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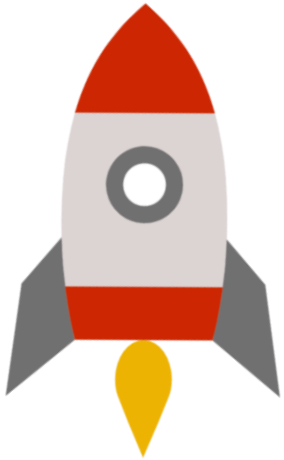
Executive Summary

Summary of methodologies

- Data collection
- Data wrangling
- Exploratory Data Analysis with Data Visualization
- Exploratory Data Analysis with SQL
- Building an interactive map with Folium
- Building a Dashboard with Plotly Dash
- Predictive analysis (Classification)



Summary of all results

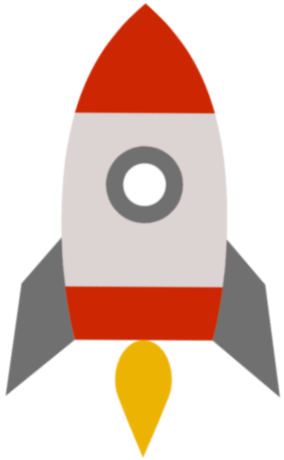
- Exploratory Data Analysis results
- Interactive analytics demo in screenshots
- Predictive analysis results

SPACEX

About SpaceX

Space Exploration Technologies Corp., commonly referred to as **SpaceX**, is an American space technology company headquartered at the Starbase development site near Brownsville, Texas.

Since its founding in 2002, the company has made numerous advancements in rocket propulsion, reusable launch vehicles, human spaceflight and satellite constellation technology.



As of 2024, SpaceX is the world's dominant space launch provider, its launch cadence eclipsing all others, including private competitors and national programs like the Chinese space program.[8]
SpaceX, NASA, and the United States Armed Forces work closely together by means of governmental contracts.[9]

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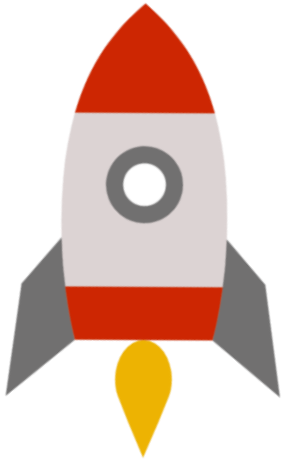
Insights from dataset

1. Launch Success Trends

•The **success rate of launches has increased over the years**. This suggests that as technology improves and SpaceX refines its rocket designs, the probability of successful landings increases.

•Earlier flights had a **lower success rate**, whereas recent flights have a much higher success rate.



2. Impact of Payload Mass

•The **payload mass affects the landing success**.

- **Heavier payloads (>7000 kg)** tend to have a **lower success rate**.
- **Moderate payloads (2000–5500 kg)** show the highest probability of success.
- This implies that optimizing payload mass can improve mission outcomes.

3. Best Performing Launch Site

•The **Kennedy Space Center Launch Complex 39A (KSC LC-39A) has the highest success rate (76.9%)**, making it the most reliable launch site.

•Other launch sites, such as CCAFS SLC-40 and VAFB SLC-4E, also show good performance but with slightly lower success rates.

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