

Date: 21/9/24

## \* Types of SQL commands

## 3 DDL : Data Definition language

- a] CREATE
  - b] DROP
  - c] ALTER
  - d] TRUNCATE

## 3) DML : Data Manipulation Language

- a) INSERT
  - b) UPDATE
  - c) DELETE

3] DCL : Data Control Language

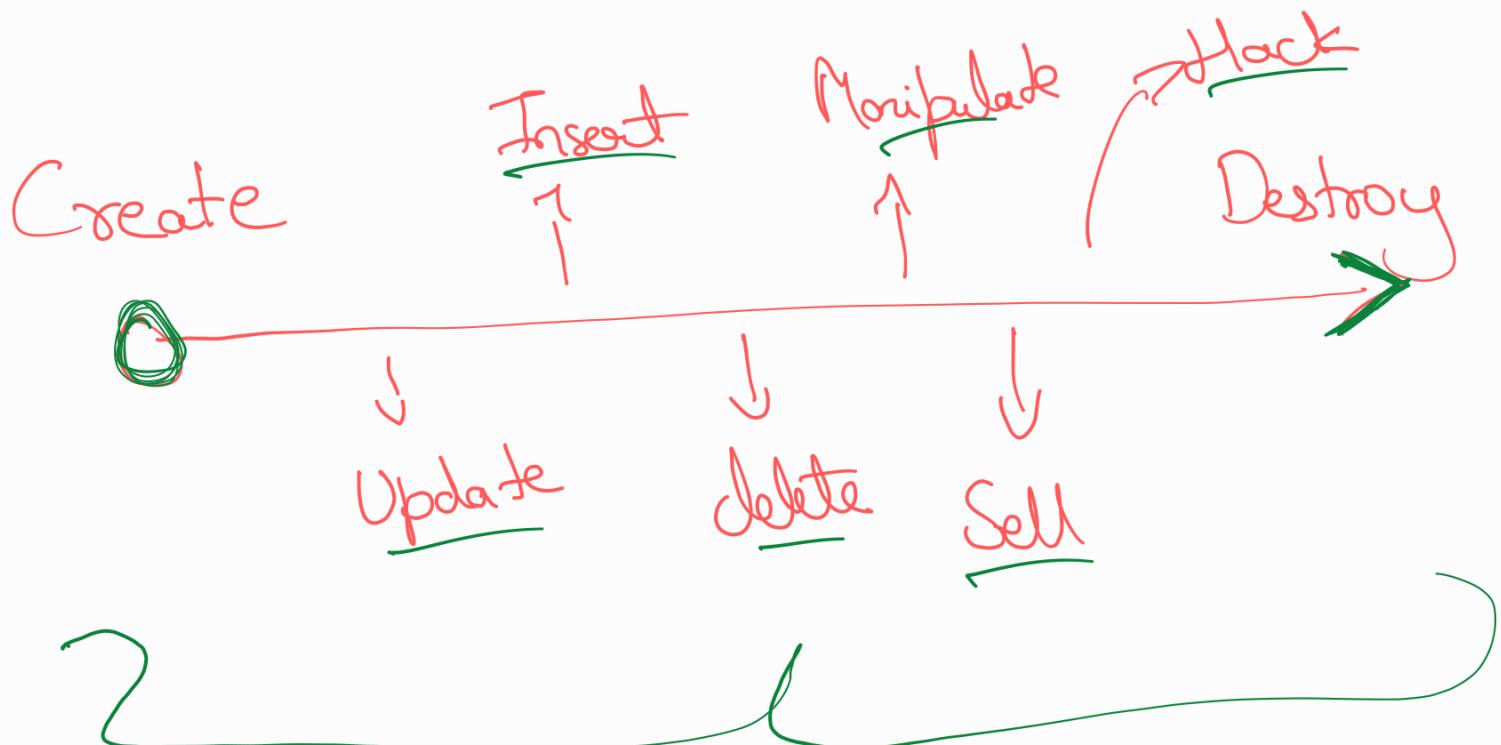
- a] GRANT
- b] REVOKE

4] TCL : Transaction Control Language

- a] COMMIT
- b] ROLLBACK
- c] SAVEPOINT

5] DQL : Data Query Language

- a] SELECT



# SQL

Query : To create a table

1] Name of table : My Students DB ✓

2] Columns of my table :

a] Name : Text [25 chars]

b] Age : Number

c] Hobby : Text [15 chars]

a] Spreadsheet

Name	Age	Hobby

## 4] SQL :-

```
CREATE TABLE My-Student-DB (
    Name varchar(25),
    Age int,
    Hobby varchar(25)
);
```

## 4] SQL Data types :-

### 1] Numerical

- ✓ ↳ int [1, 40, 1230]
- ✓ ↳ float [1.6, 2.0, 1230.4657]
- ↳ big/small int

### 2] Date / Time

- ✓ ↳ Date [09/09/2024]

✓ ↳ Time [06:06:54]

✓ ↳ Date Time

✓ ↳ Timestamp

3) Character String

↳ Char

✓ ↳ Varchar (max)

