Agenda.

→ Intro to Databases.

→ Relational (Vs) Non Relational DB

→ Keys in Relational DB
- Super Keys
- Candidate
- Primary
- foreign

→ SQL

Data Base

file
- Text
- CSV

Decimal

name, email, password, batch, att, psp, ..

_ , _ , _ , _ , _ , _

_ , _ , _ , _ , (_) , _

ABCD

→ Inefficient

→ Data Integrity.

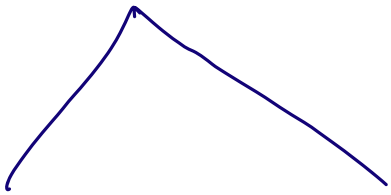
→ Concurrency

→ Security

DBMS.

↳ DataBase Management System.

Types of Databases



Relational

Non-Relational

↙

Stores the data in collection of tables.

→ MySQL

→ PostgreSQL

→ — — —

Row & Column

Students →

id	name	email	password	phone
		1234		
101	Neeraj	a@a	1234	919991
102	Neeraj	a@—	1234	919991

→ Row

Properties of RDBMS.

1. Collection of tables
2. Every row should be unique.
3. All the values in a column should be of same data-type
4. Values should be atomic

movies

id	name	....
101	Dhurandar	...
110	Gully Boy	

actors

id	name	movies
500	RS	[101, 110]

Keys in DB.

↳ To uniquely identify a row in the table.

1) Super Key ⇒ Anything that can identify a row uniquely.

Students

name	email	phone	attendance

(email) ✓

(phone) ✓

(name) ×

(email, name) ✓

(phone, email) ✓

(email, name, phone) ✓

⇒ Super key can have extra attributes.

2. Candidate Key

↳ Minimal Super Key ⇒ No extra fields.

(email) ✓

(phoneNo) ✓

3. Primary Key.

↳ Choose one of the candidate key as the Primary Key.

Course_registration

Student_id	Course_id	semester
101	4	2025
101	17	2027
101	20	2025
105	4	
105	11	
—	—	
—	—	

(Student_id) ✗

(course_id) ✗

(student_id, course_id) S.K ✓
C.K ✓

(student_id, course_id, semester) SK ✓
CK ✗

Students

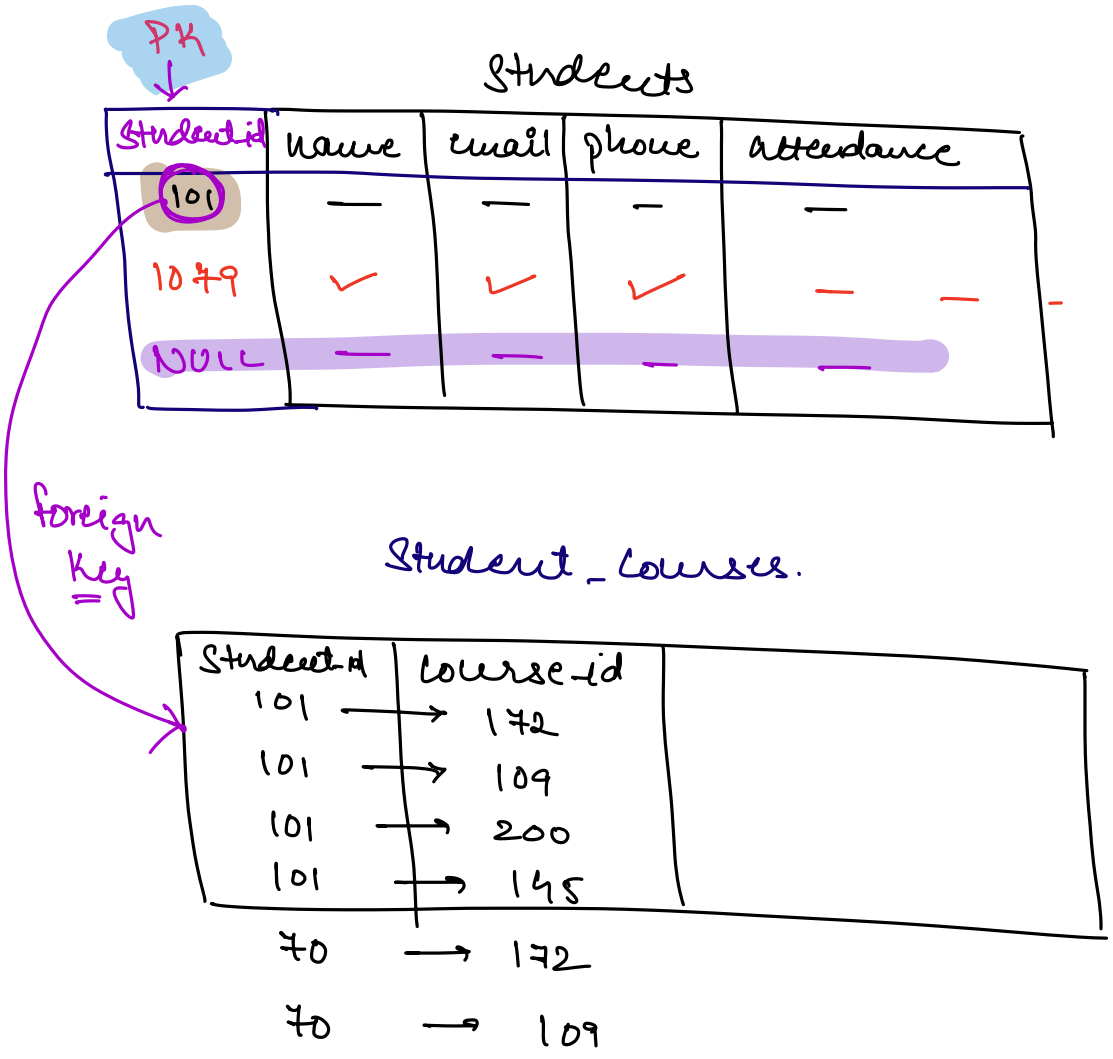
id	name	email	phone	attendance
1079	✓	✓	✓	— — - - .
NULL	—	—	—	—

