SQL

error makes clever utube video

mysql workbench software

pw: 2530

oru oorla oru raja iruntharu, avarku keela oru mandhiri irukaru.

oru naal raja naatula yarulam romba kashta padra makkal irukangalo avangaluku help panalamnu decide pani mandhiri kita poverty people list collect pana soldranga within tamilnadu... mandhiri ella district um poi avanga data collect pani kondu varanga .. and list perisa iruku so raja chennai la iruka poverty list matum kekuranga.. mandhiri romba kashta patu chennai poverty list matum seperate pani edukuranga... apovum list perisa irukarathala ..entha family la more than 2 children irukangalo avanga list matum kekuranga.. thirumba ella papers um check pani list ready pandranga.. ithu mari vera vera soldranga so athu ready panave romba tired aidranga.....

then only madhiri came to know abt **database**

DATABASE :

once upon a time the information (data) , news has been stored in paper... bt now it has been stored in database

paper la iruka information elame digital data a convert pani ipo database la store pandrom

consider this database as memory card

example if i have 10 photos and i have stored it in memory card

memory card la iruka photos paka namaku oru phone venum ... ipo intha memory card eduthu phone la potu photos pakura

athe mari database la iruka data paaka, data retrieve pana namaku oru database management system venum -- then only we can see datas which is in database

epdi phone um memroy card um connect aaguthu.. epdi memory card la iruka photos paka mudithu -- bcoz phone la android or IOS nu oru OS irukum.. nadula sila coding pogum -- apo antha OS memory card la iruka photos kondu vanthu kamikum

athe mari database management system and database thaniya irukum..

DBMS la irunthu database kita pesa namaku oru language theva paduthu..

DBMS la irunthu SQL apdi endra oru language use pani na database kita pesura

ethachu photos, data venuna DBMS la SQL use pani oru request raise pandrom database ku... then database athu puriju response panuthu

we have **different types of database**

Relational database

NOSQL database

Hierarchical database

Network database etc...

common a niraya per use pandrathu relational database

Relation database manage pana - **RELATIONAL DATABASE MANAGEMENT SYSTEM** iruku

different types of RDBMS

oracle, mysql , sql server, postgresql

here we gonna see **MYSQL**

if we learn this, we can easily learn others as well

only few syntax changes will be

Y should we use / learn SQL

=> it is a easy programming language with less syntax

=> data samanthamana ella velaikum SQL theva paduthu

eg: data science, data analyst etc ...

DATA - information - eg: name, age, place etc....

data can be divided into 3 types:

structured data

unstructured data

semistructured data

structured data *-- will have defined structure*

eg: oru table la name, age, salary iruku

athula age la dosa nu kuduka matom

it will have ***text,number, date****...*

Name	Age	Salary
John	23	20k
Praveen	Dosa	

unstructured data

eg: social media - it will have different types of data , comments, posts, videos , reels etc...

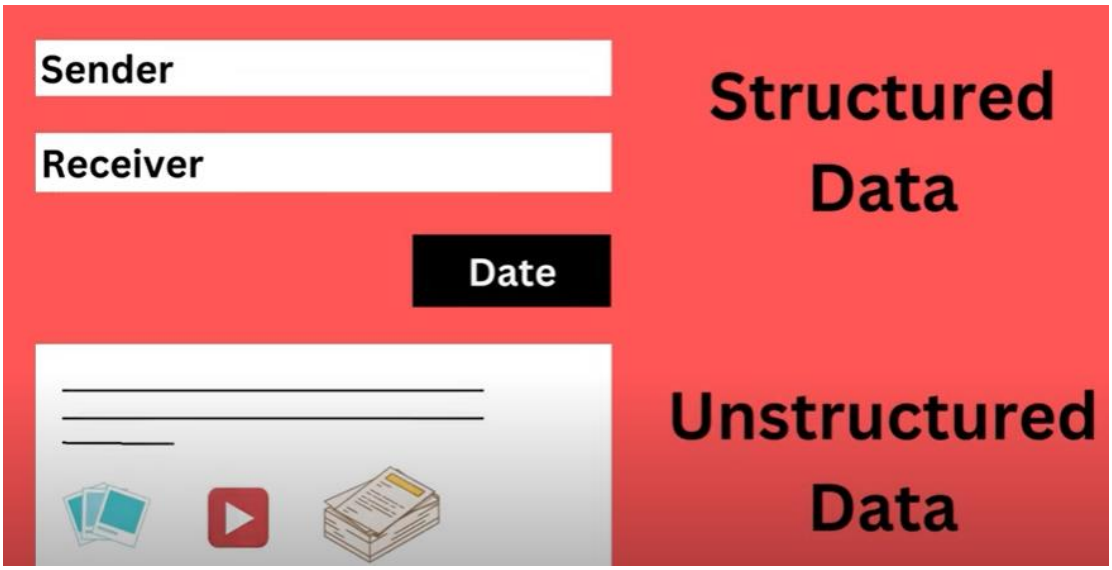
semi-structured data

combination of structured and unstructured data

eg: email

email la kandipa sender, receiver, date irukum - athula **structured data**

athuku keela body irukum - athula namba photos, videos, audious etc.. ethachu attach panuvom - athu **unstructured data**



Relational database VS Non - Relational database

Relational database

=> it will be in table form - structured

=> we will use **SQL** to work with relational database

=> here we will have only 1 type of data - which is in **table format**

Non - Relational database

=> unstructured

=> we will use **NOSQL** (also known as **not only sql**) to work with non-relational database - it means here we wont use sql

=> NOSQL is not a structured language like SQL

=> here we wont have data in table format -

will have in document format, graph, key-value pairs, column oriented etc...

will hv. data in different formats

syntax will differ b/w all

here we gonna see **RDBMS**

relational database kuda epdi structured query language (SQL) use pani work pandrathunu paka porom - here we will use **MySQL** database management system (DBMS)

here are the key points from the video:

1. SQL is a structured query language designed for relational databases.
2. NoSQL is more of a paradigm or pattern than a specific language.
3. SQL is typically used with relational databases.
4. NoSQL is typically used with non-relational databases.
5. SQL primarily employs tables for data organization.
6. NoSQL databases can use various data structures, including columns, documents, and key-value pairs.

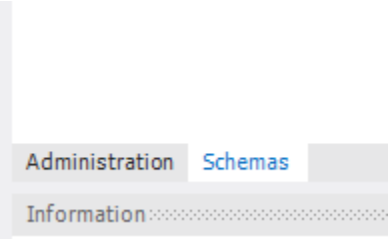
step 1:

download mysql workbench

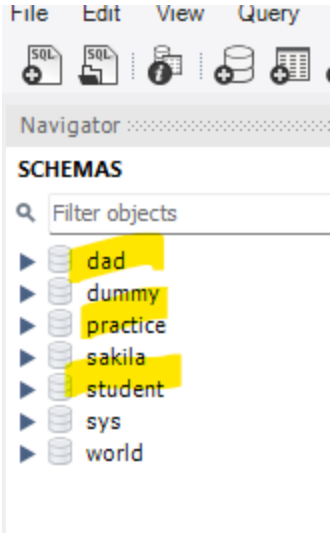
have to give password - everytime we login it will ask for password - 2530

we have 2 - administration, schemas

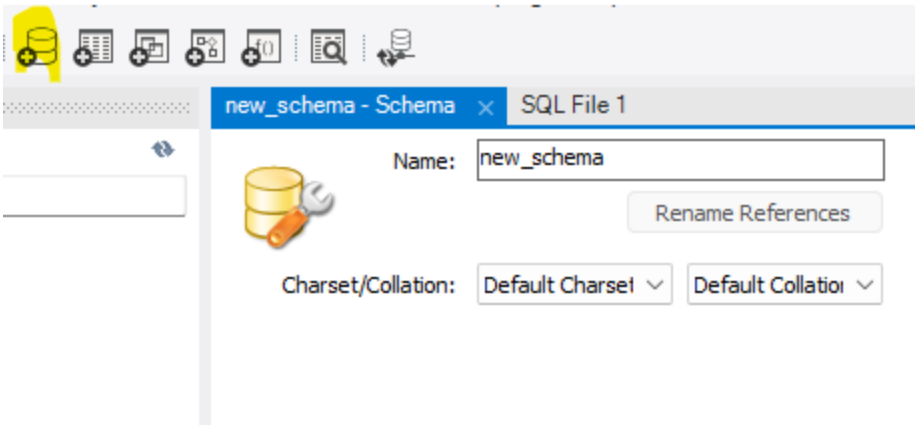
we will work in schemas



these are all schemas / also known as database



used to create new schema



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SQL - Structured Query Language

it is used to work with data which is in database

it is a **query / command** - namba oru command solla porom - athu sql la solvom - antha sql command namba sonatha database la poi panum

we have **5 types of command**

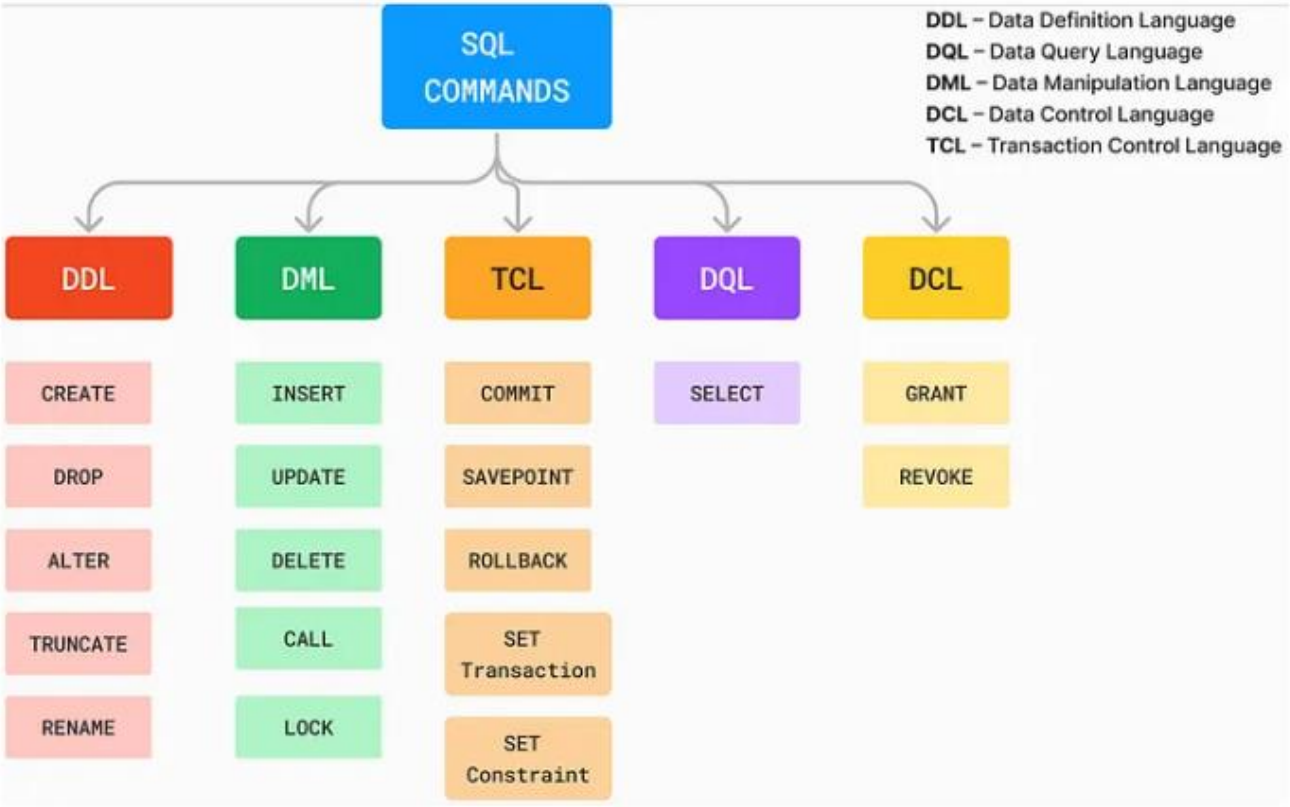
DDL command

DML

DCL

TCL

DQL



DDL command

DDL - DATA DEFINITION LANGUAGE

Relational database is based on table - will give datas within that defined table

Name	Age	Department	Salary
John	23	CSE	10000
Praveen	45	ECE	20000
Suresh	34	EEE	15000

