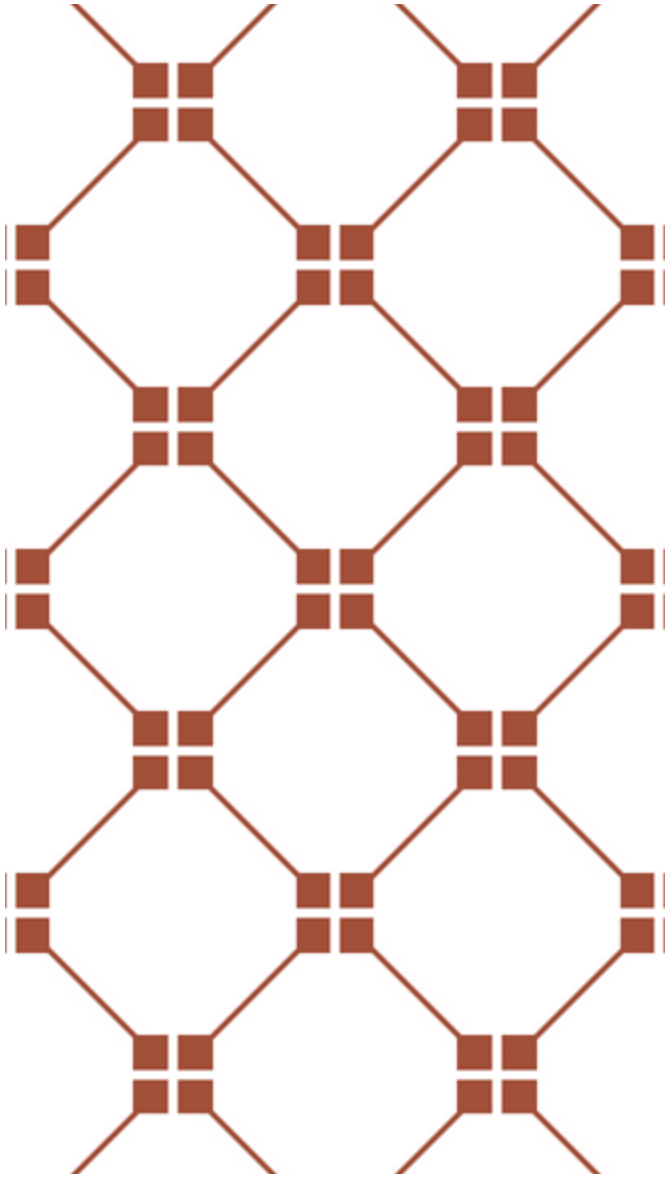


MANCHESTER 1824
The University of Manchester

DATA MODELLING OF DATABASE APPLICATIONS

COMP23111 – Database Systems

OUTLINE

Database Application Model

Database Application Design Phases

Conceptual Data Model

Logical Data Model

Physical Data Model

数据库应用模型
数据库应用设计阶段
概念性数据模型
逻辑数据模型
物理数据模型

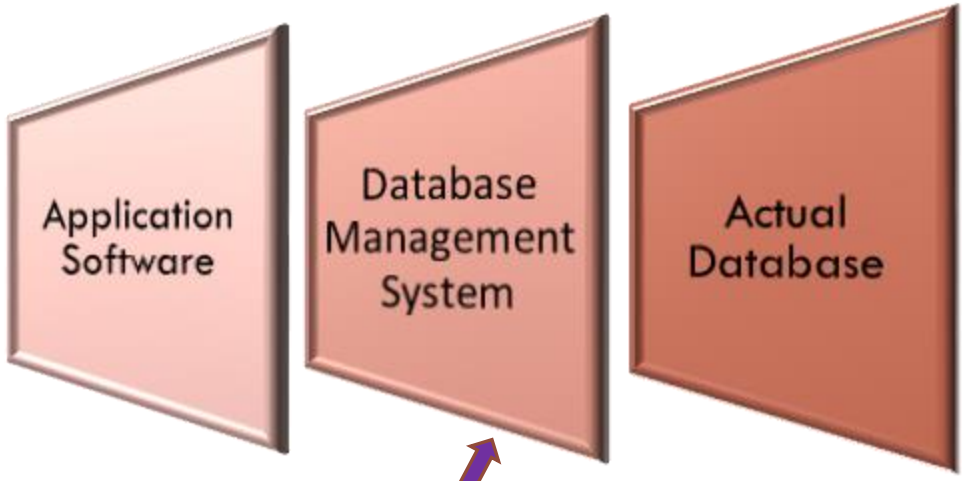
DATABASE APPLICATION MODEL

Username: User123_

Username is not available!

