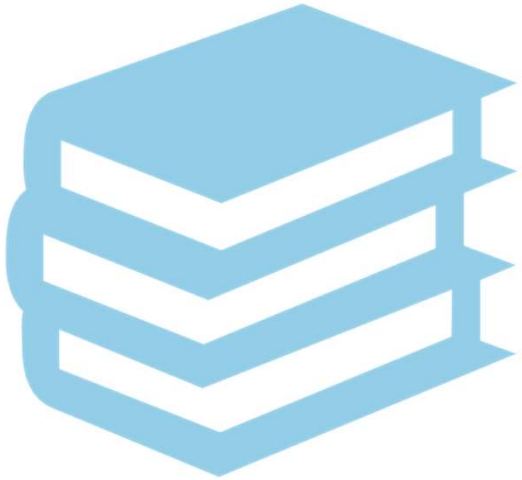


- Executive Summary
- Introduction
- Methodology
- Results
- Conclusion
- Appendix

Executive Summary

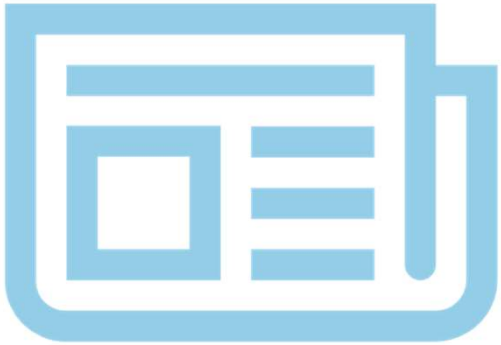
- Summary of methodologies
- Summary of all results

Introduction



- Project background and context
- Problems you want to find answers

Methodology



1. At the start, data is collected by scraping internet web sites and accessing APIs in various formats like csv files, excel sheets, and databases.
2. Once this is completed, data is processed for analysis using data wrangling techniques. (Finding missing values, finding and removing duplicates, normalizing, detecting outliers etc.)
3. After the data is ready, various statistical techniques are applied to analyze the data
4. Perform interactive visual analytics using Folium and Plotly Dash
5. Perform predictive analysis using classification models

Methodology

Data collection

- Describe how data sets were collected.

- You need to present your data collection process use key phrases and flowcharts

Data collection – SpaceX API

Present your data collection with SpaceX REST calls using key phrases and flowcharts

Add the GitHub URL of the completed SpaceX API calls notebook (must include completed code cell and outcome cell), as an external reference and peer-review purpose

Added a flowchart of SpaceX API calls here

Data collection – Web scraping

Present your web scraping process use key phrases and flowcharts

Add the GitHub URL of the completed web scraping notebook, as an external reference and peer-review purpose

Add a flowchart of web scraping here

Data wrangling

- Describe how data were processed
- You need to present your data wrangling process using key phrases and flowcharts
- Add the GitHub URL of your completed data wrangling related notebooks, as an external reference and peer-review purpose

EDA with data visualization

- Summarize what charts were plotted and why used those charts

- Add the GitHub URL of your completed EDA with data visualization notebook, as an external reference and peer-review purpose

EDA with SQL

- Summarize performed SQL queries using bullet points

- Add the GitHub URL of your completed EDA with SQL notebook, as an external reference and peer-review purpose

Build an interactive map with Folium

- Summarize what map objects such as markers, circles, lines, etc. you created and added to a folium map
- Explain why you added those objects
- Add the GitHub URL of your completed interactive map with Folium map, as an external reference and peer-review purpose

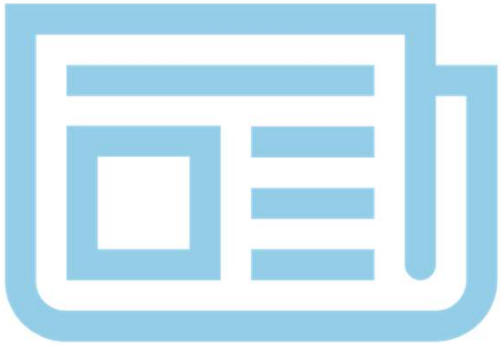
Build a Dashboard with Plotly Dash

- Summarize what plots/graphs and interactions you have added to a dashboard
- Explain why you added those plots and interactions
- Add the GitHub URL of your completed Plotly Dash lab, as an external reference and peer-review purpose

Predictive analysis (Classification)

- Summarize how you built, evaluated, improved, and found the best performing classification model
- You need present your model development process using key phrases and flowchart
- Add the GitHub URL of your completed predictive analysis lab, as an external reference and peer-review purpose

Results



- Exploratory data analysis results
- Interactive analytics demo in screenshots
- Predictive analysis results

