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CMSC461
Project 1 Part A

Mars Reality, Inc requires a web or java application interface to a backend database. This database application needs to be lightweight and quick as all employees throughout the company will be utilizing the same information, often simultaneously. This database is required to hold information on the company's branches, employees, clients, properties, property owners, leases, advertising, and property viewings. The application needs to be able to query and report on aspects concerning employees in a branch, employees in the company, client data, and property data to include viewings, rents, locations, as well as property owners. This reality database application needs to allow employees to update and delete records. Reality database application also needs to be able to automatically update the rent based on Adaptive Rent Services. Reality database application needs to be able to sort the results on the data based on various criteria. Each item in the database will have a unique key.

All the data requirements will need to be modeled in an entity-relationship diagram. This diagram will demonstrate the attributes of the various entities, as well as their relationships such as, client(s) lease a property. There are many intertwined and complicated relationships in the data requirements, as well as a lot of duplicated data. Duplicated data in this context refers to multiple entities sharing attributes. There is a hierarchy relationship in property owners, whereby the owner can be private or a business. There are many specific data relationship requirements regarding the quantity of entities which can be related to another entity such as, an associate may be assigned a maximum of 30 properties. These relationship restrictions will need to be accounted for as rules in the database, which could trigger warnings if an employee violates them. The employee entity may or may not have a supervisor, and a supervisor is an employee. Each branch also has a manager, which is a supervisor, and also an employee. Mapping this relationship accurately may be tricky.

The reports will have to be formatted differently depending on the fields in the generated results table. All reports will have to be built in a standard printout fashion which is clearly legible.