CSE 3330 Project 2 Part 1

CAR RENTAL DATABASE

Bishal Giri

Subash Bhusal

Mubtasim Ahmed Rakheen

Introduction:

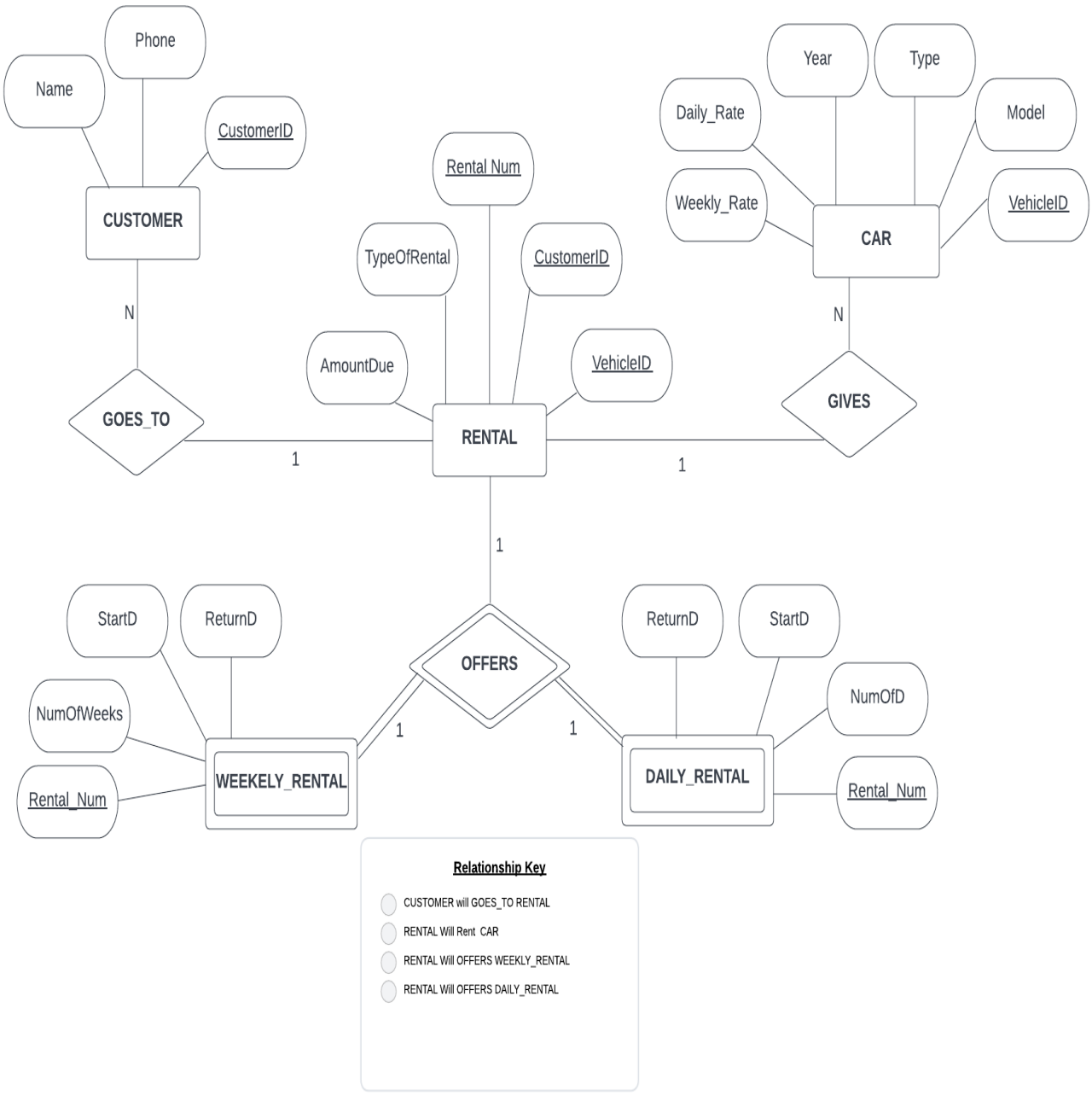
In this project, a database for storing data and managing details about a car rental company is designed. In order to complete this part of the project, we must first create the ER schema diagram based on the specifications provided in the project description. Then, using a drawing tool, we will translate the ER schema diagram into a relational database schema.

Description:

All clients are tracked by the car rental database. A customer has a name, a phone number, and a special identification number. Additionally, this database keeps track of rental cars, which are divided into 6 groups based on size. There is only one rental facility, and each type of vehicle has a unique daily and weekly rental pricing. Three characteristics of an automobile are its model, year of manufacture, and vehicle identification number.

Only vehicles that are now rented or slated for rental will be tracked in this database. Daily and weekly rentals are two different sorts. The daily rental will contain details on the vehicle, the client, the number of days, the start date, and the return date. The weekly rental agreement will contain details regarding the vehicle, the client, the number of weeks, the start date, and the return date. The rental database will also keep track of the amount due, which is determined by the weekly and rental rates for a particular kind of vehicle. The database will also keep track of which vehicles are offered for rent at what times.

