

Milestone 2: Database Design

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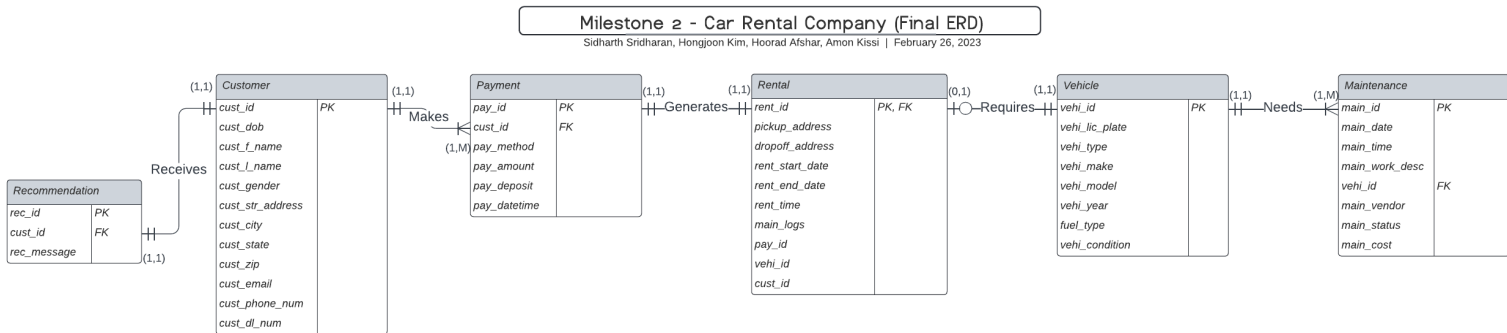
ITSS 4300: Database Fundamentals

Dr. Dawn Owens

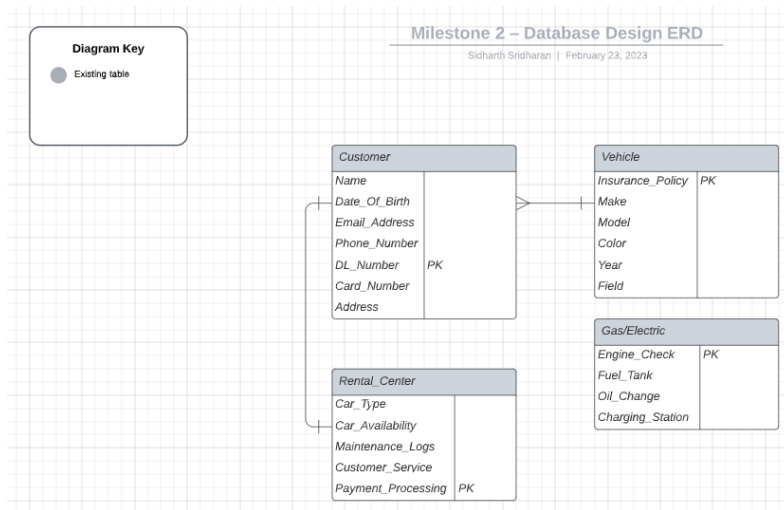
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Final ERD



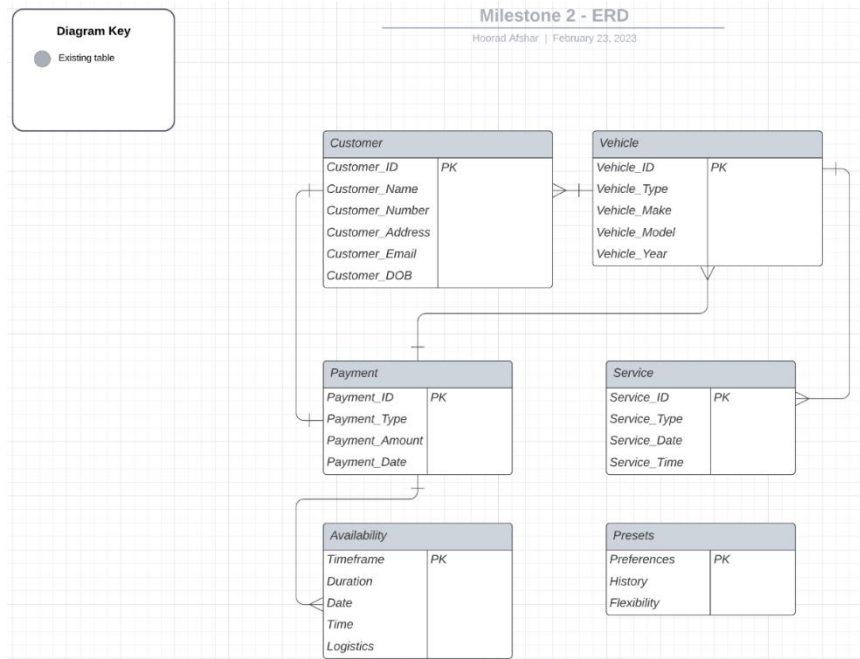
Team Member 1's ERD



This ERD was the most concise as it provided the barebone elements needed for the company to operate. The final ERD incorporated the dl_number attribute into the customer entity but utilized a more effective primary key for the customer. In the rental center entity, there is the car_type attribute that was found in the final ERD. The *maintenance_log* attribute was also added to the final ERD to record the history of a vehicle's maintenance. The biggest thing from this ERD that

