Database Systems

**Database**: a **collection** of **data** organized in a particular way (**data** **model**) and managed by a DBMS.

A database offers **data** **independence**.

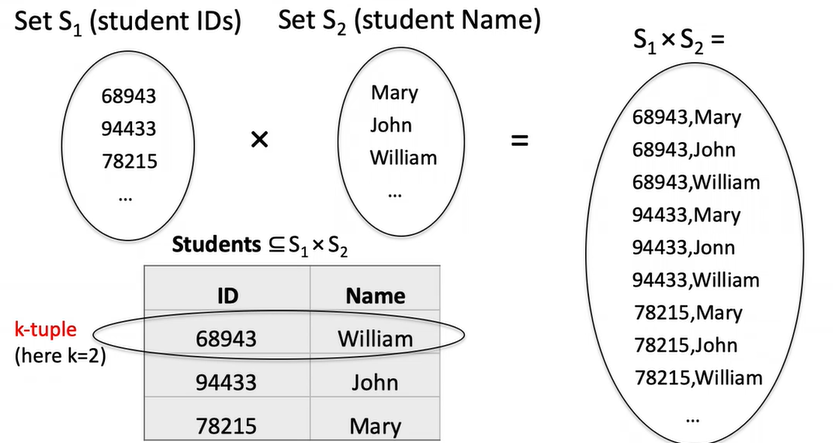
**DMBS**: database management system – a **collection** of software **programs** that manage a database.

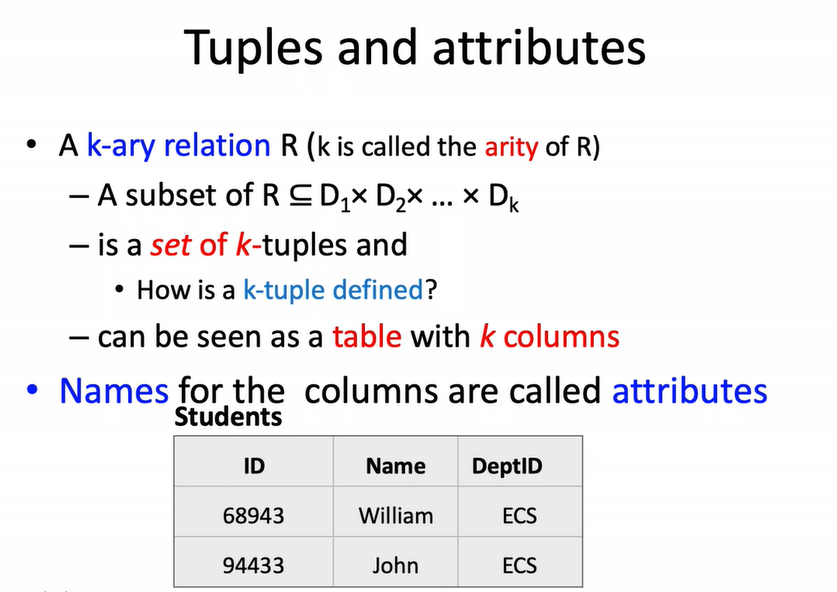
A DBMS supports at least one **data** **model** (**relational** **model** is most common) **and** a **data** **language** (which has basic sublanguages **DDL** (data definition language) and **DML** (data manipulation language))

