SPACE-X LANDING SITE ANALYSIS

ABDUL MAHER KHALIQ

24-1-24

Executive Summary

- Extracted the data from the website
- Perform EDA analysis
- Plotted ion folium
- Performed dashboard
- Trained machine learning algorithm to predict the reuse of first stage.

Introduction

CONTENT:

- Data collection and data wrangling methodology.
- EDA and interactive visual analytics methodology.
- Predictive analysis methodology related slides.
- EDA with SQL results slides.
- EDA with visualization results slides.
- Interactive map with Folium results slides.
- Plotly Dash dashboard results slides.
- Predictive analysis (classification) results slides.

Data collection and data wrangling methodology

- Performed web scrapping using beautifulsoup and request.
- Created dataframe using pd.DataFrame.
- Performed Exploratory Data Analysis (EDA) to find some patterns in the data and determine what would be the label for training supervised models.

EDA with SQL results slides

CCAFS SLC 40	55
KSC LC 39A	22
VAFB SLC 4E	13

Name: LaunchSite, dtype: int64

GTO	27
ISS	21
VLEO	14
PO	9
LEO	7
SSO	5
MEO	3
ES-L1	1
HEO	1
SO	1
GEO	1

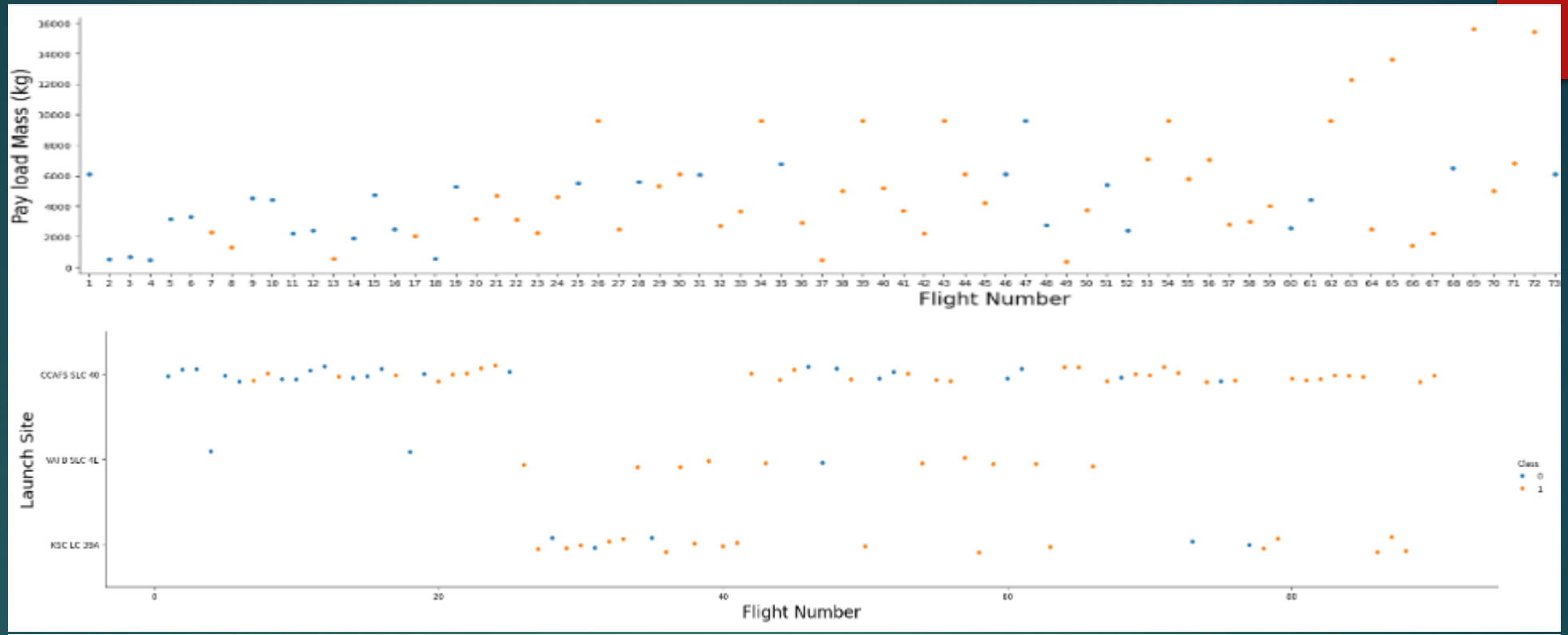
True ASDS	41
None None	19
True RTLS	14
False ASDS	6
True Ocean	5
False Ocean	2
None ASDS	2
False RTLS	1