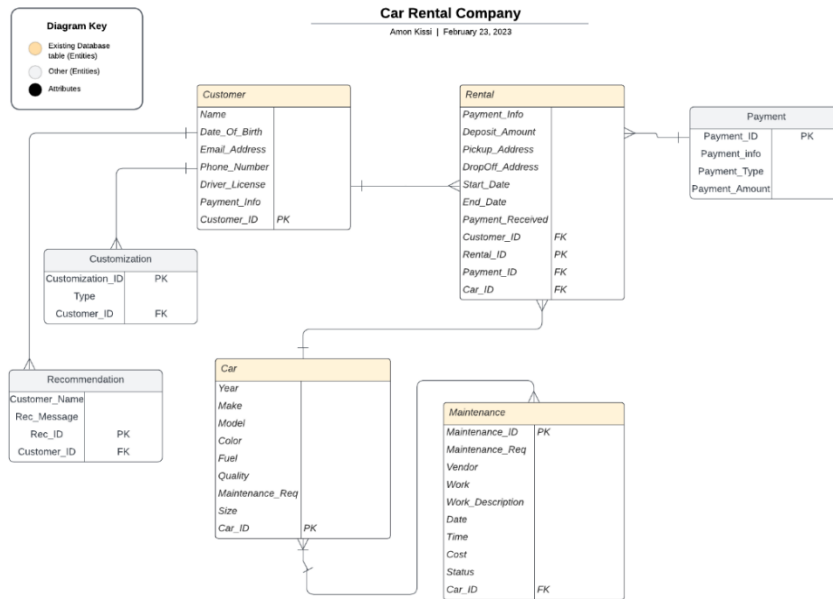
was omitted was the Gas/Electric entity in conjunction with the vehicle entity. The group created the rental car company under the fundamentals of the gas car, and that would make the costs and the maintenance of the rentals more convenient for the business and for the ERD.

Team Member 2's ERD



This was another ERD that represented many of the essentials of the rental company business. An important thing from this ERD that got added into the final ERD were the attributes of the Payment entity. Another component that was brought to the final ERD from here were the attributes in the Availability entity, like duration and date which were blended by using start_date and end_date for attributes. The biggest omission from this ERD that was not seen in the final ERD was the Presets entity. We gathered that a customer won't always have the same needs for a car because of the different circumstances that the customer would be under to utilize a vehicle. Therefore, having presets could be more cumbersome to handle.

Team Member 3's ERD



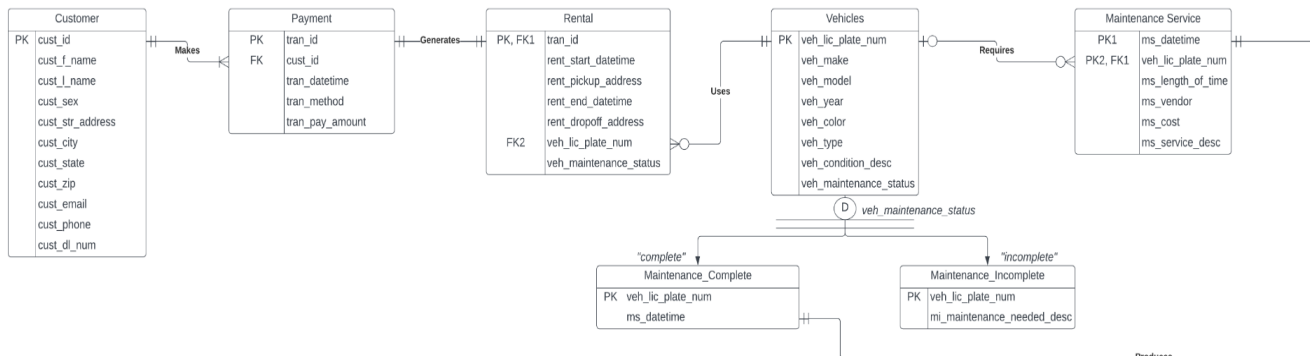
This ERD provided the central aspect of what attributes needed to be included in the Final ERD.

It involved a customer who has one-to-many relationships with the rental because a customer can have multiple rentals. The rental has a many-to-one relationship with the car cause a rental can be assigned to only one car at a time. The car has a many-to-many relationship with maintenance because a car can require maintenance multiple times. Maintenance has a many-to-one relationship with the vehicle because each maintenance job belongs to one car. The Two other entities, payment, and recommendation were added, and the customization was removed due to being unnecessary in the table.

Hongjoon's ERD

Car Rental Company

Hongjoon Kim | 2/23/2023



The ERD above attempts to relate the table in a logical order according to the basic business process of the car rental company. The customer makes a payment, which generates a rental record. The rental record needs a vehicle, which could be either ready to be rented or not (based on the value of the *veh_maintenance_status* field). Each vehicle may need maintenance services. After each maintenance service, a record is generated in the maintenance department. The entity subtypes under the “Vehicles” supertype are removed due to redundancy of themes. Instead, we decided to integrate some of the information from the subtype into the maintenance table in the final ERD. We also chose to incorporate the relationship labels and the connectivity (and their implied cardinality) into the final ERD.