1. (5’) What is a database management system and how do relational databases organize data?
2. (5’) What are 4 different types of DBMS table relationships. Give a brief explanation for each.
3. (10’) What is a primary key and why is it important?
4. (5’) Some of the Fordham University databases/applications represent the year/semester attribute of a section in the form "2023_2". The first four characters are the academic year, and the last character is the semester (1, 2, or 3). The data type for this attribute might be char(6). Using this example, explain the concepts of domain and atomic domain. How is domain different from type?
5. (5’) Briefly explain the difference between a schema and instance.
6. (20’) Design a relational database corresponding to the E-R diagram of Figure 1.

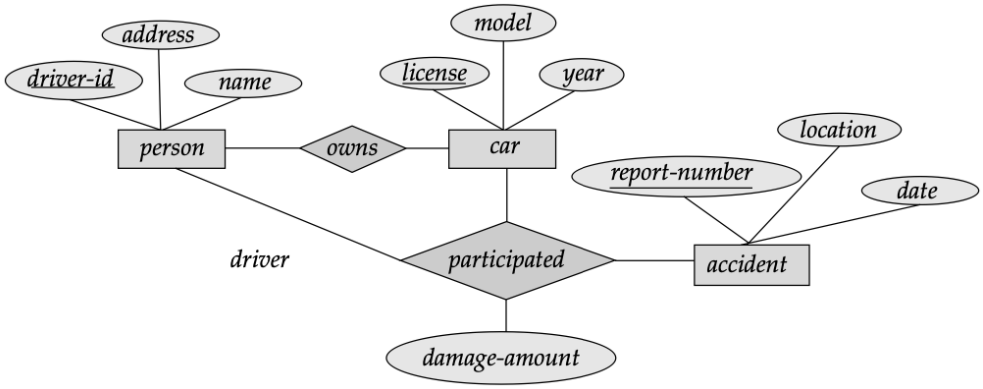

Figure 1

7. (20’) Construct an E-R diagram for a car insurance company whose customers own one or more cars each. Each car has associated with it zero to any number of recorded accidents. Each insurance policy covers one or more cars and has one or more premium payments associated with it. Each payment is for a particular period of time, and has an associated due date, and the date when the payment was received.
8. (20’) Design an E-R diagram for keeping track of the scoring statistics of your favorite sports team. You should store the matches played, the scores in each match, the players in each match, and individual player scoring statistics for each match. Summary statistics should be modeled as derived attributes with an explanation as to how they are computed.
9. (10’) Lab setup