

Assignment #1 - Data Modeling (100 points)**Problem 1 -**

Draw an entity-relationship diagram in the space below that describes the following business environment. Use intersection data notion, not associate entities when creating the diagram. (Must include all entities, relationships, intersecting data, cardinality, and modality for full credit)

Grading Rubric: (Total 56 points)

- 1 point for each = entity, attribute, relationship symbol, and unique identifier drawn out
- 4 points for each cardinality and modality of each relationship
- 2 points for intersection data symbols

The Atlantic Aquarium wants to maintain information about its animals, the enclosures in which they live, the volunteers they employ and the services they perform for the animals. In addition, Atlantic Aquarium has a program by which people can be sponsor of animals. Atlantic Aquarium wants to track its sponsors, their dependents, and associated data.

Each animal has a unique animal number, species, name (Flipper, Bubbles, etc), gender, region of origin, and weight. Enclosures have a unique enclosure number, type (tank, pool, etc), location, size, and date built. An animal can live in only one enclosure. An enclosure can have several animals in it or it can be currently empty. A volunteer has a unique employee number, employee name, title, and year hired. Some volunteers supervise other volunteers. Volunteer supervisors must have volunteers they supervise. Every animal has been cared for by at least one and generally many volunteers. A volunteer may not have cared for an animal, but others may have cared for many animals. Each time a volunteer performs a specific, significant service for an animal the service type, date, and time are recorded.

A sponsor sponsors at least one and possibly several animals. An animal may have several sponsors or none. A sponsor has a unique sponsor number, a name, address, and telephone number. For each animal that a particular sponsor sponsors, the aquarium wants to track the annual sponsorship contribution and renewal date.

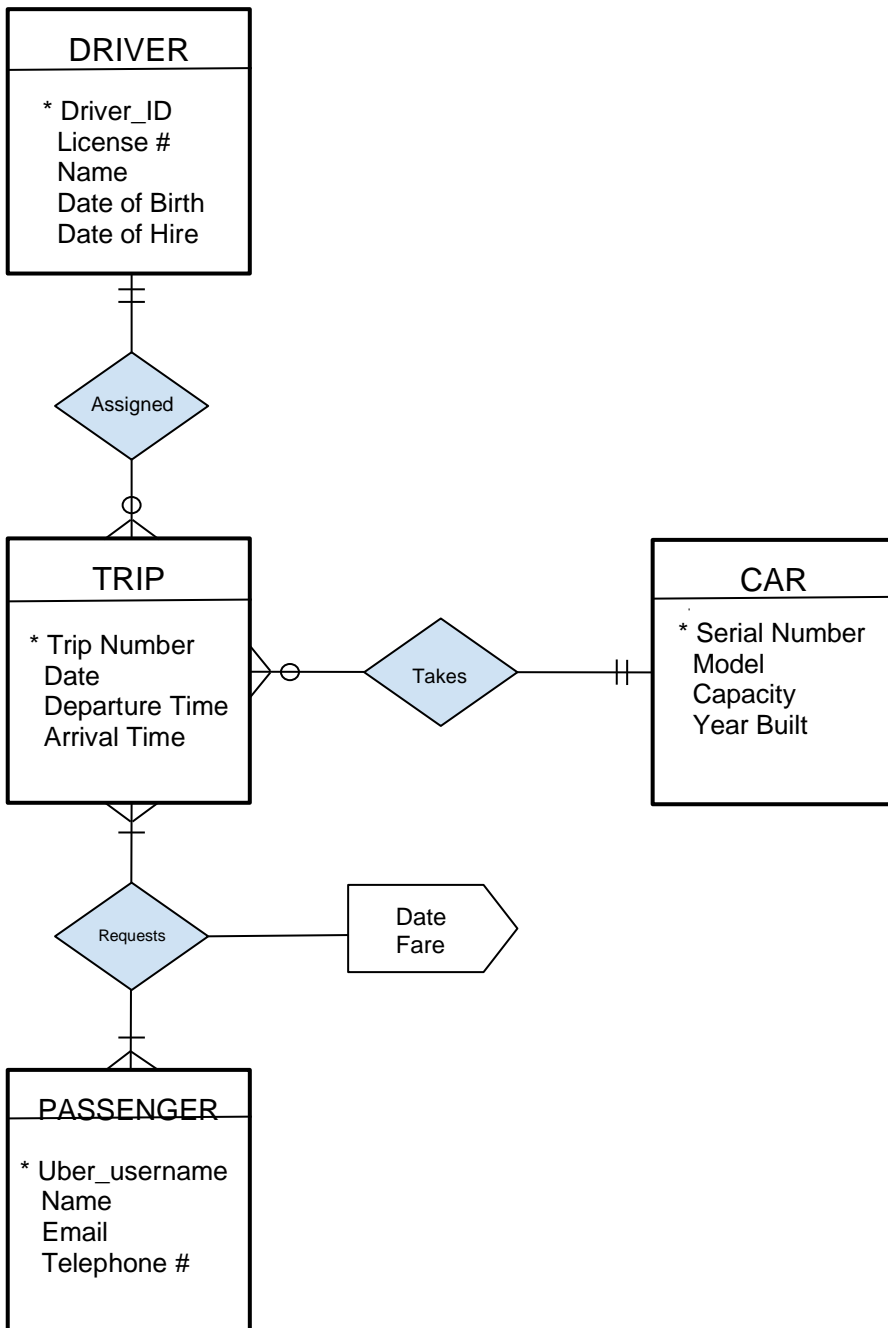
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Problem 2 -

Using the following E-R Diagram write out the business environment in the space provided. (You can do this in a bulleted list in the box provided) Make sure to include intersection data and explain what type of entity that becomes in the data. (Must include all entities, unique identifiers, attributes, relationships, intersecting data, cardinality, and modality for full credit)

Grading Rubric: (Total 44 points)

- 5 point for each entity with attribute and unique identifier written out
- 4 points for each relationship written out with cardinality and modality
- 2 points to write out each piece of intersection data, 4 points to write out what it becomes in the data



Write out the business environment in this space provided - use bullets to break apart each entity/relationship

Entities:

- The Driver entity has the attributes Driver_ID (also the unique identifier), License #, Name, Date of Birth, and Date of Hire.
- The Trip entity has the attributes Trip Number (also the unique identifier), Date, Departure Time, and Arrival Time.
- The Passenger entity has the attributes Uber_username (also the unique identifier), Name, Email, and Telephone #.
- The Car entity has the attributes Serial Number (also the unique identifier), Model, Capacity, and Year Built.

Relationships:

- Exactly one Driver is assigned to zero-to-many Trips.
- Exactly one Car takes zero-to-many Trips.
- One-to-many Passengers requests one-to-many Trips.
- The intersection data of Date and Fare is an associative entity from the many-to-many relationship between Passenger and Trip.