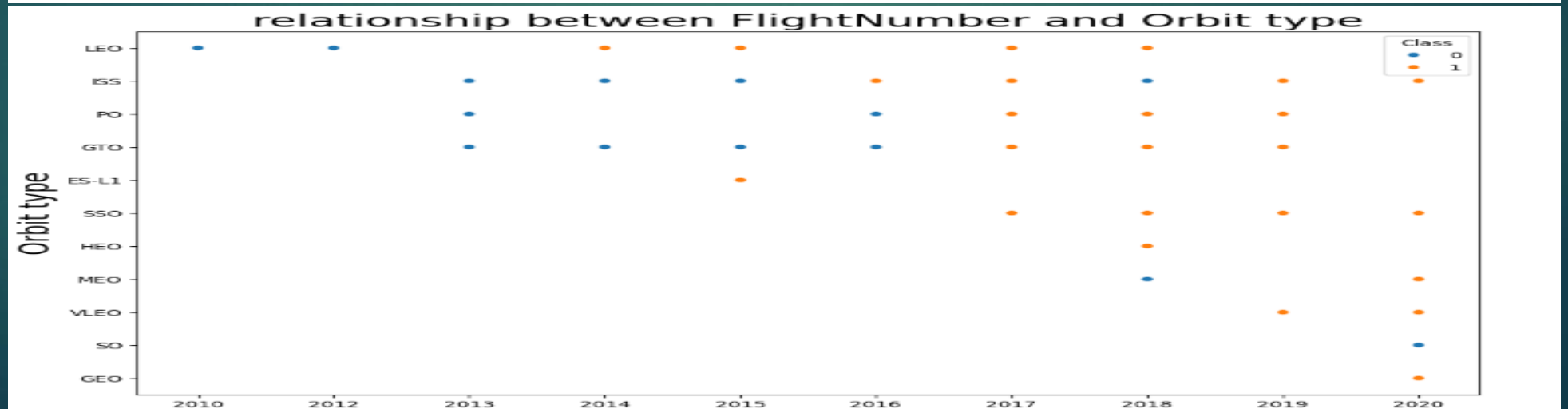
Name: Outcome, dtype: int64

EDA and interactive visual analytics methodology

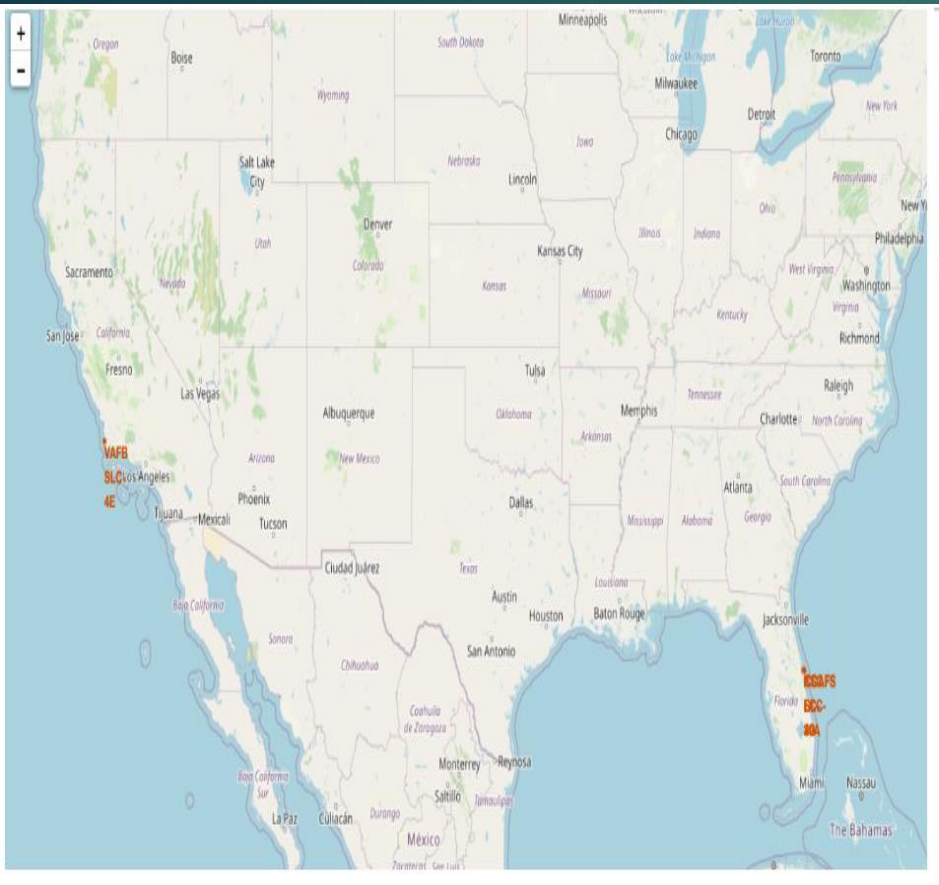
- Calculate the number of launches on each site.
- Calculate the number and occurrence of each orbit.
- Calculate the number and occurence of mission outcome of the orbits.
- Create a landing outcome label from Outcome column.

