**WORKFLOW PROPOSAL ::**

Download (ETL) – done in Python

Separate Python, just to clean up

HTML

Front End

Python Flask App

1. Connect to DB by SQLAlchemy
2. Query the data
3. Convert it in to JSON (API – key to JS – 1st route)
4. Render the raw HTML (2nd route for homepage)

SQL Lite DB (Cleaned)

JavaScript

Driving the HTML dynamically

**DATA EXPLORATION ::**

1. Overview of 40+ years of satellite launches?
   1. X :: years / decades
   2. Y :: counts
2. Plot satellite launch by countries : who has the most satellites (owner column)
   1. X :: country names – radial stacked bar chart
   2. Y :: counts
3. Plot satellite counts vs. users (civil, commercial, military), etc.:
   1. X :: purpose of usage
   2. Y :: the counts
4. Plot satellite counts vs. purpose (technology, communication), etc.:
   1. X :: purpose of usage
   2. Y :: the counts
5. Contractor vs. count:
   1. X :: contractor
   2. Y :: counts
6. Launch site vs. count:
   1. X :: launch site
   2. Y :: counts
7. Leaflet:
   1. Comparing 1970 – 2020 : slider over the map
   2. Choropleth maps (in total) : use the data from #2
8. Build demographic box for each satellite name:
   1. Country of origin, year launch, Mass, Power
   2. Longitude of GEO (degrees), Perigee (km), Apogee (km), Eccentricity, Inclination (degrees), Period (minutes) : this is the time to complete one rotation, Launch Mass (kg.)

Questions Ranking: 1, 2, 4, (**I’m thinking questions 3 & 4 are identical or similar, we could drop either one**), 6.

Definition of Terms

**Apogee and perigee** refer to the distance from the Earth to the moon. **Apogee** is the farthest point from the earth. **Perigee** is the closest point to the earth and it is in this stage that the moon appears larger.

Period (minutes): The **period** of a **satellite** is the time it takes it to make one full orbit around an object. The **period** of the Earth as it travels around the sun is one year. If you know the **satellite's** speed and the radius at which it orbits, you can figure out its **period**.

1. I thin we do not need to do anything with these coloums .
2. Country/Org of UN Registry,
3. Perigee
4. Apogee (km)
5. Eccentricity
6. Inclination (degrees)
7. Period (minutes)
8. Launch Mass (kg.)
9. Dry Mass (kg.)
10. Dry Mass (kg.)
11. Power (watts)
12. Date of Launch
13. Expected Lifetime (yrs.)
14. Launch Site

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| 1. Launch Site 2. Launc Vehicle 3. NORAD Number |  |  |  |  |

1. COSPAR Number