ER Diagram:


Phone
Name
CustomerID
CUSTOMER
N
GOES_TO
1
Rental Num
TypeOfRental
CustomerID
AmountDue
VehicleID
RENTAL
1
1
Year
Type
Daily_Rate
Model
Weekly_Rate
VehicleID
CAR
N
GIVES
1
StartD
ReturnD
NumOfWeeks
Rental_Num
WEEKELY_RENTAL
OFFERS
1
1
ReturnD
StartD
NumOfD
DAILY_RENTAL
Rental_Num
Relationship Key
CUSTOMER will GOES_TO RENTAL
RENTAL Will Rent CAR
RENTAL Will OFFERS WEEKLY_RENTAL
RENTAL Will OFFERS DAILY_RENTAL

Entities:

- CUSTOMER
    - Name
    - Phone
    - CustomerID

- RENTAL
    - CustomerID
    - VehicleID
    - Rental_Num (Rental Number)
    - TypeOfRental (Type of Rental)
    - AmountDue

- CAR
    - VehicleID
    - Model
    - Type
    - Year
    - Daily_Rate
    - Weekly_Rate

- WEEKLY_RENTAL (Weak Entity)
    - Rental_Num (Rental Number)
    - StartD (Start Day)
    - ReturnD (Return Day)
    - NumofWeeks (Number of Weeks)

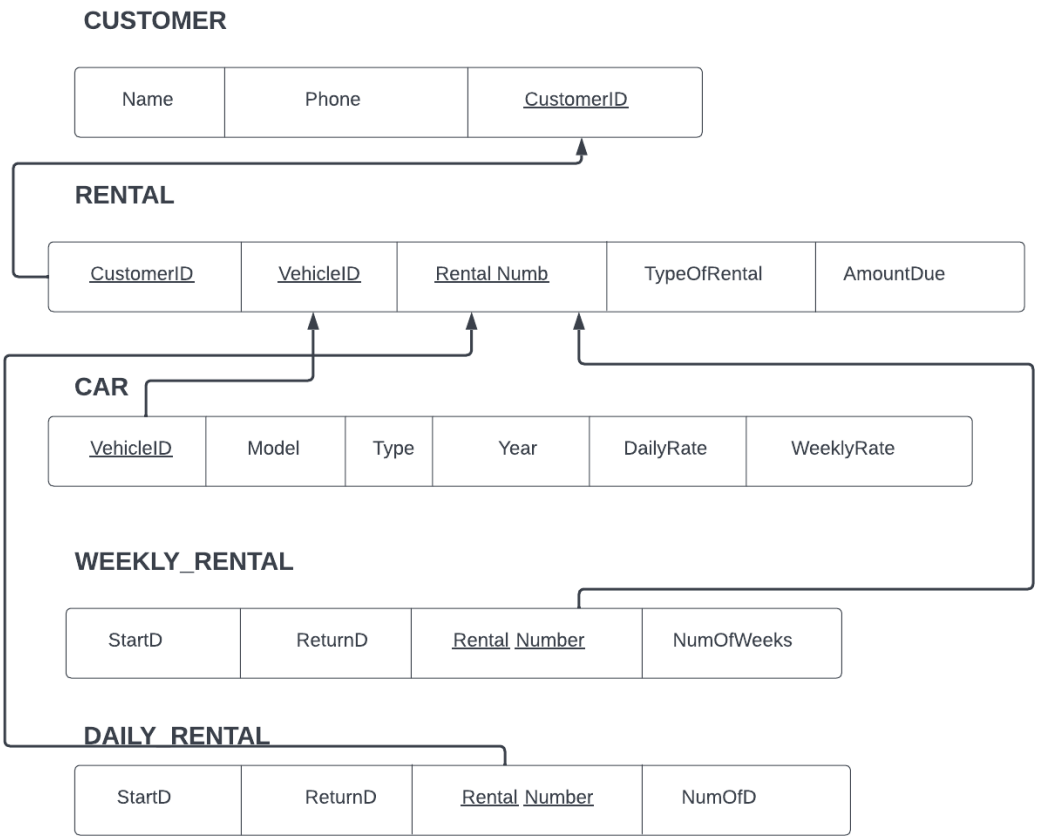
- DAILY_RENTAL (Weak Entity)
    - Rental_Num (Rental Number)
    - StartD (Start Date)
    - ReturnD (Return Date)
    - NumofD (Number of Days)

Relations:

- Customer Will GOES_To The Rental (N:1), Many customers are in 1 location.
- Rental Will Rent Car (1:N), One location will gives many different cars.
- Rental Will OFFERS Weekly_Rental (1:1), 1 location will offer either Weekly or Daily (Customer can choose whichever they like).
- Rental Will OFFERS Daily_Rental (1:1), One location will offer either Weekly or Daily (Customer can choose whichever they like).

The Weekly_Rental & Daily_Rental Entities are not strong entities, so they are dependent on the RENTAL Entity.

RELATIONAL DATABASE SCHEMA :



Entity	**Primary Key**	**Foreign Key**
CUSTOMER	CustomerID	~
CAR	VehicleID	~
RENTAL	Rental_Number	CustomerID (CUSTOMER), Vehicle ID (CAR)
WEEKLY_RENTAL	~	Rental_Number (RENTAL)
DAILY_RENTAL	~	Rental_Number (RENTAL)

Assumptions Made:

Here, we're presuming that the database doesn't hold historical data on the vehicles that customers have previously rented through RENTAL. The database must only record each car's scheduled and existing rentals, according to the criteria. Additionally, customers are not permitted to reserve a car before their initial car's rental period is complete, rent two cars at once, or do either of those things. As a result, RENTAL may have two vehicles with the same VehicleID, but it cannot have the same customer and identical CustomerID.

Missing/Incomplete Requirements:

- The number of cars rented by each customer.
- Type of payment and total payment which is required at the time of rental purchase.

HONOR CODE

I pledge, on my honor, to uphold UT Arlington's tradition of academic integrity, a tradition that values hard work and honest effort in the pursuit of academic excellence.

I promise that I will submit only work that I personally create or that I contribute to group collaborations, and I will appropriately reference any work from other sources. I will follow the highest standards of integrity and uphold the spirit of the Honor Code.