↳ Text

4) Binary

↳ Binary

5) Miscellaneous

↳ Blob

↳ Clob

↳ XML

Not  
that

→ JSON

## 6} Unicode

→ NChar

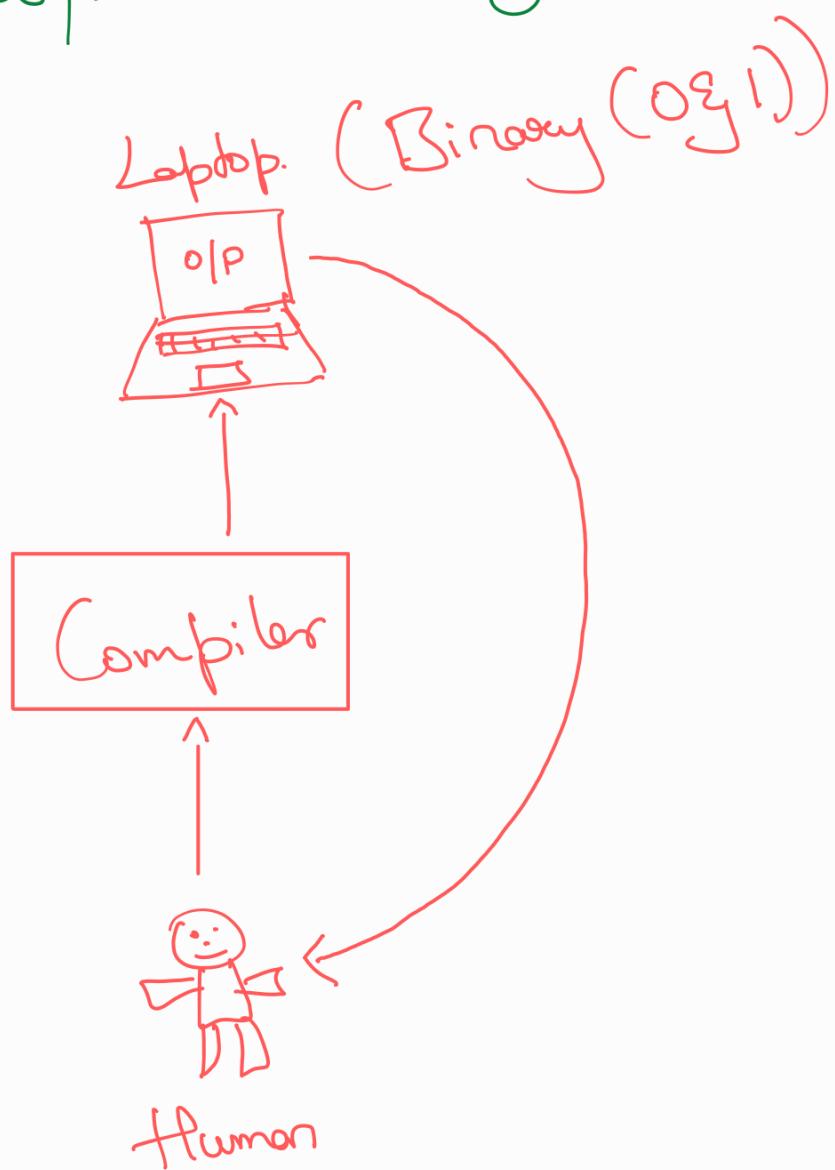
→ NVarchar

→ NText

Imp  
for now..

---

Date :- 23/09/2024 (Monday)

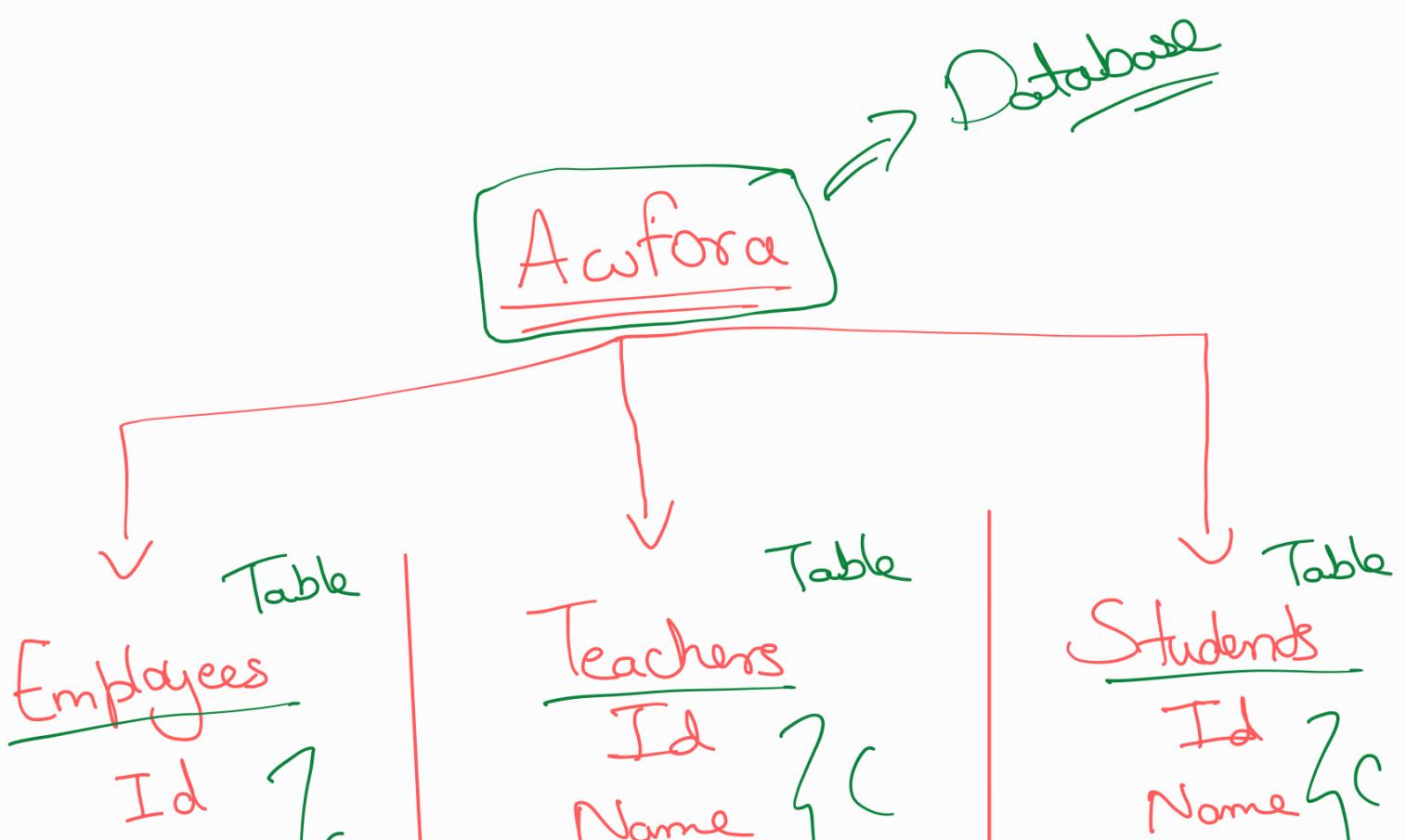


\*7] Offline SQL Compiler :

# Workbench

## Data base ✓

- ↳ Tables ✓
  - ↳ rows
  - ↳ columns
- ↳ Views
  - ↳ rows
  - ↳ columns.



