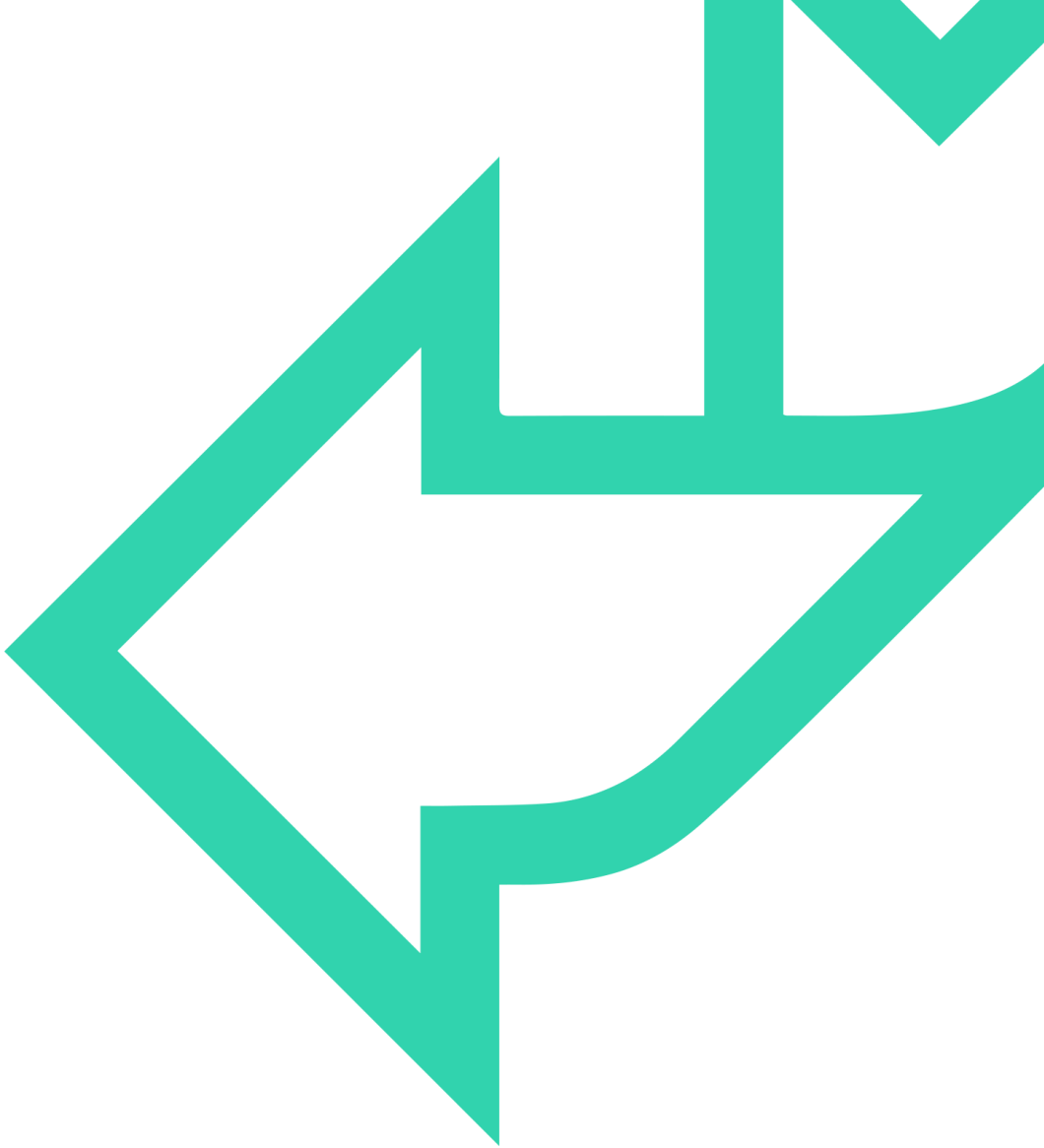
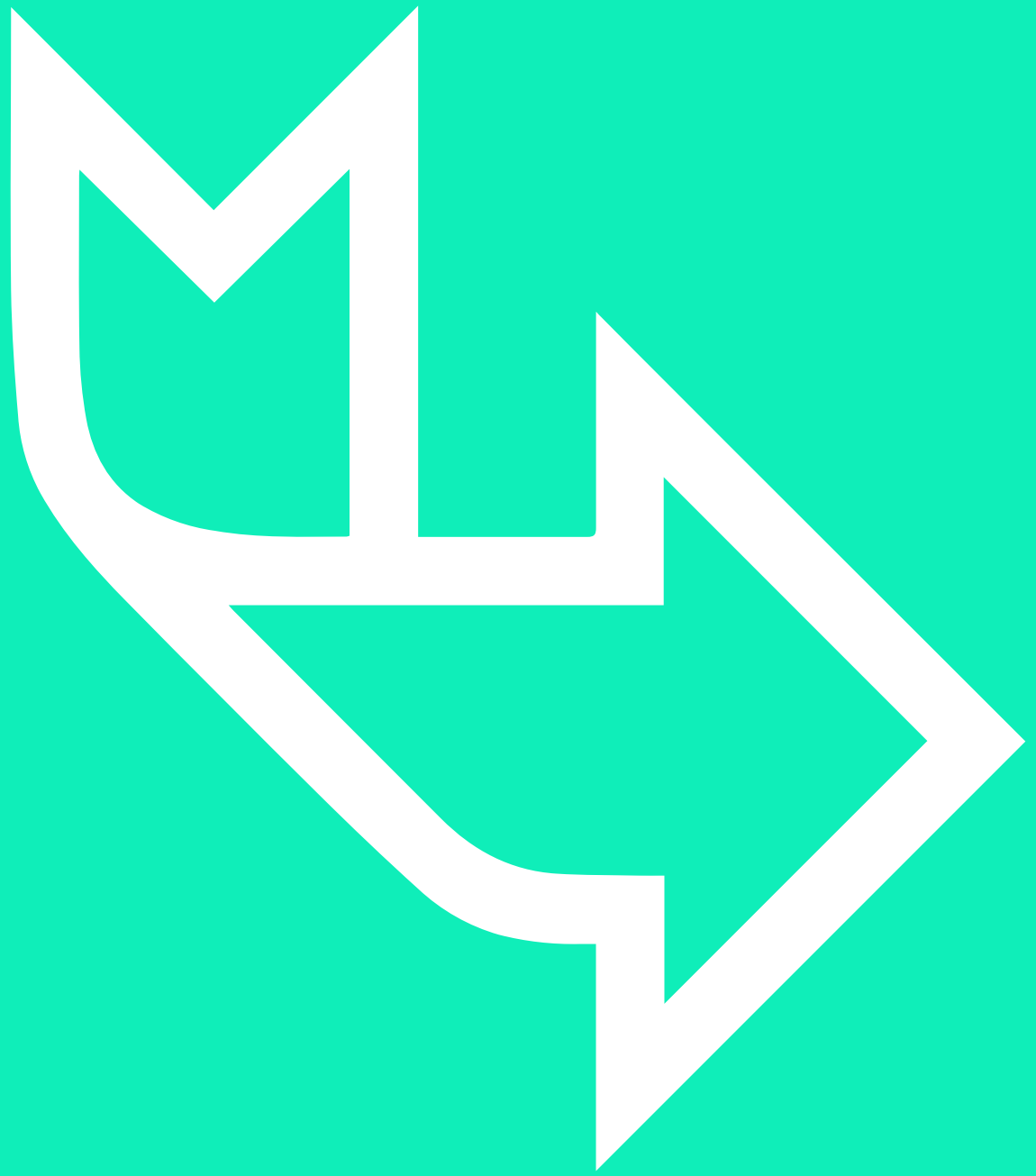
POWERING POTENTIAL

