Data Science Capstone Project

Part 1

Skills Network

IBM

OUTLINE

- Executive Summary
- Introduction
- Methodology
- Results
  - Visualization – Charts
  - Dashboard
- Discussion
  - Findings & Implications
- Conclusion
- Appendix

EXECUTIVE SUMMARY

- Methodologies
  - Data Collection
  - Data Wrangling
  - Exploratory Data Analysis
  - Interactive Maps with Folium
  - Data Dashboard with Plotly
  - Predictive Analysis
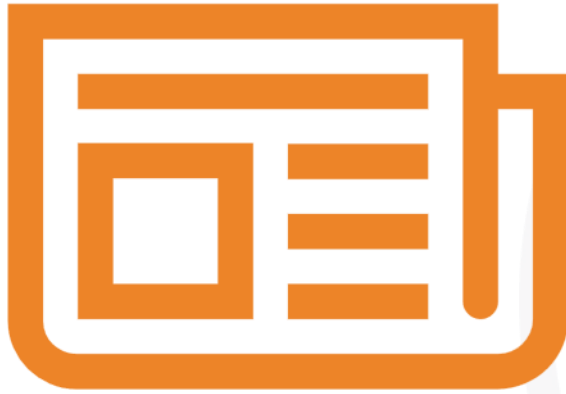
- Results

INTRODUCTION

We seek to understand the data provided by SpaceX regarding their launches and landings.

Questions:

- How do various variables of flights affect the success of the first stage landing?

- How does the landing success rate change over time?

- What is the best algorithm for binary classification?

METHODOLOGY

- Collected data from SpaceX REST API

- Wrangled data
  - Filtered to relevant data
  - Removed missing values
  - Used Hot One Encoding for binary classification

