**DataSense Cohort: Project Proposal**

The database that we will be designing and creating will store information on an autonomous vehicle (AV) network that does not yet exist, but may in the future. More specifically, this database will keep track of a set of AV taxi companies, their assets in terms of vehicles and maintenance facilities, and the services rendered to customers.

One of the core assumptions of this database is that the taxi companies will organize their vehicles into Fleets, each with a dedicated Garage where the vehicles are refueled and maintained when not in transit. Furthermore, we assume that services are issued in the form of Trips, which travel a given Route and track certain statistics, such as the distance travelled, the number of occupants, and the number of times the Trip has been performed for the given customer.

For the purpose of this mini-world, we will not be tracking individual occupants. Instead, each Trip will track the number of occupants and the customer ID of the individual who purchased the Trip.

~~We currently have nine listed entities, as well as nine binary relationships.~~ The Employee entity, which describes the workers assigned to the various garages, is broken into two disjoint subclasses, Mechanic and Foreman. This means that an employee can only be either a mechanic or a foreman. ~~Because we have nine binary relationships,. we will also have eighteen tables in our database.~~ **We will have eleven tables in our database. We have one M:N relationship, maintains, which will have its own relational table along with ten other tables for entities in the database. We have eight 1:N relationships, one 1:1 relationship and one M:N relationship.**

We are currently listing Route as a weak entity to imply total participation in the Trip entity, which would make the system more efficient because the Trip entity would store all of the pertinent information for the entire trip. In addition, making the Route entity weak would make the system more efficient because the Route entity would not have to store the same information the Trip entity would have.

The main constraints our database would have are due to the limited size of our miniworld. The miniworld will not be able to capture the intricate details of the inner workings of the company. We are storing minimal information on the company such as the garage, mechanics and foreman rather than the entire company.