Logical Data Models





Data Modelling

Lesson Objectives and Contents

→ Logical Data Model

Logical Data Model

Includes

→ All entities and relationships

→ All attributes for each entity

→ The primary key for each entity

→ Foreign keys

→ Normalisation occurs at this level

Logical Data Model

At this level...

→ Resolve many-to-many relationships

→ Perform Normalisation

Logical Diagram

One to One and One to Many

UML Diagrams

‘One to One’

‘One to Many’

Logical Diagram

Many to Many

‘Many to Many’

Logical Diagram

The Many-to-Many Problem

How can we store this data?

Employee	Vehicle
E1	A,B,C
E2	D,E
E3	A,E
E4	B,E
E5	A,C,E
E6	D

Logical Diagram

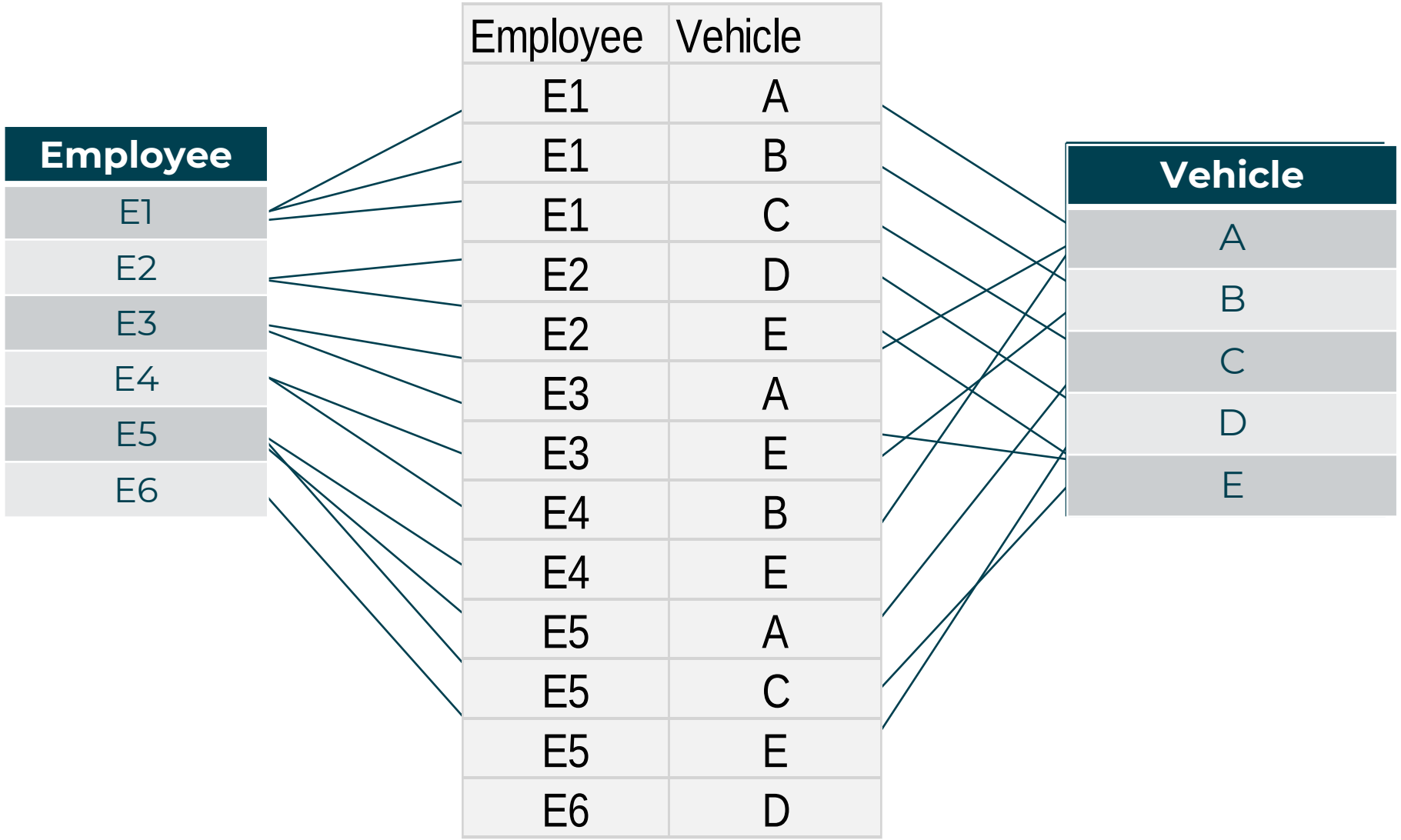
The Many-to-Many Problem

Perhaps we should store it like this?

Vehicle	Employee
A	E1,E3,E5
B	E1,E4
C	E1,E5
D	E2,E6
E	E2,E3,E4,E5

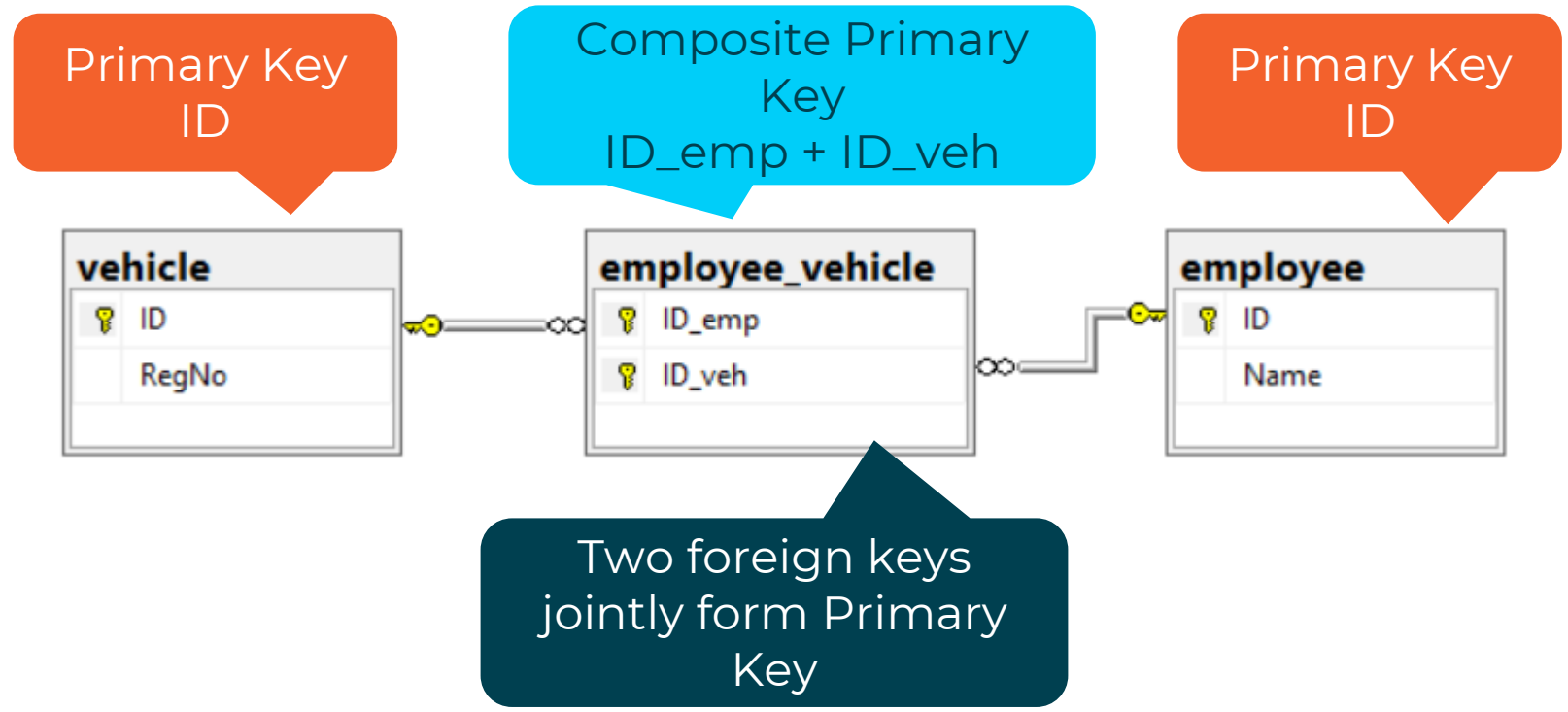
It depends what questions we wish to ask.