- Exploratory Data Analysis
  - Charts and visualizations
  - Dashboard with Plotly
  - Interactive map with Folium
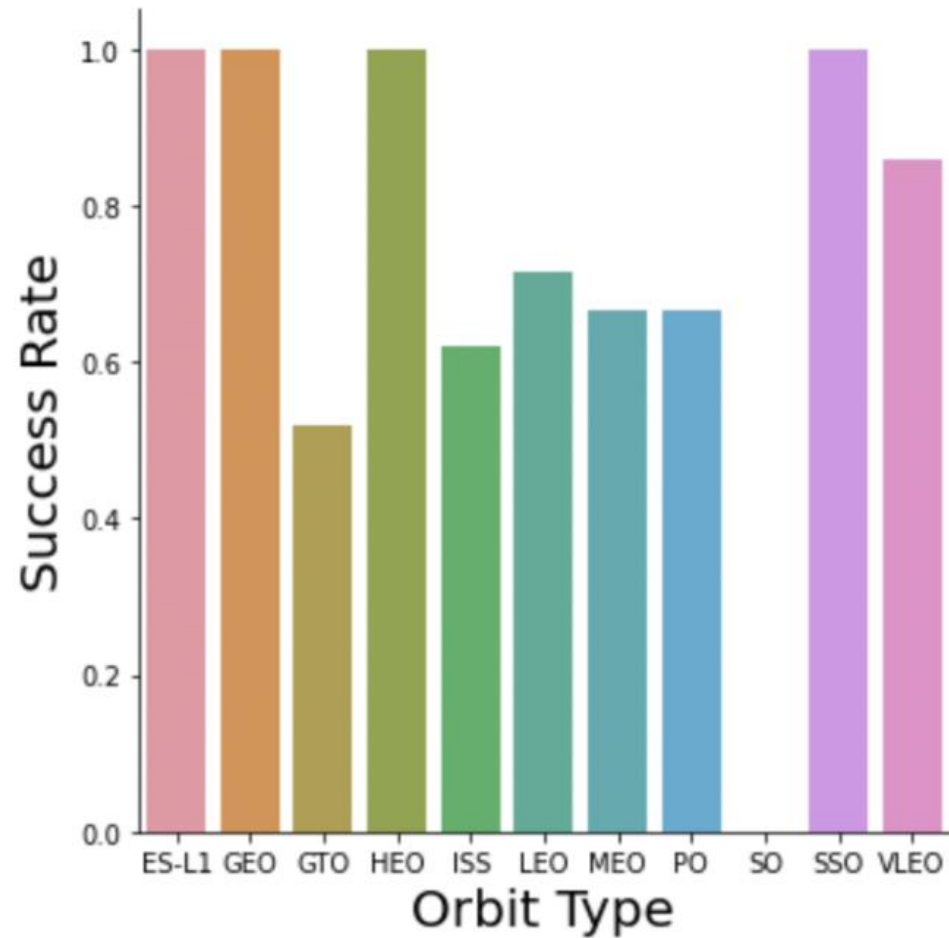
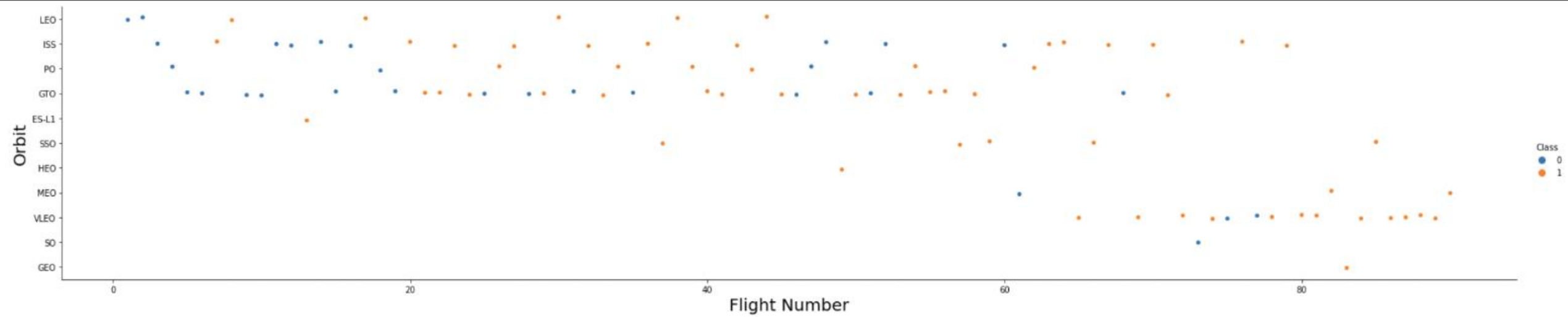- Predictive Analysis with Binary Classification