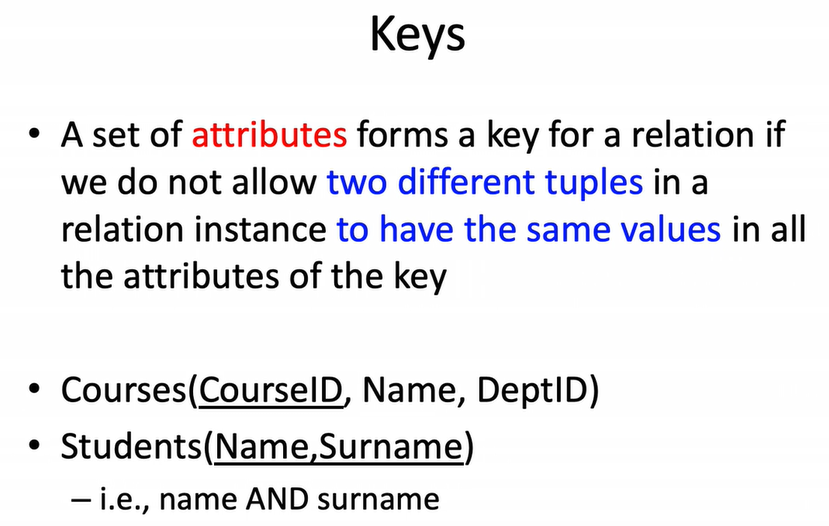
Relational Data Model

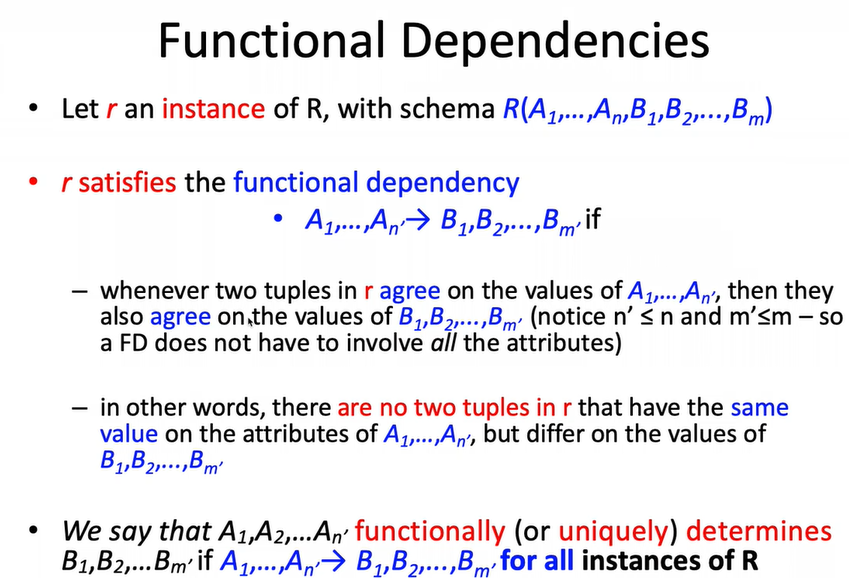
Formalism: relation is a subset of a cartesian product of sets.

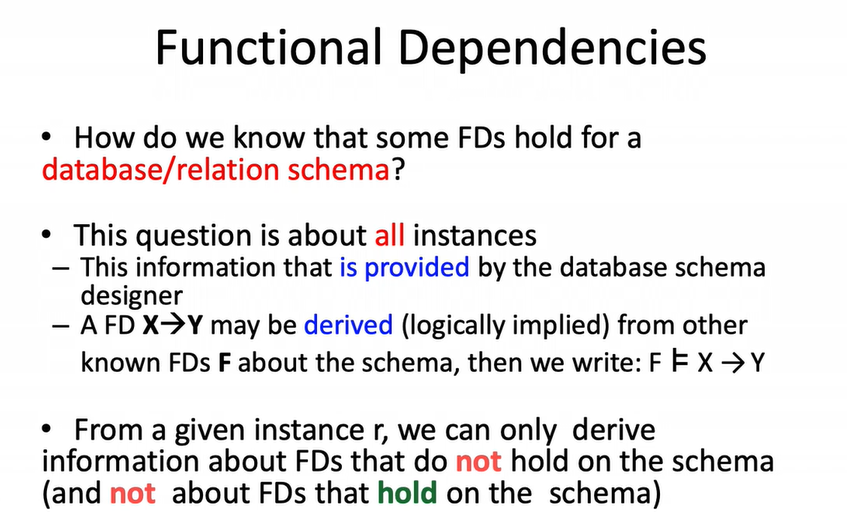
Informally, a relation can be seen as a table.