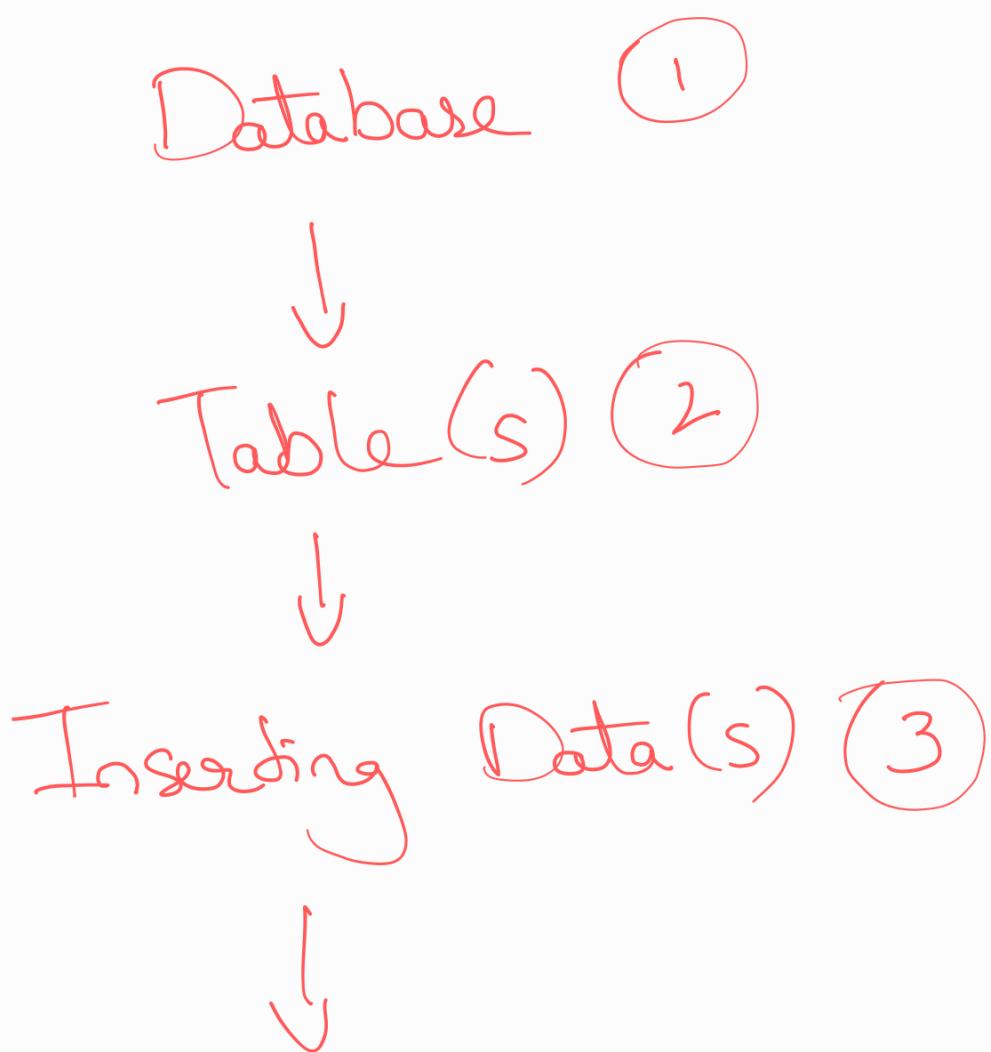
Name  
Ph.no  
Place  
Position

Salary

Course

Full Time employee  
in Amazon

## Hierarchy



# Querying ④

## 1] Creating Database [DB]

\*] Show Databases;

\*] Create database dbname;

\*] Create table tablename (

testc1 int,

testc2 varchar(25)

);

## \*] ER Diagram

Dak: 2s (3/24)

Entity - relationship diagram

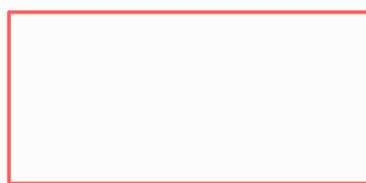


Any real life object

object

eg:- Cat, Dog, donkey,  
vehicle - car, bike,  
bottle.

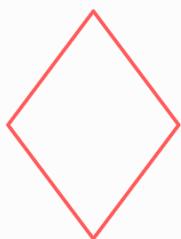
## \*] ER Diagram Symbols



$\Rightarrow$  Entity



$\Rightarrow$  Attribute



$\Rightarrow$  Relationship.



$\Rightarrow$  Connection b/w  
entity - entity /  
entity - attribute.



$\Rightarrow$  Multi-valued

Attribute.

6



$\Rightarrow$  Weak Entity

## A] Components of ER Diagram

ER Model



Entity

- $\hookrightarrow$  Strong
- $\hookrightarrow$  Weak.

Attribute

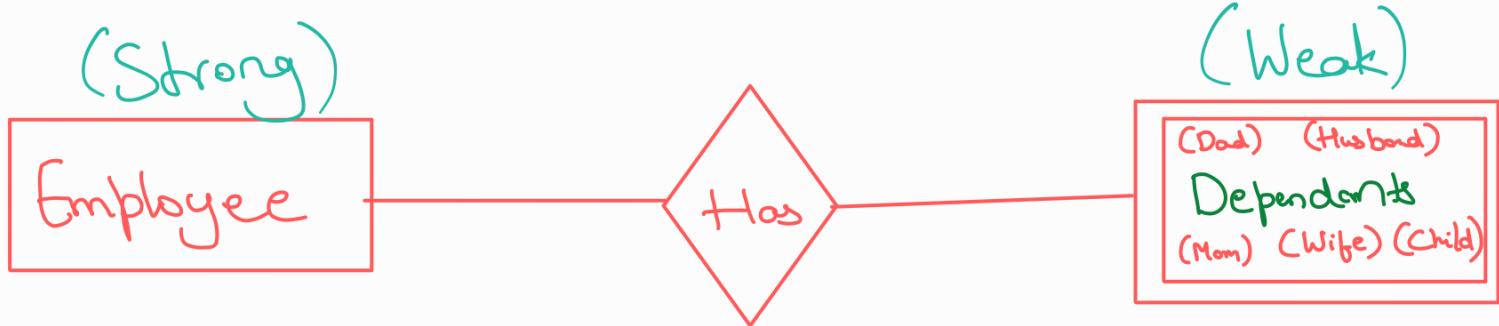
- $\hookrightarrow$  Key
- $\hookrightarrow$  Multivalued
- $\hookrightarrow$  Composite
- $\hookrightarrow$  Derived.

