

## Milestone 4 – Project Description

Our project is a database system for managing satellites and the various users of satellite operations. This proved to be a slightly complex model to try to implement at a small scale. We would imagine there is a lot to coordinating the launches and data acquisition for real satellite systems. Our application is to be used by space authorities and satellite enthusiasts to coordinate satellite launches, track satellites and receive data from those satellites.

Functionality from our current UI include: submitting a launch request, deleting a satellite, update properties (purpose) of constellations which are groups of satellites, selecting satellites in a certain orbit, getting orbit properties, mapping satellites to their constellation purpose, finding the maximum orbit eccentricity, finding average number of launches per organization and finding space agencies that have all of their launches approved. Users can update and track satellites to gain information about satellite systems and space agencies and then use this information to request a launch of their own satellite. In a more sophisticated system, the satellite property data would be analyzed and compared to ensure no collisions or interference between different satellites.

Our schema had to be adjusted along the way. After each milestone we made adjustments to our model. After the first milestone we had to change some of our entities, like USER, to fit them into the model and create more meaningful relations. After Milestone 2, we added functional dependencies and normalized the tables, resulting in 2 new tables: LOCATION and USER\_TYPE. After milestone 3, we had to adjust a lot of our data types to allow more flexible inputs from the UI. An example is the scheduled\_date field from launch\_request was changed from DATETIME to a string to give more lenience on the formatting. We also slightly changed the names of most of the tables so that we had consistent naming conventions.