# **DS 3000 – Dataset**

## **Project Topic Idea: Asteroid Threat Classification**

Of the project ideas you submitted in the previous deliverable, select the one you want to work on throughout this project. In making your decision, please refer to the feedback you have on the previous deliverable. If all ideas were found plausible, feel free to select the one that you liked the best as a team.

Complete this section based on the previous deliverable. After deciding on your topic idea, simply copy and paste the same information from the Topic Proposals document here.

### **Problem Statement**

Thousands of small bodies are found in our solar system at any given time. Often, the orbits of these small bodies come close to planets, including the earth. This project would pull data from multiple files to determine which asteroids pose the greatest risk to orbiting satellites and launches based on size and approach distance to Earth. Asteroids would be identified across the Spitzer telescope observation data set, and can be categorized by their names as well as orbit. Data could also be pulled from the same data set with approach distance pulled from the near earth object classification.

### **Significance of the Problem**

Many of the things we rely on in day to day life are based on satellites which orbit the planet. In addition, missions and satellites used to collect data are spread out in the solar system, and any of these missions being hit by asteroids would be a great loss for science and research. By classifying several of the objects in our solar system, we could note which pose greater threats than others, and which to keep an eye on in the future in case anything were to affect their path or otherwise cause them to head towards the earth of any probes in the solar system.

### **3. Dataset(s)**

The dataset that we scraped from can be found [here](https://pdssbn.astro.umd.edu/data_other/Spitzer.shtml) and [here](https://pdssbn.astro.umd.edu/data_other/objclass.shtml) which are based on the Spitzer telescope observations.

Link 1: <https://pdssbn.astro.umd.edu/data_other/Spitzer.shtml>,

Link 2: <https://pdssbn.astro.umd.edu/data_other/objclass.shtml>

**Dataset File**

Describe your variables below (add more rows if necessary):

|  |  |
| --- | --- |
| Variable name in file | Description |
| Index | The type of body that the row corresponds to |
| Name | The name of Comet, Asteroid, or Solar System body in question |
| NAIF Number | Integer code assigned by NASA's Navigation and Ancillary Information Facility to solar system objects, reference frames, and instruments that it tracks |
| Classification | How the body is classified (more information about this is contained within the classification table / CSV file) |
| Records | The amount of records that pertain to the given body |
| Link | Link to find out more about that particular body |
| Abbreviation | Abbreviation given to the classification of the body type |
| Title | The full name of the classification type of the body |
| Description | Describes the features of the particular body type classification |