Unique

⇒ Only one Primary key per Table.

Unique — Non Null.

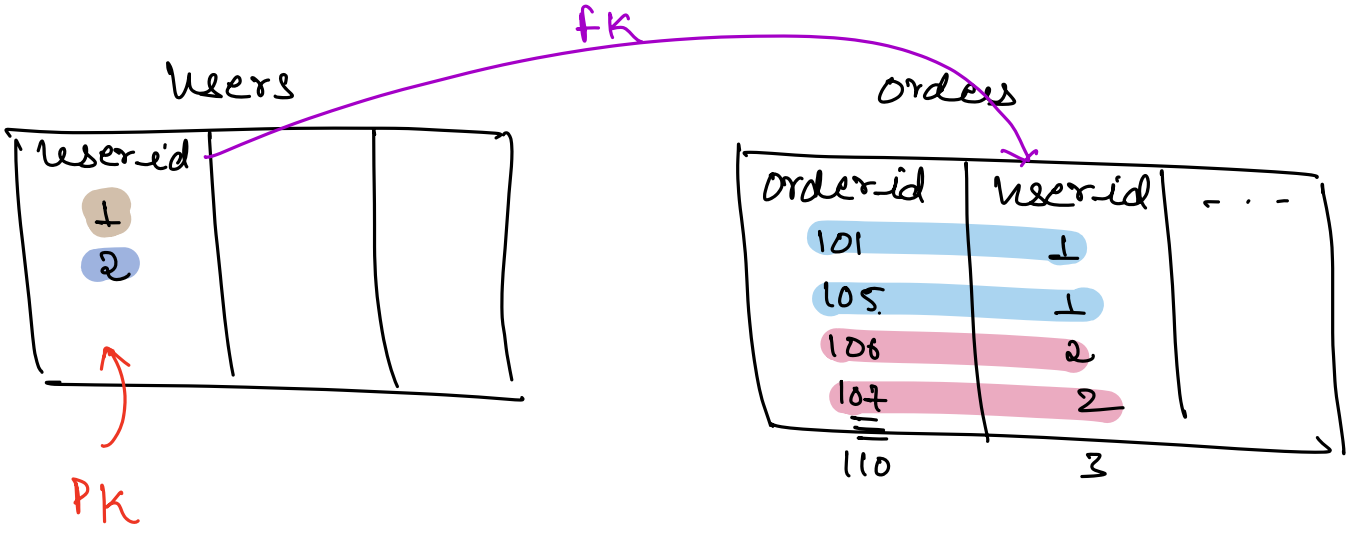
Foreign Key : A reference to other table.



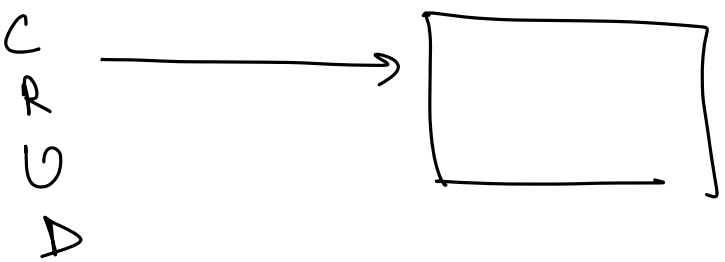
⇒ Foreign key is a field in one table that refers to the Primary key of other table.

⇒ We can't enrol a student who doesn't exist.

⇒ Foreign key maintains relations b/w the tables.



SQL : Structured Query language




```
CREATE TABLE students (
    id INT AUTO_INCREMENT,
    firstName VARCHAR(50) NOT NULL,
    lastName VARCHAR(50) NOT NULL,
    email VARCHAR(100) UNIQUE NOT NULL,
    dateOfBirth DATE NOT NULL,
    enrollmentDate TIMESTAMP DEFAULT CURRENT_TIMESTAMP,
    psp DECIMAL(3, 2) CHECK (psp BETWEEN 0.00 AND 100.00),
    PRIMARY KEY (id),
);
```

String

problem solving percentage.

Unique & Not Null.

```
Create table table_name (
    column_name datatype - -
```