Relationship

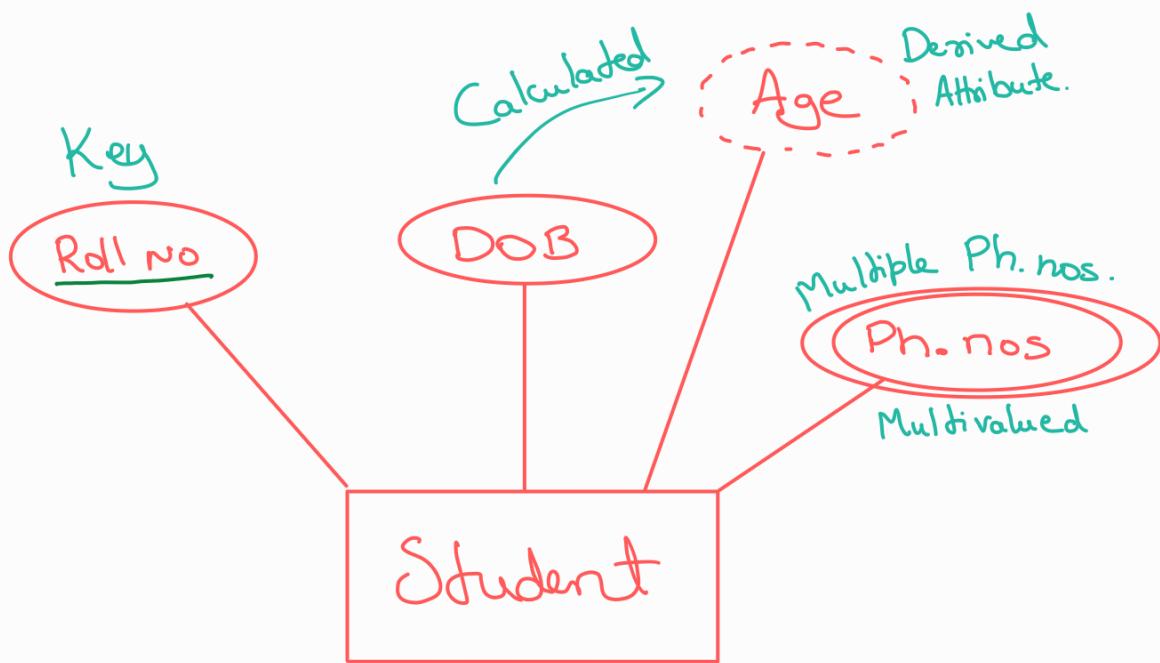
- 1 - 1
- 1 - M
- M - 1
- M - M

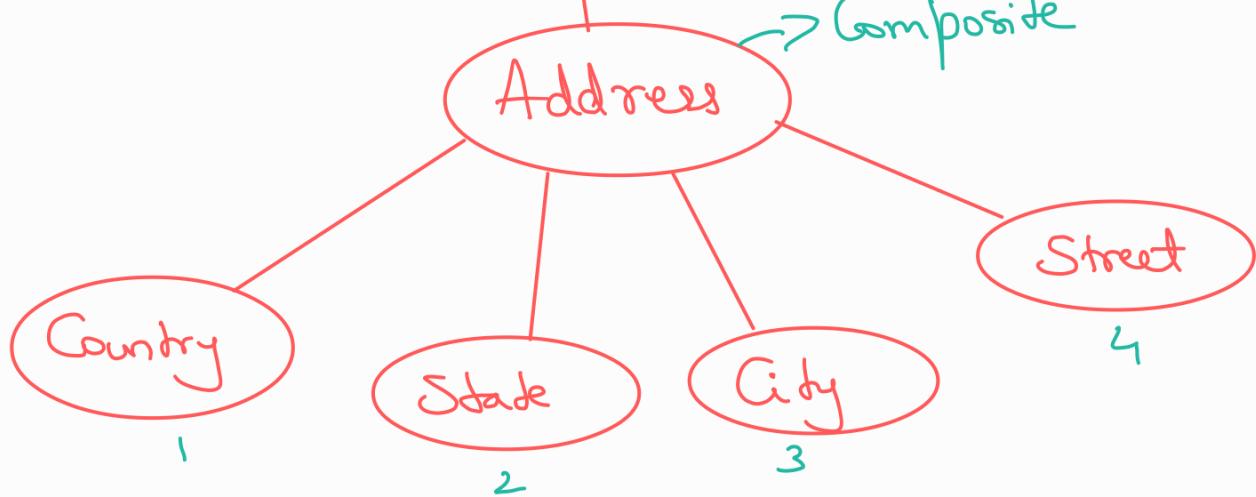
7. 5. 1. i. S. t. r. e. E. l. weak

Ibidity o strong weak.



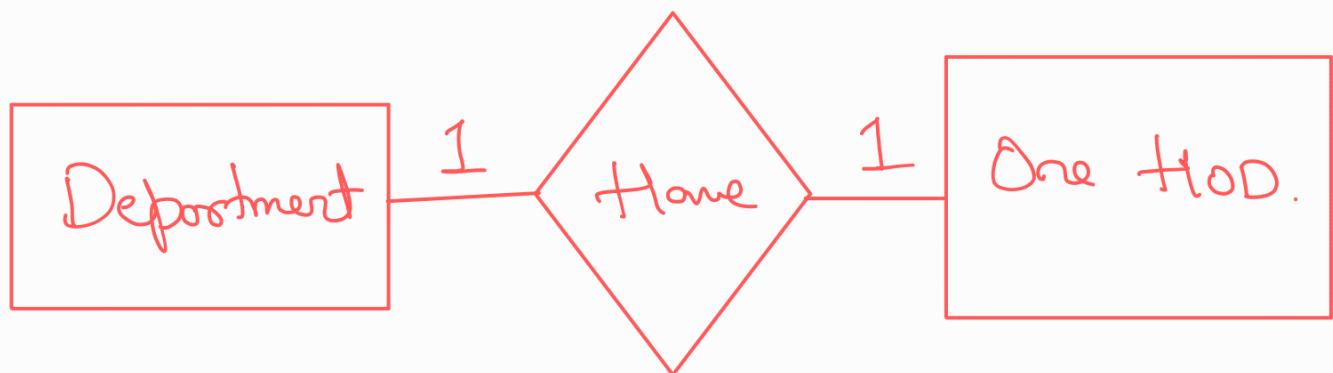
2} Attribute : Key  
Multivalued  
Composite  
Derived .