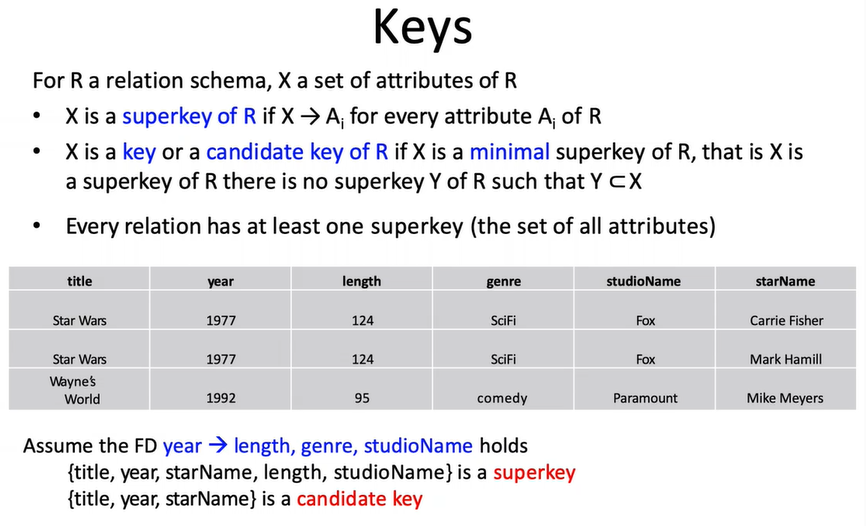


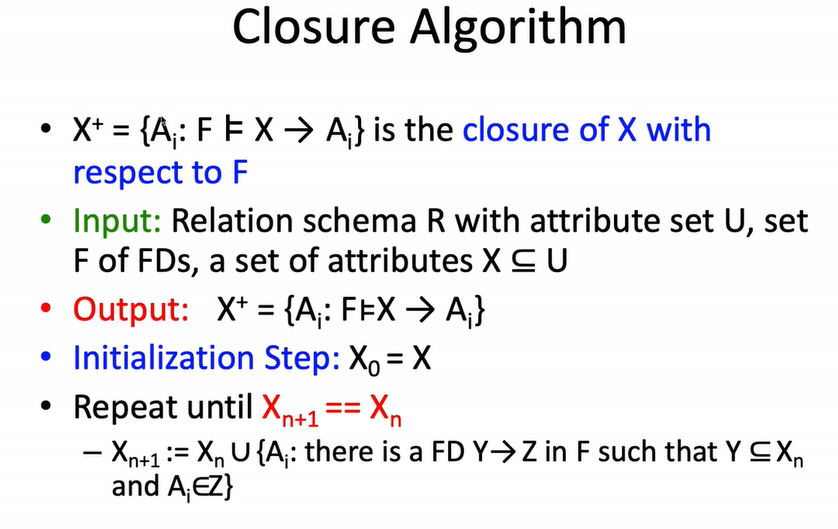


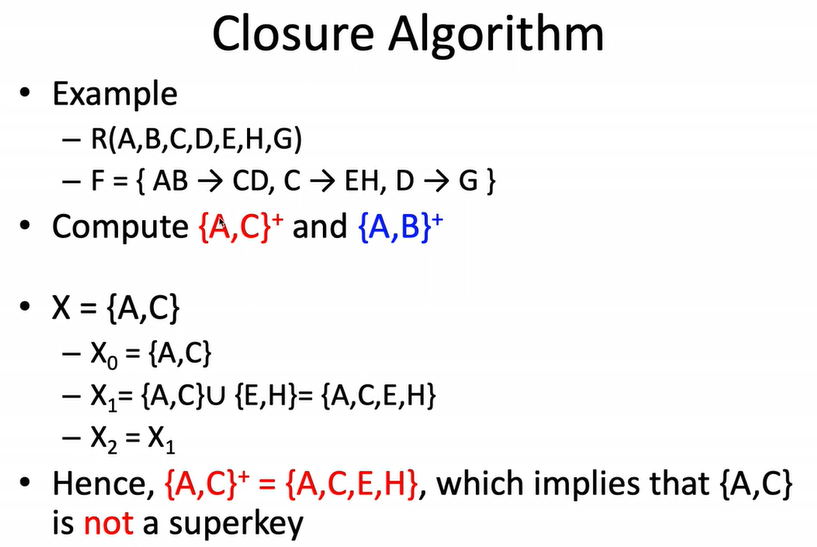


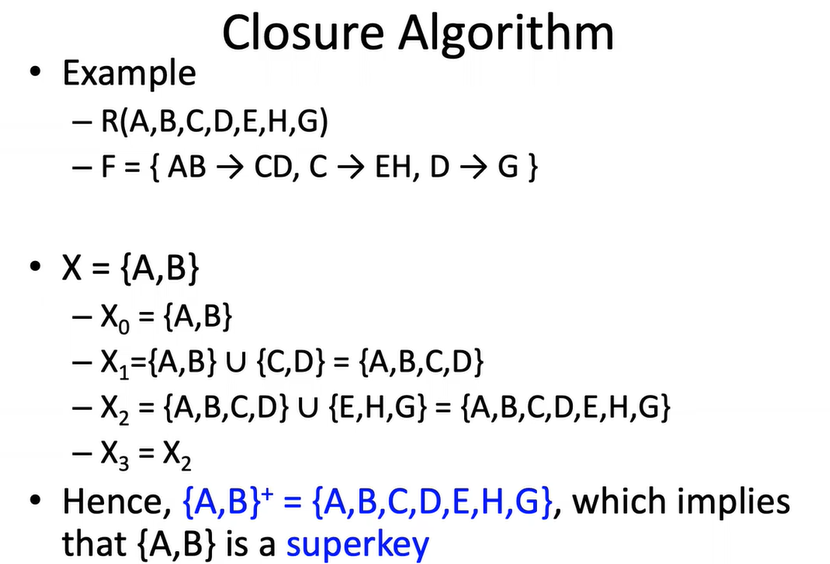