EDA with Visualization

Flight Number vs. Launch Site

Show a scatter plot of Flight Number vs. Launch Site

Show the screenshot of the scatter plot with explanations

Payload vs. Launch Site

Show a scatter plot of Payload vs. Launch Site

Show the screenshot of the scatter plot with explanations

Success rate vs. Orbit type

Show a barchart for the success rate of each orbit type

Show the screenshot of the scatter plot with explanations

Flight Number vs. Orbit type

Show a scatter point of Flight number vs. Orbit type

Show the screenshot of the scatter plot with explanations

Payload vs. Orbit type

Show a scatter point of payload vs. orbit type

Show the screenshot of the scatter plot with explanations

Launch success yearly trend

Show a line chart of yearly average success rate

Show the screenshot of the scatter plot with explanations

EDA with SQL

All launch site names

- Find the names of the unique launch sites
- Present your query result with a short explanation here

Launch site names begin with `CCA`

- Find all launch sites begin with `CCA`
- Present your query result with a short explanation here

Total payload mass

- Calculate the total payload carried by boosters from NASA
- Present your query result with a short explanation here

Average payload mass by F9 v1.1

- Calculate the average payload mass carried by booster version F9 v1.1
- Present your query result with a short explanation here

First successful ground landing date

- Find the date when the first successful landing outcome in ground pad

- Present your query result with a short explanation here

Successful drone ship landing with payload between 4000 and 6000

- List the names of boosters which have success in drone ship and have payload mass greater than 4000 but less than 6000

- Present your query result with a short explanation here

Total number of successful and failure mission outcomes

- Calculate the total number of successful and failure mission outcomes
- Present your query result with a short explanation here

Boosters carried maximum **payload**

- List the names of the booster which have carried the maximum payload mass

- Present your query result with a short explanation here

2015 launch records

- List the records which will display the month names, failure landing_outcomes in drone ship ,booster versions, launch_site for the months in year 2015

- Present your query result with a short explanation here

Rank success count between 2010-06-04 and 2017-03-20

- Rank the count of successful landing_outcomes between the date 2010-06-04 and 2017-03-20 in descending order.

- Present your query result with a short explanation here

Interactive map with Folium

<Folium map screenshot 1>

- Replace <Folium map screenshot 1> title with an appropriate title
- Show the screenshot of all launch sites' location markers on a global map
- Explain the important elements and findings on the screenshot

<Folium map screenshot 2>

- Replace <Folium map screenshot 2> title with an appropriate title
- Show the screenshot of color-labeled launch records on the map
- Explain the important elements and findings on the screenshot

<Folium map screenshot 3>

- Replace <Folium map screenshot 3> title with an appropriate title
- Show the screenshot of a selected launch site to its proximities such as railway, highway, coastline, with distance calculated and displayed
- Explain the important elements and findings on the screenshot

Build a Dashboard with Plotly Dash

<Dashboard screenshot 1>

- Replace <Dashboard screenshot 1> title with an appropriate title
- Show the screenshot of launch success count for all sites, in a piechart
- Explain the important elements and findings on the screenshot

<Dashboard screenshot 2>

- Replace <Dashboard screenshot 2> title with an appropriate title
- Show the screenshot of the piechart for the launch site with highest launch success ratio
- Explain the important elements and findings on the screenshot

<Dashboard screenshot 3>

- Replace <Dashboard screenshot 3> title with an appropriate title
- Show screenshots of Payload vs. Launch Outcome scatter plot for all sites, with different payload selected in the range slider
- Explain the important elements and findings on the screenshot

Predictive analysis (Classification)

Classification Accuracy

Visualize all the built model accuracy for all built models, in a barchart

Find which model has the highest classification accuracy

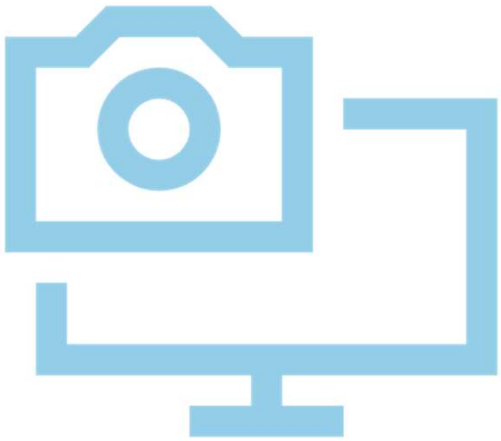
Confusion Matrix

Show the confusion matrix of the best performing model with explanation

CONCLUSION

- Point 1
- Point 2
- Point 3
- Point 4
- …

APPENDIX



- Include any relevant assets like Python code snippets, SQL queries, charts, Notebook outputs, or data sets that you may have created during this project