DATABASE APPLICATION MODEL

DATABASE APPLICATION MODEL



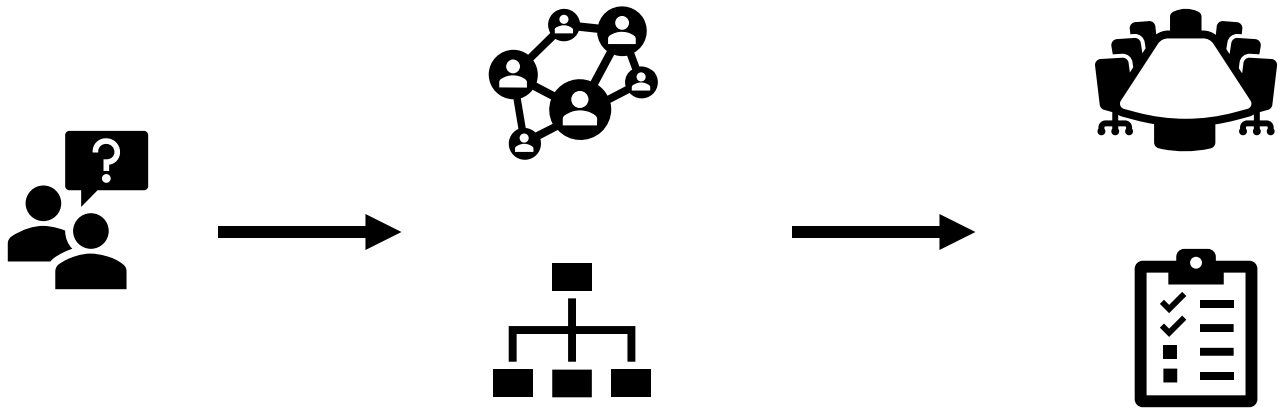
Database seen in **front-end** *[via the application]*

Database seen as a **database model** *[via the DBMS]*

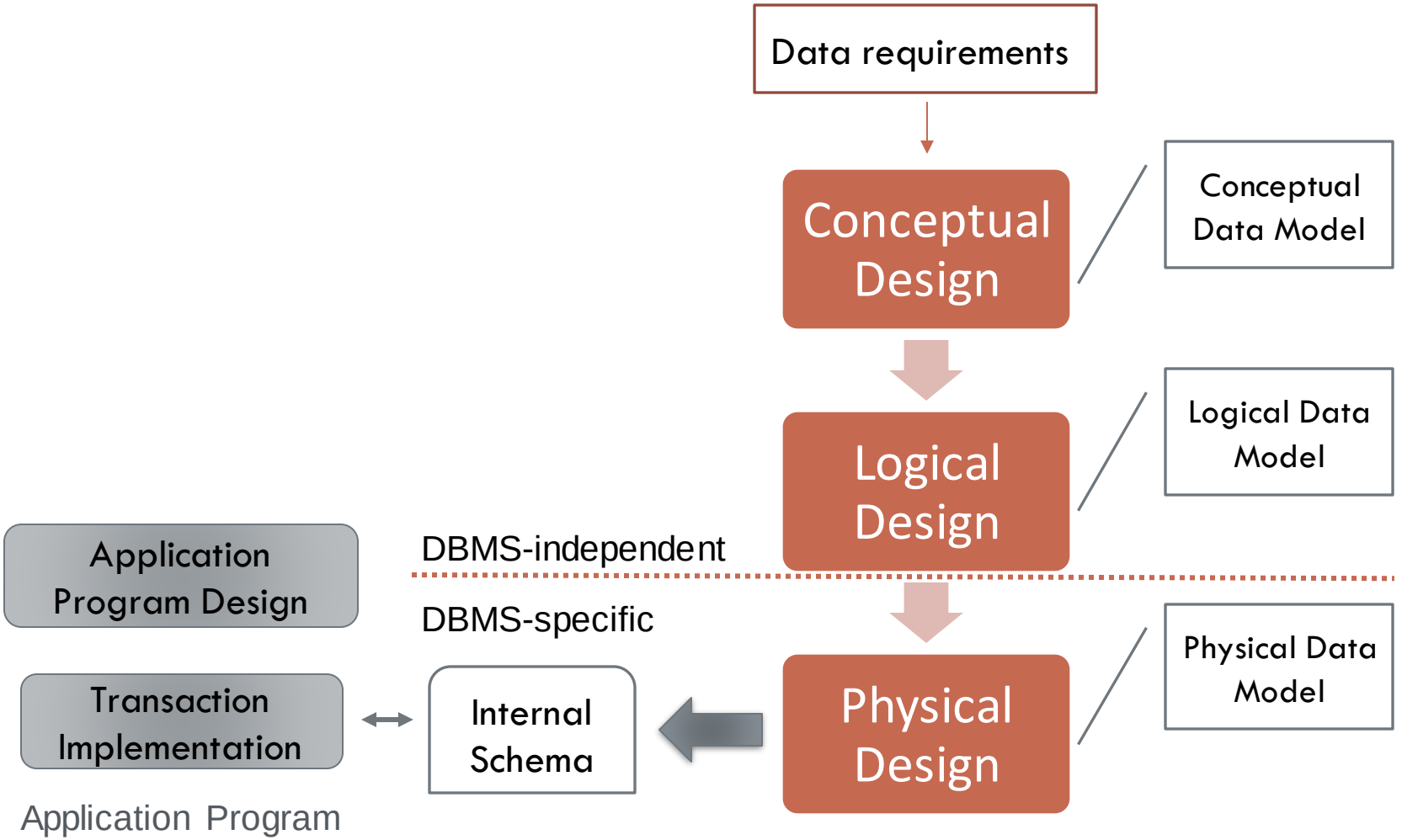
Data organised in data structures *[Integrated database]*