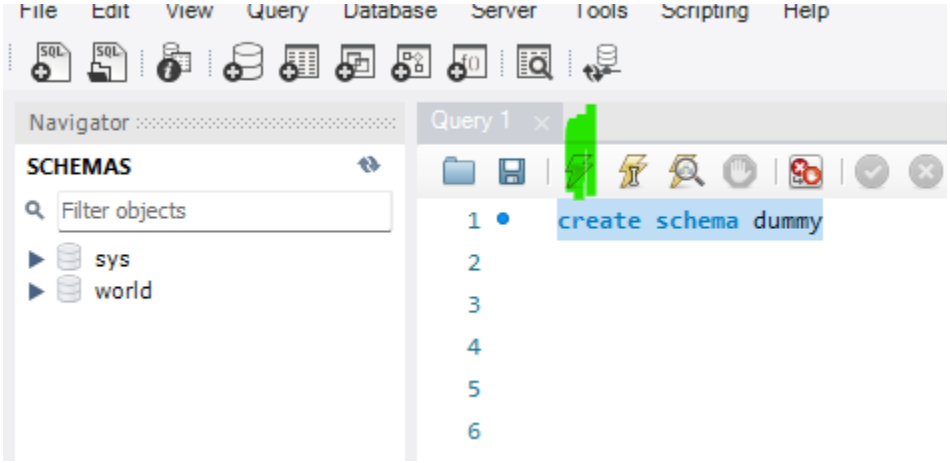
intha mari table a define pana data definition language use pana porom

to create, alter, drop and truncate tables we use ddl command

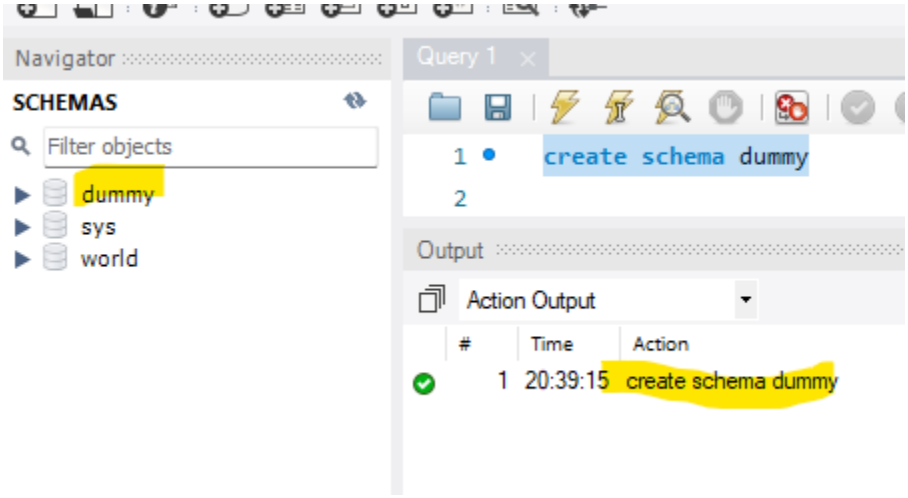
creating new schema named **dummy**

have to select the line and give star like symbol - so it will execute only the line which we selected

then refresh the schemas



schema dummy has been created



now we can create this type of table for teacher

fields - name, age, department, salary

syntax:

create table "table name" (always round bracket - inside this what are the fields required and its datatype (no. of characters), each field seperated by comma ,)

create table teacher-table name**(**

name - field **varchar**- datatype **(50 -** no of character**)**

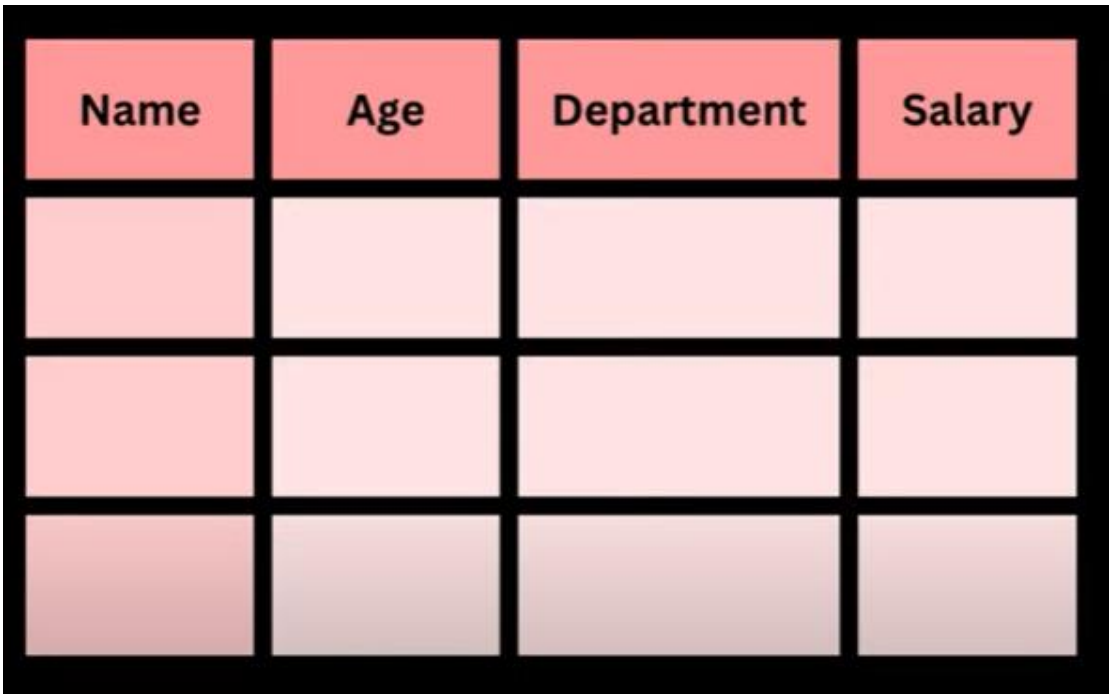
create table teacher(

name varchar(50),

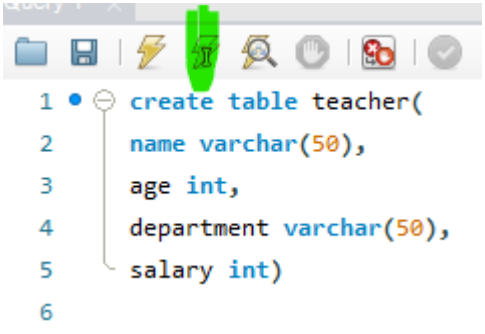
age int,

department varchar(50),

salary int)

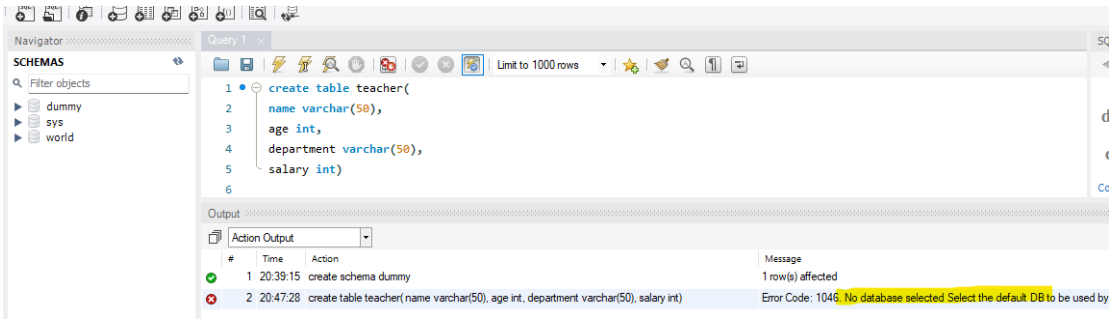


to run entire program in the page use this



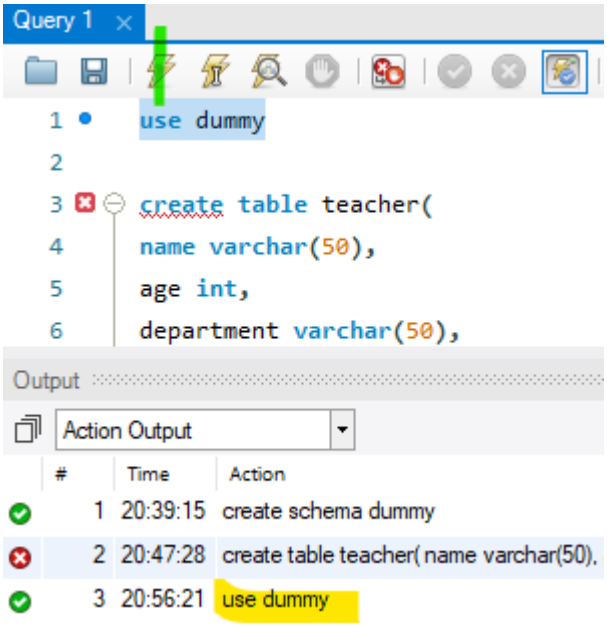
bt we received error - no database selected

means - namba ena database la work pananumnu mention panala



now on top of code - write which database to be used and run it alone

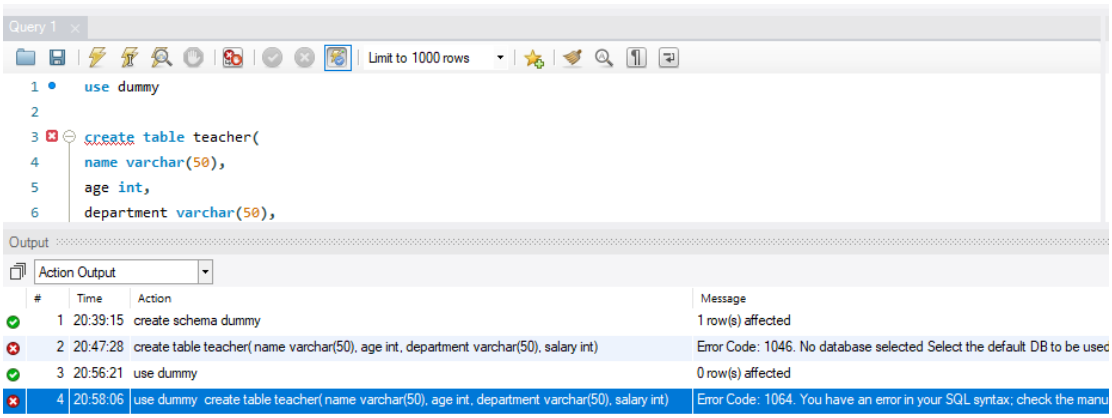
use dummy - select and run this alone



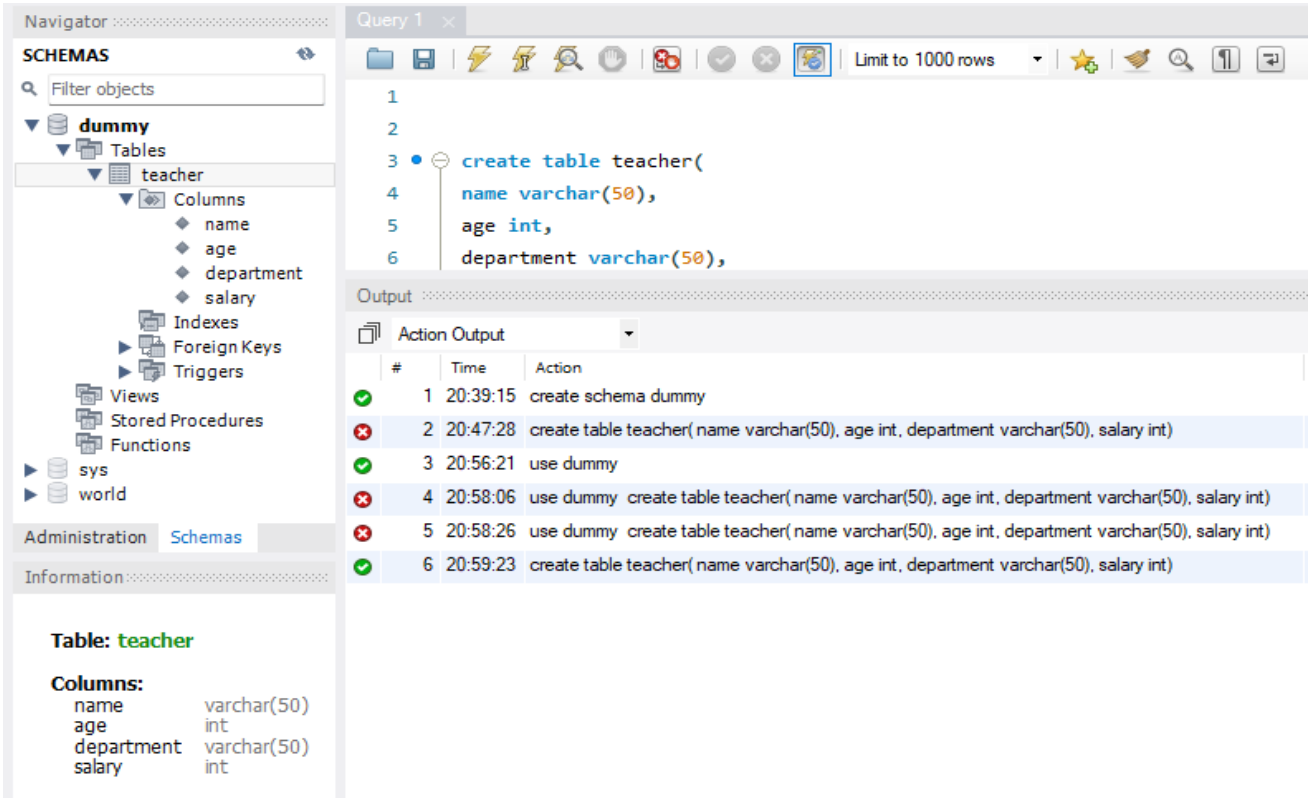
in output if it is green - success

if red - error

while running code remove the use database line and run otherwise error will occur



now table created - now we can see everything in the left

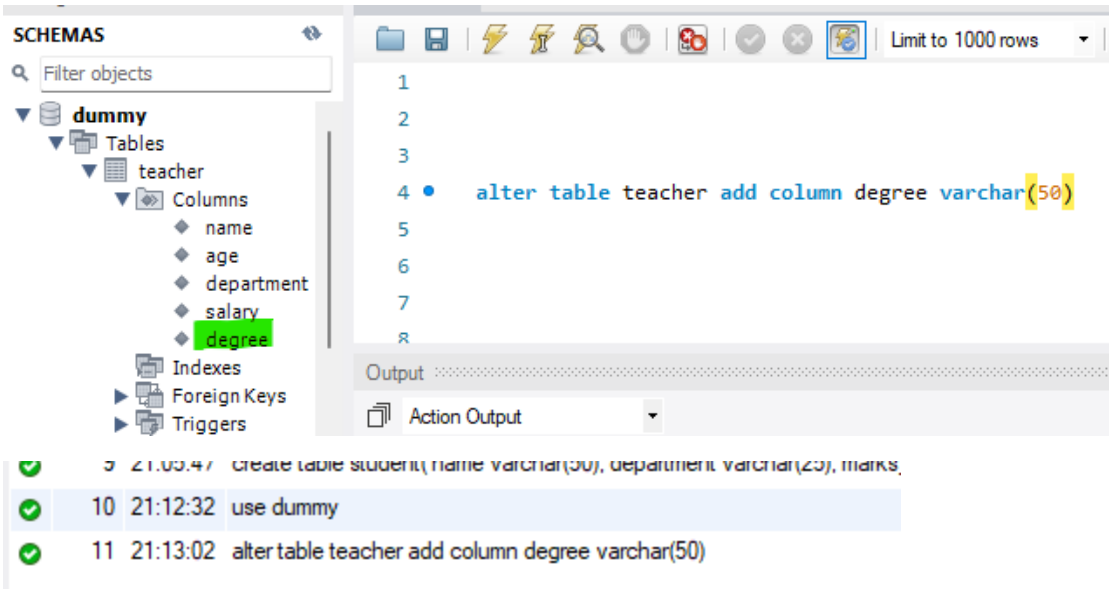


ipo teacher table dummy database kulla create aiduchu

now i want to add degree in teachers field

so alter command can be used

alter table teacher add column degree varchar(50)