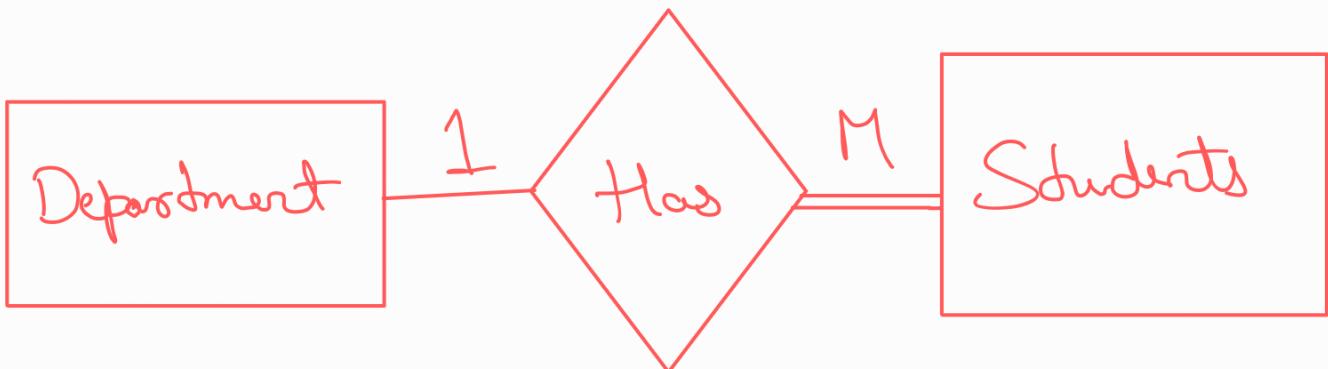


### 3) Relationship

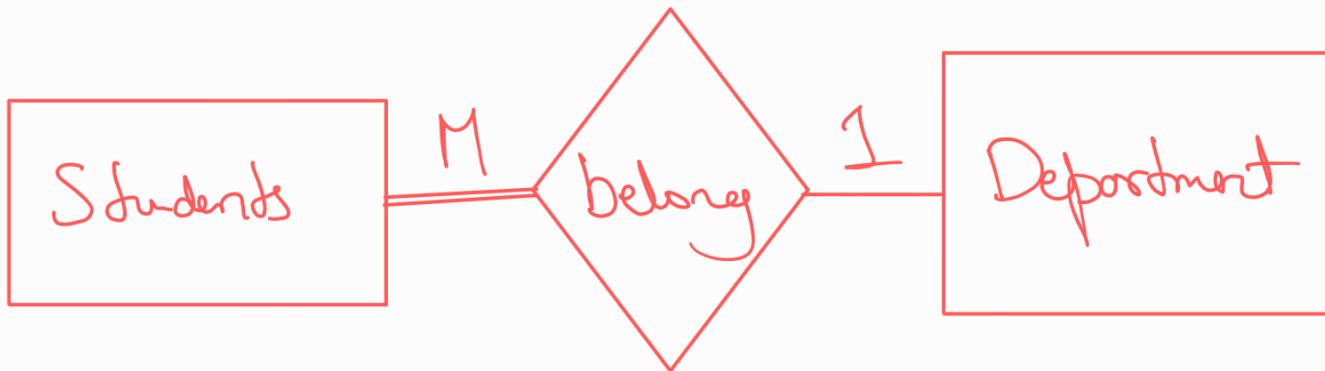
a) 1 - 1



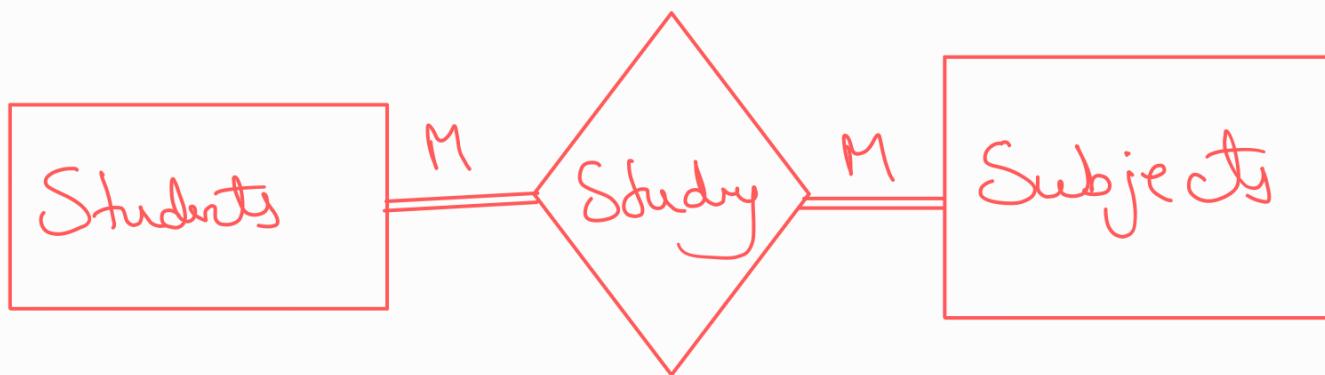
b) 1 - M



3) M-1



4) M-M



★ Primary & Foreign Key

~~V, C, H~~  
Primary key

H  
e

O. -

Aadhar - No	Name	Ph. No	Address
001	Jai	567	Bilawal
002	Hanumantha	568	Rajaji N
003	Koralkar	110	A.P.

Primary Key: Unique value  
 Not Null  
 Only 1 PK per table.

A) Foreign Key

Primary Key      S

Student ID	Name

1	Vandana
2	Chardona
3	Sreya



<u>Student ID</u>	Course Name
1	Data Analytics
2	Data Engineering
3	Data Scientist
3	Data Analytic

<u>Student ID</u>	Course Name	Name
1	Data Analytics	V
2	Data Engineering	C
3	Data Scientist	S

Foreign Key:- Duplicate  
Null  
Multiple FK.

## \* Inserting data in Tables

Date:- 26/9/24

## 1] Inserting data in all columns

Info

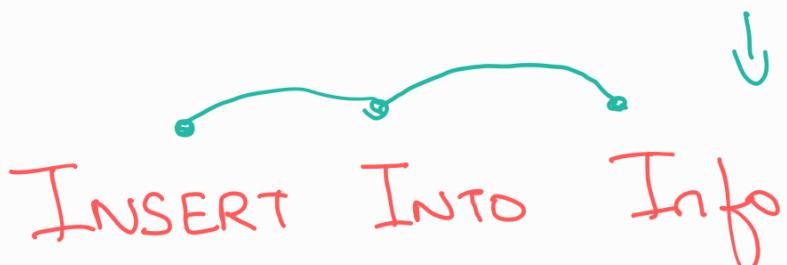
Author - No	Name	Ph. No	Address
001	Jai	567	Billander
002	Hanunoor	568	Rajaji N
003	Koralkar	110	A.P.

004

Sreya

145

KR

 INSERT INTO Info

VALUES (

1 $\rightarrow$  '004'  next column.