FLIGHT NUMBER VS. LAUNCH SITE
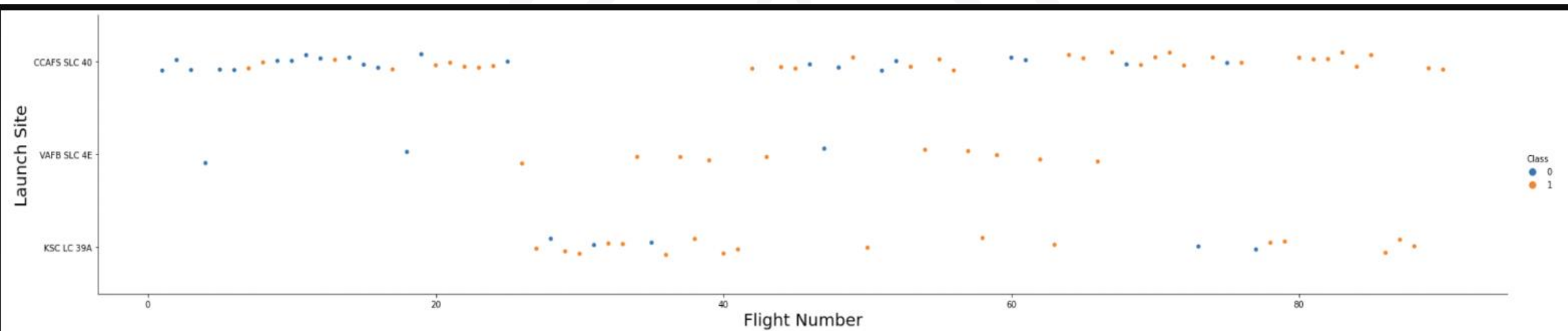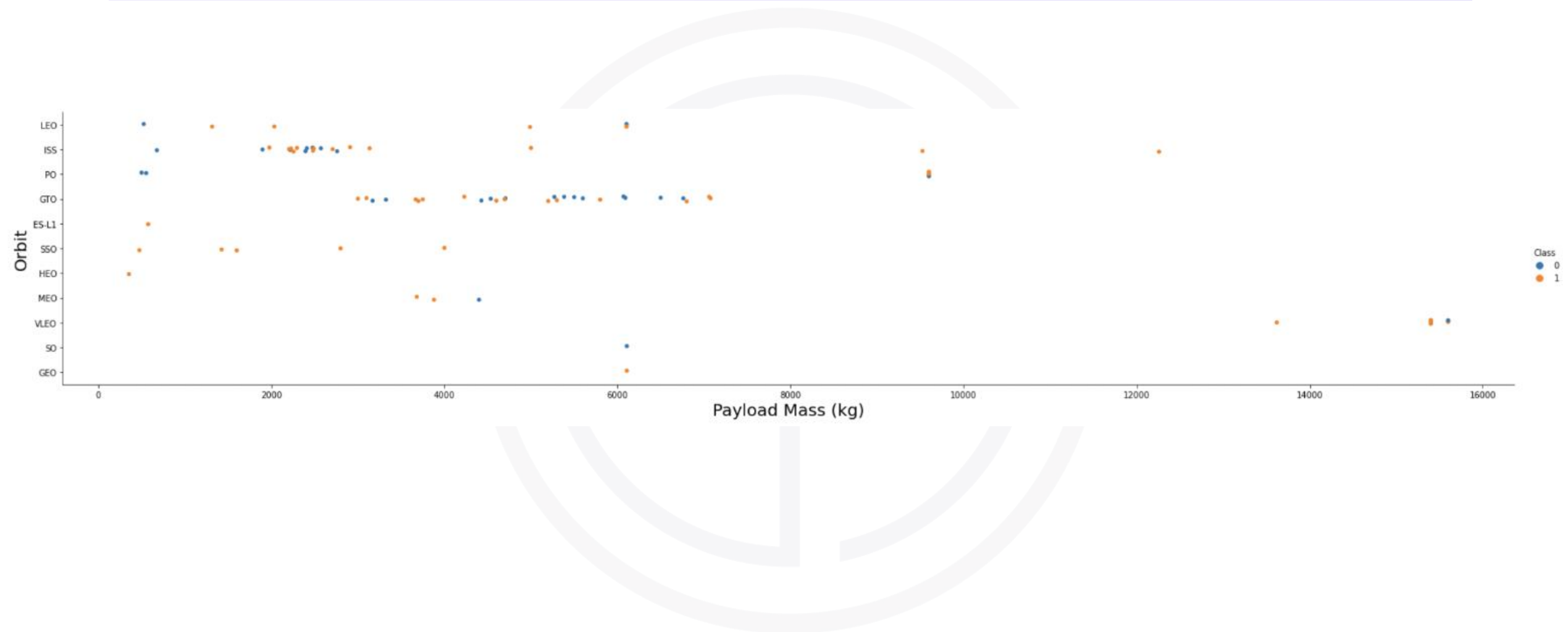
