In the context of database application development (aka database engineering), what are the aims of data modeling?

* In the context of database application development, the objectives of imposing data modelling are to construct and establish relationship between entities in accordance with its business rules. This is to produce high quality and steady data which are structured for operating business that can accomplish reliable results.

What is a business rule, and what is its purpose in data modeling?

* A business rule is a result from interviewing what the concept or vision of the clients. This can be produced in both ways. These are Chen or Crow’s model. One of the purposes of business rule in data modelling is to affirm business structure or to advocate the behavior of the business. It can define the operations and present the possibilities of constraints a business had on its organization.

Create a data model based on the business rules that are as follows:

a. Each sales representative writes many invoices. |< (R)

write

Invoice

Representative

b. Each invoice is written by one sales representative. || (R)

Invoice

write

Representative

c. Each sales representative is assigned to one department. || (L)

assign

Department

Representative

d. Each department has many sales representatives. |< (R)

has

Department

Representative

e. Each customer can generate many invoices. O< (R)

generate

Invoice

Customer

f. Each invoice is generated by one customer. || (R)

generate

Customer

Invoice

4. Write a business rule based on the data model below, as shown.

Chart, diagram

Description automatically generated

**ADVISOR ← → STUDENT**

* Each advisor teaches many students. Each student must have one advisor.

**STUDENT ← → VEHICLE**

* Each student owns one vehicle. Each vehicle is owned by one student.

**STUDENT ← → CLASS**

* Each student can attend many classes. Each class can accommodate many students.

5. Researchers work on different research projects, and the connection between them can be modeled by a WorksOn relationship. Consider the following two different ER diagrams to represent this situation. Which do you think is the most appropriate model for this scenario?

Diagram

Description automatically generated