**Keys formally defined**

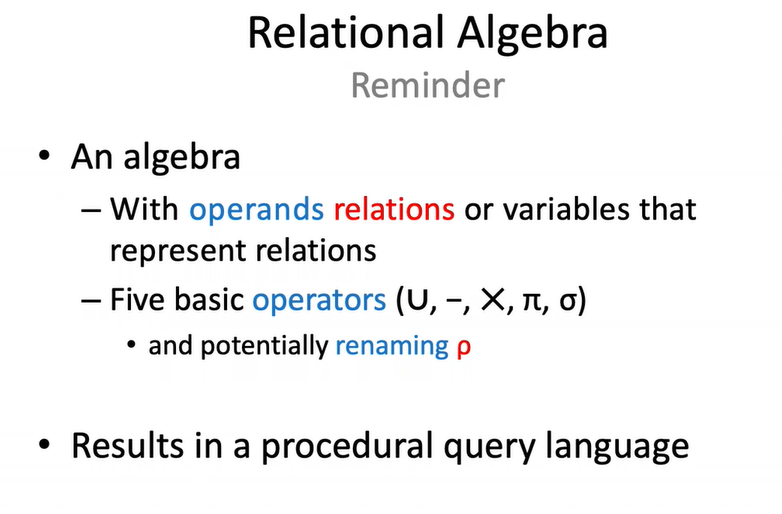


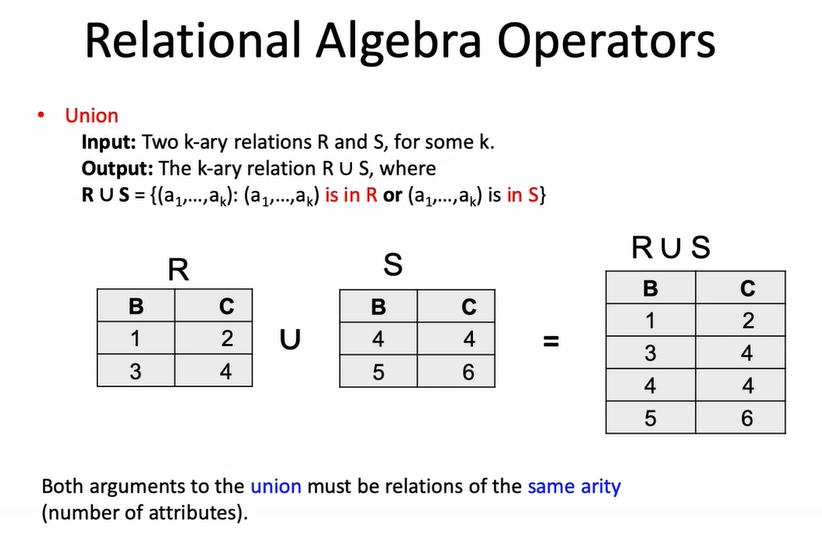


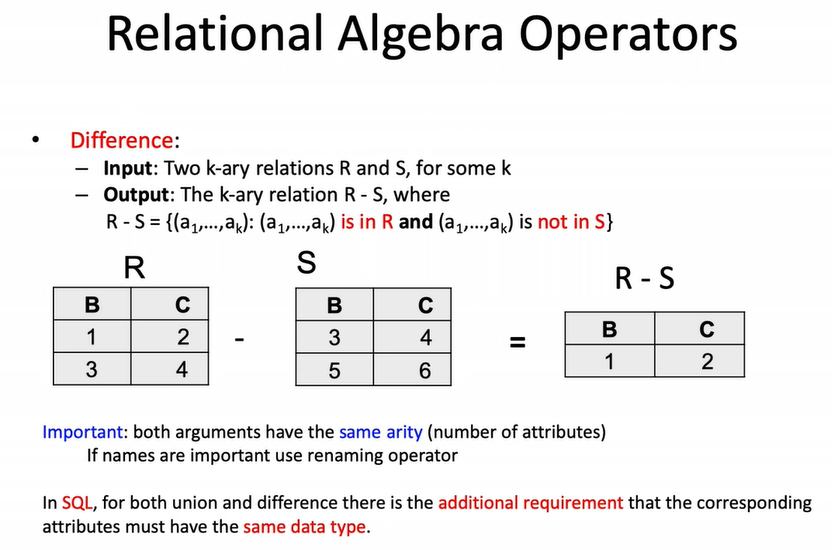