2 $\rightarrow$  'Sreya',

3 $\rightarrow$  '145' 

' KR '

);

2] Inserting data in specific column

Aadhar - No	Name	Ph. No.	Address

001	Jai	567	Billerder
002	Hamerande	568	Rojaji N
003	Korthik	110	A.P.
005	Chandana	NULL	NULL

INSERT INTO Info (Aadhar - No, Name)

VALUES (

'005',

'Chandana'

);

7. Insert data in multiple rows:

→ Insert

INSERT INTO Info  
COMMAND TABLE NAME

(Aadhar-No, Name, Ph.No, Address)  
C1 C2 C3 C4  
COLUMNS

VALUES  
KEYWORD

('006', 'Vandana', '045', 'KA')  
C1V C2V C3V C4V  
①  
('007', 'James B', '777', 'CL'),  
('008', 'Clifford', '454', 'US')  
②  
③

ROW VALUES

next row

End  
Query

[IMP]

01/10/2024

Query Looks Like

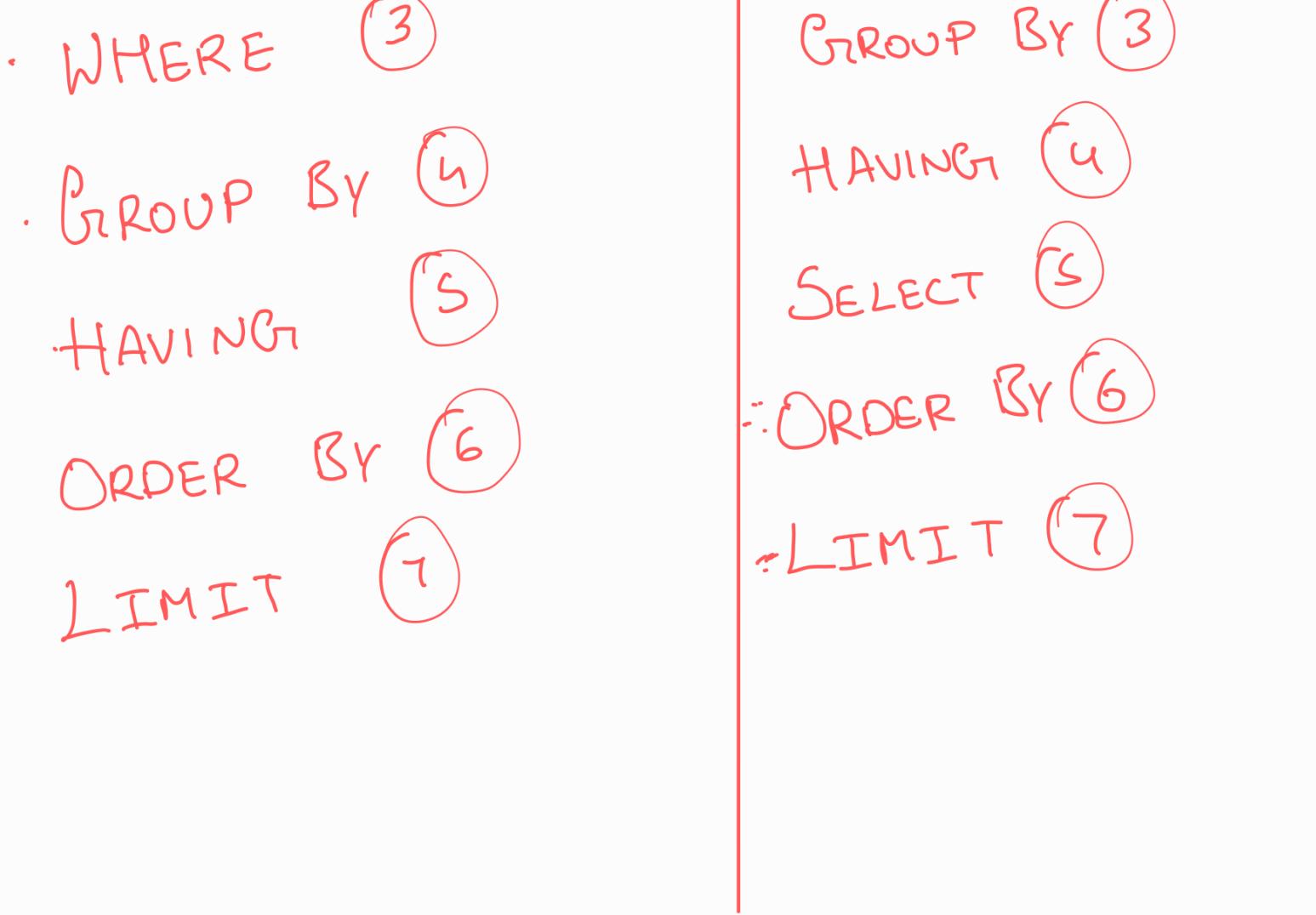
Select ①

FROM ②

Order of Execution

FROM ①

WHERE ②



Ex: Select \* from Customer  
 where name = "Jai"  
 GROUP BY DEPT  
 HAVING DEPT-ID = 6  
 ORDER BY name  
 LIMIT 5;

1 → Look for this table.  
 2 → Look for rows that satisfy the condition.  
 3 → Checks for Aggregation  
 4 → Any condition on GRB  
 5 → Sorting the data  
 6 → Limit the output

ID	Dept	Name	
6	CS	Jai	(6) CS - Jai (2)
6	CS	Jai	<del>EC - Jai (3)</del>
5	EC	Jai	<del>ME - Jai (1)</del>
5	EC	Jai	
4	EC	Jai	
4	ME	Jai	

Order by 0  
Limit . 5

## 4] SQL Aggregate Functions

\*] Used to perform calculations.

↳ Set of values  $\xrightarrow{\text{Op}}$  single value

## 5] Aggregate Fun<sup>n</sup>:

] MIN() : Returns Minimum value

- MIN() . . . . .
- 2) MAX(): " Maximum "
  - 3) COUNT(): No of rows
  - 4) SUM(): total sum of value
  - 5) AVG(): avg of value
- 

4) Min ():

```
SELECT MIN(Salary)  
FROM CUSTOMERS;
```

5) MAX()

```
SELECT MAX(Salary)  
FROM CUSTOMERS;
```

6) COUNT()

\*) COUNT()

SELECT COUNT(Salary)  
FROM CUSTOMERS;

q) Count Unique

SELECT COUNT(DISTINCT Salary)  
FROM CUSTOMERS;

\*) SUM()

SELECT SUM(Salary)  
FROM CUSTOMERS;

\*) Avg()

~~SQL~~

SELECT AVG(Salary)

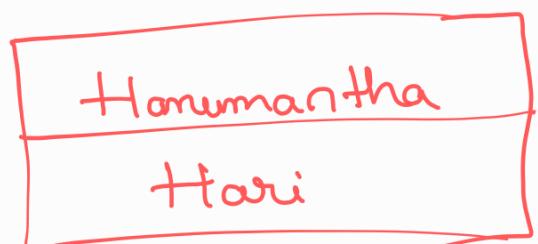
FROM CUSTOMERS;

