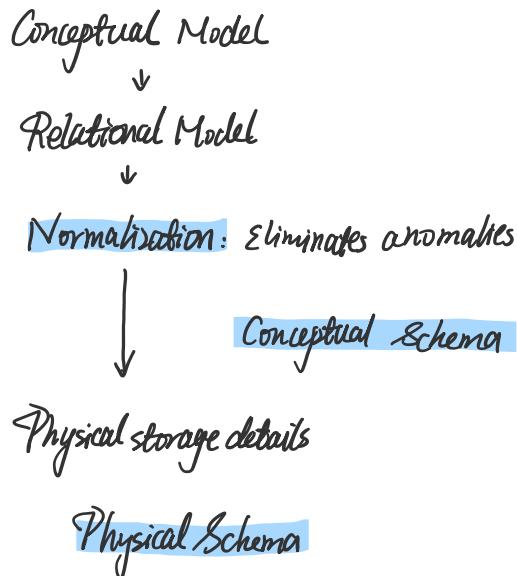


E/R diagrams

Monday, May 20, 2019 1:31 PM

- Database Design Process



- Entity / Relationship Diagrams

- Entity set = a class

- an entity = an object



- attribute



- Relationship



- Every entity set must have a key.

- Relation: if A, B are sets, then a relation R is a subset of AxB.

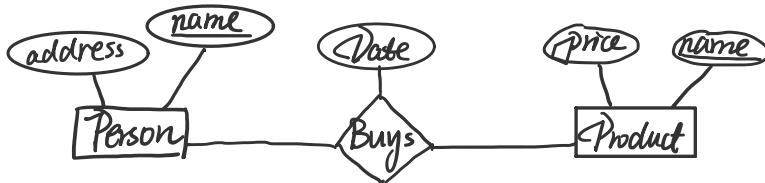
- Multiplicity of EIR diagrams.

one-one

foreign key primary key
many-one, one-many Don't need more relation b/c a foreign key.

many-many

- attributes on relationships

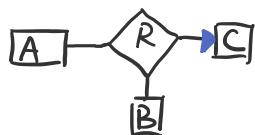


`Person(name, address);`

`Product(name, price);`

`Buys(p.name, per-name, date);`

- Multi-way relationships



if there's arrow: then C has at most one

$$R \subseteq A \times B \times C$$

element can be referred to (a, b) . $a \in A, b \in B$.

o We can convert multi-way relationships to binary.

- From EIR diagrams to relations

o Entity set \rightarrow relation

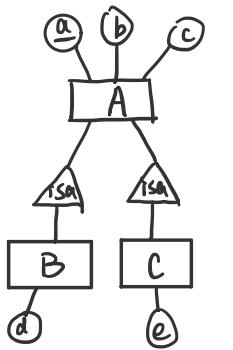
o relationship \rightarrow relation

◦ recursive \rightarrow recursive

- Notice that no extra relations for many-one relationship.

- Subclasses

ISA



A(a, b, c)

B(a, d)

C(a, e)

a is both a key and foreign key for B, c.

- Weak Entity set:

when their key comes from other classes to which they are related.



A(a, b, \subseteq)

R is weak relationship.