Many-to-Many Solution



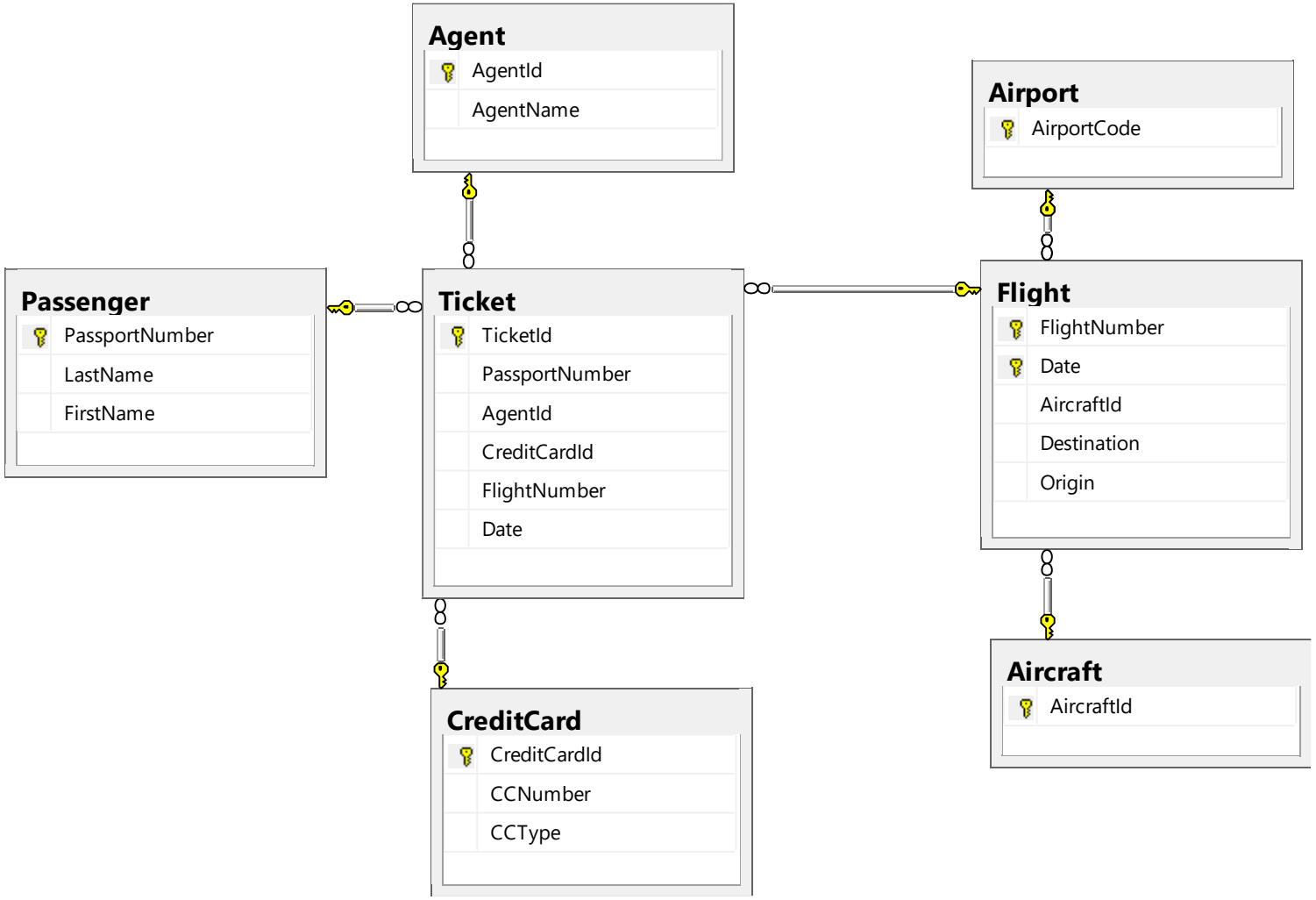
Many-to-Many Solution

Logical Model (SQL Server)