04/10/2024

}] LIKE

- % [percentage]
- \_ [underscore]

Name
Name C
Hanumantha
Vandana
Chandana
Sreya
Karthik.
Hari



}] Select \* from name  
where name C LIKE '%';



Start after h

}] Select \* from name  
where name C LIKE '\_%';



whatever text ends with little



Vandana
Chandana
Sreya

4} Select \* from name

where nameC LIKE

should contain  
a in/between  
'%' a '%' > end with  
start with anything

NameC
Hanumantha
Vandana
Chandana
Sreya
Korshik.
Hari

✓ ✓ ✓ ✗ ✓ ✓

NameC
Hanumantha
Vandana
Chandana
Korshik.
Hari

- - - - -

$\rightarrow 'o|ə a'$   $\Rightarrow 'o|ə aɪ'$

$\rightarrow 'aə|ə'$   $\Rightarrow 'aə|ə'$

$\rightarrow 'o|ə aə|ə'$   $\Rightarrow 'o|ə oə|ə'$

$\rightarrow a|ə a$

Eg.  
~~o~~  
~~o~~

Name	Ph.no	Country
Jai	+91 812	?
Pai	1001 1111	?
Zai	+64 --	?
Ram	+11 ---	?

↓

if Ph. =  $'+91 010'$

then update

(Country of India.)

## 3] Underscore (\_)

Select \* from name

where nameC LIKE 'H\_\_I'

NameC
Hannantha
Vandana
Chandana
Sreyas
Karthik.
Hari

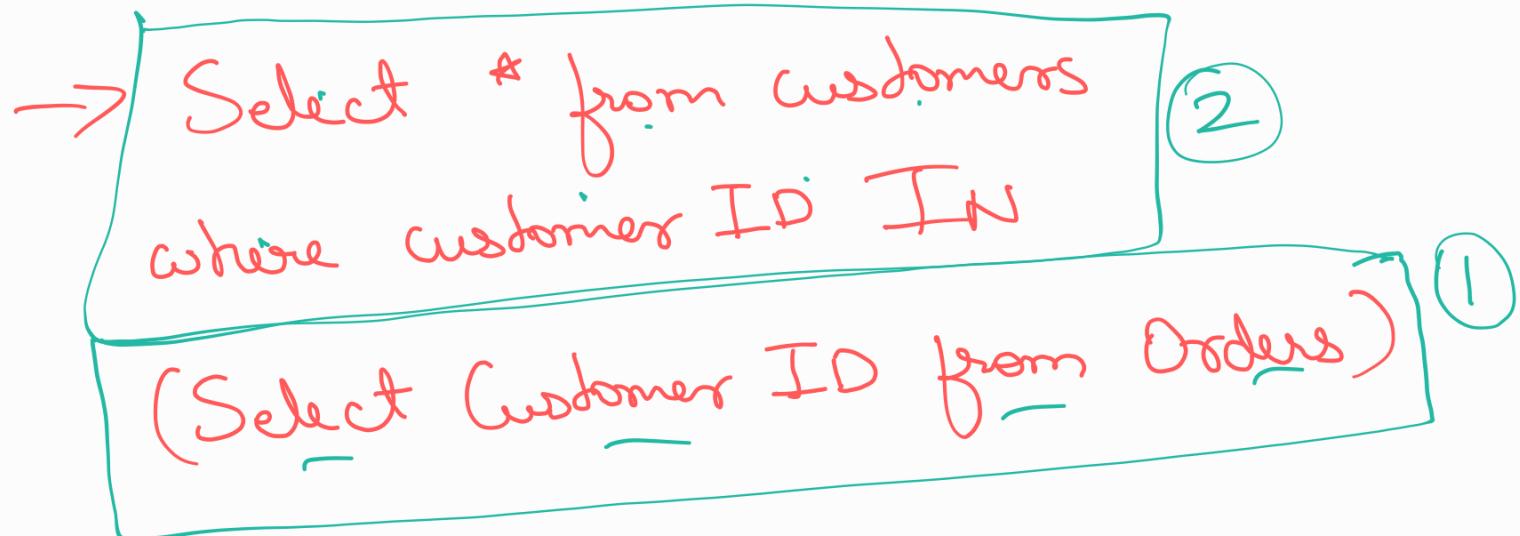
## 4] In

05/10/24

→ Select \* from customers

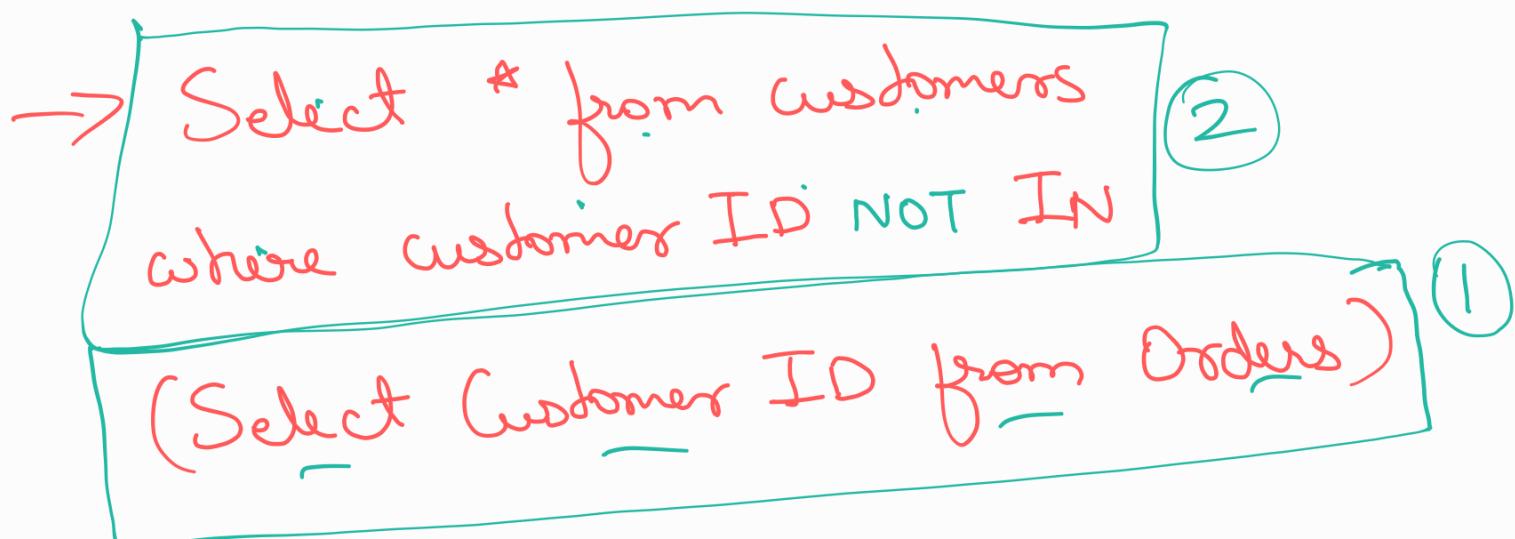
1 ✓ 2 ✓ 3 ✓ 4 ✓ 5 ✓ 6 ✓ 7 ✓ 8 ✓ 9 ✓ 10 ✓ 11 ✓ 12 ✓ 13 ✓ 14 ✓ 15 ✓ 16 ✓ 17 ✓ 18 ✓ 19 ✓ 20 ✓ 21 ✓ 22 ✓ 23 ✓ 24 ✓ 25 ✓ 26 ✓ 27 ✓ 28 ✓ 29 ✓ 30 ✓ 31 ✓ 32 ✓ 33 ✓ 34 ✓ 35 ✓ 36 ✓ 37 ✓ 38 ✓ 39 ✓ 40 ✓ 41 ✓ 42 ✓ 43 ✓ 44 ✓ 45 ✓ 46 ✓ 47 ✓ 48 ✓ 49 ✓ 50 ✓ 51 ✓ 52 ✓ 53 ✓ 54 ✓ 55 ✓ 56 ✓ 57 ✓ 58 ✓ 59 ✓ 60 ✓ 61 ✓ 62 ✓ 63 ✓ 64 ✓ 65 ✓ 66 ✓ 67 ✓ 68 ✓ 69 ✓ 70 ✓ 71 ✓ 72 ✓ 73 ✓ 74 ✓ 75 ✓ 76 ✓ 77 ✓ 78 ✓ 79 ✓ 80 ✓ 81 ✓ 82 ✓ 83 ✓ 84 ✓ 85 ✓ 86 ✓ 87 ✓ 88 ✓ 89 ✓ 90 ✓ 91 ✓ 92 ✓ 93 ✓ 94 ✓ 95 ✓ 96 ✓ 97 ✓ 98 ✓ 99 ✓ 100 ✓