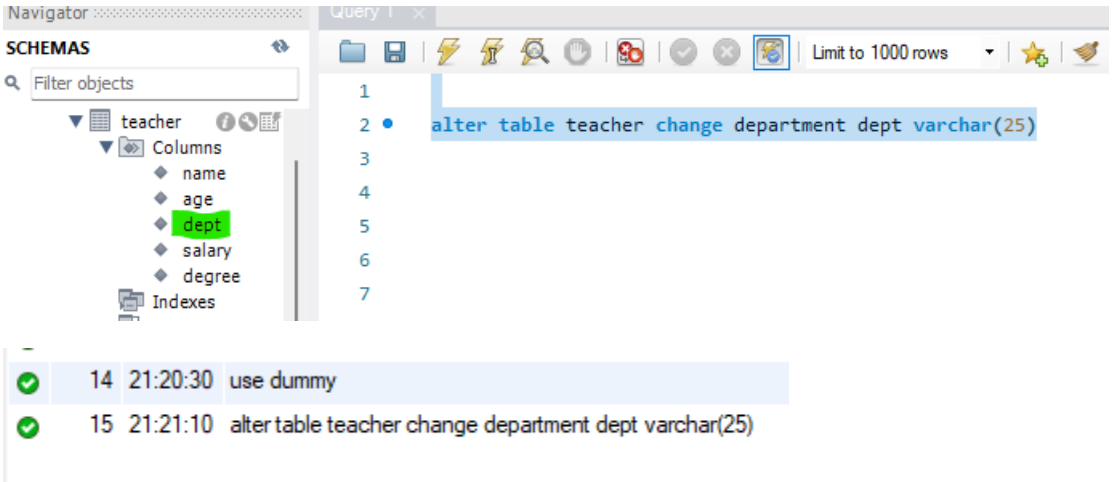
here we have a field named department

i want to change department into shortform as dept

department -> dept

syntax: ***alter table*** *"table name"* ***change*** *"oldname" "newname" datatype (no. of characters)*

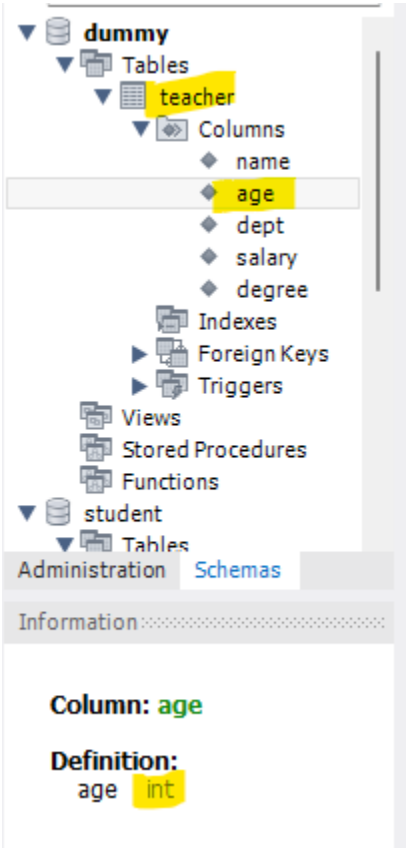
alter table teacher change department dept varchar(25)

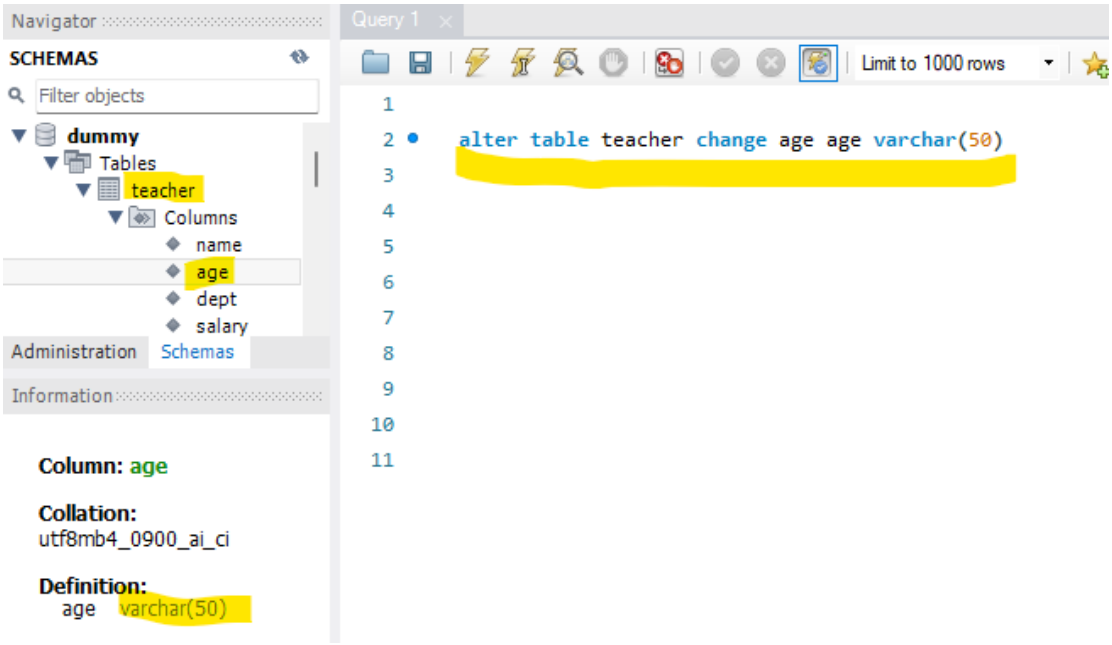


now the field name should be same bt need to change the datatype for age -- from int to varchar

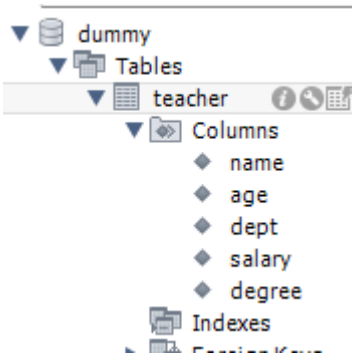
same as above

alter table teacher change age age varchar(50)

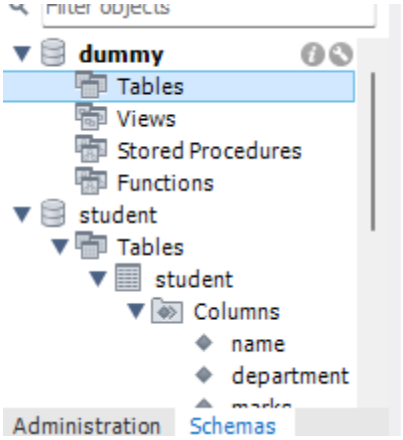




now if we dont want the teacher table -- if it needs to be deleted **drop** can be used



teacher table has been deleted




```
1
2 •   drop table teacher
3
```

Truncate

it is used to delete values / data in the fields / table

truncate table teacher

table will be as it is bt the datas inside the table will get deleted

Name	Age	Department	Salary
John	23	CSE	10000
Praveen	45	ECE	20000
Suresh	34	EEE	15000

after truncate

Name	Age	Department	Salary

****

task

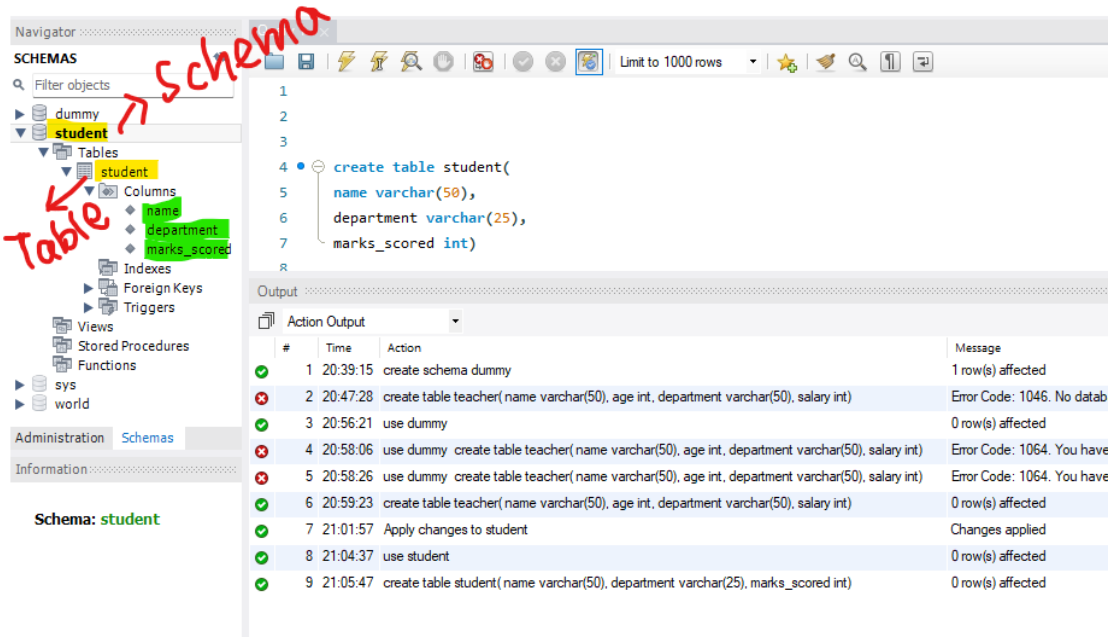
1. Create a student table with 3 columns
   .Name
   .Department
   .Marks_scored

2. Add new column called City to the student table

3. Rename column Marks_scored to Marks

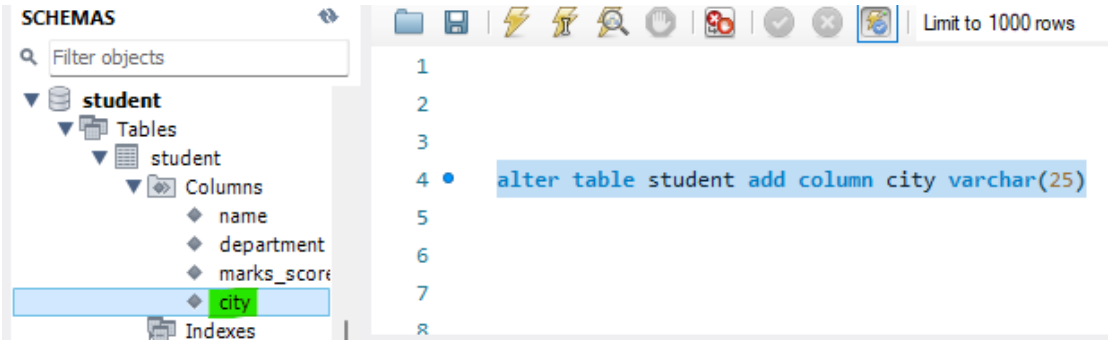
1.

```
create table student(
name varchar(50),
department varchar(25),
marks_scored int)
```



2.