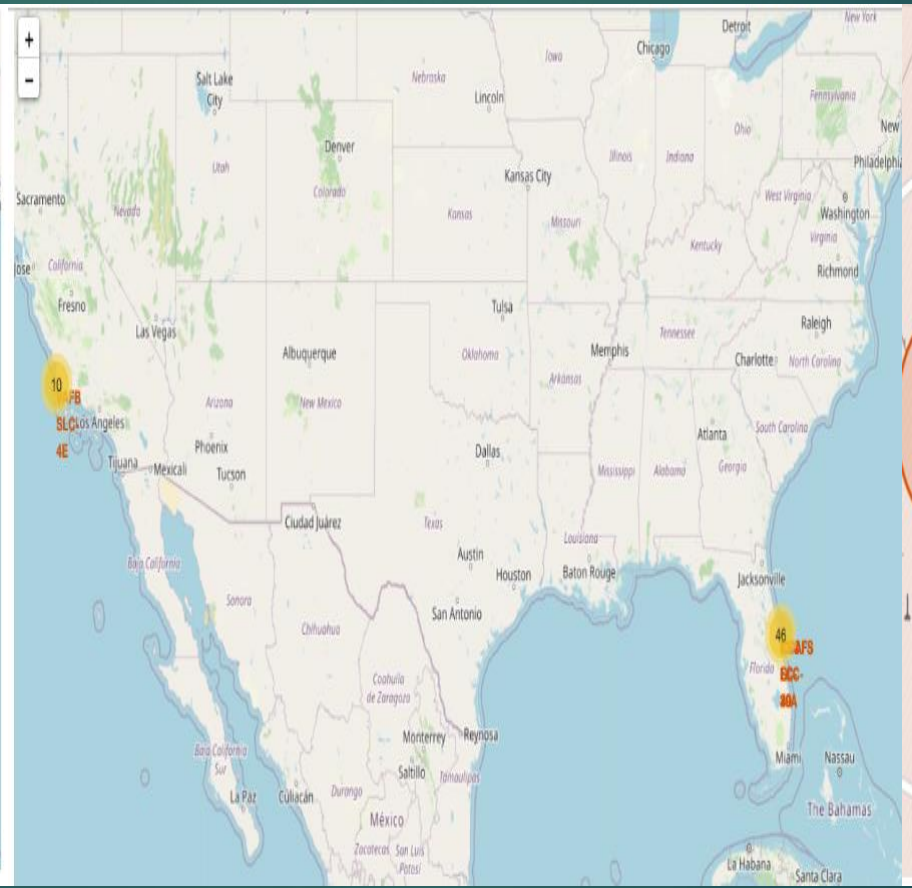
EDA with visualization results slides





Interactive map with Folium results slides



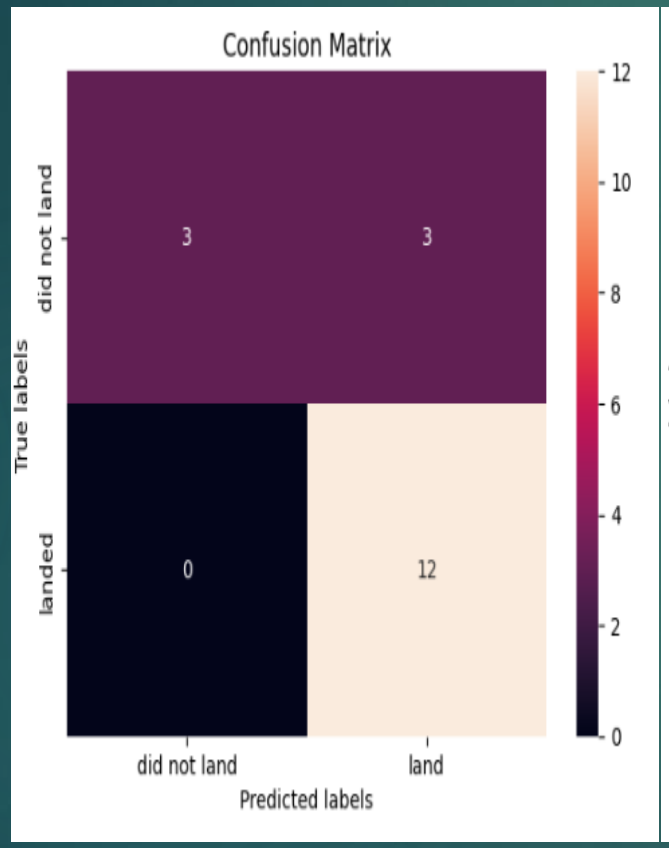


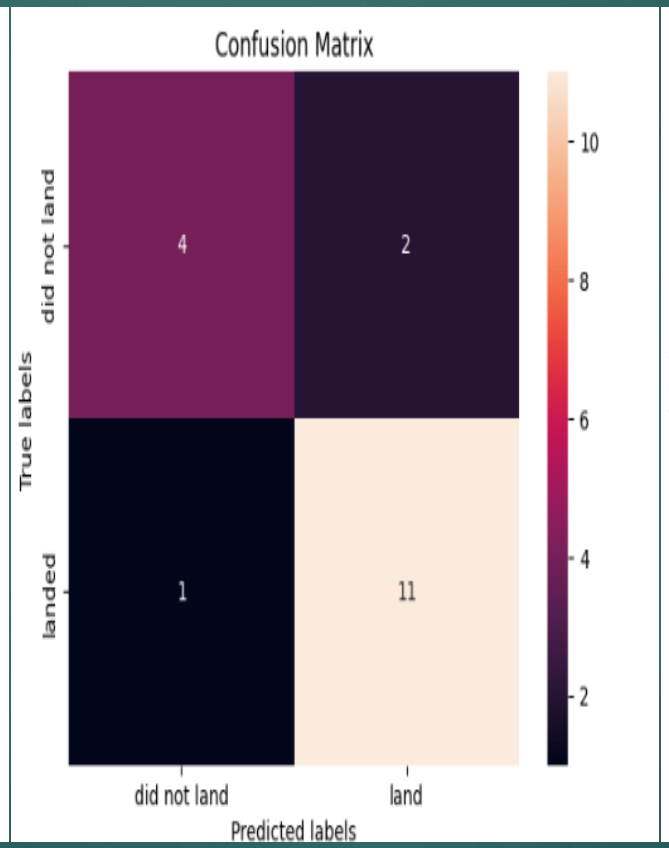
Plotly Dash dashboard results slides

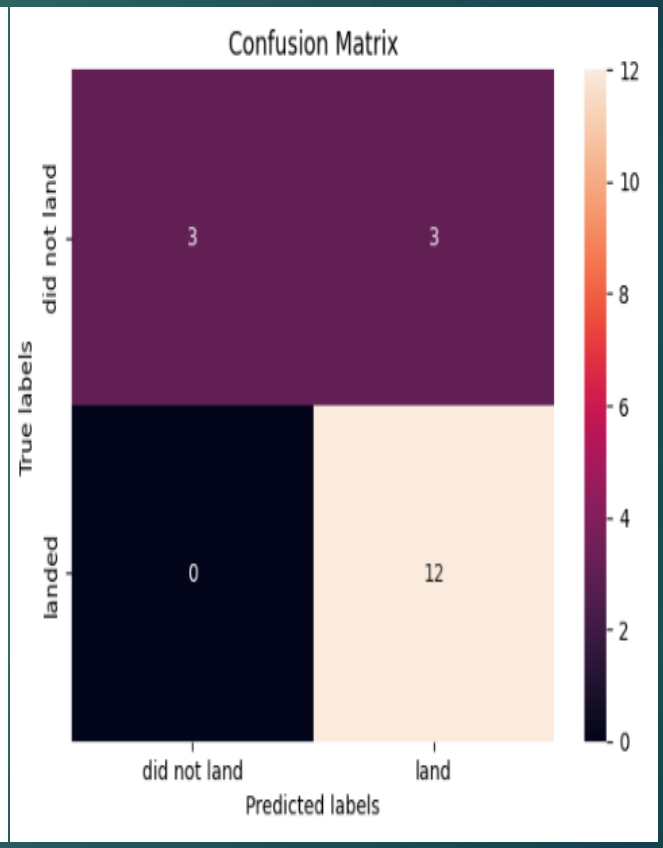
Predictive analysis methodology

- Performed logistic regression , support vector machine , decision tree, and k near neighbor using grid search and calculated accuracy using score method.
- The best was given by decision tree.
-

Predictive analysis (classification) results slides







Conclusion slide

- The data was taken from the website using web scrapping.
- The EDA was done using sql quires.
- Transform the data by removing nan values.
- Calculated accuracy using different machine learning techniques.