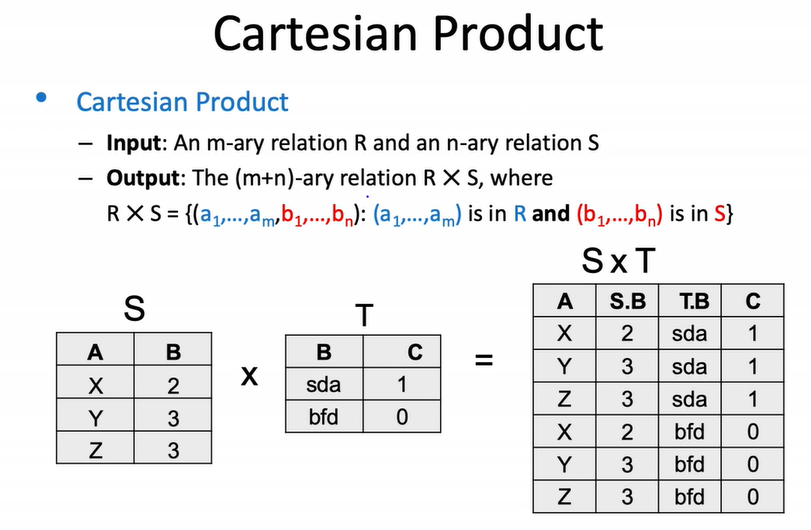


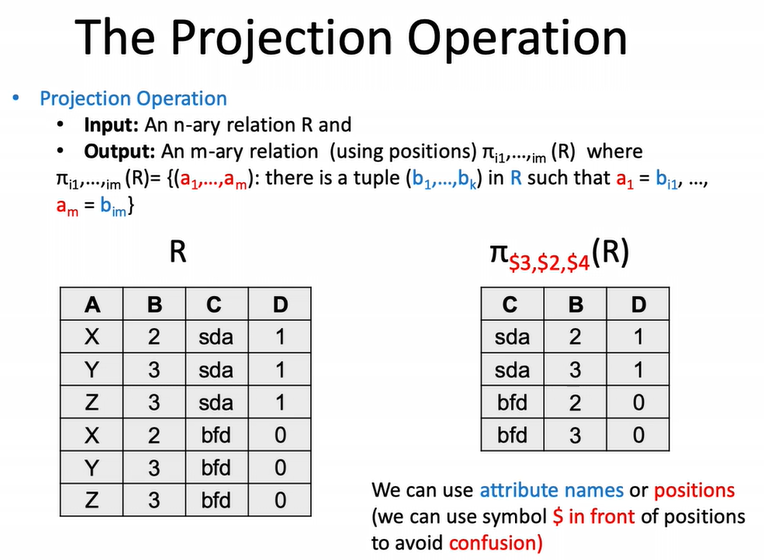


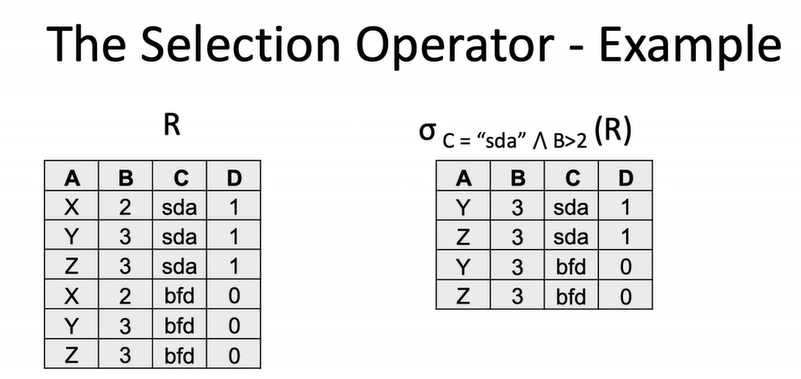


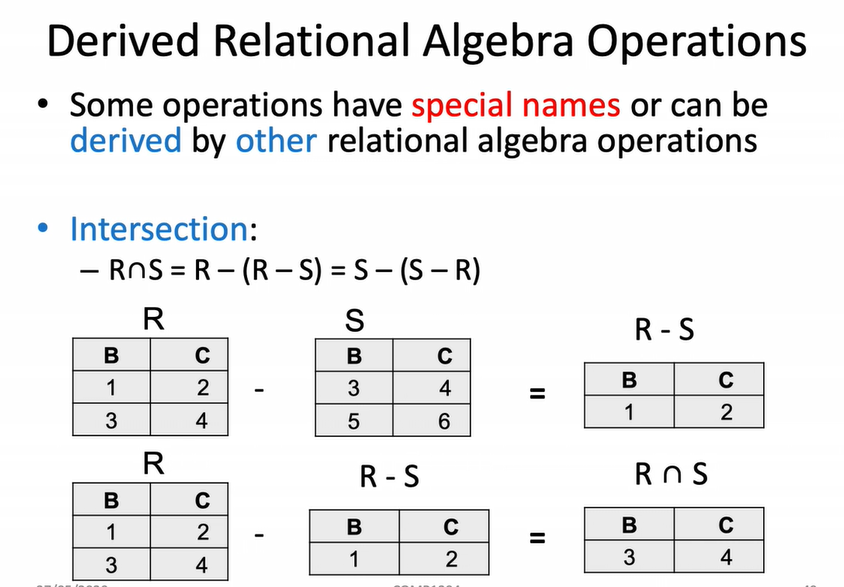