PAYLOAD VS. LAUNCH SITE
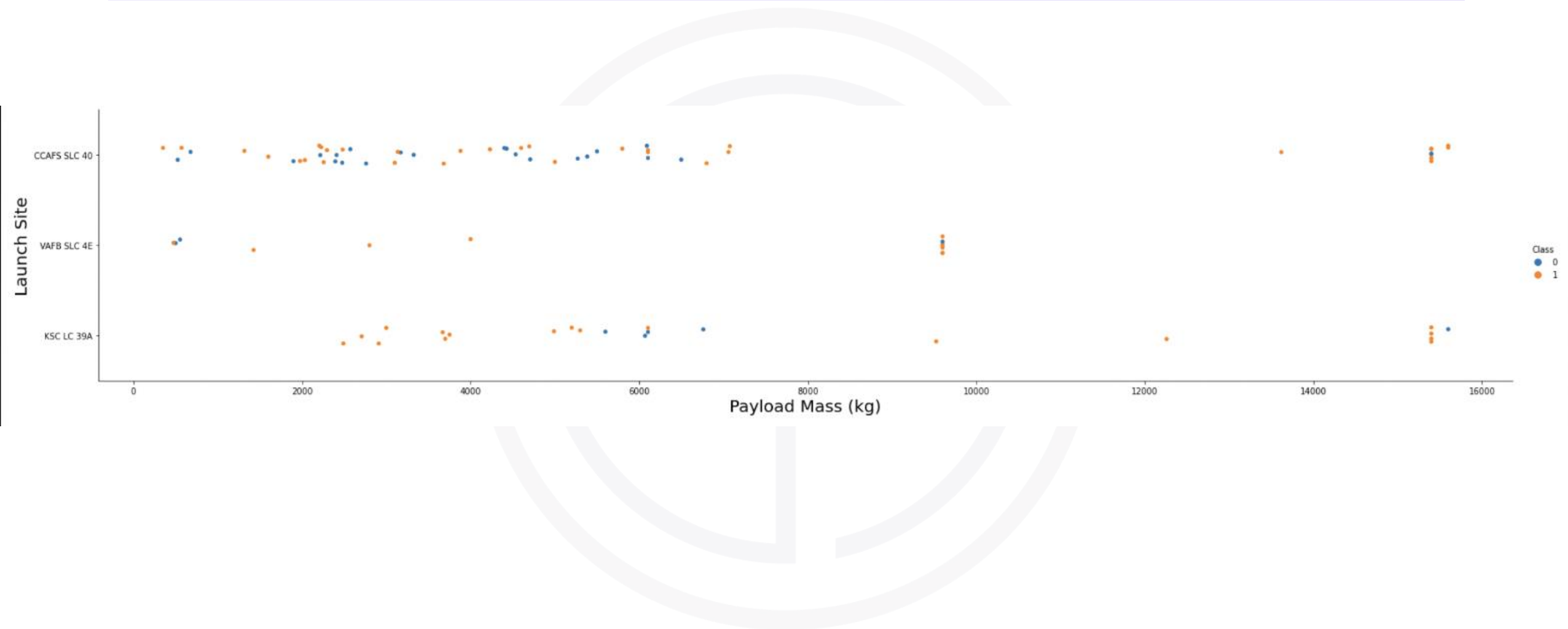
SUCCESS RATE BY ORBIT TYPE