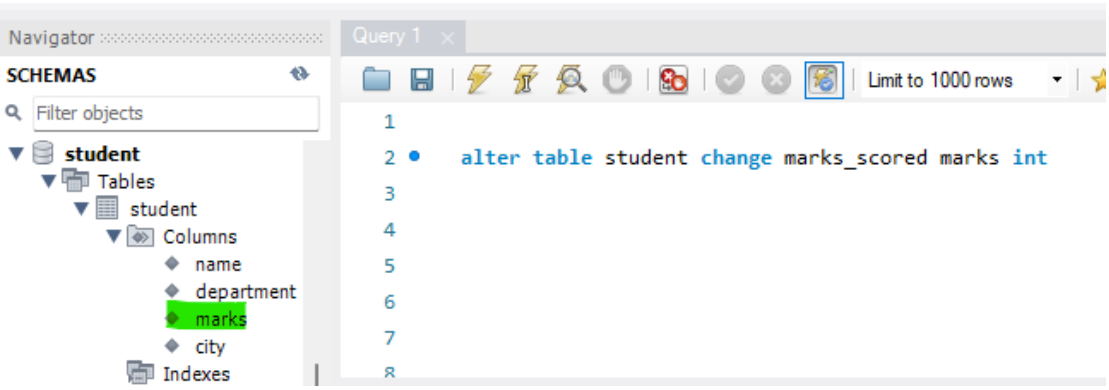
```
alter table student add column city varchar(25)
```



12	21:15:40	use student
13	21:16:25	alter table student add column city varchar(25)

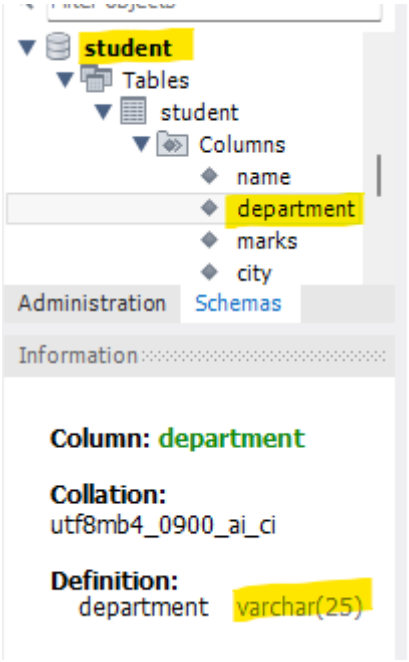
3.

alter table student change marks_scored marks int

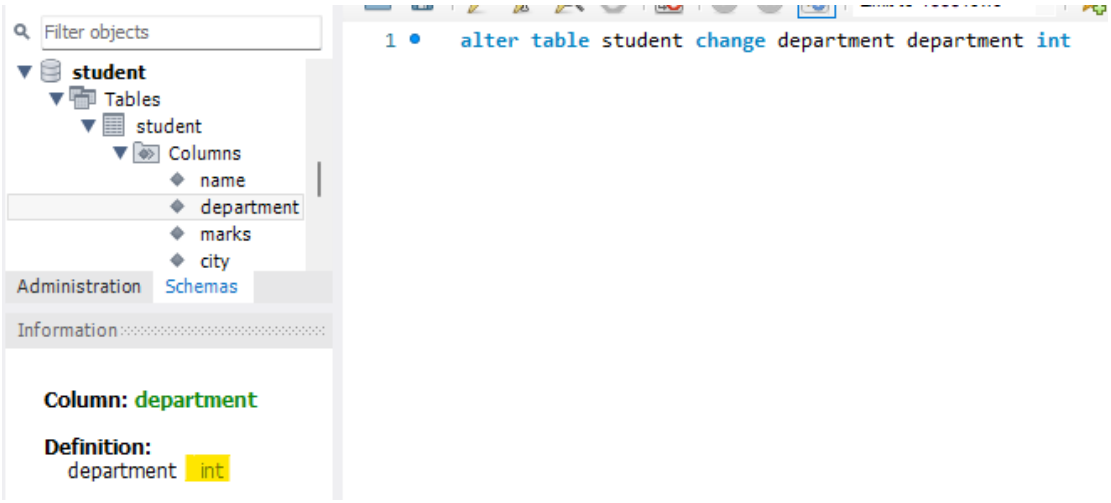


16	21:25:35	use student
17	21:26:15	alter table student change marks_scored marks int

4. change datatype for department as int



alter table student change department department int



5. if needed to delete student table then use

drop table student

****

DDL - DATA DEFINITION LANGUAGE

to create and define table

=> create

=> alter

=> drop

=> truncate

****

now create pana table kulla information / data insert , update pananum.... information retrieve (thirumba edukanum) , delete pananum ... so to perform these ---DML and DQL commands will be used

DML - DATA MANIPULATION LANGUAGE

=> used to insert, update , delete data

DQL - DATA QUERY LANGUAGE

=> using select command / query we can retrieve data from database to view

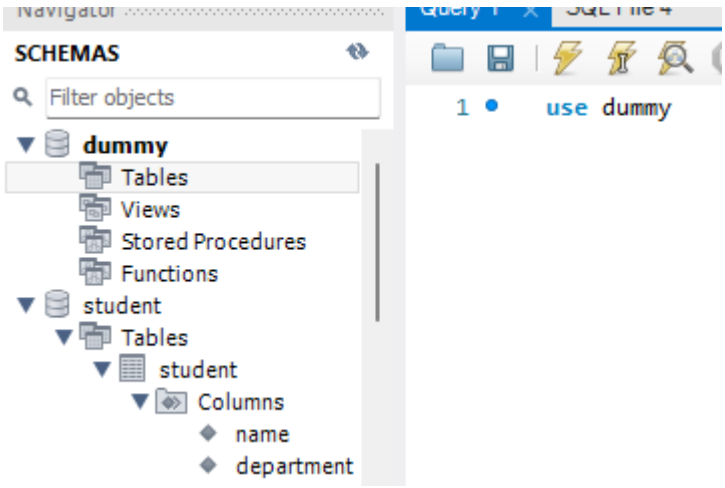
b4 writing query we have to give which database we use

currently there is nothing in dummy database as we dropped it already - now we can create table in it and work on it

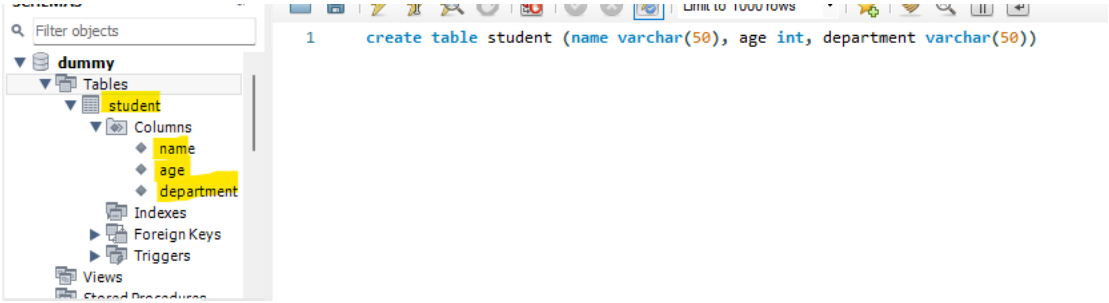
1. Create table like this using DDL and add values using DML

Student

Name	Age	Department
John	23	CSE
Praveen	45	ECE
Suresh	34	EEE




```
create table student (name varchar(50), age int, department varchar(50))
```



insert into student values(John,23, CSE) - if we give this it will give error

```
insert into student values(John,23, CSE)
```

✓	24	15:15:26	use dummy
✓	25	15:16:56	create table student (name varchar(50), age int, department varchar(50))
✗	26	15:19:27	insert into student values(John,23, CSE)

bcoz varchar values should be given in double quotes

insert into student values("John",23, "CSE")

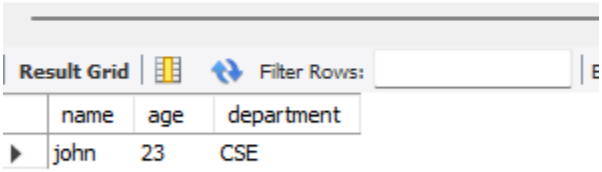
```
insert into student values("john",23,"CSE")
```

✗	26	15:19:27	insert into student values(John,23, CSE)
✓	27	15:21:28	insert into student values("john",23,"CSE")

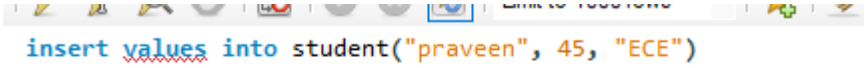
values added bt we cant view it

so we have to use DQL - select command to view

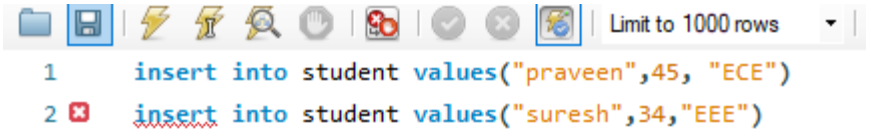
select * from student

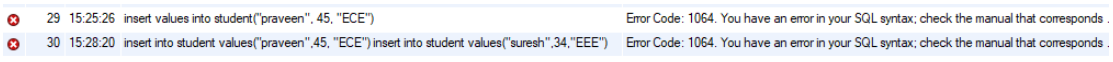


* means all values - table name



give syntax correctly - the above is wrong





cant give at once - give seperately and run

table created

```
1 •  select * from student
2
```

Result Grid | Filter Rows: | Expo

name	age	department
john	23	CSE
praveen	45	ECE
suresh	34	EEE

✓	31	15:29:20	insert into student values("praveen",45, "ECE")	1 row(s) affected
✓	32	15:29:28	insert into student values("suresh",34,"EEE")	1 row(s) affected
✓	33	15:29:46	select * from student LIMIT 0, 1000	3 row(s) returned

if any of the values needs to be updated

lets consider i have entered john age as 23 - bt need to change as 20

then update command can be used

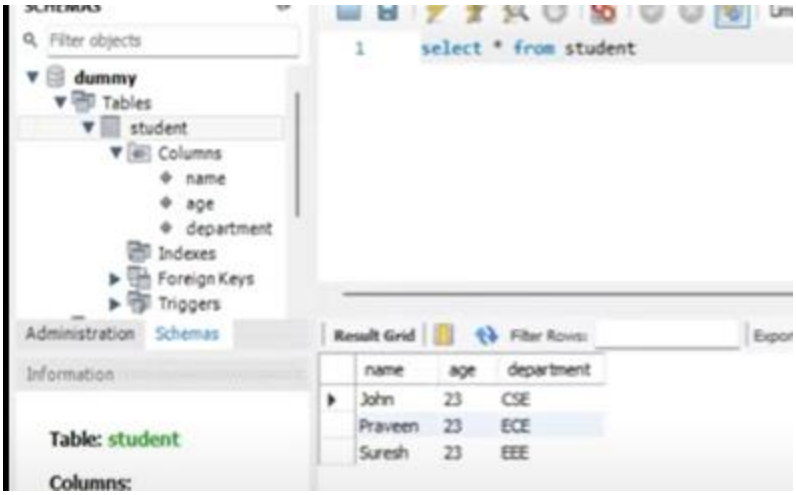
update student set age=20 - if we give like this all the age column will change to 23

sometimes it will change all values in age as 20 bt here it shows error like condition not given where to change

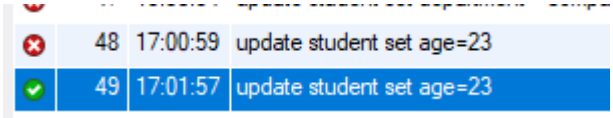
✗	40	15:41:26	Error Code: 1175. You are using safe update mode and you tried to update a table without a WHERE that uses a KEY column. To disa
✗	41	15:43:59	Error Code: 1175. You are using safe update mode and you tried to update a table without a WHERE that uses a KEY column. To disa

go to click EDIT , select PREFFERENCE , click SQL EDITOR , scroll down SAFE UPDATE BOX click to DISABLE, OK .... click to QUERY option RECONNECT TO SERVER. **1170 error problem solved** ..

