Lec - 7

Relational Model :-

⇒ Tables ⇒

Customer — Cust_ID
— Name
— address
— Contact

Table → Relation →

	Cust_ID	Name	addrn	Contact
①	1	Lakshay	---	888 --
②	2	Raj	---	---

⇒ Degree of table ⇒ No. of attributes.

Cardinality ⇒ Total no. of tuple.

⇒ DB design ⇒

① ER Model ⇒ ER diagram.

↕

② Relational Model ⇒

↓

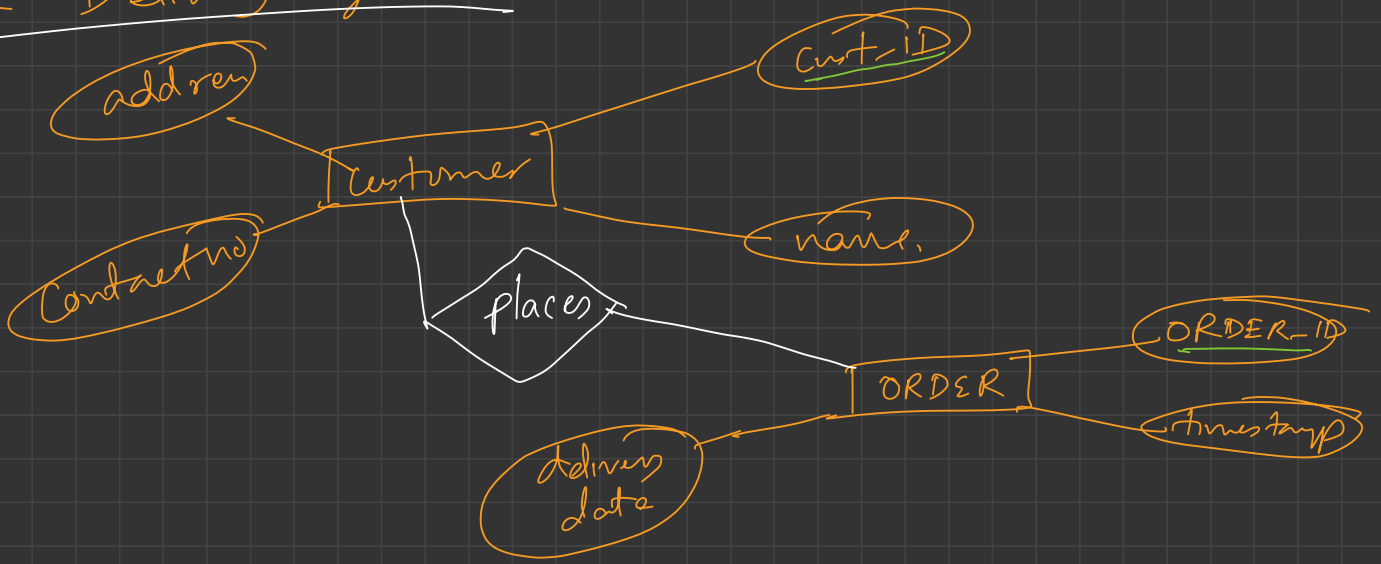
③ RDBMS ⇒ software DBMS

↓

software implementation of RM

MySQL, MS access, Oracle etc.

Online Delivery system



① Customer (Cust_ID, name, address, contact no.)

② ORDER (order_ID, timestamp, delivery_date)

⇒ Key ⇒ Forgein key

⇒ Keys ⇒ Primary key ⇒ each data point uniquely identify

Cust_ID	Name	contact	addrss	email

① Super key ⇒ {Name, contact}, {Name, email}

{Cust_ID, email}, {Cust_ID} {All}

{Cust_ID, Name, contact, email}

{Raj, 888}
{Raj, 811}

② C.K. → {Contact}, {Cust_ID}, {Cust_ID, contact}, {Cust_ID, email}

③ P.K → {Cust_ID} → P.K.

④ A.K → {C.K} − P.K. →

(4) Foreign Key :-

Customer (cust_ID, name, addrss, contact no)

Order (order_ID, timestamp, delivery date, cust_ID → {F.K})

Customer → Referenced Rel^n / Parent table.

Cust_ID	Name	addrss	contact
1	Kaz	- -	- -
2	Jo	- -	- -
3	dada	- -	- -
4	...	...	...

ORDER → Child table. / Referencing rel^n.

Order_ID	Timestamp	delivery date	Cust_ID
21	- - -	- -	1
22	- -	- -	2
23	- - -	- -	3

* Composite key -

A Surrogate key ⇒

Table of School A

reg.no	name
101	Ram
102	Monika
103	Tata.