FLIGHT NUMBER VS. ORBIT TYPE
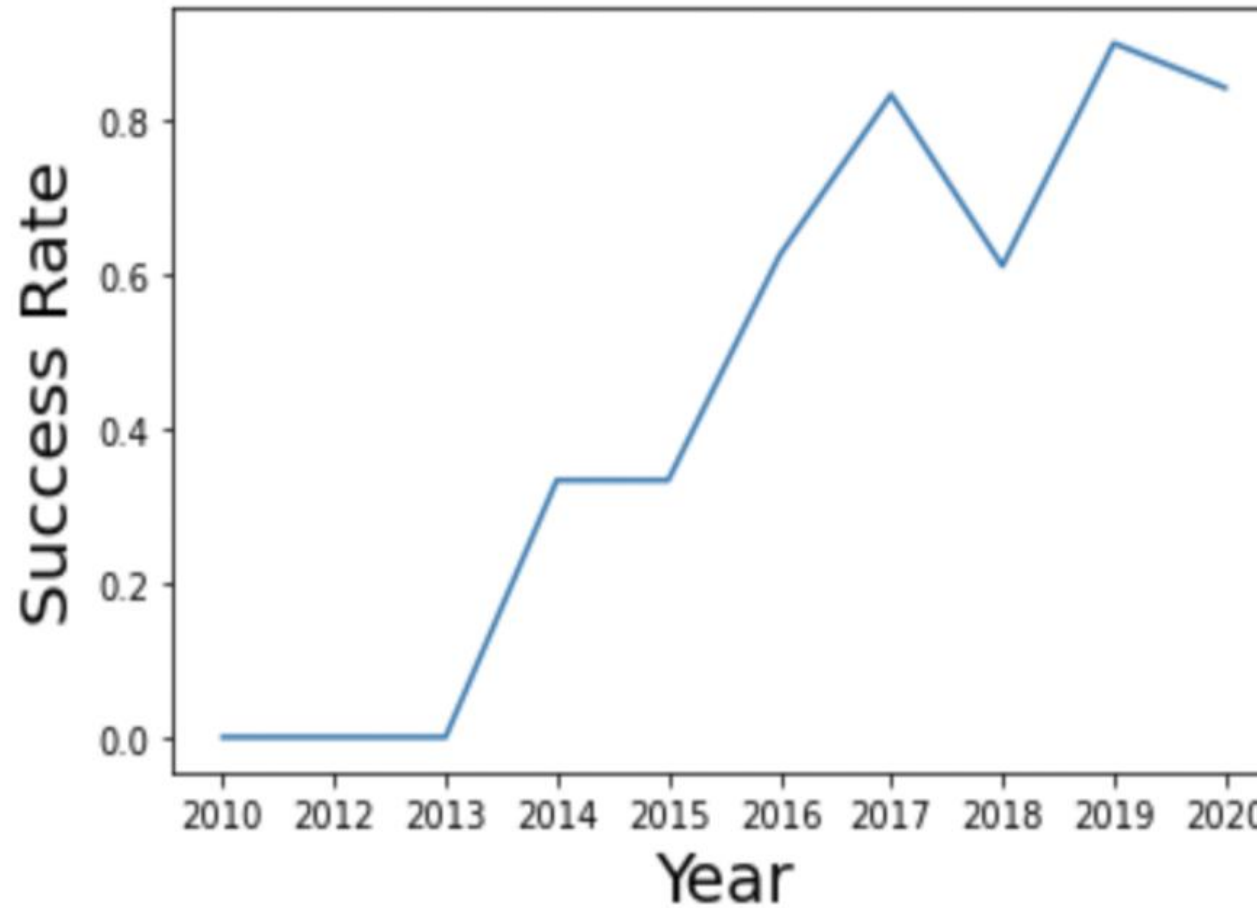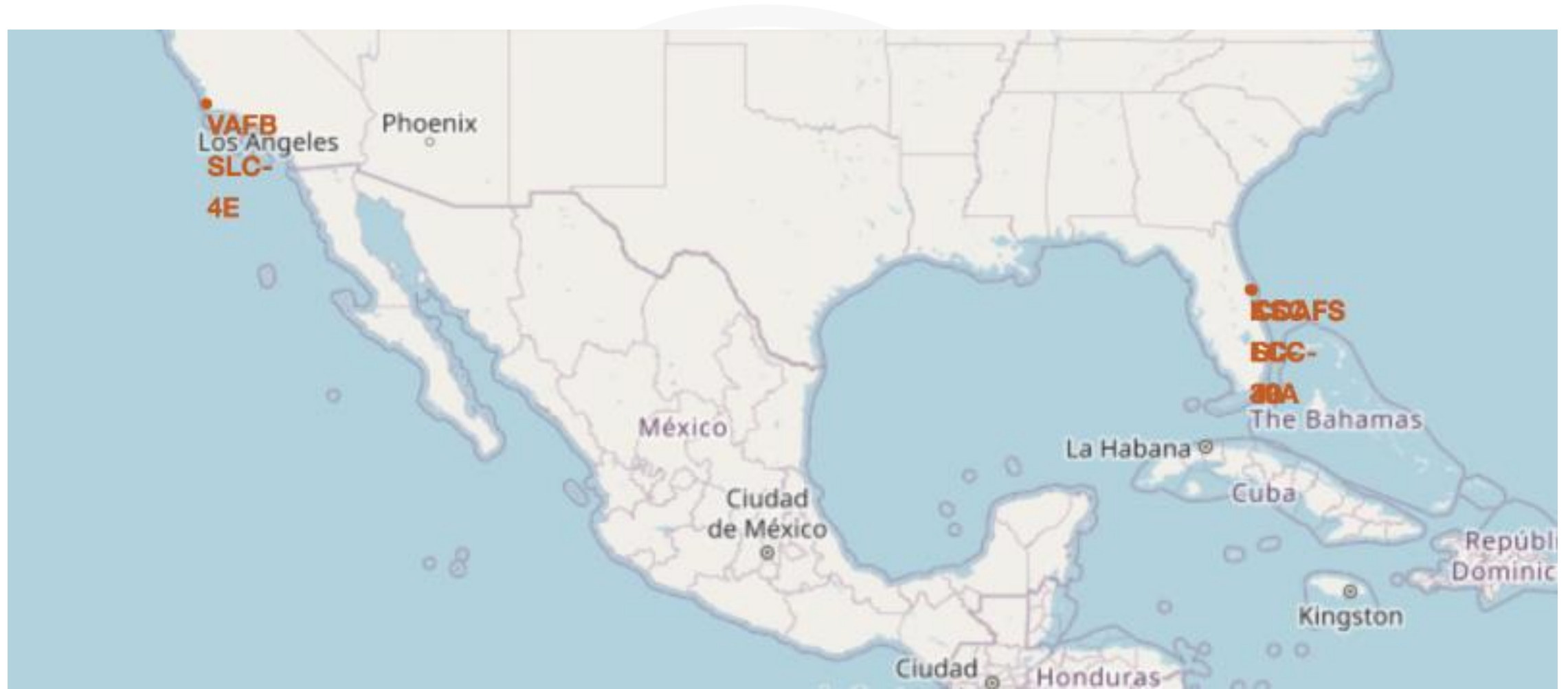
PAYLOAD MASS VS. ORBIT TYPE

