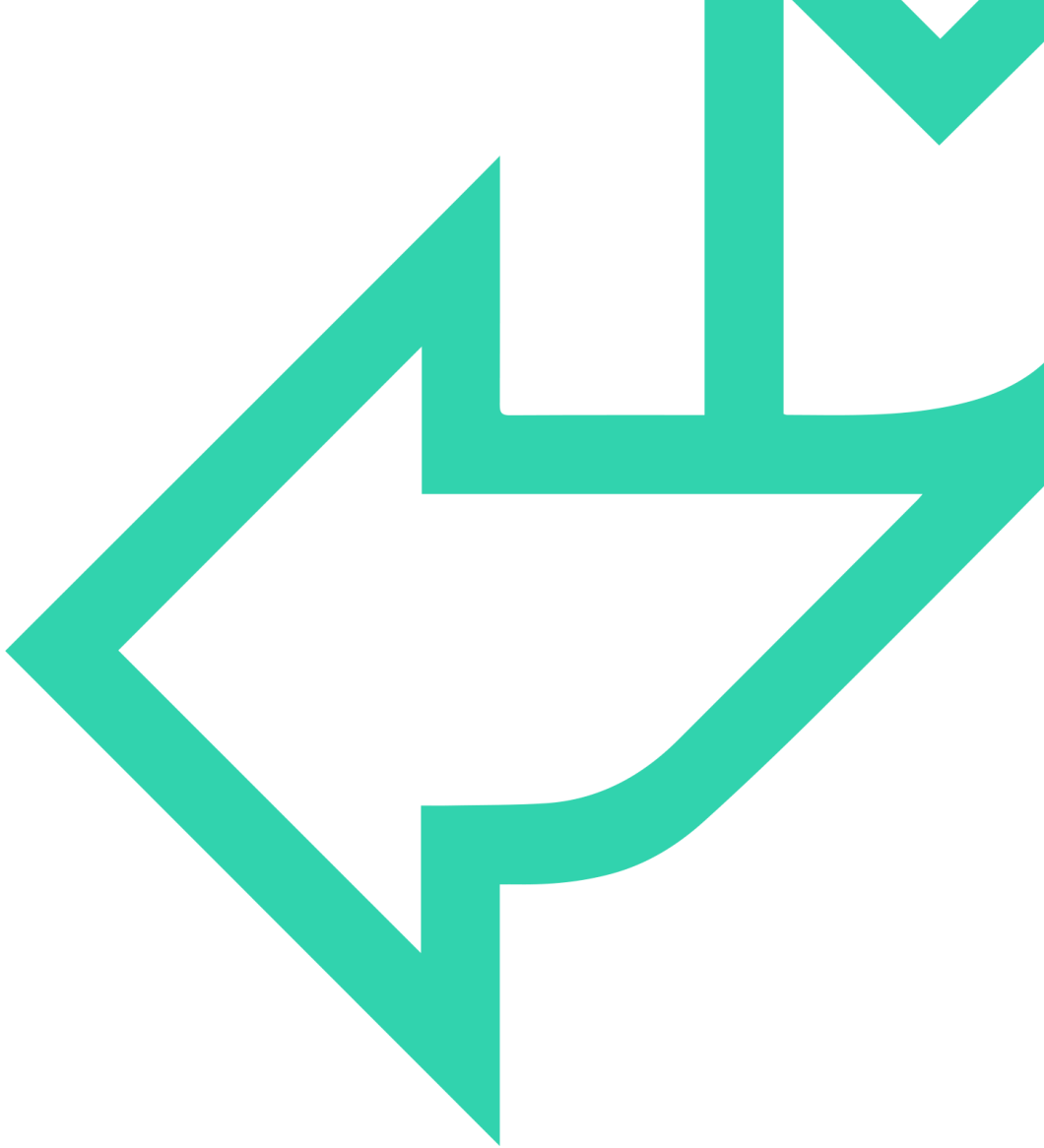

Databases and SQL

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Entities and Attributes

ENTITY MODELLING OBJECTIVE

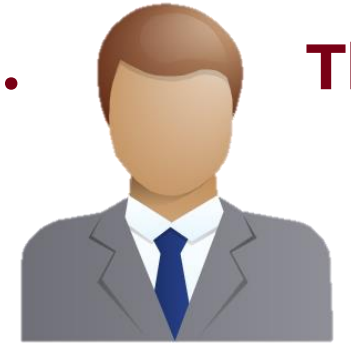
To build a first pass model of a system's (or an organisation's) data, defining the entities, and the business relationships which exist between them

In addition, to make a first pass list of attributes associated with those entities and relationships

AN ENTITY TYPE

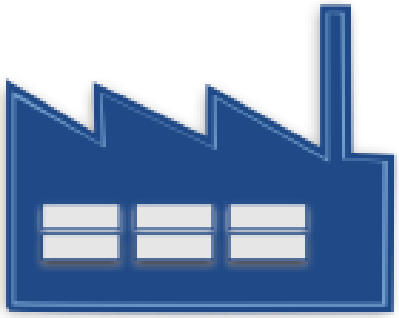
Anything about which information is recorded . . .