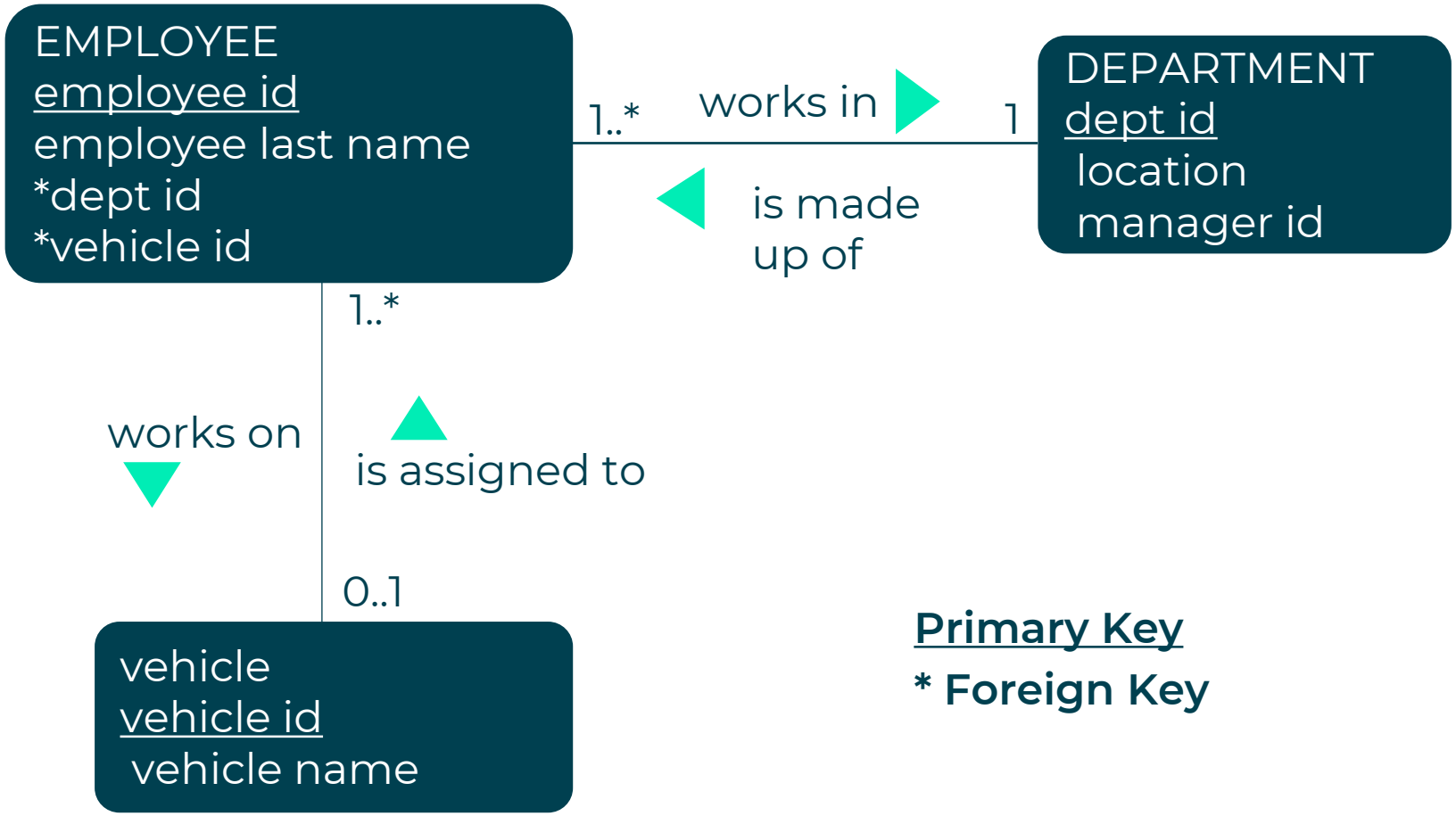
In this example, not all attributes are shown.

Logical Diagram (SQL Server)