where name IN ('Jai', 'Harumandha')



### A} NOT IN

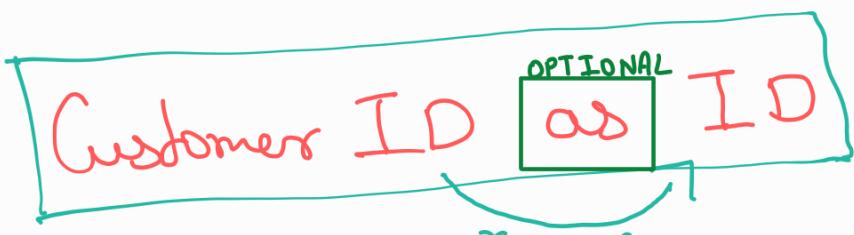
Select \* from customers  
where name NOT IN ('Jai', 'Harumandha')



## A) Aliases

## Columns

→ Select



from Customers ;

→ Select Customer ID ID

from Customers ;

## Table

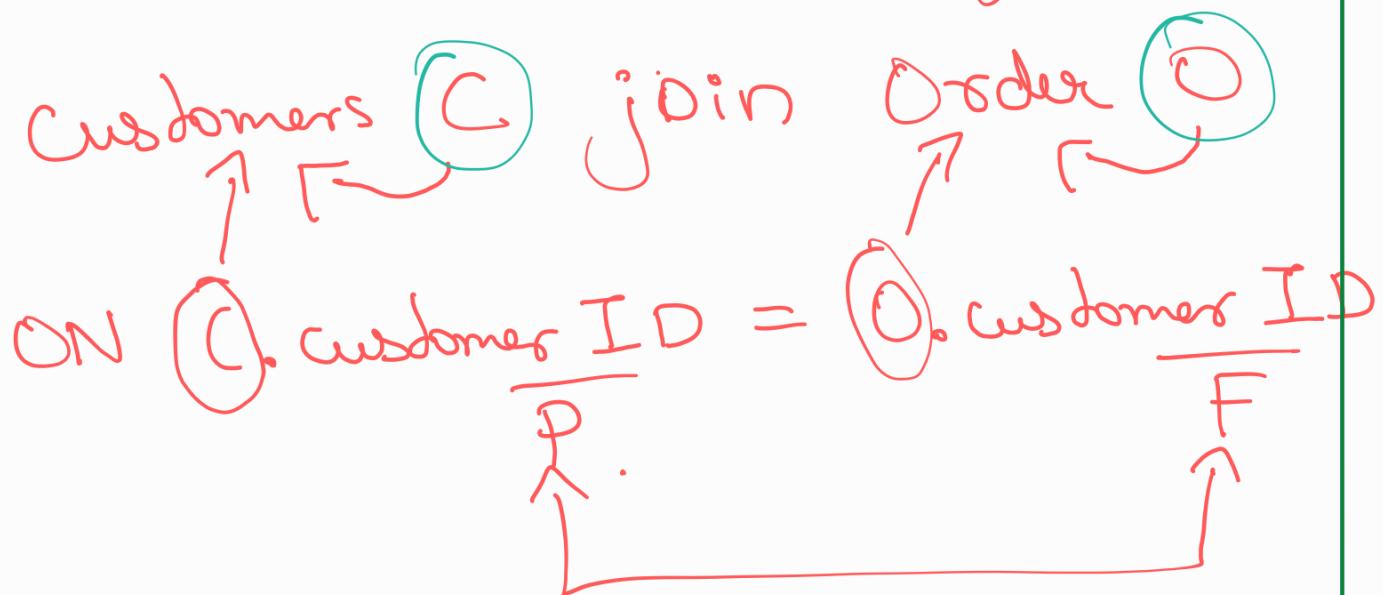
→ Select customer ID

from customer C ;

Do NOT CARE Much

For Now....

A) Select customer ID from



A) BETWEEN

Used with AND keyword.

→ Select \* FROM PRODUCTS

WHERE PRICE BETWEEN 10 AND 20;

10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20

→ Select \* from Customers  
where name between 'Andy' AND  
'Jai'

1st

name
Aazim
Andy
Boro
Blue
Jai
Kiran
Lame
Nondon
Zuhu

O/P

Andy
Boro
Blue
Jai

O/P

Aazim
Kiran
Lame
Nondon
Zuhu

Select \* from Customers

where Name not between 'Andy' AND  
'Jai';

→ Select \* from Orders

where date

between 01/09/2024 AND  
04/10/2024;