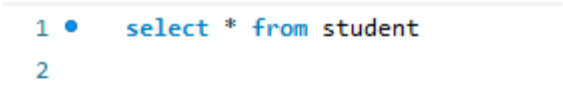
```
UPDATE student set age=23
```

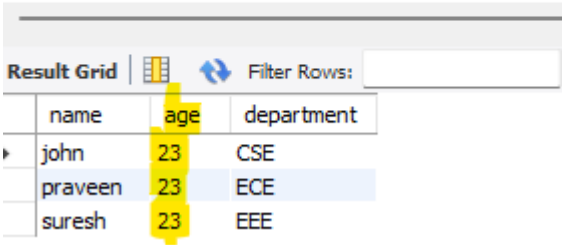


the above ss is from utube - like if we set age all the values in age column will change



here all the datas for age has been changed to 23 bcoz we did not specifically mention to whom the age should be changed



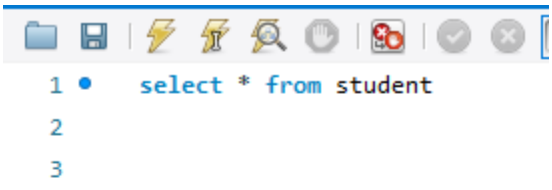


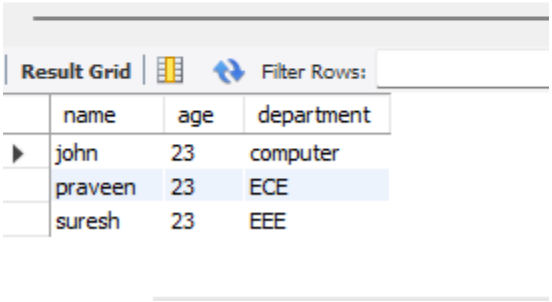
if any data needs to be updated in a table we should use **whereclass** condition

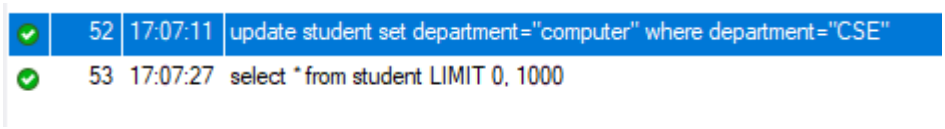
if specifically needs to be change then use where condition

eg: if we want to change department CSE - to computer

update student set department="computer" where department="CSE"

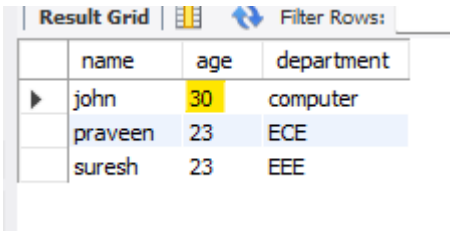


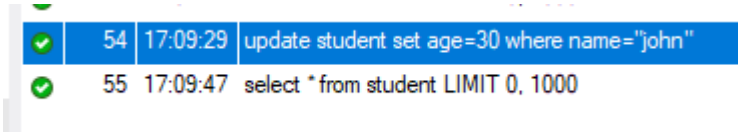




change age of john to 30

update student set age=30 where name="john"





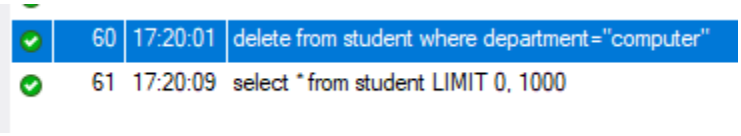
delete

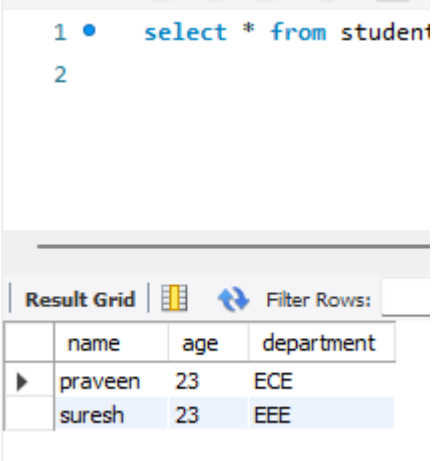
delete from student - all the datas in the student table will be deleted

so we have to give specific conditions which needs to be deleted by using where class

if we want to delete computer row --

delete from student where department="computer"





if i want to delete praveen suresh from table

delete from student where age=23

both age is common here so

****

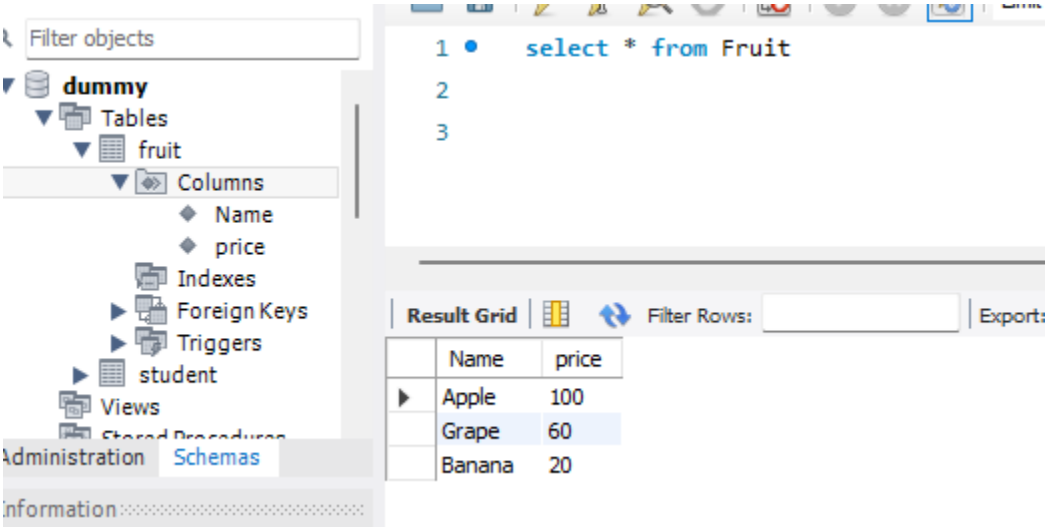
TASK

Fruit

Name	Price
Apple	100
Grape	60
Banana	20

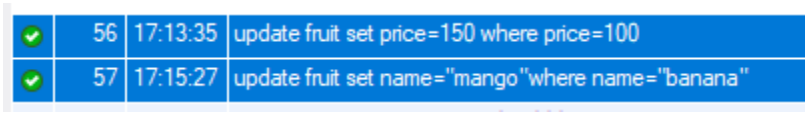
the below is the same coding used to create

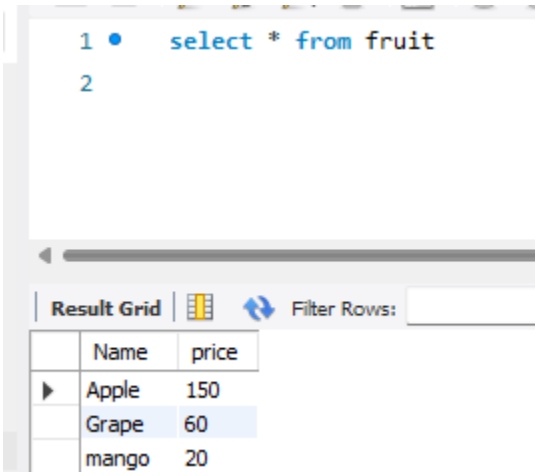
✔	34	15:32:12	use dummy
✔	35	15:32:58	create table Fruit(Name varchar(50), price int)
✔	36	15:33:44	insert into Fruit values ("Apple", 100)
✔	37	15:33:58	insert into Fruit values ("Grape",60)
✔	38	15:34:16	insert into Fruit values ("Banana",20)
✔	39	15:35:00	select * from Fruit LIMIT 0, 1000



- Update Price of an apple to 150 in fruit table
- Update Banana to Mango in fruit table

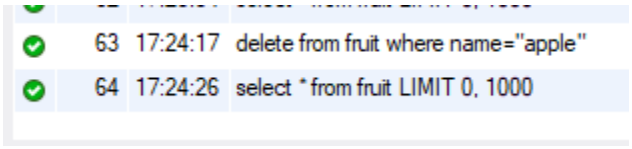
update fruit set price=150 where price=100

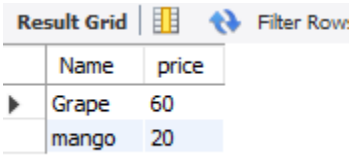




- Delete Apple from a table
- Delete everything from a table

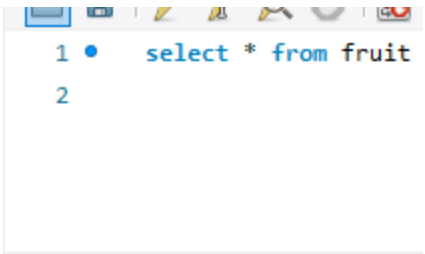
delete from fruit where name="apple"

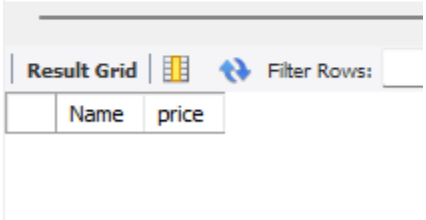




delete everything = all datas will be deleted

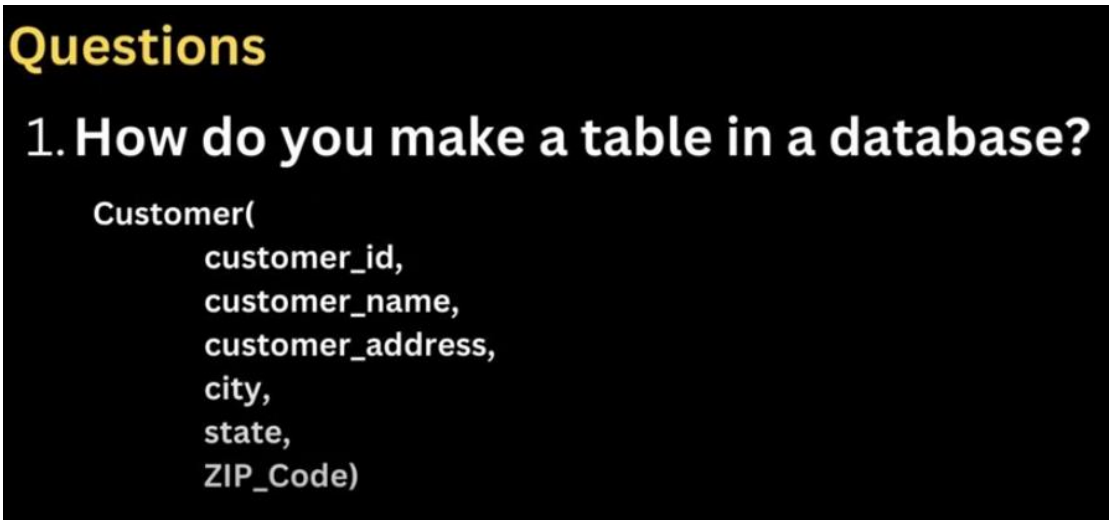
delete from fruit



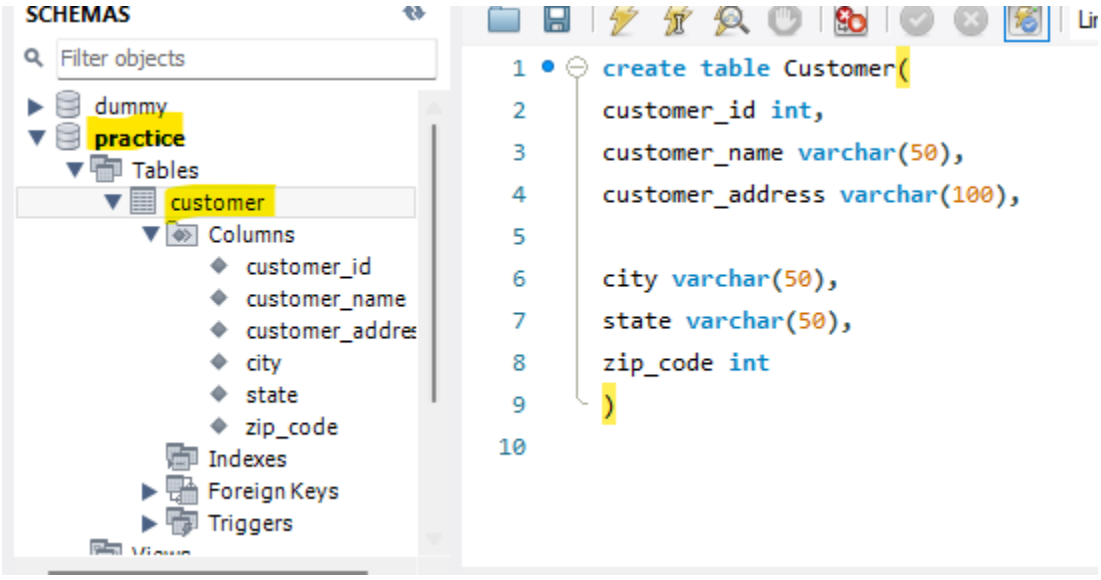


****

PRACTICE




```
create table Customer(
customer_id int,
customer_name varchar(50),
customer_address varchar(100),
city varchar(50),
state varchar(50),
zip_code int
)
```



67	19:13:27	create schema practice	1 row(s) affected
68	19:13:55	use schema	Error Code: 1064. Y
69	19:14:04	use practice	0 row(s) affected
70	19:18:03	create table Customer(customer_id int, customer_name varchar(50), customer_address varchar(100), city varchar...	0 row(s) affected

```
1 • select * from customer
```

Result Grid | Filter Rows: | Export: | Wrap Cell Content:

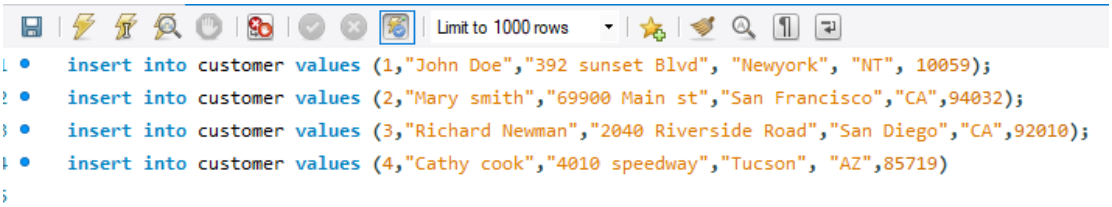
customer_id	customer_name	customer_address	city	state	zip_code

insert into customer values (1,"John Doe","392 sunset Blvd", "Newyork", "NT", 10059);

insert into customer values (2,"Mary smith","69900 Main st","San Francisco","CA",94032);

insert into customer values (3,"Richard Newman","2040 Riverside Road","San Diego","CA",92010);

insert into customer values (4,"Cathy cook","4010 speedway","Tucson", "AZ",85719)



