

BITL1 CS1 Project 2 Report

My web app SpaceX VS NASA serves the purpose to compare two distinctly different space exploration agencies – NASA and SpaceX. NASA is a very old federal government agency while SpaceX is considerably newer private company, but which one is performing better? In my app you can compare rocket launches of both agencies in each year since the first launch of SpaceX in 2006 as well as location of all launching platforms and pads of both companies, where the rockets have been launched.

I chose to use r/SpaceX API's Launches dataset to get information about all individual SpaceX rocket launches and Launch Pads dataset to get information about their launching pads. I also used Launch Library API to get information about NASA launches through years and pad locations.

After receiving the data about SpaceX pads, I filter out location data and name and send that to frontend. After receiving the SpaceX launches information, I request Launch Library information about each year, which then I filter to get the NASA launch data as there are multiple agencies in the dataset. This process takes quite a lot of time (~25 s) since the dataset is not uniformly structured and contains data about the period of half a year maximum. After this filtering I make a dictionary of launch location data and number of launches in every year and combine with SpaceX launch info to send to frontend. During that time, I also prepare an array of years for graph visualization and a dictionary of number of SpaceX launches every year.

For the visualization I chose to make a map using Leaflet JS, which displays launch pads of both companies. NASA launch pads are displayed later, since NASA data takes longer to process. I also used Plotly JS to construct a scatter type line graph that displays two traces of the count of rockets launched in each year since year 2006 of both SpaceX and NASA.

From the additional criteria, I built my server using Flask framework as well as I used both r/SpaceX and Launch Library APIs to obtain the data.