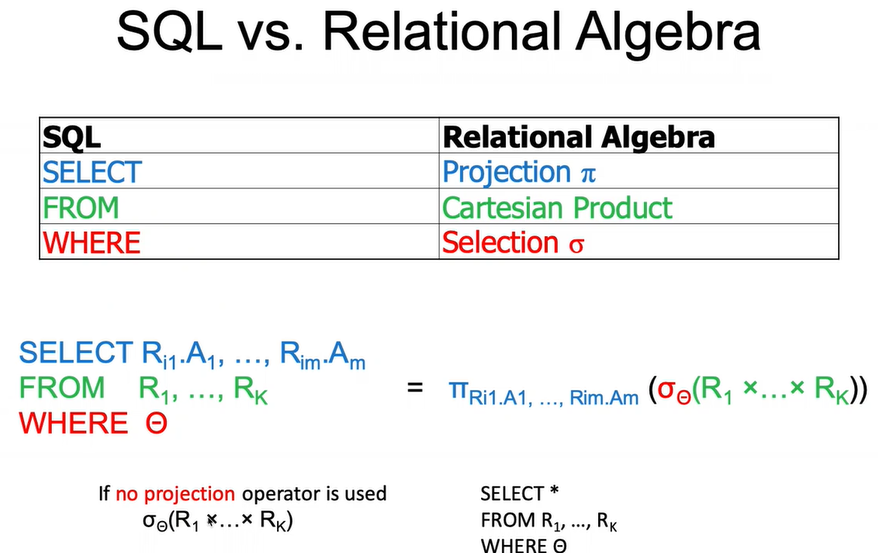


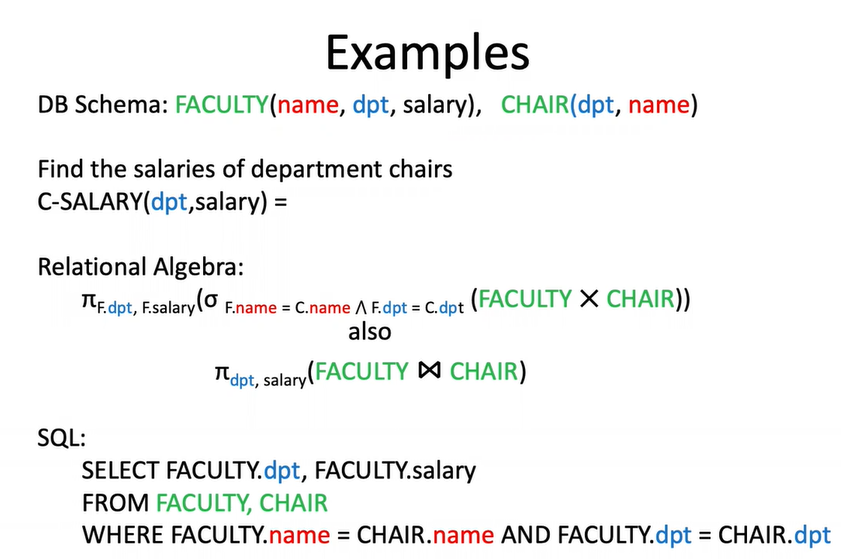


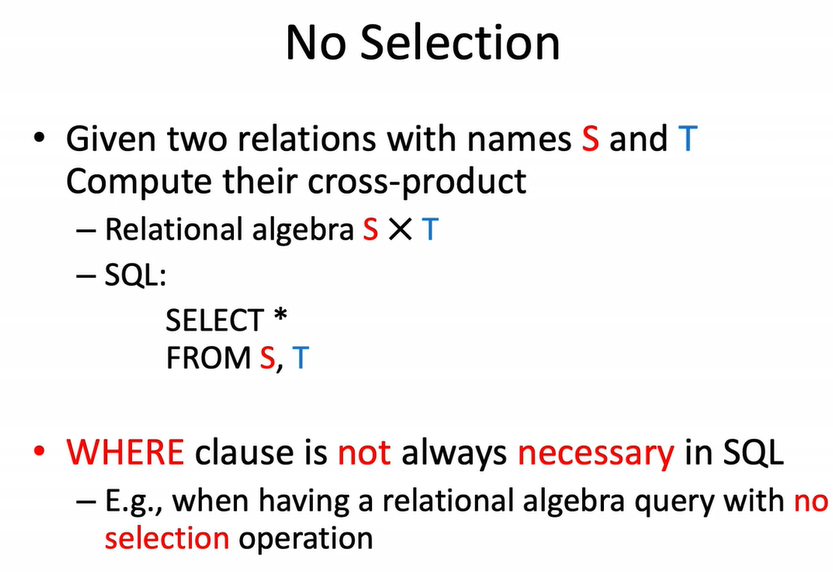


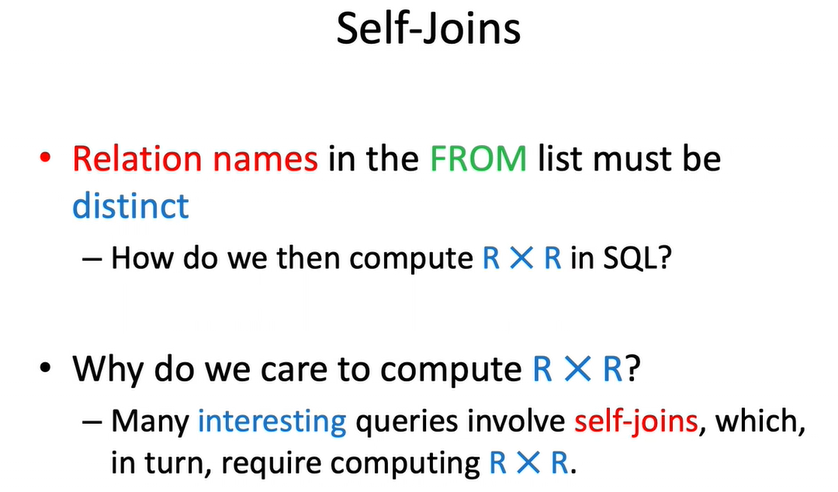