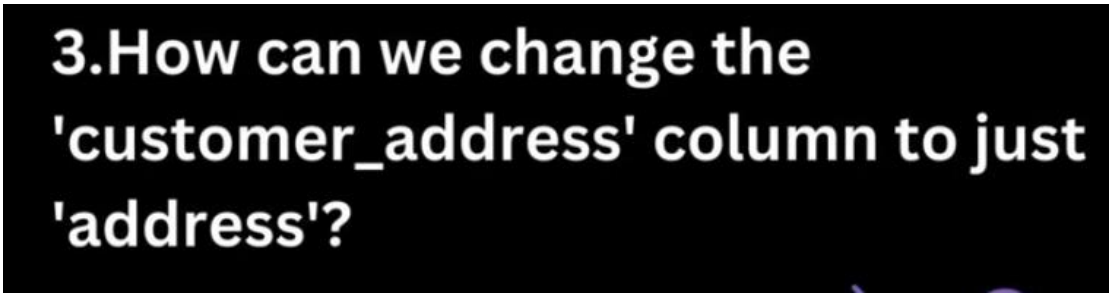
selected and ran one by one line

✓	77	19:32:50	insert into customer values (1,"John Doe","392 sunset Blvd", "Newyork", "NT", 10059)
✓	78	19:32:54	insert into customer values (2,"Mary smith","69900 Main st","San Francisco","CA",94032)
✓	79	19:32:57	insert into customer values (3,"Richard Newman","2040 Riverside Road","San Diego","CA",92010)
✓	80	19:33:04	insert into customer values (4,"Cathy cook","4010 speedway","Tucson", "AZ",85719)

```
1 •  select * from customer
2
```

Result Grid | Filter Rows: | Export: | Wrap Cell Content:

customer_id	customer_name	customer_address	city	state	zip_code
1	John Doe	392 sunset Blvd	Newyork	NT	10059
2	Mary smith	69900 Main st	San Francisco	CA	94032
3	Richard Newman	2040 Riverside Road	San Diego	CA	92010
4	Cathy cook	4010 speedway	Tucson	AZ	85719



alter table customer change customer_address address varchar(100)

alter table customer change column customer_address address varchar(100)

Result Grid | Filter Rows: | Export: | Wrap Cell Content:

customer_id	customer_name	address	city	state	zip_code
1	John Doe	392 sunset Blvd	Newyork	NT	10059
2	Mary smith	69900 Main st	San Francisco	CA	94032
3	Richard Newman	2040 Riverside Road	San Diego	CA	92010
4	Cathy cook	4010 speedway	Tucson	AZ	85719

```
89  19:40:58  alter customer change customer_address address varchar(100)
90  19:41:48  alter table customer change customer_address address varchar(100)
91  19:42:16  select * from customer LIMIT 0, 1000
```

4.How do you add a new column called 'mobile_number'?

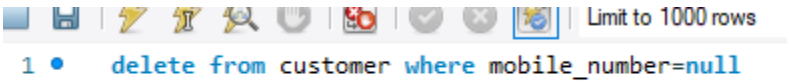
alter table customer add column mobile_number varchar(100)

Result Grid | Filter Rows: | Export: | Wrap Cell Content:

customer_id	customer_name	address	city	state	zip_code	mobile_number
1	John Doe	392 sunset Blvd	Newyork	NT	10059	NULL
2	Mary smith	69900 Main st	San Francisco	CA	94032	NULL
3	Richard Newman	2040 Riverside Road	San Diego	CA	92010	NULL
4	Cathy cook	4010 speedway	Tucson	AZ	85719	NULL

a new column mobile_number has been added, bt we didnt give values to it... so it has null data

delete from customer where mobile_number=null



✖	92	19:45:36	alter table add column mobile_number int	Error Code: 1064. You
✖	93	19:46:00	alter table add column mobile_number varchar(100)	Error Code: 1064. You
✔	94	19:46:37	alter table customer add column mobile_number varchar(100)	0 row(s) affected Rec
✔	95	19:47:09	select * from customer LIMIT 0, 1000	4 row(s) returned
✔	96	19:50:20	delete from customer where mobile_number=null	0 row(s) affected

it has executed without error bt 0 rows affected means no changes

bcoz null is not a datatype like int, varchar

so we have to give **is null**

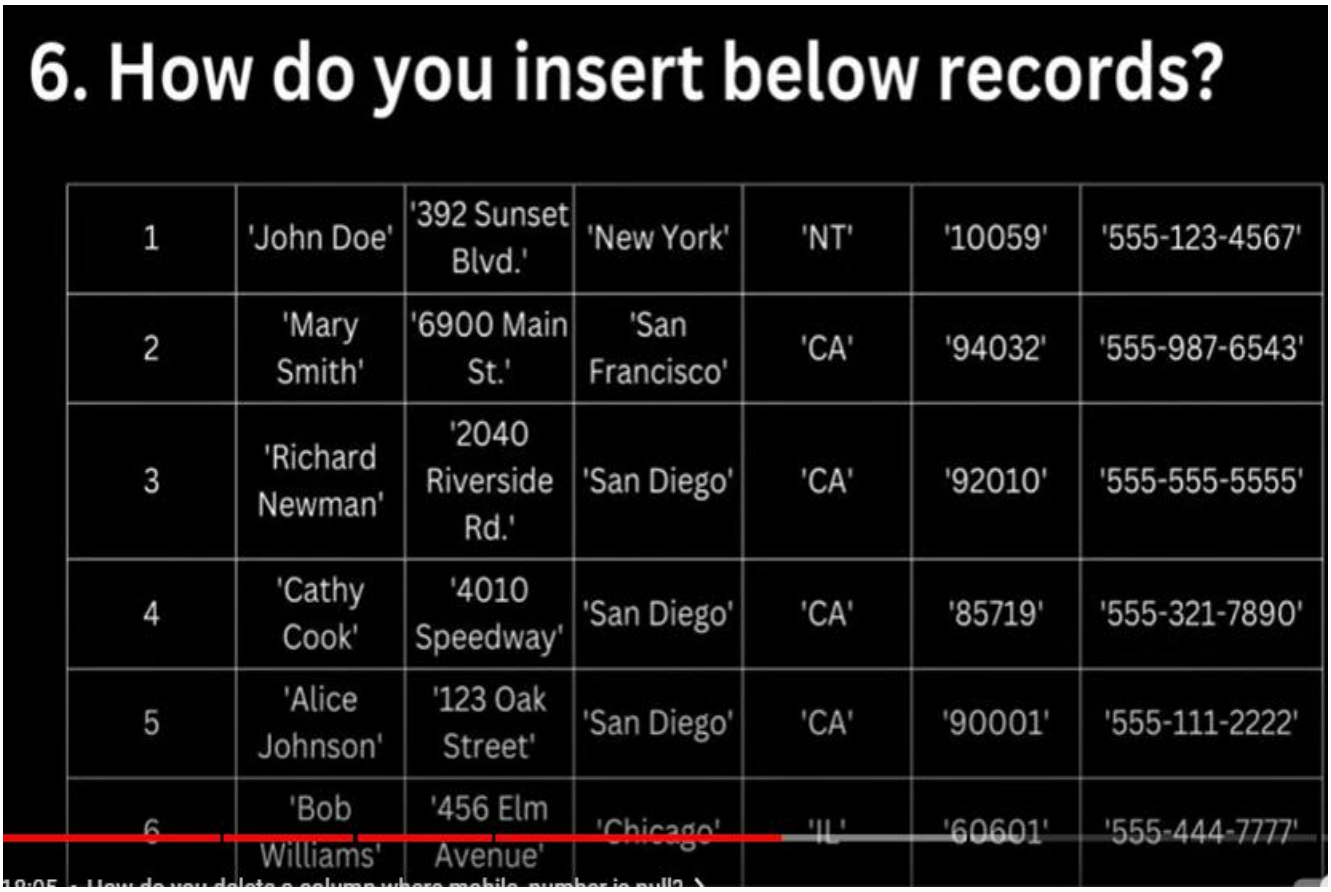
✔	95	19:47:09	select * from customer LIMIT 0, 1000
✔	96	19:50:20	delete from customer where mobile_number=null
✔	97	19:52:34	delete from customer where mobile_number is null

no change

all datas deleted

Result Grid | Filter Rows: | Export: | Wrap Cell Content:

	customer_id	customer_name	address	city	state	zip_code	mobile_number



insert into customer values (1,"John Doe","392 sunset Blvd", "Newyork", "NT", 10059,"555-123-4567");

insert into customer values (2,"Mary smith","6900 Main st","San Francisco","CA",94032,"555-987-6543");

insert into customer values (3,"Richard Newman","2040 Riverside Road","San Diego","CA",92010,"555-555-5555");

insert into customer values (4,"Cathy cook","4010 speedway","Tucson", "AZ",85719,"555-321-7890");

insert into customer values (5,"Alice Johnson","123 Oak street", "san Diego","CA", 90001,"555-111-2222");

insert into customer values (6,"Bob Williams","456 Elm Avenue", "Chicago", "IL",60601,"555-444-7777");


```
3 •   select * from customer
```

Result Grid | Filter Rows: | Export: | Wrap Cell Content:

customer_id	customer_name	address	city	state	zip_code	mobile_number
1	John Doe	392 sunset Blvd	Newyork	NT	10059	555-123-4567
2	Mary smith	6900 Main st	San Francisco	CA	94032	555-987-6543
3	Richard Newman	2040 Riverside Road	San Diego	CA	92010	555-555-5555
4	Cathy cook	4010 speedway	Tucson	AZ	85719	555-321-7890
5	Alice Johnson	123 Oak street	san Diego	CA	90001	555-111-2222
6	Bob Williams	456 Elm Avenue	Chicago	IL	60601	555-444-7777

customer 23 ×

Output

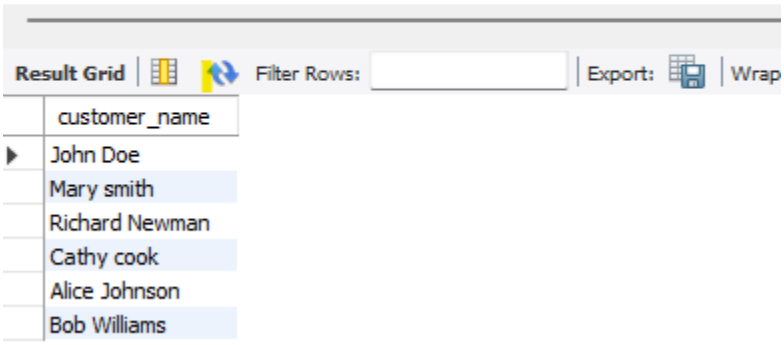
Action Output

#	Time	Action	Message
105	20:11:34	insert into customer values (1,"John Doe","392 sunset Blvd", "Newyork", "NT", 10059,"555-123-4567")	1 row(s) affected
106	20:11:38	insert into customer values (2,"Mary smith","6900 Main st","San Francisco","CA",94032,"555-987-6543")	1 row(s) affected
107	20:11:42	insert into customer values (3,"Richard Newman","2040 Riverside Road","San Diego","CA",92010,"555-555-555...	1 row(s) affected
108	20:11:45	insert into customer values (4,"Cathy cook","4010 speedway","Tucson", "AZ",85719,"555-321-7890")	1 row(s) affected
109	20:11:49	insert into customer values (5,"Alice Johnson","123 Oak street", "san Diego","CA", 90001,"555-111-2222")	1 row(s) affected
110	20:11:52	insert into customer values (6,"Bob Williams","456 Elm Avenue", "Chicago", "IL",60601,"555-444-7777")	1 row(s) affected
111	20:12:06	select * from customer LIMIT 0, 1000	6 row(s) returned

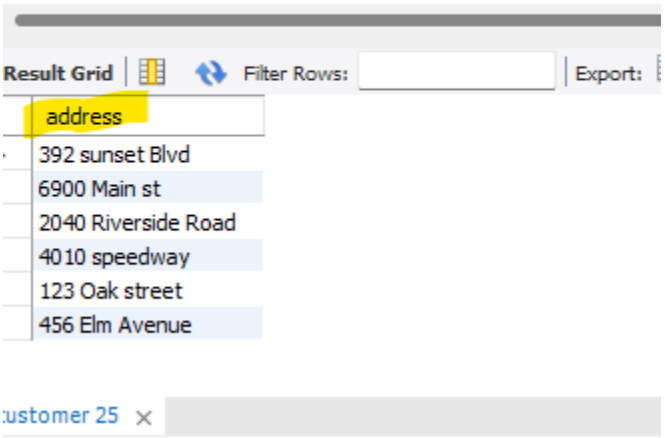
6 - just insert, 7 - view (select *) - both questions similar

---> to view only one row

```
2
3 •   select customer_name from customer
```




```
2
3 •   select address from customer
```



ustomer 25 ×

to view 2 columns

```
2
3 •  select address,mobile_number from customer
```

Result Grid | Filter Rows: | Export: | Wrap Cell Content:

address	mobile_number
392 sunset Blvd	555-123-4567
6900 Main st	555-987-6543
2040 Riverside Road	555-555-5555
4010 speedway	555-321-7890
123 Oak street	555-111-2222
456 Elm Avenue	555-444-7777

```
1 •  select customer_name,address,mobile_number from customer
```

esult Grid | Filter Rows: | Export: | Wrap Cell Content:

customer_name	address	mobile_number
John Doe	392 sunset Blvd	555-123-4567
Mary smith	6900 Main st	555-987-6543
Richard Newman	2040 Riverside Road	555-555-5555
Cathy cook	4010 speedway	555-321-7890
Alice Johnson	123 Oak street	555-111-2222
Bob Williams	456 Elm Avenue	555-444-7777

stomer 27 ×

update customer set mobile_number="82206-1234" where customer_name="Mary smith"

```
1 • update customer set mobile_number="82206-1234" where customer_name="Mary smith"
2
```