DATABASE APPLICATION DESIGN PHASES

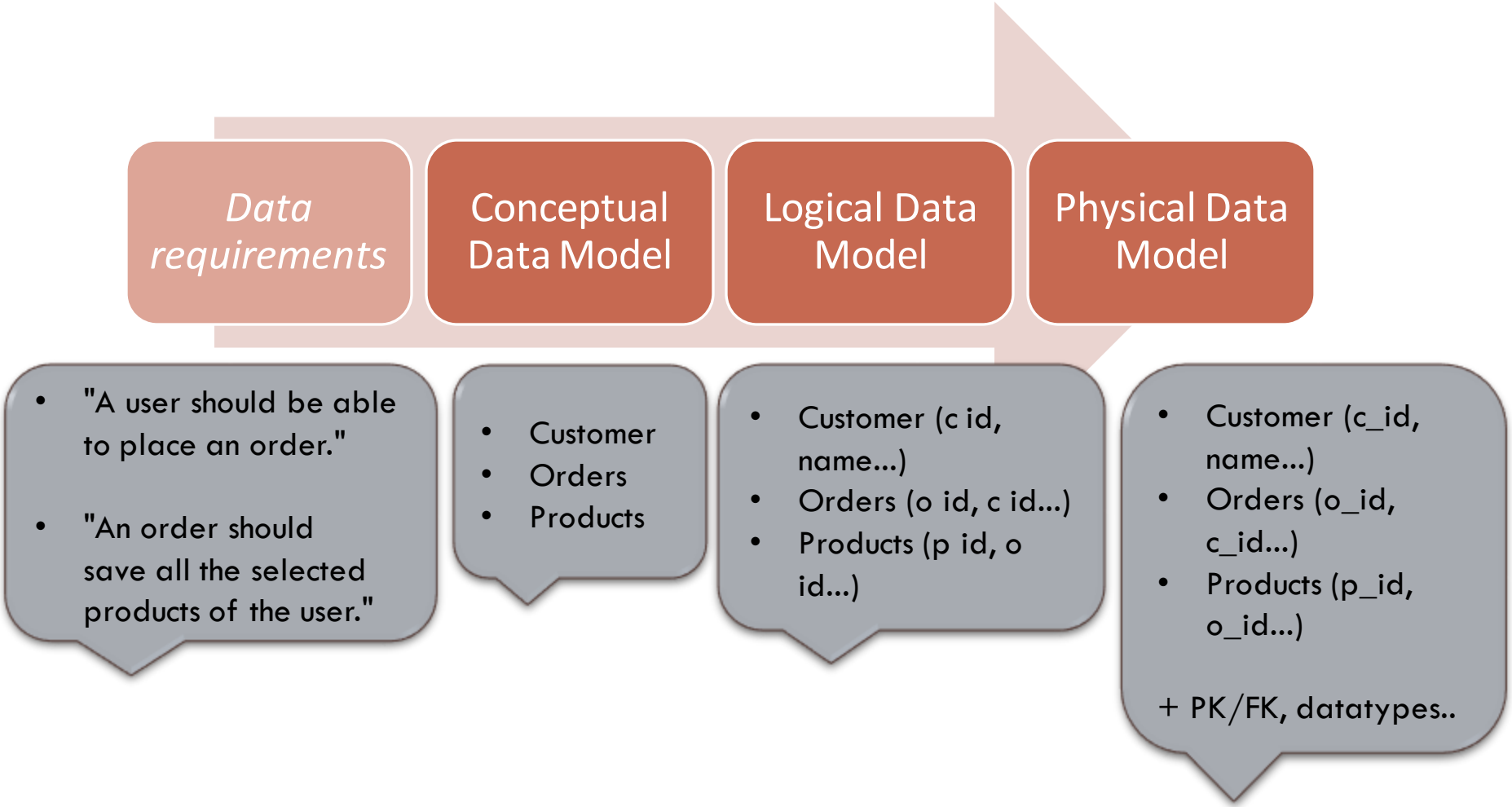
阶段



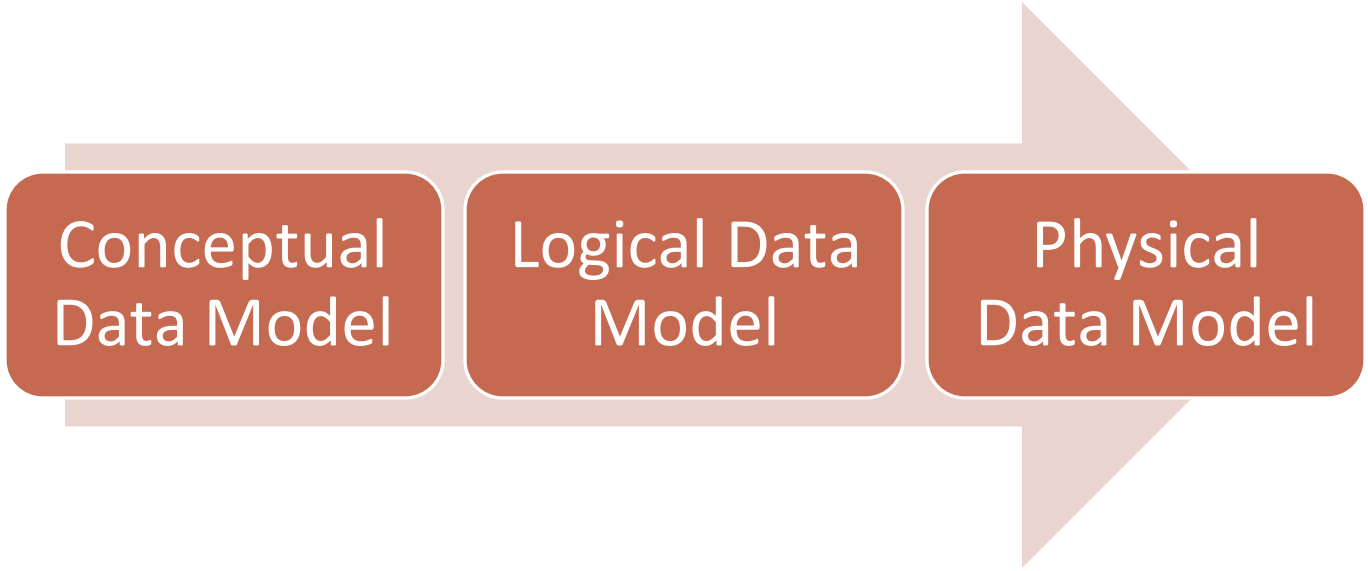
DATABASE APPLICATION DESIGN PHASES



DATABASE APPLICATION DESIGN PHASES
- DATA MODELLING



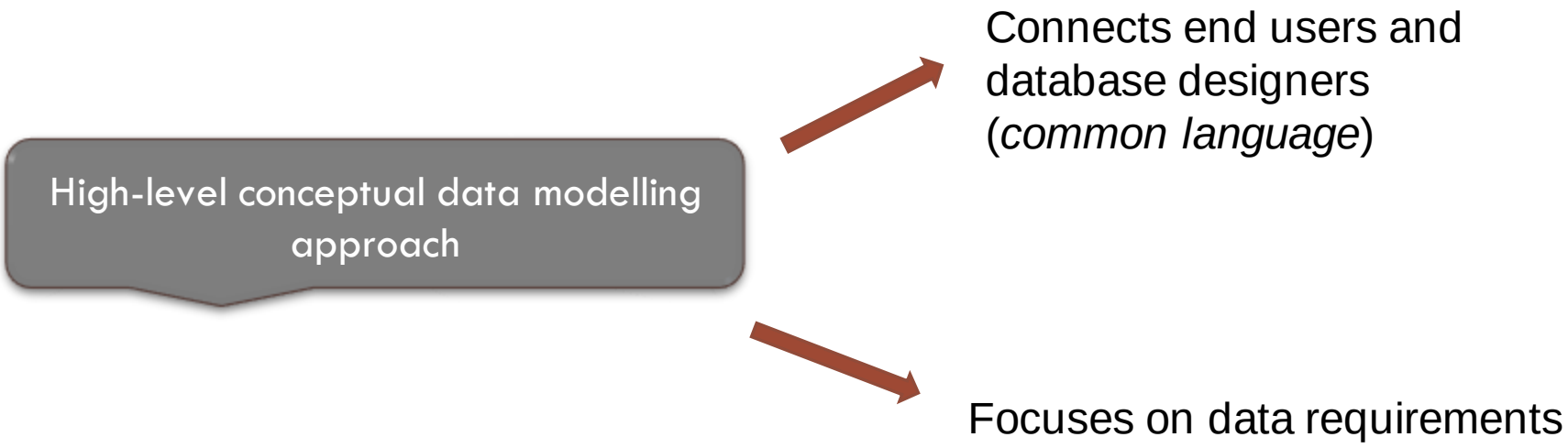
DATABASE APPLICATION DESIGN PHASES - *DATA MODELLING*



- Entity-Relationship Diagram (ERD)

DATABASE APPLICATION DESIGN PHASES - *ERD*

- ER Modelling



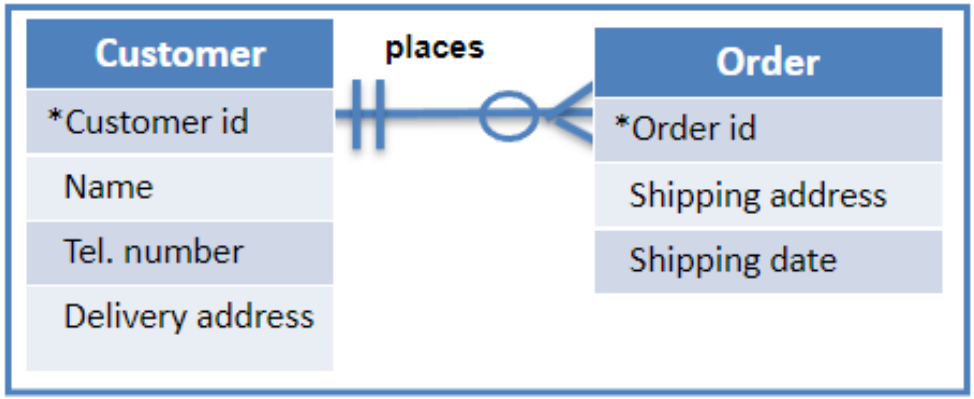
