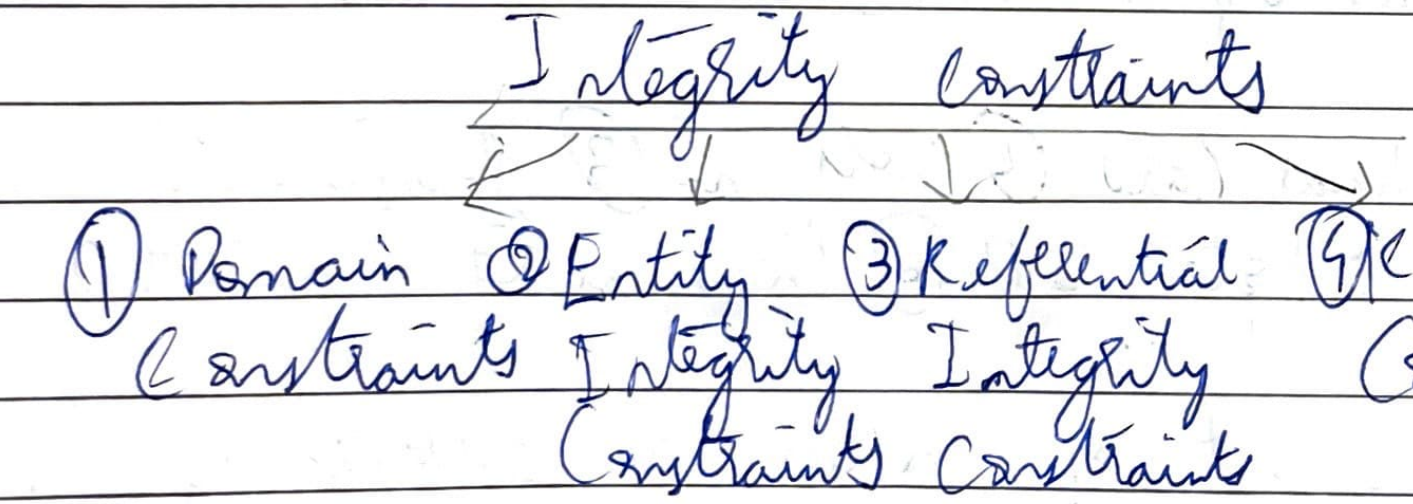
Lec-8.0 Integrity Constraints in Database with Examples

* Integrity constraints are rules defined in a database to maintain data accuracy, consistency, and reliability

* They ensure that data stored in the database follows predefined rules & conditions



Right

① Every attribute must have a domain / datatype

Eg:- If I am storing age, name & mobile no, the age should be an integer >0

Or check (age >0)

ii) The name should be of character type

iii) The mobile no should be a 10-digit integer

check (length (mobile) = 10)

Not-null

② Every record should have a primary key that is not null

③ If there is one table linking to another, there must be a foreign key.

④ Every record should have a unique primary key.

Lec 8:- What is candidate key and primary key

What is key → Attribute

Use of key → Uniquely Identify records

Some of attributes that can be used as key are

1) Adhaar Card ② Roll no ③ Registration no ④ Licence no ⑤ Voter ID ⑥ Phone no ⑦ Email ID

This set of values are collectively known as candidate key.

In candidate key, the most appropriate one is the primary key, the rest all are alternative keys.

Lec-9) What is primary key in DBMS?

Primary → Unique + Not Null

Of Phone no, Adhaar Card, PAN, Reg no, Roll no we cannot use Phone no ~~as~~, Adhaar Card & PAN Card as primary key as

1) ~~Bo~~ Siblings can have the same phone no.

2) Some students may not have Adhaar Card or PAN card.

3)

Lec-10: ~~What is~~ Foreign Key in DBMS

Foreign key: It is an attribute or set of attributes that references to primary key of some table or another table (relation)

→ Maintains referential integrity

PK Student

Rollno	name	address
1	A	Pune
2	B	Mumbai
3	A	Chd

Course

Course_id	Course_name	Rollno (FK)
C_1	DBMS	1
C_2	Networks	2

Base Table / Referenced Table

Referencing table

create table Course

(
Course id varchar(10),
Course_name varchar(20),
Roll no int references Student(Rollno)
);

To add constraint after creating the table,

Alter table course ADD constraint fk foreign key(Rollno) references Student(Rollno);

Lec13: Super Key in DBMS,

Super key: A super key is a combination of all possible attributes which can identify uniquely two tuples in a table

* Super set of any candidate key is super key

- R(A_1 A_2 A_3 A_4 ... A_n) then how many super keys are possible

- If $\rightarrow A_1$ is candidate key $\rightarrow 2^{n-1}$
  $\rightarrow A_1, A_2$ are candidate keys $\rightarrow$

$2^n - 2^{n-2}$