Result Grid | Filter Rows: | Export: | Wrap Cell Content:

customer_id	customer_name	address	city	state	zip_code	mobile_number
1	John Doe	392 sunset Blvd	Newyork	NT	10059	555-123-4567
2	Mary smith	6900 Main st	San Francisco	CA	94032	82206-1234
3	Richard Newman	2040 Riverside Road	San Diego	CA	92010	555-555-5555
4	Cathy cook	4010 speedway	Tucson	AZ	85719	555-321-7890
5	Alice Johnson	123 Oak street	san Diego	CA	90001	555-111-2222
6	Bob Williams	456 Elm Avenue	Chicago	IL	60601	555-444-7777

customer 28 ×

✗	116	20:22:00	update customer set mobile_number="82206-1234" where name="Mary smith"	Error Code: 1054. Unknown column 'name' in 'where clause'
✓	117	20:22:39	update customer set mobile_number="82206-1234" where customer_name="Mary smith"	1 row(s) affected Rows matched: 1 Changed: 1 Warnings: 0
✓	118	20:22:54	select * from customer LIMIT 0, 1000	6 row(s) returned

delete from customer where zip_code=60601

```
1 •   select * from customer LIMIT 0, 1000
2
```

Result Grid | Filter Rows: | Export: | Wrap Cell Content:

customer_id	customer_name	address	city	state	zip_code	mobile_number
1	John Doe	392 sunset Blvd	Newyork	NT	10059	555-123-4567
2	Mary smith	6900 Main st	San Francisco	CA	94032	82206-1234
3	Richard Newman	2040 Riverside Road	San Diego	CA	92010	555-555-5555
4	Cathy cook	4010 speedway	Tucson	AZ	85719	555-321-7890
5	Alice Johnson	123 Oak street	san Diego	CA	90001	555-111-2222

119	20:26:33	delete from customer where zip_code=60601
120	20:26:42	select * from customer LIMIT 0, 1000

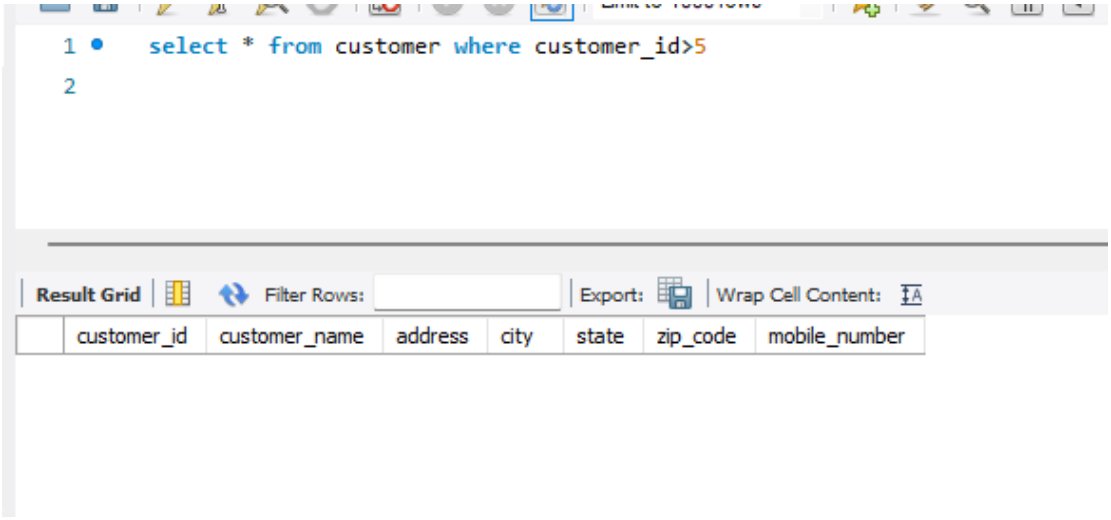
select * from customer where state="CA"

```
1 •  select * from customer where state="CA"
2
```

Result Grid | Filter Rows: | Export: | Wrap Cell Content:

customer_id	customer_name	address	city	state	zip_code	mobile_number
2	Mary smith	6900 Main st	San Francisco	CA	94032	82206-1234
3	Richard Newman	2040 Riverside Road	San Diego	CA	92010	555-555-5555
5	Alice Johnson	123 Oak street	san Diego	CA	90001	555-111-2222

no records bcoz we have total of 5 id's -- greater than 5 - then no values

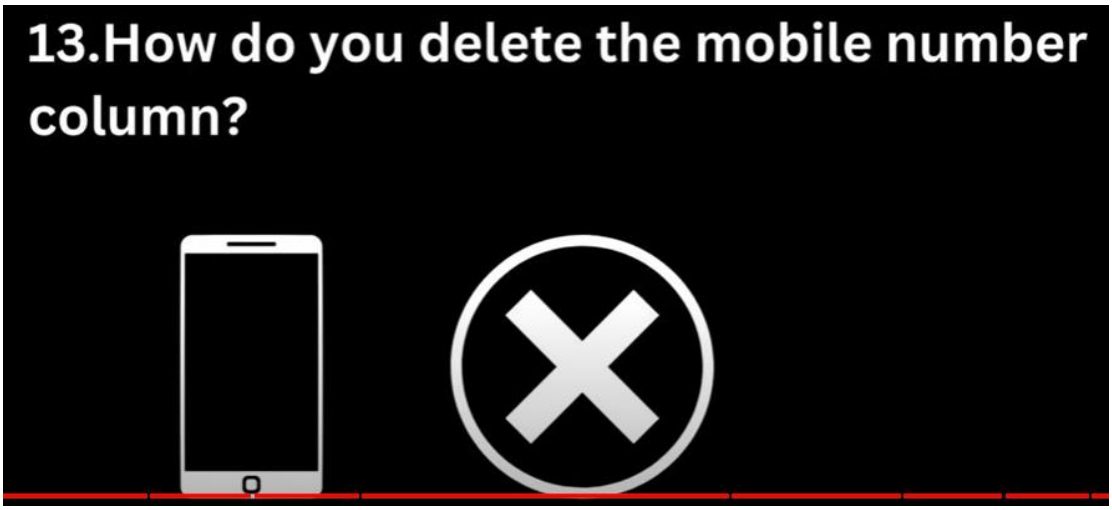


lets try >2

```
1  select * from customer where customer_id>2
2
```

Result Grid | Filter Rows: | Export: | Wrap Cell Content:

customer_id	customer_name	address	city	state	zip_code	mobile_number
3	Richard Newman	2040 Riverside Road	San Diego	CA	92010	555-555-5555
4	Cathy cook	4010 speedway	Tucson	AZ	85719	555-321-7890
5	Alice Johnson	123 Oak street	san Diego	CA	90001	555-111-2222



alter table customer drop column mobile_number

✓	123	20:32:27	select * from customer where customer_id>2 LIMIT 0, 1000
✗	124	20:55:50	delete from customer where column mobile_number
✗	125	20:56:35	delete from customer column mobile_number
✗	126	20:57:35	drop customer column mobile_number
✗	127	20:58:01	drop from customer column mobile_number
✗	128	20:58:29	drop from customer where column mobile_number
✗	129	20:58:47	drop table customer where column mobile_number
✗	130	20:58:55	drop table customer column mobile_number
✓	131	21:00:36	alter table customer drop column mobile_number

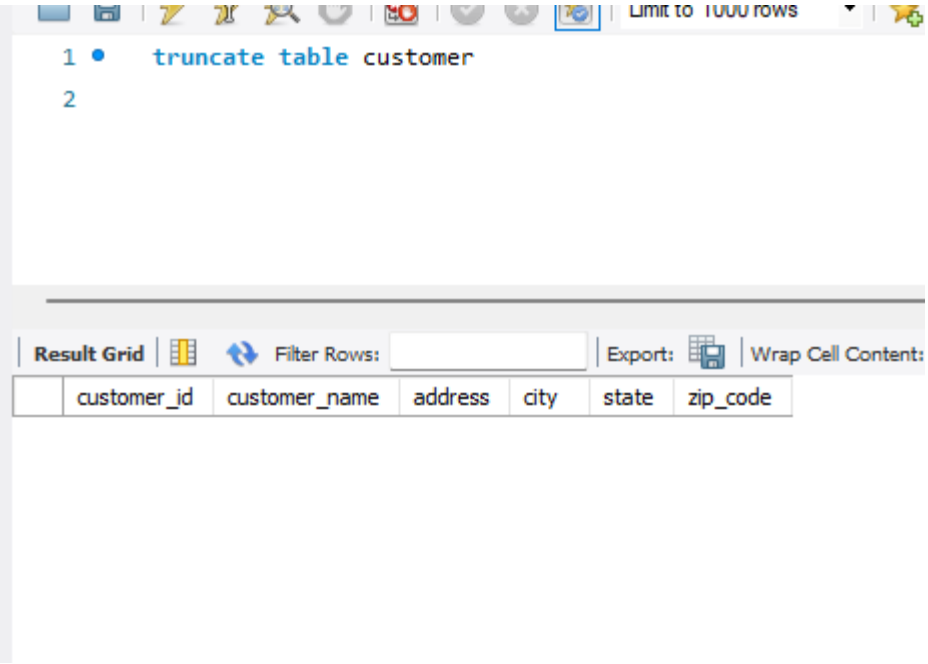
mobile_number column has been deleted

Result Grid | Filter Rows: | Export: | Wrap Cell Content:

customer_id	customer_name	address	city	state	zip_code
1	John Doe	392 sunset Blvd	Newyork	NT	10059
2	Mary smith	6900 Main st	San Francisco	CA	94032
3	Richard Newman	2040 Riverside Road	San Diego	CA	92010
4	Cathy cook	4010 speedway	Tucson	AZ	85719
5	Alice Johnson	123 Oak street	san Diego	CA	90001

truncate table customer

all datas in the table deleted



****

AGGREGATE FUNCTIONS

1. sum()

2. min()

3. max()

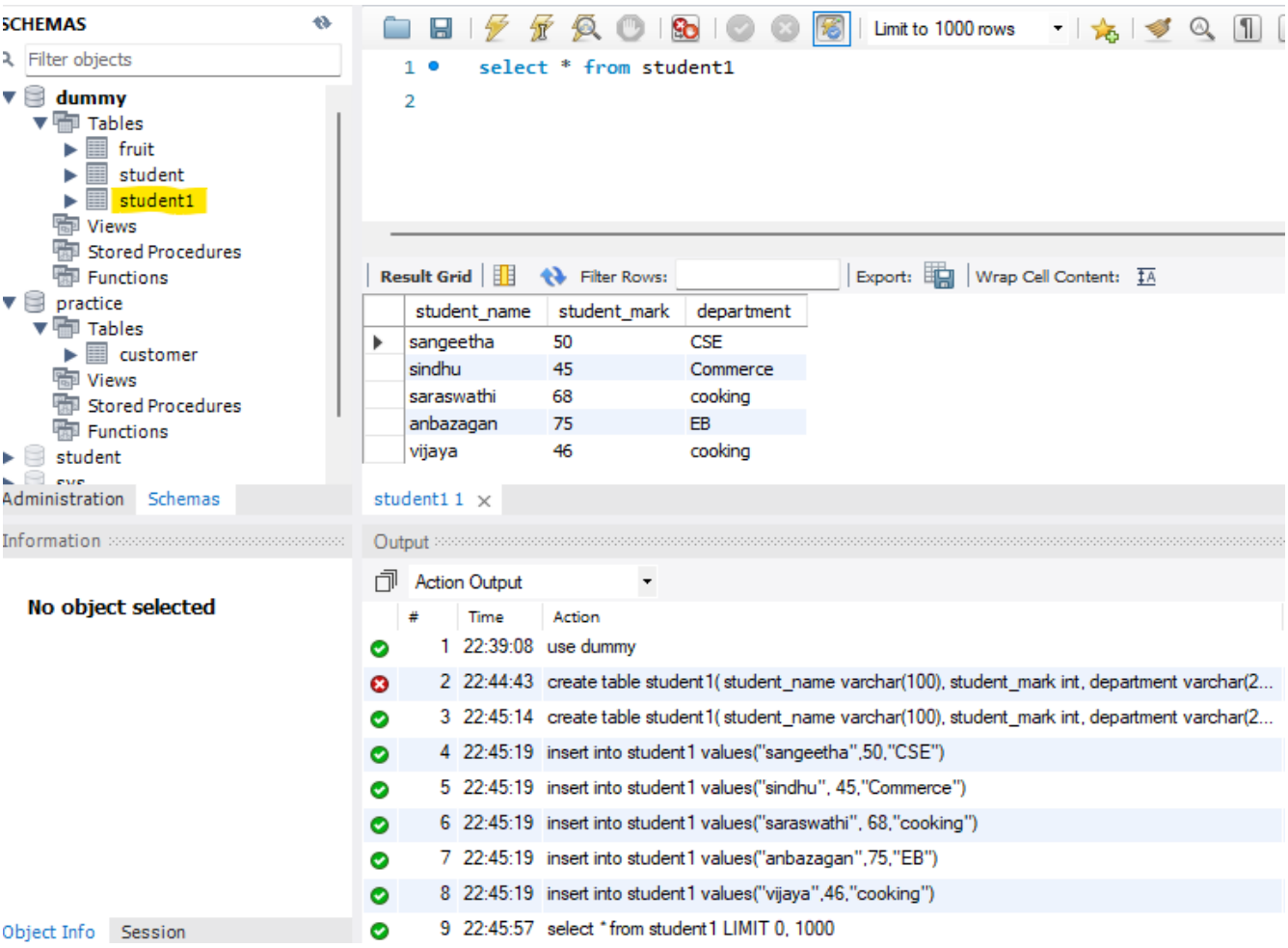
4. avg()