Person . .



Thing . . .

Event . .



Place . .

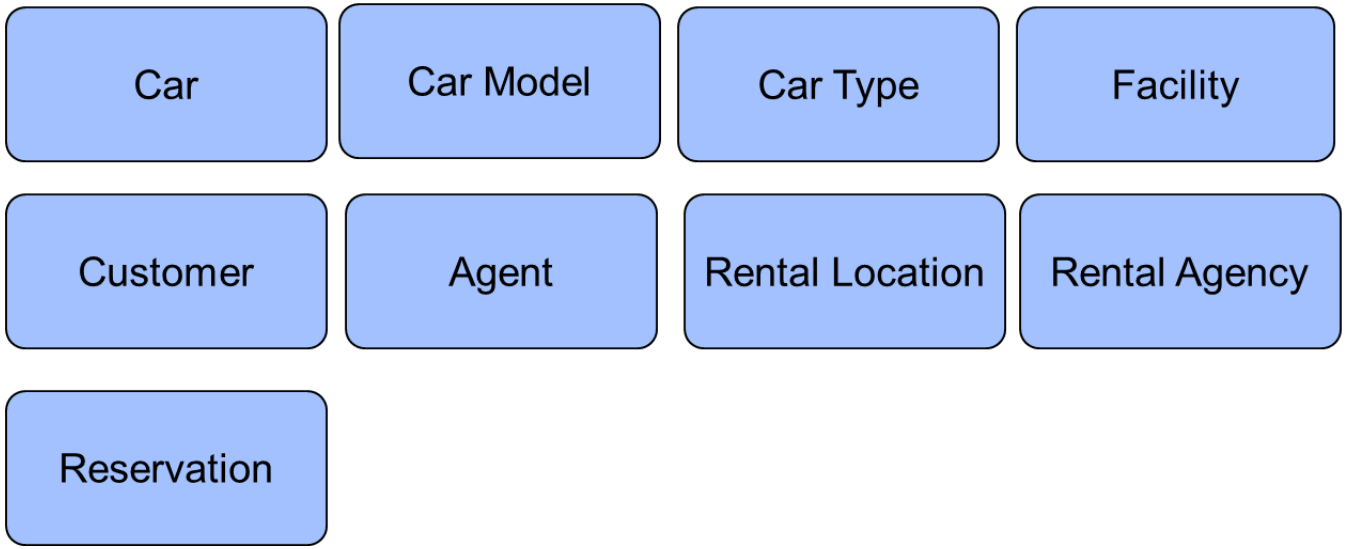
IDENTIFYING BUSINESS ENTITIES

Look for nouns in the requirements

Singular names are used

They will help us to discover the business entities

To enable high-level performance planning (at design stage)



This list will need to be further refined

AN ENTITY TYPE

Anything about which information is recorded . . .

PersonID
Name
Sex
Height
ShoeSize
Phone
Email

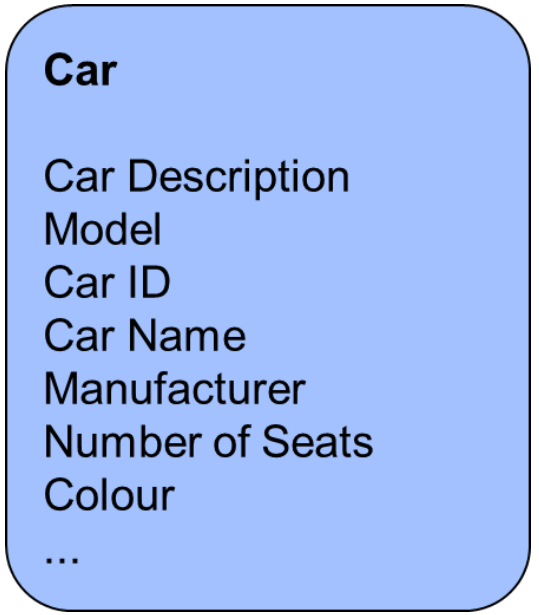
Product Code
Description
Size

- Each attribute can only hold one value at a time
- Each entity needs a unique identifier (key)
- Each attribute must depend upon the key

