INTRODUCTION TO ER-MODELLING

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The database design process consists of three basic steps

1) Requirement and data analysis

2) Conceptual modelling

3) Logical modelling

Requirement analysis:-

This is the process in which we get to know what data is to be stored In the database and what users want from the database. It is generally done by an informal study of documentation and discussions with user groups.

Conceptual Modelling:-

Information gathered in the requirements
analysis step is used to develop a high-level description of the data to be stored in the database, along with the constraints that are known to hold over this data. This step is often carried out using the ER model, or a similar high-level data model.

ER - Modelling :

The *entity-relationship (ER) data model* allows us to describe the data involved in a real-world enterprise in terms of objects and their relationships and is widely used to develop an initial database design.

As the name suggests entity relationship model deals with entities and the relationships between them so defining the terms

ENTITY:

Entity is any object in the real time world distinguishable from other objects.

Ex: employee,employee address.

Entity Set:

A set used to identify entities of similar type is called a entity set.

Ex: Total set of employees is an entity set where each employee is an entity.

Attributes:

An entity is described using a set of attributes. All entities in a given entity set have the same attributes

1.Simplevs Composite :

Ex- For an Employee Salaryis simple Attribute,while Date of birth is Composite, as it can be further divided into day, month ,year etc...

2.Singlevs Multivalued :

Ex- Multivalued means having multiple bank accounts,phone numbers etc.

3.Derived :

Given an attribute we can derive another attribute.

Ex- From date of birth we can derive age

Relationship:

A relationship gives the association between two or more entities. Grouping all similar relations what we get is a relationship set. Relationships have descriptive attributes i.e. they give additional information like if the leave date and duration is known then joining date can be estimated.

Relationships can be of four types

1)one to one

2)manyto one

3)one to many

4)many to many

Each of which describes the no of entities participating in the relation.

Keys:

To identify each entity in an entity set uniquely we use keys. A super keyis a set of attributes whose values uniquely identify an entity in the set. A candidate keyis a minimal set of attributes whose values uniquely identify an entity in the set.One such candidate key is selected to be a primary key.

Ex: for entity set employee with attributes employee id no, name, fathers name, name and employee id is a super key. Employee id itself is a candidate key. Here we choose this as a primary key