

DBMS

① DDL : Data definition language

Create, alter, drop, truncate, rename

✓ ↓
to change existing data structure

↓
to remove entire DS.

→ to remove all rows

② DML : Data manipulation lang

Select Update Delete

↓
to change data

↓
to remove rows

③ DCL → Grant Revoke

④ TCL : Transaction lang

Commit Rollback, savepoint

⑤ Procedure → No return

Function → Return

⑥ Triggers → store procedure that is automatically fired, when insert, update, delete is done against a table.

⑦ Normalization → To avoid data redundancy,

Unnormal form insertion, deletion, update anomalies

1NF → No multiple value

2NF → No partial dependency.

3NF → No transitivity

Boyce-Codd Normal form → $A \rightarrow B$, A should be superkey

4NF → No multivalued dependency

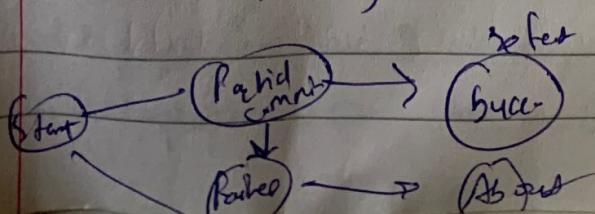
5NF → decompose the table & join again → it should be lossless. (remove anomalies)

⑧ ACID : Atomicity → all operation reflect in DB.

Consistency → consistency of database maintain

Isolation → Two transaction don't interact.

Durability → After transaction, in DB it should



Super() → calls Super class constructor

this() → refers to another const with diff ~~param~~
12.

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DATE:

* Waterfall Model

Communication → planning → Modelling →
construction → Deployment

* Spiral → ~~seq~~ no sequential steps, those are in circle

→ Risk analysis is done at every phase

→ Each cycle is complete, number of cycles

* Anonymous Union + Name is not mentioned, class + "sign
Union" → Name is known

* Black box testing → Testers don't know internal arch.
white box testing → Testers know internal arch.

* Structure is data structure in C, used to collect
data of diff types.

* Sorting all algo

(call by value) (function (a,b))

Call by ref (function (a,b))

Modelling

- Entity is a thing i.e. distinguishable (Not in ER diagram)
- It is a column content
- Attribute is column name
- Table name is called entity set.

Attribute :-

① Simple attribute.

Ex:- Roll no.

It cannot be further divided

② Composite :- This attribute can be divided

Address → Home no.

→ Street add

→ City

③ Multivalued attribute :- It has more than one value

Ex:- Mob. no.

- Each multiple attribute has diff. table.

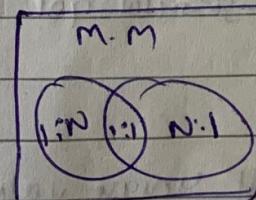
④ Stored attribute :- Fixed value. Ex: (DOB)

⑤ Derived attribute :- it is derived ex: (Age). It changes with time

★ Degree :- No. of entity set associated in a relation.

Can be 1 to n.

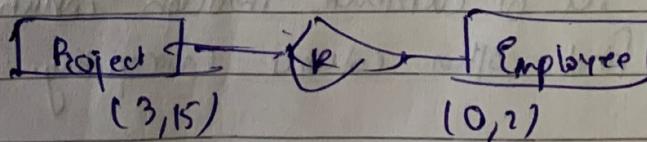
★ Cardinality Ratio :- 1:0, 1:n, n:1, n:n



★ Max Cardinality :- Max. no. of times a entity can be in relationship.

Min cardinality :- Min no. - 1 -

Min card = 0



↳ Partial participation

min card > 0

↳ Total participation

A project can have 3 min employ. & 15 max. employ.

A employee can be in 0 project and max in 2 project

* Trivial dependency $\Rightarrow AB \rightarrow A$
i.e. B is subset of A .

Non-trivial dependency $\rightarrow B$ is not subset of A .
 $AB \rightarrow C$

* The dependency exists, only when $A \rightarrow BC$
on each unique of A we get don't get different values.

co-domain		A	B	C
a	2	3		
b	1	5		

a \neq b, 2 \neq 3 so then it's okay.

But if $A \rightarrow AB$ then B also

we get diff value of a then dependency does not exist.

i.e. on same value of A , we should get same value of B .

* A key is a column, which has all unique value.
It can be a column or a group of columns
with help of it we can find all column data.

Super key:- set of attribute through which we can find other columns completely. It is unique.

~~of q.~~
~~set of d.~~

Candidate Key: A superkey is called candidate key, whose proper subset is not a superkey.

Primary Key: It is candidate key that is selected by adding to find tuple. It can be only 1 attribute or group of attribute.

* Insertion, Deletion, Update → Anomalies.

* Normalization

- (1) 1NF
- (2) 2NF → When non-prime attribute, is dependent only on a part of candidate key, (Partial dependency)
- (3) 3NF → Transitive dependency is removed
- (4) BCNF - Boyce Normal form
 $\alpha \rightarrow \beta$ $X \rightarrow$ Not allowed in BCNF
 $P/N \cdot P$ R
- (5) 4NF → Multiple dependency Not allowed
- (6) 5NF → lossless., No anomalies.

Deadlock → (5) Wait waiter
Wait die
locking.

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- (1) Singly Linkedlist → Poem in brain
 Doubly → Music system → next button
 prev button
 hundreds.
- (2) Circular → OS → application etc are in
 circular linkedlist.
- (3) BSTree → Chess games use ~~bst~~ tree - reduction
 Graph → Path optimisation in Google Maps to reach optim
 map.