IDENTIFYING BUSINESS ATTRIBUTES

Again we use nouns - these describe the entities

We have to decide which attributes are relevant to this system



This is an initial list and will need to be refined

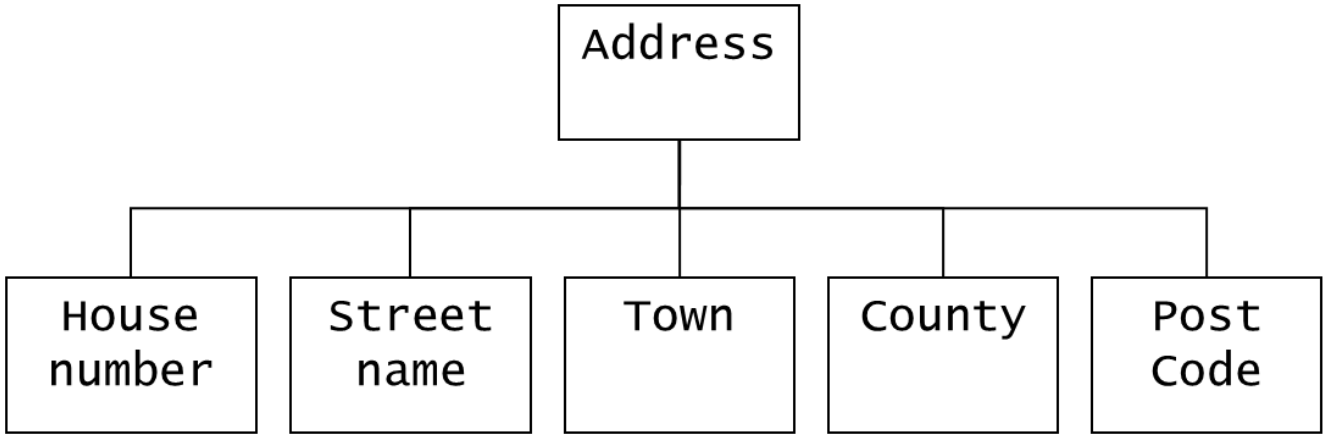
TYPES OF ATTRIBUTE

Required vs. Optional

- Employee Number
- Spouse

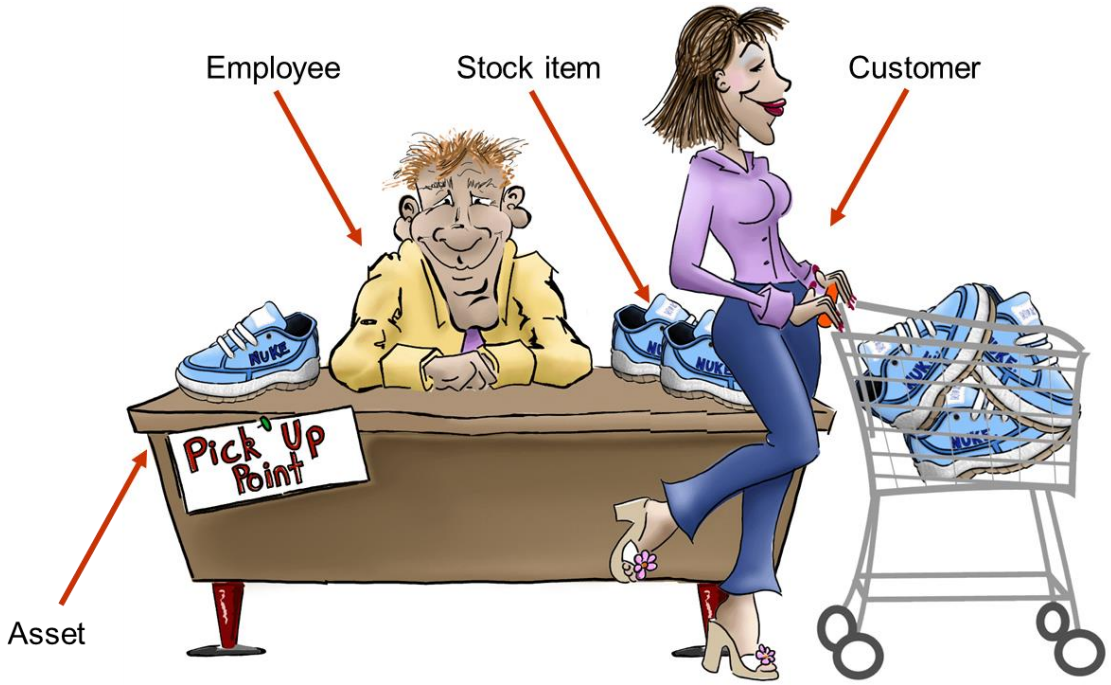
Simple vs. Composite

- Phone Number
- Address



RELATIONSHIP TYPE

A logical, meaningful correspondence between entity types

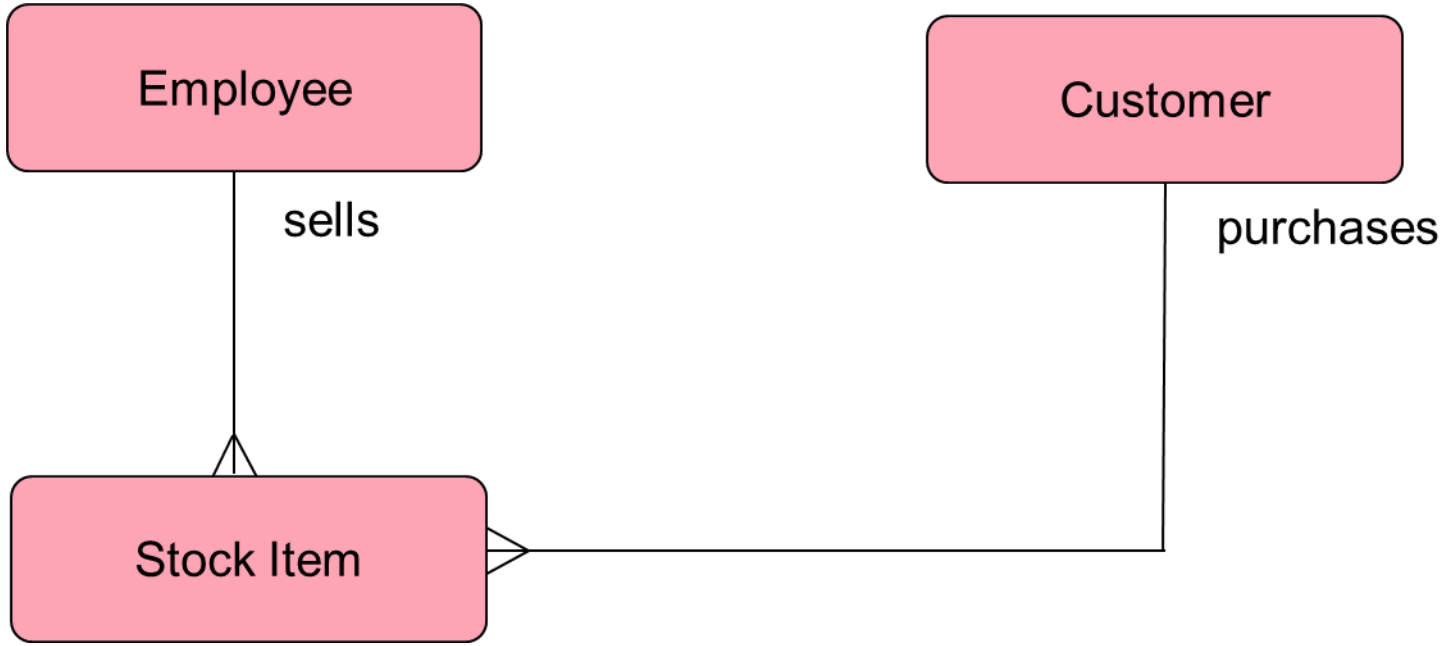


E.g. Employee sells stock item

IDENTIFYING BUSINESS RELATIONSHIPS

Now look for verbs in the requirements

They will help us to discover the relationships



This may need to be refined

KEYS

- A unique identifier
- Often numeric
- Often meaningless

CHOOSING A KEY

Choose the simplest key that can be guaranteed as unique

- Telephone number may suffice rather than name and number
- Latter is known as a Super, compound or composite key

If the unique key is too large e.g. customer name, date of birth, postcode... create a surrogate customer id

Surrogates will be found throughout most company data... even where a unique attribute already exists

A QUICK EXERCISE

For the following items list the information we would store for each and identify the key for each.

- Each product in the supermarket
- Each employee in the organisation
- Patient details at your doctor's surgery
- Student details for each student in a college

REVIEW

Entities and Attributes

- We hold information about objects such as Product, Employee, DVD, etc. These items of information (such as Product-Code, Product-Name) are known as Attributes.
- The objects that have these attributes are known as Entities
- One of the attributes is usually designed to uniquely identify an occurrence of the object. We call this attribute the Key. For example Employee-Number, DVD-Serial-Number, Product-Code.
- We can ask questions of our set of data.