

Attributes

Mandatory (*) or optional (o)

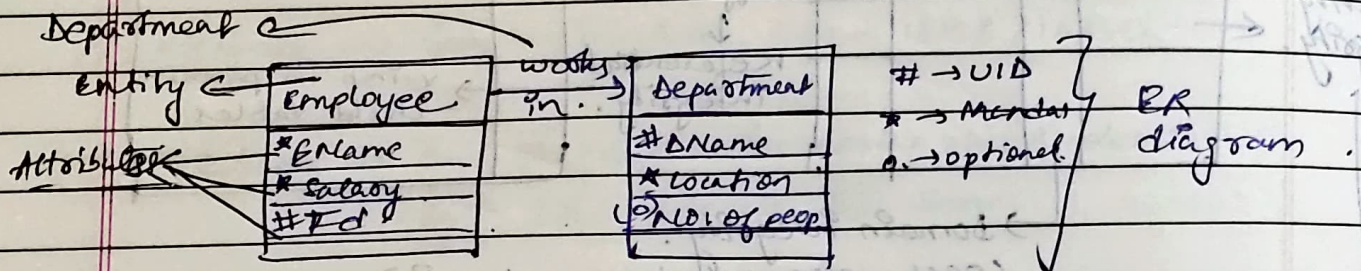
volatile or nonvolatile (stable)

single or composite

↓
can be divided furtherSection 2 → ER Diagram.① → How to show database design to clients. ER Model② → Entity Relation Model

Key terms are Entity & Attributes. & (Relationships b/w entities)

↓ ↓
 employee Salary, Name, etc. } Eg. 8.



③ Relationships can be 1:1, one to many, many to many.

Representations are

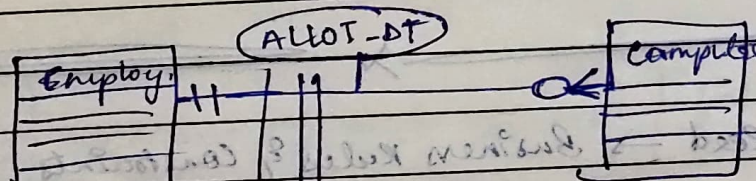
= exactly one
 + 0 zero or one
 > 0 zero, one or more
 > 1 one or more

See Checksheet on Net for more
Q. P.T.O.

Eg:- One computer assigned to only one employee.
But one employee manages 3 computers.

Components of relationship

- 1) No. of relations
- 2) * (or) (o)
- 3) Name of rel.

Note:-

In 1: many relationship foreign attribute always added to many table.

(1:1)
A relationship can also have an attribute. This will be stored in table where foreign key is stored.

Note 2:- In M:N, completely new table is drawn for relationships.

Section 3 → Normalization.

① → Data Redundancy → same data multiplied across the database.

Eg:-

Emp Name	Num	Location Center
~	~	G09
~	~	G0a
~	~	G0u

Here location centre is data redundancy. (Taking extra space). even when same value for everybody.

② → Data Inconsistency → Anything affecting data integrity.

Eg:- 2 tables, having same attribute data but diff attribute.

Eg:- detailoutletaddress	detailoutletlocation.
Same data	Same data.

③ → Normalization → Reorganizing database to ensure there are no redundancy (or) data dependency.

→ Different stages of normalization are known as 'normal forms'.
First we have to understand concept of functional dep.

④ → Functional dependency → A functional dep relational can exist b/n 2 or more attributes.

3 types

- fully functional dependency.
- Partial dependency.
- Transitive dependency.

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→ Attribute B is functionally dependent on attribute A if each value of A determines exactly one value of B.

Representation $A \rightarrow B$

A → Determinant

B → Dependent.

→ $A \rightarrow B \rightarrow C$ } transitive dependency.

A → C } fully
B → C

A → C } partial
B → C

⑤ Anomaly → Unexpected side effect from trying to insert, update (or) delete a row.

Mainly b/c of functionally dep b/w attributes.

⑥ Normal forms

→ Diff stages → 1NF — 6NF

After 3NF, BCNF is there before 4NF

(Boyce - Codd Normal form)

1NF → All attributes of R are atomic in nature

(Removes ambiguity)

Should be no multi-valued attribute.

↳ An attribute which can have multiple values at one time.

2NF → 1NF nature present

(Removes data redundancy)

No partial dependency (b/w non-key & key attributes).

3NF → Already 2NF.

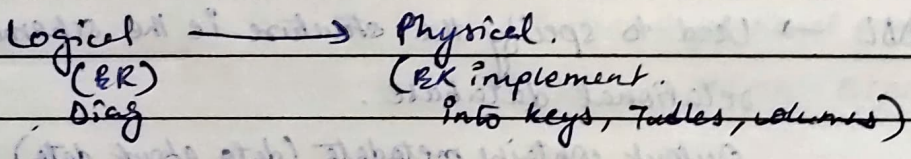
(data integrity) No transitive dependency which exist b/n key and non-key attributes.

2NF → preferred in applications with extensive data retrieval.

3NF → " " " " " data modifications.

conversion from higher to lower form is denormalization.

- ⑦ Data Models
- Conceptual Model → identifies table names & relationship b/n them
 - Logical Model → also called entity relationship model.
 - Physical Model → logical + index, views, datatypes, etc.
- First thing to be created while designing DBS



- ⑧ Entity
- Prime (Customer) → independent
 - Characteristic (Order) → exists b/c of prime
 - Intersection (OrderItem) → b/c of both prime & char.
- Instance → Occurrence of Entity (eg: Job → cleaner)
(Entity) (Instance)

- ⑨ 3 Data model Drawing notation
- Barker notation
 - Bachman notation
 - Information Engineering notation.