Data Model

Data models define how the logical structure of a database is modeled. Data Models are fundamental entities to introduce abstraction in a DBMS. Data models define how data is connected to each other and how they are processed and stored inside the system. A data model helps design the database at the conceptual, physical and logical levels. Data Model structure helps to define the relational tables, primary and foreign keys and stored procedures. It provides a clear picture of the base data and can be used by database developers to create a physical database.It is also helpful to identify missing and redundant data. Though the initial creation of data model is labor and time consuming, in the long run, it makes your IT infrastructure upgrade and maintenance cheaper and faster.

A real-world thing either living or non-living that is easily recognizable and non-recognizable. It is anything in the enterprise that is to be represented in our database. It may be a physical thing or simply a fact about the enterprise or an event that happens in the real world.An entity can be place, person, object, event or a concept, which stores data in the database. The characteristics of entities are must have an attribute, and a unique key. Every entity is made up of some 'attributes' which represent that entity.Example- **Person:** Employee, Student, Patient..

Attribute is a single-valued property of either an entity-type or a relationship-type. Example :**Lecture:** time, date, duration, place, etc.

Steps involved in designing data model

1.Data Requirements are gathered and understanding the attributes the enitity it has.

2.Conceptual Design - to build a conceptual representation of database, which includes identification of the important entities,relationship and attributes.

3.Logical Design - to translate the conceptual representation to logical structure of the database, which includes designing the relation. It provides mapping a conceptual schema into logical schema to provide a much detail description.

4.Physical Design-It describes the details of how data is stored.Tables are defined, data imported, relationships defined in DBMS using SQL and decide how logical structure is to be physically implemented in the target DBMS.