DATABASE APPLICATION DESIGN PHASES - *ERD*

- Why ER modelling?
  - Simple ✓
  - Flexible ✓
  - Famous ✓

CONCEPTUAL DATA MODEL

Also known as conceptual schema.

- Precise, high-level description of data requirements (via the **ERD**).
- Aids systematic mapping into an elaborate, logical model.

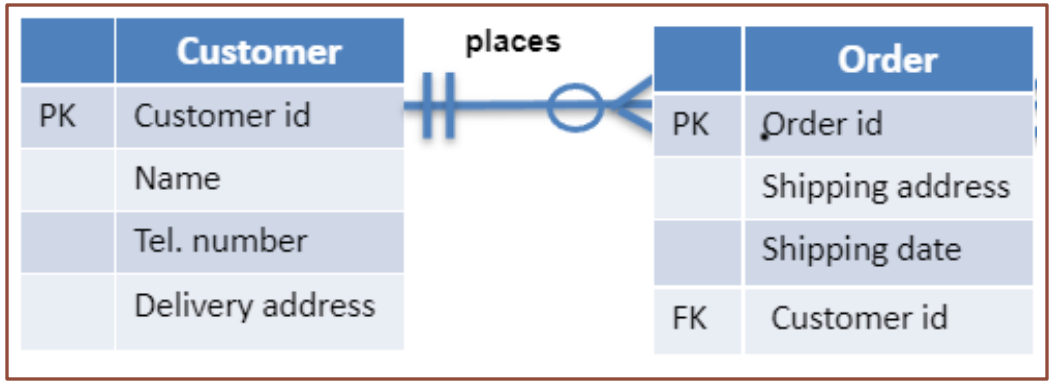


LOGICAL DATA MODEL

Also known as logical schema.

Relational model in our case.

- Represents data structures that will eventually implement the database (agnostic to the DBMS intended for use).
- These data structures include the specifics about entities and relationships among data, emerging from the conceptual model.



PHYSICAL DATA MODEL

Also known as physical schema.

- Represents the data structures as they will be implemented in a specific DBMS, with all the technical details needed.
- These data structures will essentially be the implemented database schema (relational database in our case).