

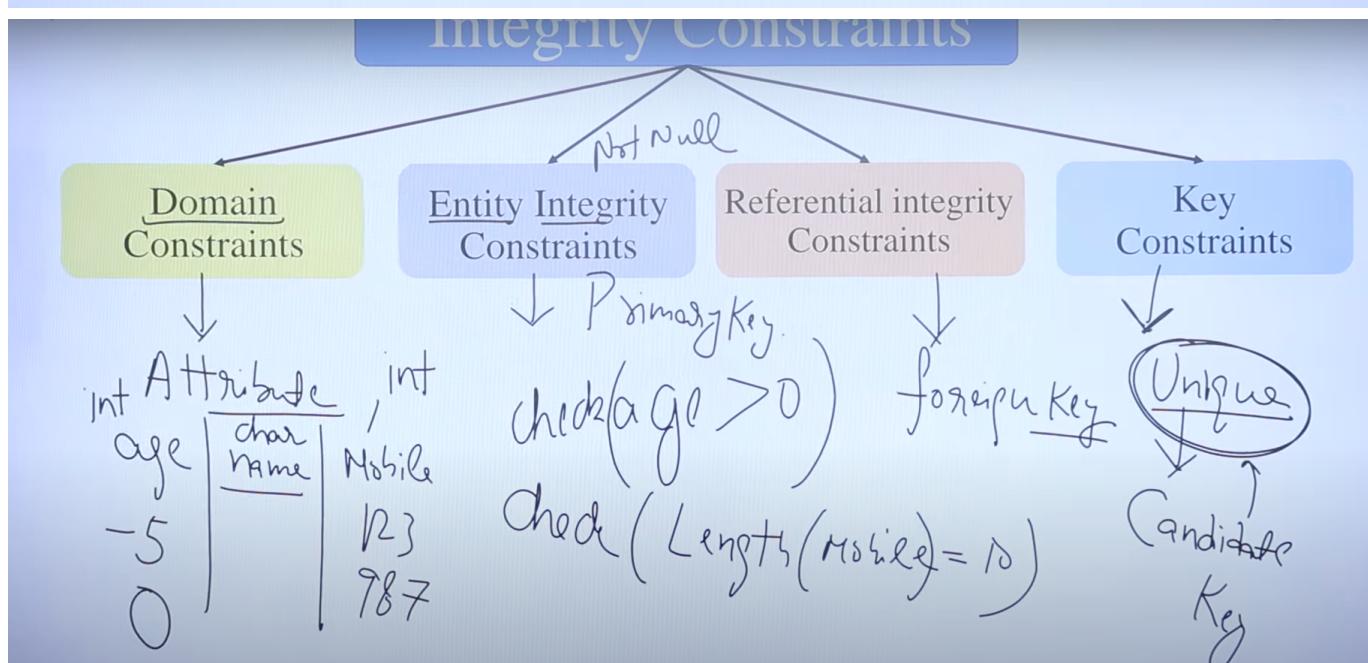
Integrity constraints

Integrity Constraints

Rules

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 or conditions.



Key

- Any attribute

→ What is Key → Attribute

→ Use of Key → Uniquely Identify

Sname	City	Age
Reddy	Hyderabad	20
Prajwal	Kanpur	21
Reddy	Hyderabad	20

Student table.

- 1) Aadhaar Card
- 2) Roll no
- 3) Registration no
- 4) Licence no.
- 5) Voter id

Candidate key

- Set of keys which uniquely identify
- From these choose a **primary key** and rest are **alternative key**

Concept of Candidate Key

Primary Key → Alternative Key → What is Key → Attribute

→ Use of Key → Uniquely Identify

Rollno	Sname	City	Age
1	Reddy	Hyderabad	20
2	Prajwal	Kanpur	21
3	Reddy	Hyderabad	20

7) Email

Student table.

- 1) Aadhaar Card
- 2) Roll no
- 3) Registration no
- 4) Licence no.
- 5) Voter id

Primary key

- Unique + Not null
- Only 1 Primary key in a db
- We give to user and not input

id	date			\$					

Foreign Key

- Maintain Referential Integrity

Foreign Key: It is an attribute or set of attributes that references to Primary key of same table or another table (relation).

→ Maintains Referential Integrity.

Create table Course

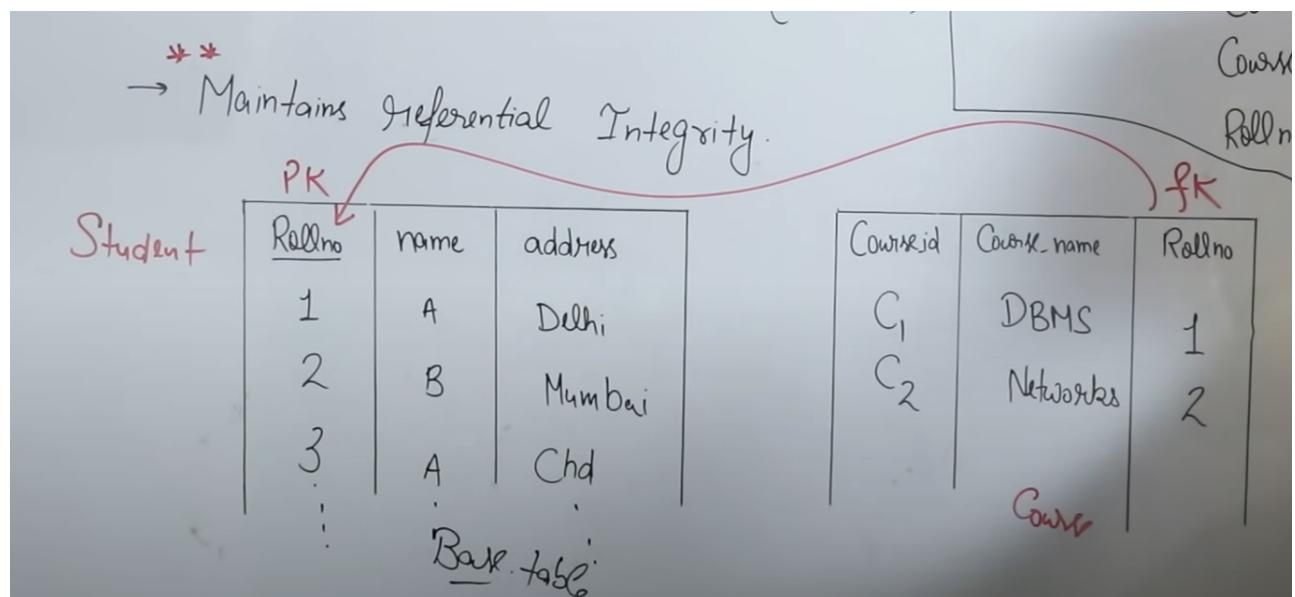
```
(Course_id varchar(10),
Course_name varchar(20),
```

