

DATABASE MANAGEMENT SYSTEMS DESIGN

TERM PROJECT – PHASE 1

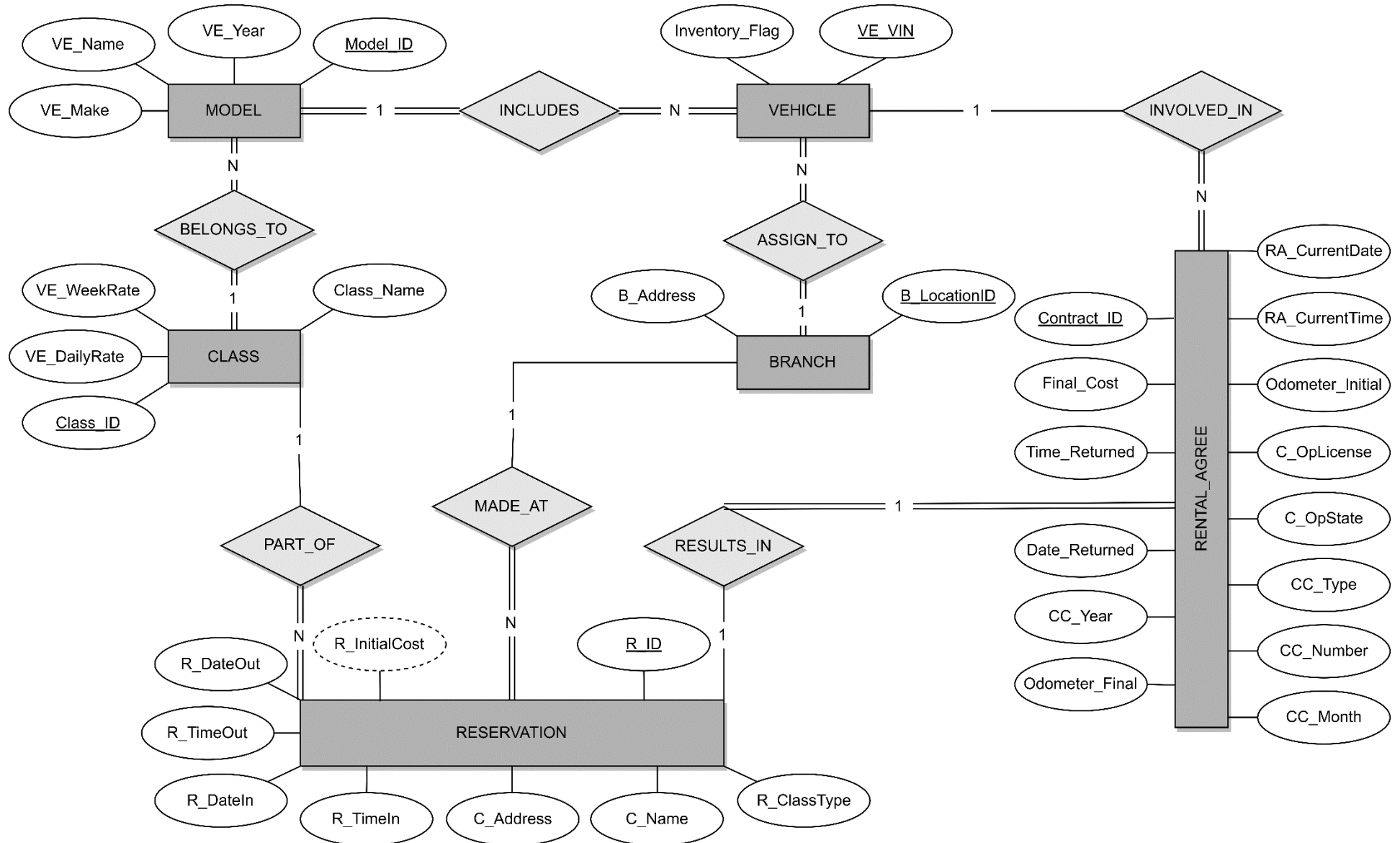
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1. INTRODUCTION

RentACar wishes to implement a database to control all aspects of its operations, including tracking car inventories, rental contracts, and billing. The following statements of business rules and relationships are used to construct a relational model:

- Each VEHICLE is uniquely identified by a Vehicle Identification Number (VIN). When customers make a reservation there needs to be a vehicle available for rent. Therefore, vehicle has an additional attribute to show the availability. It could be 'Y' if available, 'R' if reserved, 'C' if confirmed.
- Each vehicle description includes a MODEL that consist of the make (i.e., Ford, Honda...), year and name.
- Each model belongs to a CLASS with two different rental rates: daily and weekly rate. Rental prices are determined based on the class (i.e., Van, Pickup Truck, Mid-size car, SUV...).
- Each vehicle is assigned to a BRANCH and each branch can have one or more vehicles. Branch is identified by a unique Location ID and includes an address.
- RESERVATION carries the details about Customer name, address, class type (daily or weekly rental), rate, and duration of the rental with start and end time. A reservation is made for the pickup of a particular class at a specific branch.
- RESERVATION, MODEL and CLASS would have an artificial ID that increments by 1 from maximum value and serves to uniquely identify each entry.
- When a reservation is confirmed, a RENTAL AGREEMENT is made. A reservation gets confirmed when the customer arrives to the branch to pick up the car. Rental Agreement is uniquely identified by the Contract ID, includes the vehicle VIN, current date, and time for the rental to start and initial odometer reading. Entity also carries customer information: license number, state that issued the license, credit card number, type (i.e., Visa, MasterCard...), expiration month and year.
- When vehicle is returned, the rental agreement incorporates information such as final odometer reading, date and time returned, and final rental rate. This forms the complete operations cycle.

2. ENTITY-RELATIONSHIP (ER) SCHEMA



3. RELATIONAL MODEL

