Logical Data Requirements

- Stars are individual celestial bodies. A given star is assigned a catalog number which uniquely identifies it. In many cases (but not all) a star is given a name that is also unique. For each star we must record its magnitude of brightness and distance from earth. It's luminosity, temperature, and mass must also be recorded.

- Constellations are patterns formed by stars in the night sky. A constellation is formed by two or more stars, and a given star is a part of at most one constellation. Not all stars are necessarily a part of a constellation. For a given constellation either its name or abbreviation can be used to uniquely identify it and must be recorded. A description of the constellations shape must also be recorded. It is helpful to know what the brightest star in each constellation is.

- Planets are large celestial bodies that orbit potentially many stars. However, a given planet may be considered rogue, meaning it is not orbiting any stars. We need to record the nearest or innermost planet to each star as well as it's distance away from each planet that orbits it.

- A planets name is used to distinguish it from other planets, in other words, its name is unique. The mass in kilograms, diameter in kilograms, density, and surface temperature in degrees Celsius must be recorded. A planets appearance may be described by many colors and must also be recorded.

- Moons are natural satellites that orbit at most one planet at a given time, moons don't necessarily have to orbit another planet. In some rare cases, moons may become temporarily captured by the gravitational sphere of influence of another planet (eventually being ejected back into space). In those cases, we need to record the capture date and ejection date of the temporarily captured moon. Moons are assigned a unique name as well as a designation number which is also unique. The mass of the moon, diameter, orbital period, and surface temperature of the moon must be recorded.