



Logical Data Diagrams

Objective

The objective in this exercise is to practice some of the techniques you will need for the challenges.

Overview

In this exercise, you will create logical data diagrams from the previous exercise or from the scenarios given.

Part 1 – Scenario

Acme Vehicle Hire rents vehicles to customers. Vehicles are rented by an employee who takes payment by credit card. The customer has the choice of paying for insurance or using their own insurance.

When the vehicle is returned, it is checked by a service employee who will advise if any repair is necessary.

Part 1a

The database type chosen for this scenario is a relational database.

Identifying the tables, columns, and relationships

1. Identify and make a list of the tables and columns needed to create a Logical Diagram from your Conceptual one.
2. Decide what linking tables are needed, if any.
3. Draw these tables, columns, and relations as a diagram. (Use whatever tool you prefer or have available but use crows foot style notation. Use paper if no tool is available).



Part 2 – Scenario

Cerberus Security Systems are a company which produces and sells domestic (house) alarm systems that are assembled from components. Some components are manufactured internally but others are purchased from suppliers. Manufactured components are available from stock but purchased components are only bought as required to complete a system.

An engineer surveys the house and then produces a specification for the alarm system. The system and components are then assembled to match the specification.

Part 2a

Identifying the tables, columns, and relationships

1. Identify and make a list of the tables and columns needed to create a Logical Diagram from your Conceptual one.
2. Decide what linking tables are needed, if any.
3. Draw these tables, columns, and relations as a diagram. Ensure that Primary Keys are identified. (Use whatever tool you prefer or have available but use crows foot style notation. Use paper if no tool is available).

Part 3 – Scenario

Create Conceptual and Logical Data Diagrams

A company wants to computerise the booking of their meeting rooms. Currently, when a manager needs a room a booking clerk in the HR department creates a booking which allocates a room to the manager for a specific period on a specific date. A manager may book a room multiple times during any day or on multiple days. For any session the manager is also able to book extra equipment such as large screen televisions, conferencing equipment, flip charts, etc.

- Using UML notation create a Conceptual Data Diagram describing the scenario. The diagram should show the entities and relationships with their cardinalities.
- Using the Conceptual Data Diagram as the basis, create a Logical Data Diagram representing these entities as tables. Add relationships and identify Primary Keys.
- Add whatever columns you deem necessary to contain necessary data.

Information Engineering Style



one to one



one to many (mandatory)



many



one or more (mandatory)



one and only one (mandatory)



zero or one (optional)



zero to many (optional)