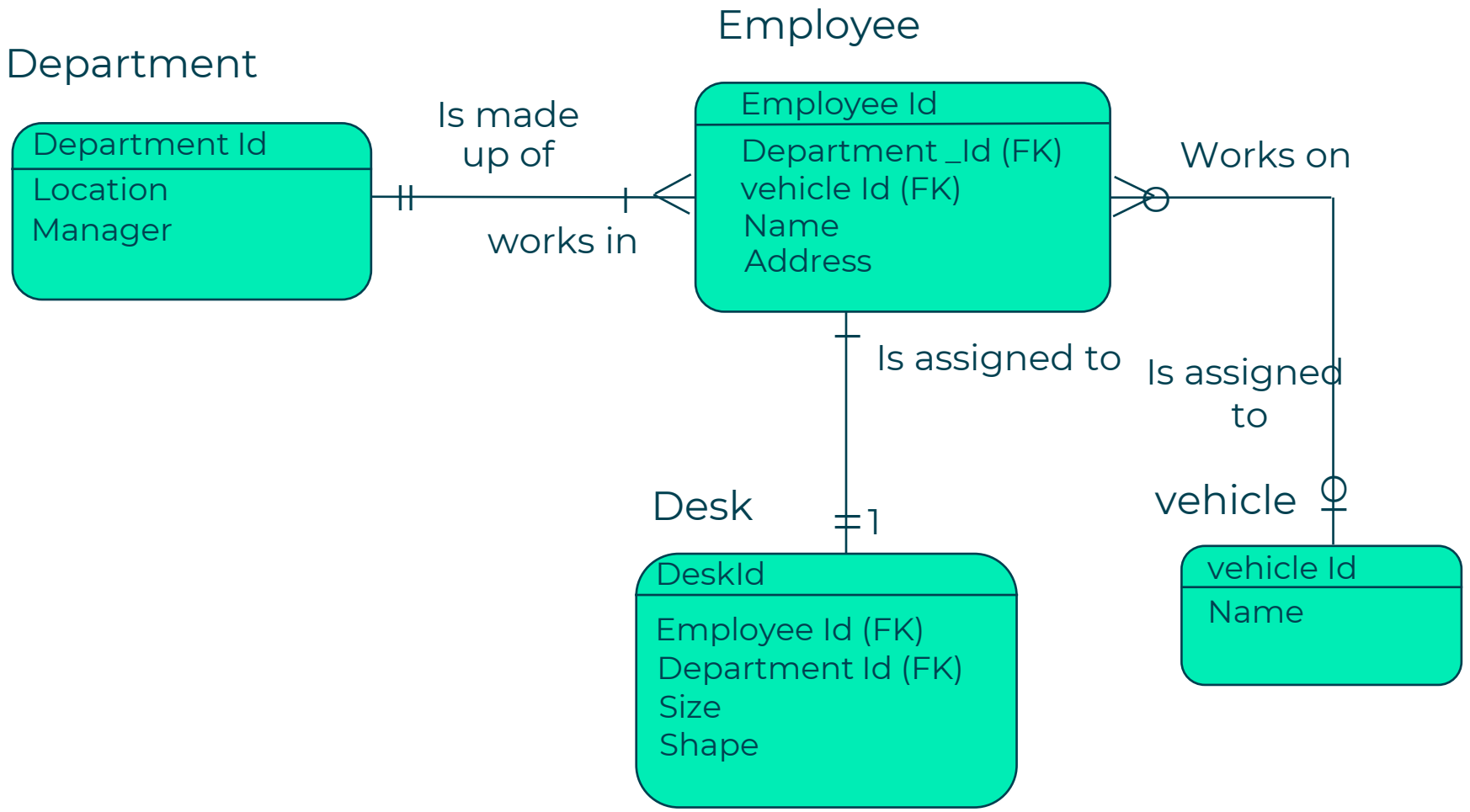
Logical Diagram

IE notation: keys



Logical Diagram

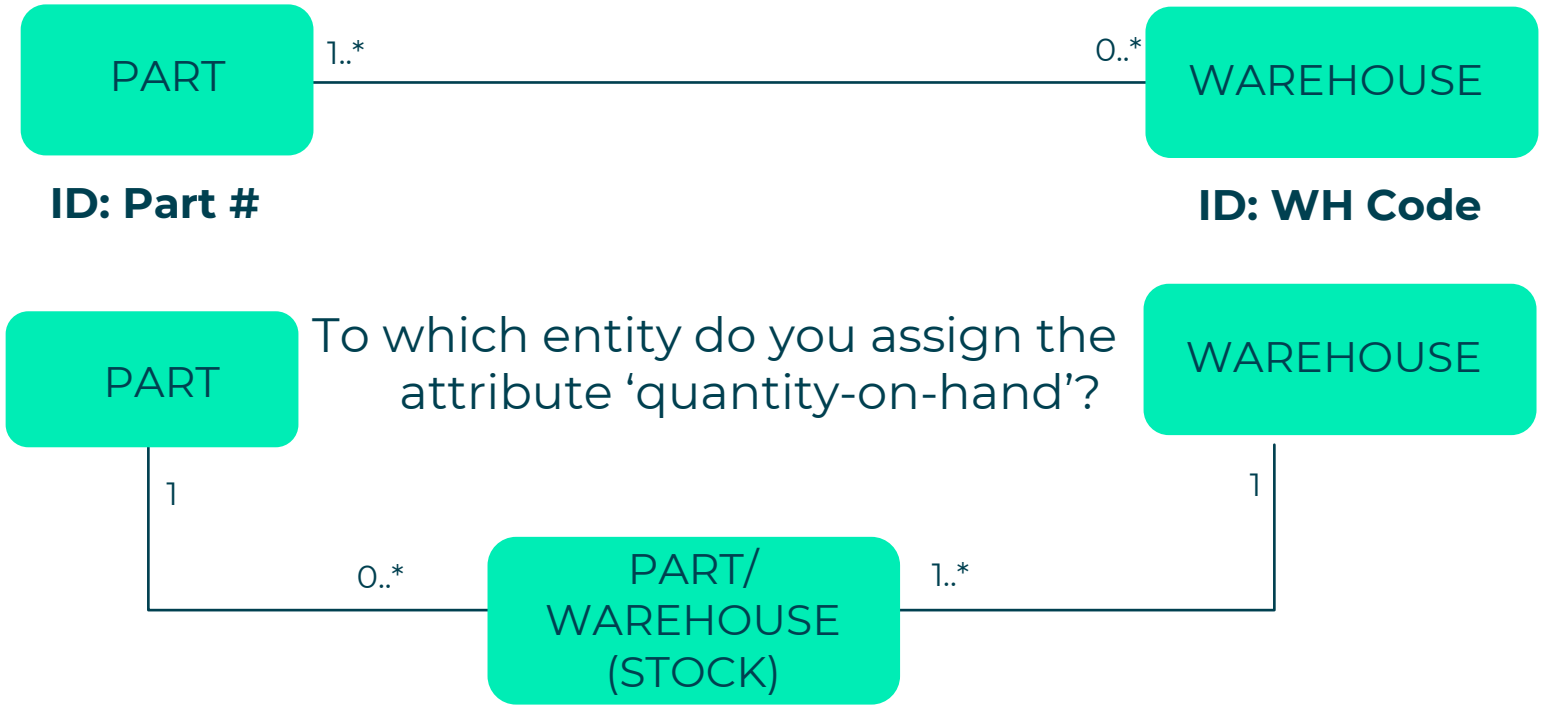
An Example in the IEM notation.