Rollno int References

Student(Rollno)

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

Courseid	Course_name	Rollno
C ₁	DBMS	1
C ₂	Networks	2



- FK apart from PK not allowed

STUDENT		
roll_no	name	age
1	abc	10
2	xyz	10
3	pqr	11

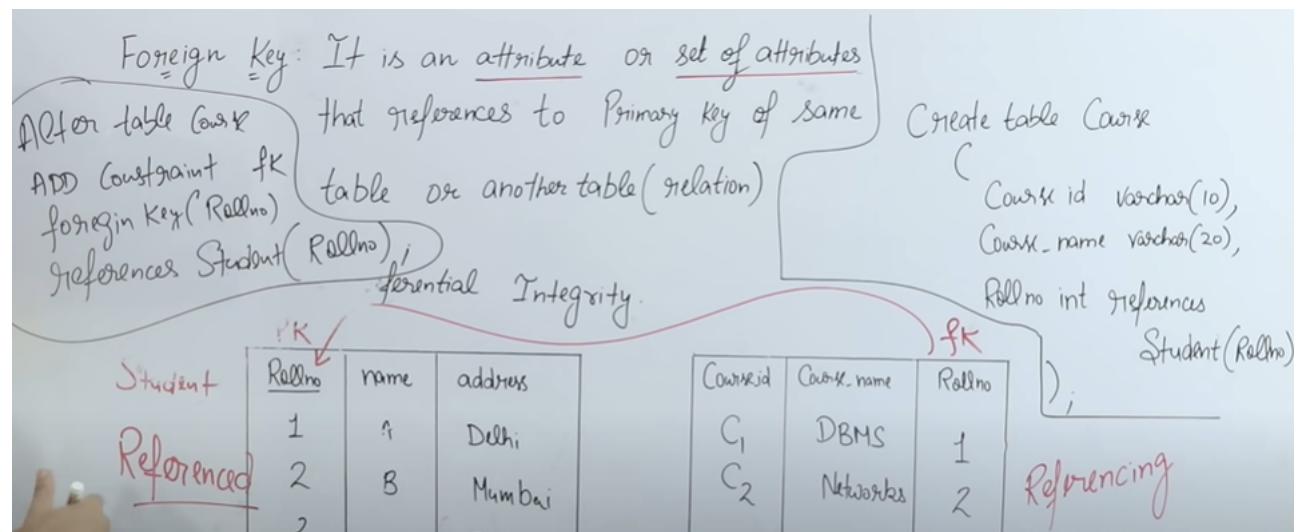
COURSE		
course_id	name	roll_no
c1	dbms	1
c2	java	2
c3	os	4

- Multiple FK allowed
- FK and PK can have different name in referenced and referencing table

STUDENT		
roll_no	name	age

COURSE			
course_id	name	s_id	t_id

TEACHER		
roll_no	name	age



Insert, Update & Delete from Foreign Key table | Referential Integrity

Foreign Key (Part - 2)

Referential Integrity

Referenced table:

- 1) Insert - No Violation
- 2) * Delete - May Cause Violation
- 3) Update → May Cause Violation

On delete cascade
On delete Set Null
On delete No Action

PK → **Rollno**

FK → **Rollno**

Student (Base table or Referenced table)

Rollno	name	address
1	A	Delhi
2	B	Mumbai
3	A	Chd
4	D	Chd.

Course (Referencing table)

Courseid	Course_name	Rollno
C ₁	DBMS	1
C ₂	Networks	2

Referencing table

- 1) Insert → May Cause Violation.
- 2) Delete - will not cause any violation
- 3) Update - May Cause Violation -

Super Key

- Candidate + some other key

* **Super Key**: A Super Key is a Combination of all Possible attributes which can uniquely Identify two tuples in a table.

Super Set of any Candidate Key is Super Key.

$R(A_1, \underbrace{A_2 A_3 A_4 \dots A_n}_{n-p})$ then how many Super Keys are Possible

If $\rightarrow A_1$ is Candidate Key.

$\rightarrow A_1, A_2$ are Candidate Keys. A_1

A_1, A_2, A_3
 $2 \times 2 \times 2$ (2^n)

CK = Rollno

Rollno, name

Rollno, age

Rollno, name, age

2^{n-1}

Rollno	name	age

name age

2^{n-1}

□