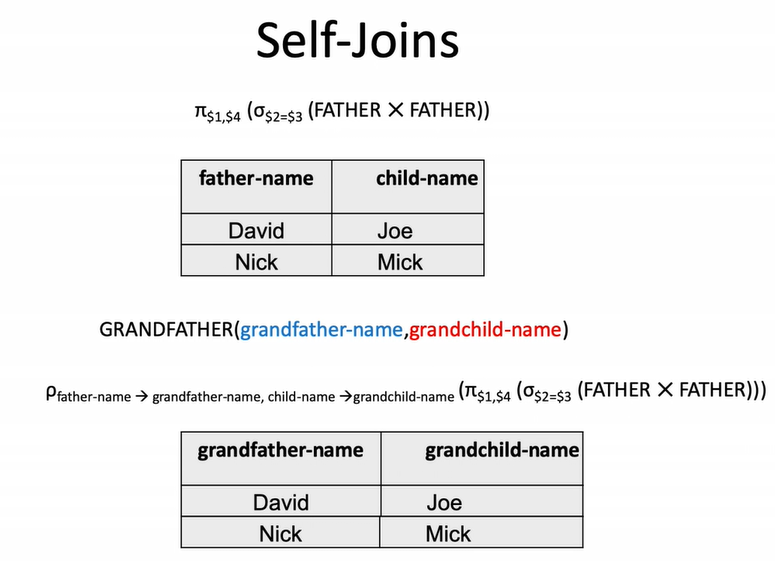


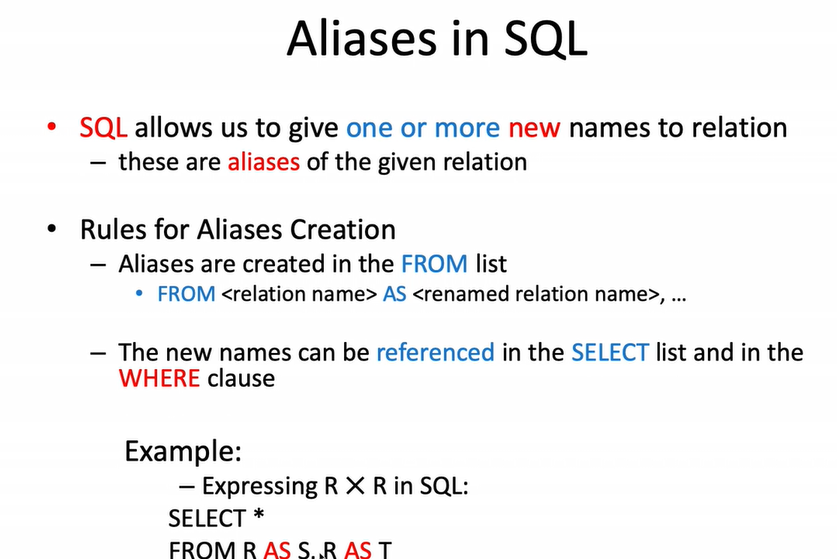


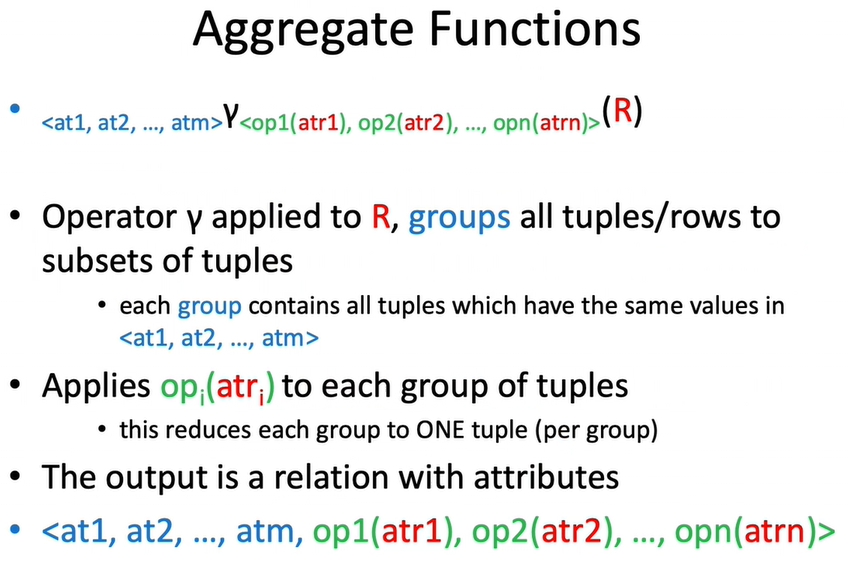


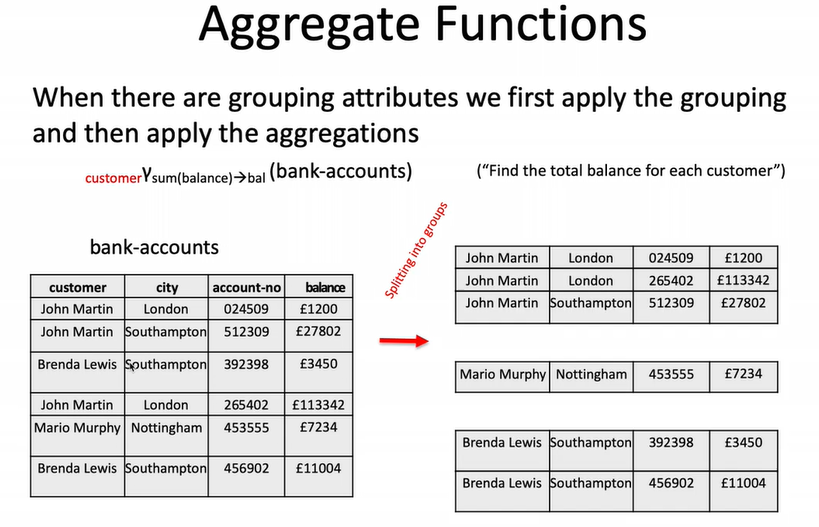