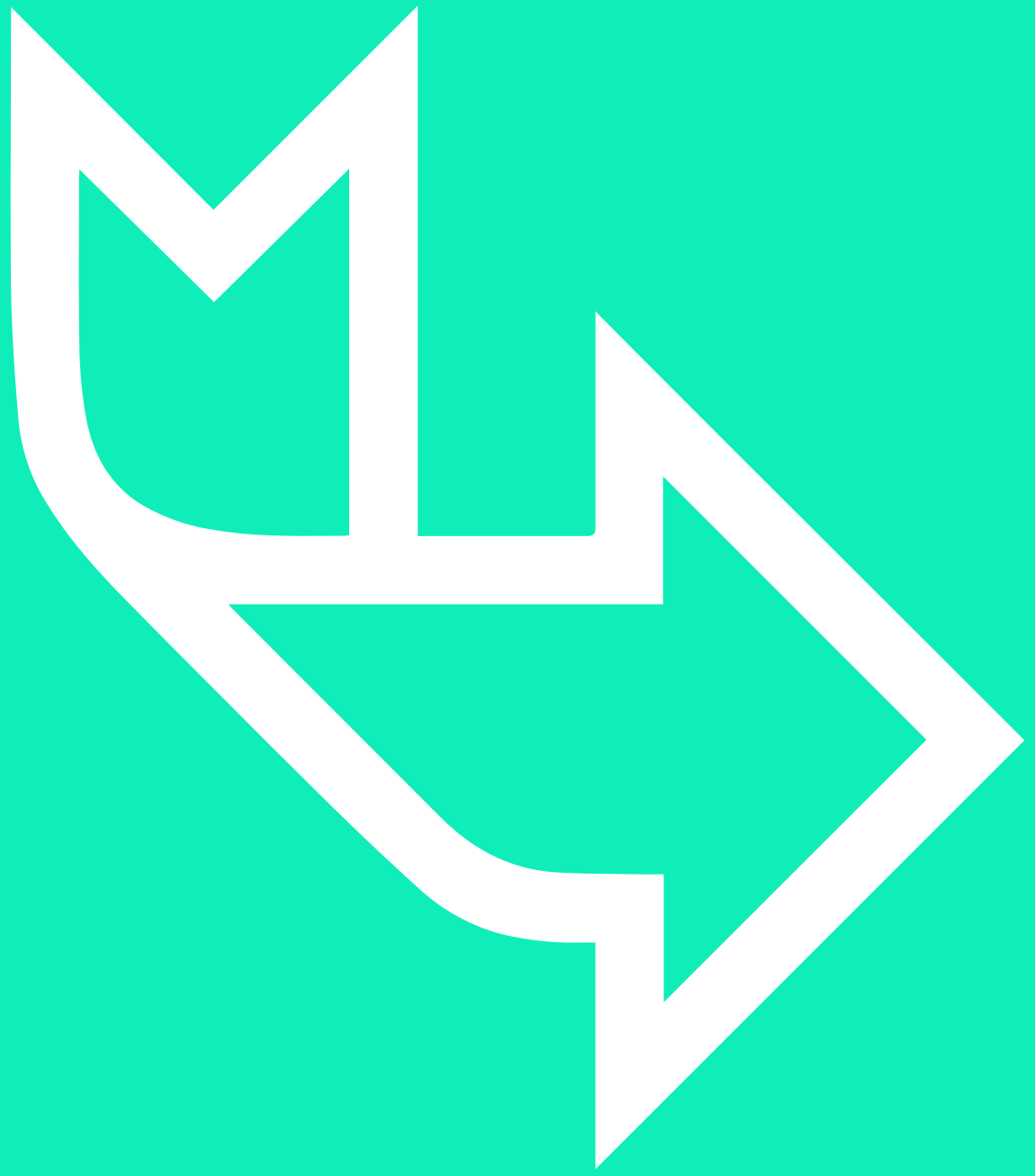
Many to Many

To which entity do you assign the attribute ‘quantity-on-hand’?

