**Material Out-gassing in a Vacuum**

**Project Plan**

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* January Miller
* Code Louisville
* Data Analysis 1 (Wednesday)

**Project Plan Scope:**

**Objective:** Taking data collected from NASA on the potential out-gassing of certain materials, analyzing the data to determine which materials lost less mass in a vacuum, concluding what materials perform best in vacuum. Applications for this analysis include material selection for suits and space craft.

**To Do:**

* Create repo with readme, requirements, raw data, etc.
* Pull data
* Clean data
* Create loop to determine top performing materials (determine relevant percentage of sample)
* Plot the entire sample and the sample of top performers to better visualize results
* Self-inflicted-potential-bonus: search for cost data for the top performing materials and do a cost analysis on the results determining the most cost-effective choice with respect to performance.

**Project Features:**

* **Pandas read functions** to read in the data.
* **Lambda functions** to clean the data.
* **Python functions** to determine length of list of top/lowest performing materials.
* **Pandas calculation functions** to determine sum(), median(), mean(), mode() etc.
* **Matplotlib** to plot the entire data set and the percentage of top performing materials.
* **Jupyter Notebook** to organize data and describe process in markdown cells.

**Data Source:** [**https://data.nasa.gov/Applied-Science/Outgassing-Db/r588-f7pr**](https://data.nasa.gov/Applied-Science/Outgassing-Db/r588-f7pr)