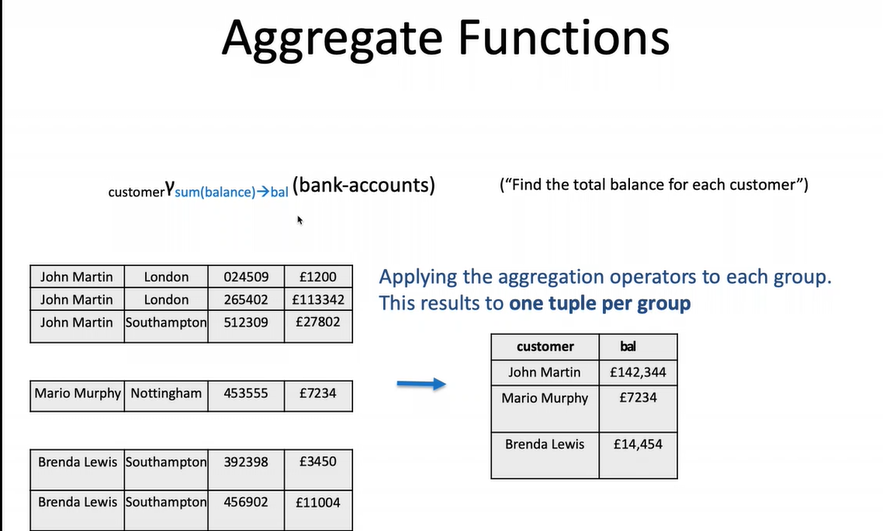
**Its not the full example of the self-join but it’s pretty easy**

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