DATA MODELING

- Process or Technique to Define and analyze data requirements needed to support the business process.
- Data Modeling define not just data elements but also structure and relationships.
- In simple words : Abstract Model that organize data description , Data semantics ,Consistency constraint of data
- Data modeling helps in the visual representation of data and enforces business rules, regulatory compliances, and government policies on the data.
- We have two types of Data Modeling techniques (a)- ER Modeling (b) UML

DATA MODEL , Why we use?

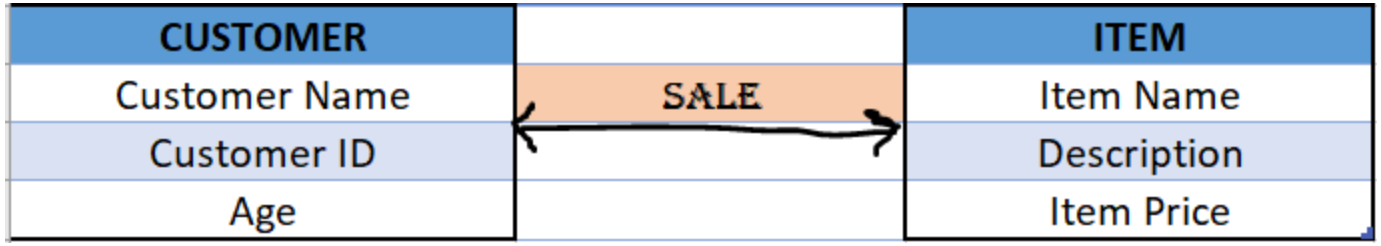
- The Data Model is defined as an abstract model that organizes data description, data semantics, and consistency constraints of data
- TO ensure all data objects required by database are accurately reported
- Data model helps design the database at conceptual ,Physical and Logical level
- Define keys, relationships
- Provide the clear picture of base data and can be used by the developers to create physical database and further analysis.

TYPES OF DATA MODEL

- CONCEPTUAL Data Model : - Describe What system contains .Created by Business owners/Stake holders.
- LOGICAL Data Model : - How the system will be implemented regardless of any DBMS . Created by Architects and Business Analysts.
- PHYSICAL DATA Model : Describe how the system will be implemented using specific DBMS . Created by DBA/Developers

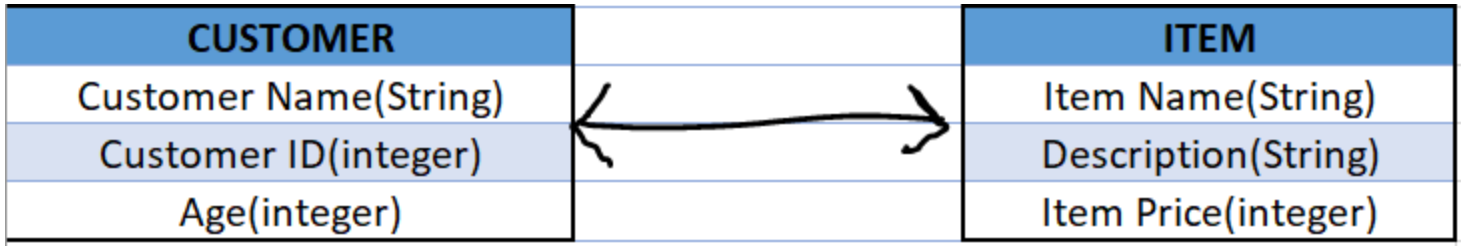
Conceptual Data Model

A conceptual schema is a high-level description of informational needs underlying the design of a database. It typically includes only the main concepts and the main relationships among them. Typically, this is a first-cut model. It hides the internal details of physical storage and targets on describing entities, attributes, relationships and constraints.



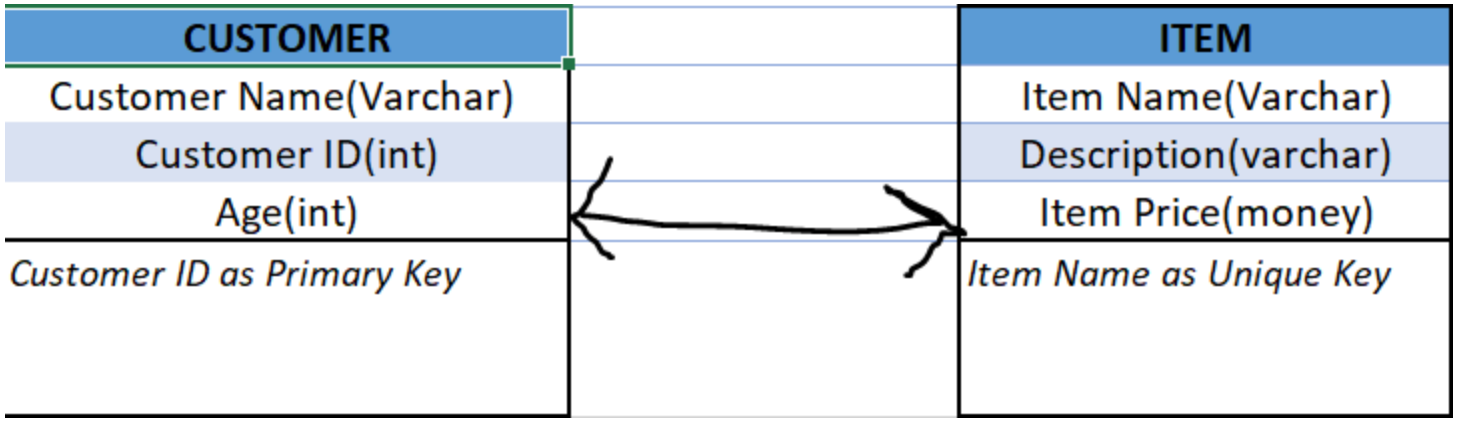
Logical Data Model

The logical data model adds further information to the conceptual data model elements. The advantage of using a Logical data model is to provide a foundation to form the base for the Physical model. It describes the datatype and its length. Logical Data model define structure of data and relationship between them.



Physical Data Model

The Physical data model is the final step of data modelling and first for the developers. Database developers or DBAs describes database specific implementation of data model. The physical data model also helps in visualizing database structure by replicating database column keys, constraints, indexes, triggers, and other RDBMS features.



Advantages and Disadvantages of DATA MODEL

1- Ability to define solid relationship between the tables.

2- Very easy to document data mappings in ETL process

3- Control on Data redundancy.

4- Accurate Data representations.

A- Even smaller change made in structure require modification in the entire application. (CONS)


THANK YOU