DAT251x

Introducing Data Modeling

Lab 03 | Designing Logical Models

Estimated time to complete this lab is 60 minutes

Overview

In this lab, you will use the output of Lab 02 - Normalizing Data, to build a Logical Data Model. This will involve preparing an Entity Relationships Diagram (ERD).

Note: The four labs in this course are accumulative. You cannot complete this lab if you did not successfully complete **Lab 02**.

Getting Started

In this exercise, you will review the exhibits and case study story provided to build a list of entities and attributes. Since the deliverables for this lab are in both a text format and graphic format, you can use hand-drawn diagrams, desktop software such as Microsoft Word, Microsoft Excel, or other tools. See the recommendations in Lab 01 – Lab Setup for more information.

Exercise 1: Diagram Entities and Relationships

In this exercise, you will create a draft Entity Relationship Diagram based on the list of candidate entities and attributes you modeled in Lab 02, Normalizing Data.

Airport Valet Parking Case Study

A business user at Airport Valet has provided you with a sample of the Driver's Ticket as shown in Exhibit 1 - Driver's Ticket Document. You'll need to review it and update your list of candidate entities and attributes from Lab 02, Normalizing Data. The icons of the four sides of a vehicle are used to indicate damage found on the vehicle at the time it is received from the customer.

Using the same case study in Lab 02, Normalizing Data, the output from that lab, and Exhibit 1 below, draw an Entity Relationships Diagram for your Logical Data Model. Include the following items in your ERD:

1. Entities & Attributes
2. Relationships with cardinalities and optionalities
3. Primary Key attributes, above the line of the entity box and marked as (PK)
4. Foreign Key attributes, marked as (FK)

If you discover new attributes or entities during this exercise, remember to write a definition for them.

You do not need to identify datatypes or assign NULL or NOT NULL properties during this exercise.

The result of completing this exercise is a Logical Data Model Entity Relationship Diagram. As a start, here are two entities that should be on your list:

Notes:

Document any questions or assumptions you have made in preparing your Logical Data Model diagram.

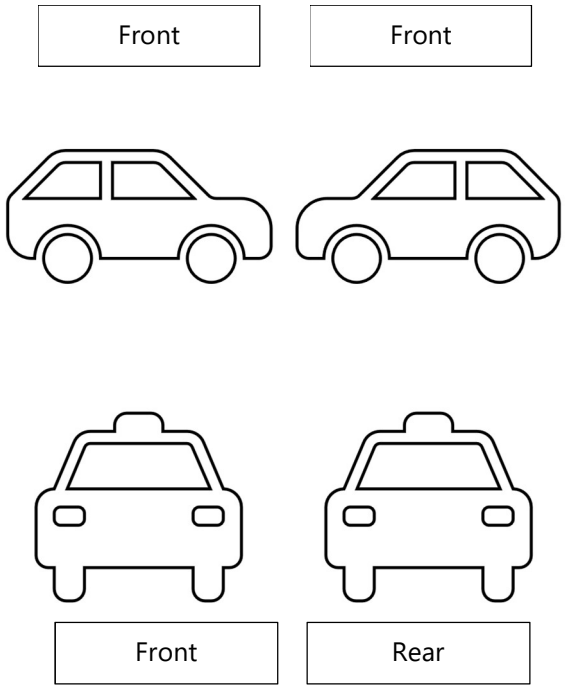
Airport Valet Parking

When you want to let someone else do the parking.

Driver's Ticket

Registration Number: 12345

Holding Area	Parking Spot	Parked By	Pulled By
1	NW 123	Bob	Juanita



License Plate: 123 AAA
Car Make: Neptune IV
Customer Name: Karen Lopez
Parking Date: 2 Feb 2017 Time: 9:27 AM
Pulled Date: 9 Feb 2017 Time: 10:47

Exercise 2: Add Datatypes and NULL Property

In this exercise, you will finish your ERD by adding datatypes and NULL property.

1. For each attribute, identify a basic datatype. Some suggested datatypes:
    a. Integer
    b. Decimal(,)
    c. Character()
    d. Percentage
    e. Date
    f. Time
    g. Datetime
    h. Amount - for financial amounts
    i. Quantity - for a count of things
    j. or any other logical datatype

2. For each attribute, identify whether a value must be required (NOT NULL) at the time the data is recorded or is optional (NULL).
3. If you discover or require any new entities while doing this exercise, update your list of entities.
4. Document any assumptions or questions you have about these attributes.

Notes:

Remember that Foreign Keys and the Primary Keys to which they point should have matching datatypes. Remember that Primary Keys are required to have a value

Retain your results; you'll be using them in the next lab.

Exercise 3 – Add Receipt Support

A business user has provided a copy of a customer receipt, plus an update to the case study. In this exercise you will:

1. Identify any new entities or attributes required to support these additional requirements
2. Identify and mark any data protection requirements for your model. This may include identifying attributes that need extra security or privacy requirements. You can add this information to your Entity Relationships Diagram and / or to your list of entities and attributes.

Airport Valet Parking Case Study

When a customer returns on their flight, the following steps are taken:

1. Upon landing, the customer calls the Airport Valet Parking desk with their Registration Number to have their vehicle pulled from the parking spot.
2. A driver is given the most recent Driver's Ticket to retrieve the vehicle from its last parking spot.
3. The customer returns to the customer arrival area at Airport Valet Parking and pays for the actual parking time since the vehicle was parked. The customer may provide a promotional discount coupon provided by their airline or other travel partner. If the customer requested any optional services at registration time, those charges are included on the transaction.
4. Sales Tax and other fees are added to the charges.
5. The customer pays the final amount, then is issued a receipt. This receipt contains an code the customer can use to exit through the security gate.

Airport Valet Parking

When you want to let someone else do the parking.

Thank you for your business!

Registration Number: 12345

License Plate: 123 AAA
Car Make: Neptune IV

Customer Name: Karen Lopez
Payment: XXXX XXXX XXXX 1234

Parking Date: 2 Feb 2017 Time: 9:07 AM
Return Date: 9 Feb 2017 Time: 10:57 PM

Promo Code: DAT251X
Frequent Flyer Number: 12345678

Have a nice trip!
CSR Marc

Parking Fee:	$125.00
Services:	$45.00
Discount:	$17.00
Sub Total:	**$153.00**
Tax:	$12.24
Total:	**$165.24**

Exit Code: 4321