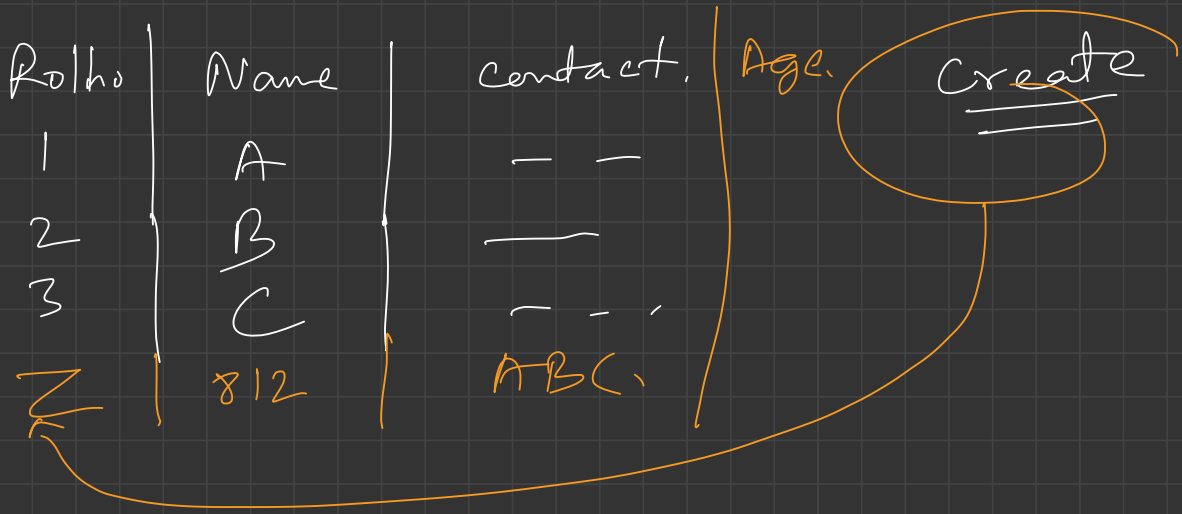
Merged. →

Surr-no	reg_no	name
1	101	Ram
2	102	Monika
3	103	tata
4	AB101	Tommy
5	AB102	Nota.

table of school B

reg_no	name.
AB101	Tammy
AB102	Nota.

CRUD



* Referential constraint

Customer :-
↓
Parent rel^n
Referenced table.

Cust_ID	Name	add	Contact no.
1	Kaz	..	— —
2	Jo	— —	— —
3	Dada		

ORDER :-
↳ Child Rel^n / Refereing table

order_ID	Timstamp	delivery date	Cust_ID → F.K.
21	— —	— —	1
22	— —	— —	2
23	— —	— —	~~3~~ Null.

① Insert constraint :- value can't be inserted in child table if the value is not lying in parent table.

② Delete constraint :- Value can't delete from parent table if the value is lying in child table.

⇒ ON Delete Cascade :-

Can we delete value from parent table if the value is lying in the child table w/o violating delete constraint?

→ delete value from parent table → delete corresponding entry from child table too.

```
create table Order ( order_ID int P.K, ..., ..., cust_ID int
                                    referencing Customer
                                    on delete cascade);
```

⇒ Can F.K have Null value?

ON Delete Null :-

delete value from parent table → Put corresponding F.K value Null.

* Key Constraints :-

① Not Null → By default a attribute/column can be Null.

↳ enforce a column to not accept Null.

```
Create Table Customer (
    ID int Not Null,
    Name varchar(50) Not Null,
    Age int,
);
```

② Unique constraint =>

↳ ensure all values in col. are diff.

- Both Unique & P.K constraint provide uniqueness.
- you may have many Unique constraints per table But only one P.K constraints per table.

```
create Table Customer (
    ID int NotNull,
    Name varchar(50) NOT Null,
    unique (ID)
    );
```

③ Default constraint :

↳ set default value of col,

```
create table Customer (
        ⋮
    prime_status int DEFAULT 0,
        ⋮
);
```

④ Check :-

— limit value Range (Domain)

```
(
    ⋮
    CHECK (age >= 18)
)
```

(5) Primary Key constraint

→ Uniquely identif each tuple.

— P.K ≠ Null.

— Relation only 1 P.K.

```
(
  :
  PRIMARY KEY (ID)
  : )
```

⑥ Foreign Key Constraint

— Keeps reln b/w 2 table.

```
Create table Order (

    PRIMARY KEY (order_ID)
    FOREIGN KEY (Cust_ID) Referencing
                Customer (Cust_ID)
);
```