Many to Many



ATTRIBUTES: Quantity on hand
Re-order Level etc.



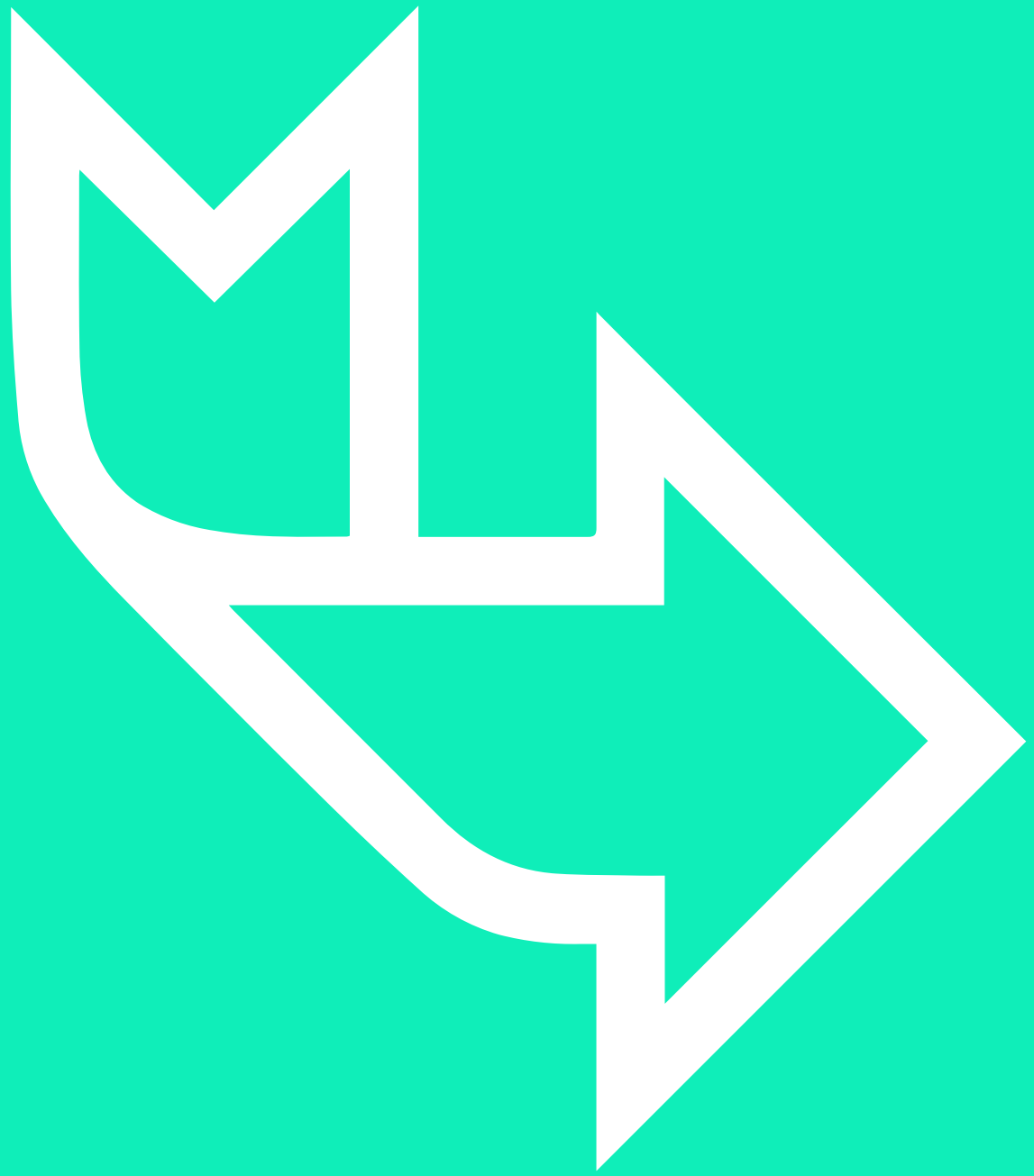
Logical Diagram

Exercise EG_02-Logical Data Diagrams

Part 1 - Acme Vehicle Hire

Part 2 - Cerberus Security Systems

Revisit these scenarios and add logical diagrams.



Logical Diagram

Summary

We have studied the Logical Model.

→ Still to cover: Normalisation