LANDING SUCCESS OVER TIME

DASHBOARD

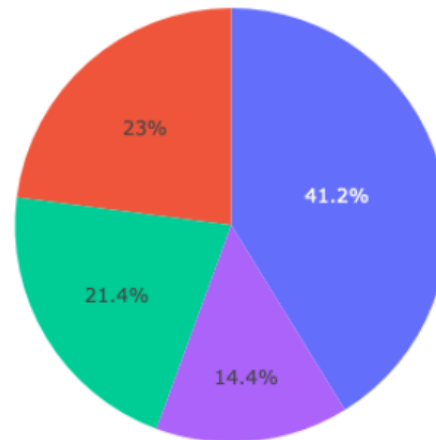<The GitHub link of the Cognos/Looker Studio dashboard goes here.>

FOLIUM MAP

DASHBOARD TAB 2

Total Success Launches by Site

- KSC LC-39A
- CCAFS SLC-40
- VAFB SLC-4E
- CCAFS LC-40

41.2%

23%

21.4%

14.4%

DASHBOARD TAB 3

Total Success Launches for Site KSC LC-39A

23.1%

76.9%

0
1

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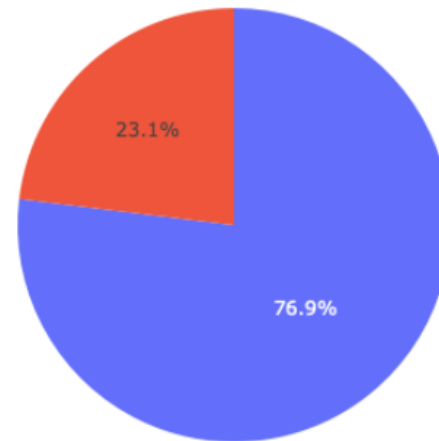
DISCUSSION

- A large part of this presentation template seems outdated to the course.

OVERALL FINDINGS & IMPLICATIONS

Findings

- Low payload mass has better results
- Launches occur very close to the coast and equator
- SpaceX has gotten better over time

Implications

- Decision Tree Model is the best for the binary classification
- Orbits ES-L1, GEO, HEO, and SSO have 100% success rates so far

APPENDIX

- Thank you for grading my presentation!

- Please forgive any missing areas, the course I am taking does not contain much of this information.