5. count()

oru table la iruka columns la inthe aggregate functions use pani sum, min value, max value, average, count find panalam

create table student1(

```
student_name varchar(100),
student_mark int,
department varchar(20))

insert into student1 values("sangeetha",50,"CSE");
insert into student1 values("sindhu", 45,"Commerce");
insert into student1 values("saraswathi", 68,"cooking");
insert into student1 values("anbazagan",75,"EB");
insert into student1 values("vijaya",46,"cooking")
```



select student_mark from student1

```
1 •  select student_mark from student1
2
```

Result Grid | Filter Rows:

student_mark
50
45
68
75
46

total mark of all the student

select sum(student_mark) from student1

```
1 •  select sum(student_mark) from student1
2
```

Result Grid | Filter Rows: | Export:

sum(student_mark)
284

here we can change column name

after sum - the column name will be sum(student_mark)

now we can change it to totalmark

select sum(student_mark) as totalmark from student1

```
1 •  select sum(student_mark) as totalmark from student1
2
```

Result Grid | Filter Rows: | Export: | Wrap Cell Content:

totalmark
284

```
9  22:45:57  select * from student1 LIMIT 0, 1000
10 22:49:29  select student_mark from student1 LIMIT 0, 1000
11 22:50:49  select sum(student_mark) from student1 LIMIT 0, 1000
12 22:53:19  select sum(student_mark) as totalmark from student1 LIMIT 0, 1000
```

to find minimum mark

select min(student_mark) as minmark from student1

```
1  select min(student_mark) as minmark from student1
2
```

Result Grid | Filter Rows: | Export: | Wrap Cell Content:

minmark
45

to find maximum mark

select max(student_mark) as maxmark from student1

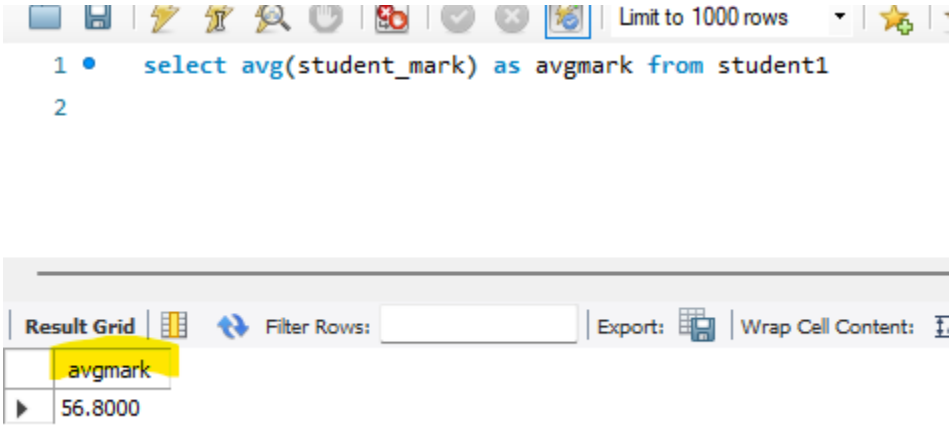
```
1  select max(student_mark) as maxmark from student1
2
```

Result Grid | Filter Rows: | Export: | Wrap Cell Co

maxmark
75

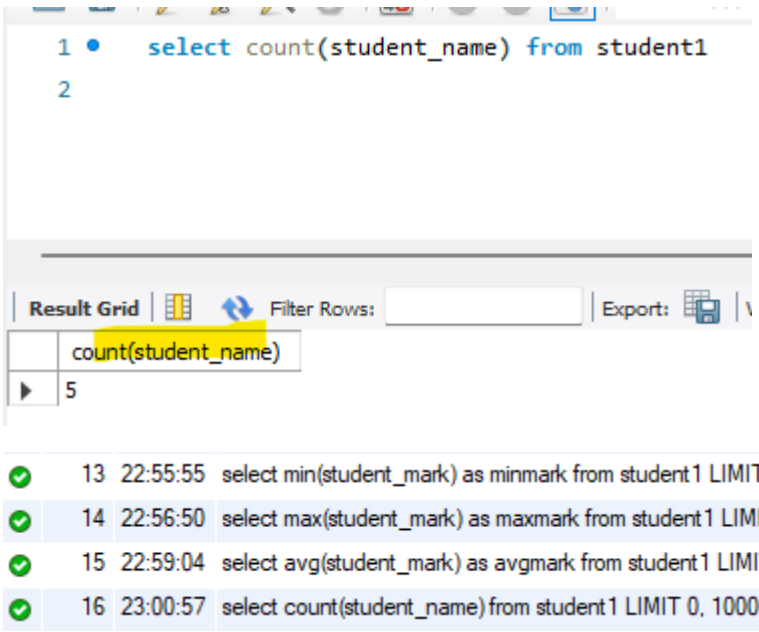
to find average mark

select avg(student_mark) as avgmark from student1



to find count

select count(student_name) from student1



select student_name from student1

```
1 •  select student_name from student1
2
```

Result Grid | Filter Rows: | Export

student_name
sangeetha
sindhu
saraswathi
anbazagan
vijaya

select student_name from student1 where department="cooking"

```
1 •  select student_name from student1 where department="cooking"
2
```

Result Grid | Filter Rows: | Export: | Wrap Cell Content:

student_name
saraswathi
vijaya

select * from student1 where department="cooking"

```
1 •  select * from student1 where department="cooking"
2
```

Result Grid | Filter Rows: | Export: | Wrap Cell Content:

student_name	student_mark	department
saraswathi	68	cooking
vijaya	46	cooking

select count(student_name) from student1 where department="cooking"

```
1 •  select count(student_name) from student1 where department="cooking"
2
```

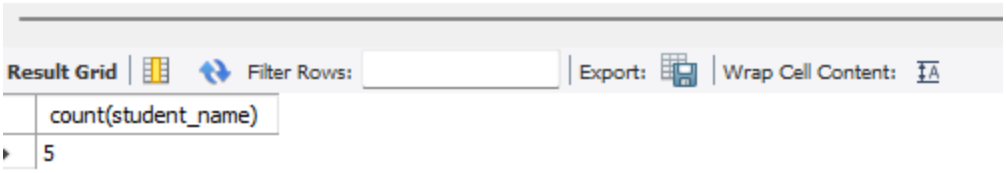
Result Grid | Filter Rows: | Export: | Wrap Cell Content:

count(student_name)
2

17	23:03:09	select student_name from student1 LIMIT 0, 1000
18	23:04:30	select student_name from student1 where department="cooking" LIMIT 0, 1
19	23:05:25	select * from student1 where department="cooking" LIMIT 0, 1000
20	23:06:10	select * from student1 LIMIT 0, 1000

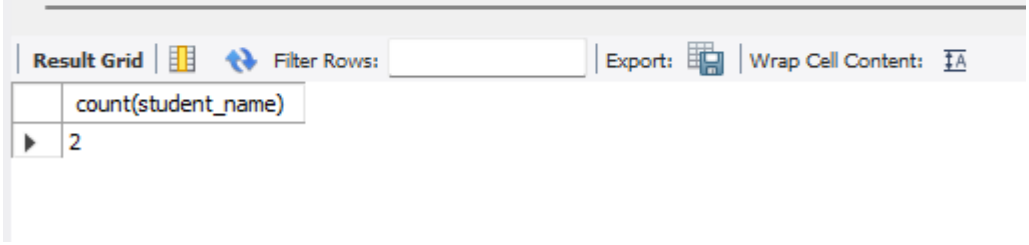
select count(student_name) from student1 where student_mark>40

```
1 •  select count(student_name) from student1 where student_mark>40
2
```



select count(student_name) from student1 where student_mark>60

```
1 •  select count(student_name) from student1 where student_mark>60
2
```



✖	21	23:09:04	select count() from student1 where department="cooking" LIMIT 0, 1000
✔	22	23:09:22	select count(student_name) from student1 where department="cooking" LIMIT 0, 1000
✔	23	23:10:47	select count(student_name) from student1 where student_mark>40 LIMIT 0, 1000
✔	24	23:11:30	select count(student_name) from student1 where student_mark>60 LIMIT 0, 1000
✔	25	23:12:13	select * from student1 LIMIT 0, 1000

****

group by , order by

this is also aggregate function

```
use dummy;

create table student2(
student_name varchar(100),
student_marks int,
department varchar(50));

insert into student2(student_name, student_marks, department)
values
("ranjani", 78,"CSE"),
("viki", 57,"ECE"),
("sangeetha",89,"CSE"),
("sindhu",69,"commerce"),
("divya", 72,"ECE"),
("swathi",47,"commerce"),
("lilly",84,"ECE"),
("nivetha",61,"CSE")

select * from student2
```

```
1 •  select * from student2
```

Result Grid | Filter Rows: | Export:

student_name	student_marks	department
ranjani	78	CSE
viki	57	ECE
sangeetha	89	CSE
sindhu	69	commerce
divya	72	ECE
swathi	47	commerce
lilly	84	ECE
nivetha	61	CSE

36	15:56:42	insert into student2(student_name, student_marks, department) values ("ranjani", 78,"CSE...	8 row(s) affected Records: 8
37	15:57:36	select * from student2 LIMIT 0, 1000	8 row(s) returned

if we want to view only CSE department

select * from student2 where department="CSE"

```
1    select * from student2 where department="CSE"
```

Result Grid | Filter Rows: | Export: | Wrap

student_name	student_marks	department
ranjani	78	CSE
sangeetha	89	CSE
nivetha	61	CSE

select student_name,student_marks from student2

```
1    select student_name,student_marks from student2
```

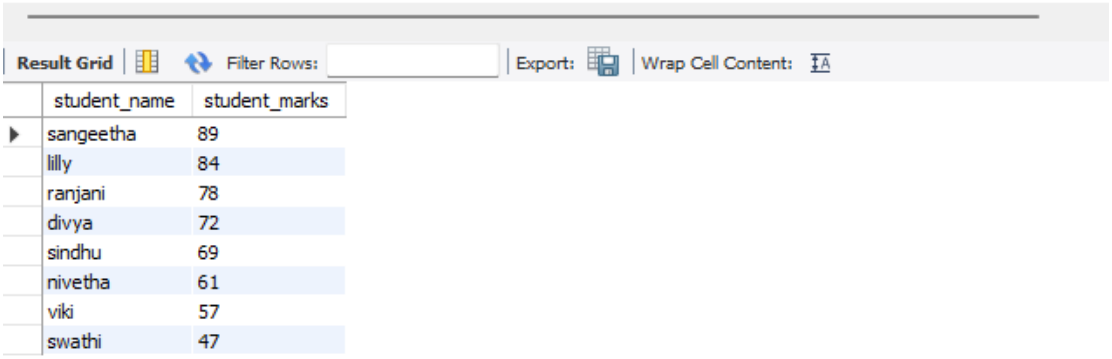
Result Grid | Filter Rows: | Export: | Wrap Cell C

student_name	student_marks
ranjani	78
viki	57
sangeetha	89
sindhu	69
divya	72
swathi	47
lilly	84
nivetha	61

order by -- now we gonna align marks from highest to lowest - by using order by asc or desc

select student_name,student_marks from student2 order by student_marks desc

```
1    select student_name,student_marks from student2 order by student_marks desc
```



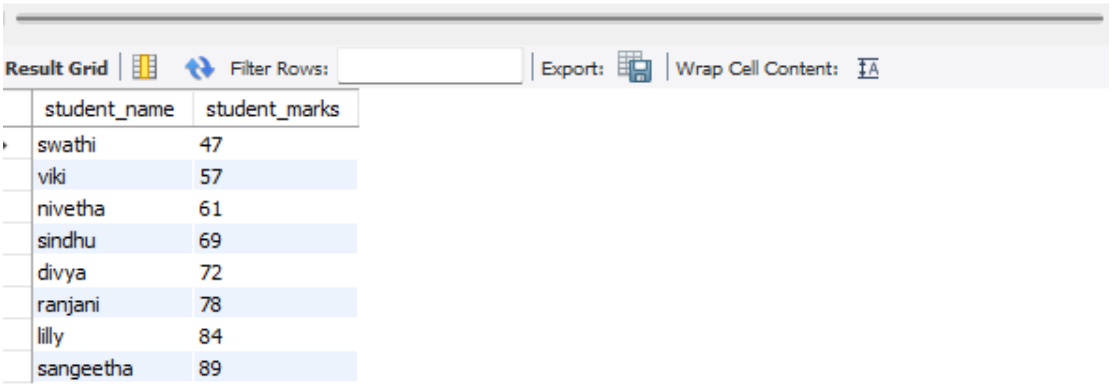
Result Grid | Filter Rows: | Export: | Wrap Cell Content:

student_name	student_marks
sangeetha	89
lilly	84
ranjani	78
divya	72
sindhu	69
nivetha	61
viki	57
swathi	47

lowest to highest

select student_name,student_marks from student2 order by student_marks asc

```
1    select student_name,student_marks from student2 order by student_marks asc
```

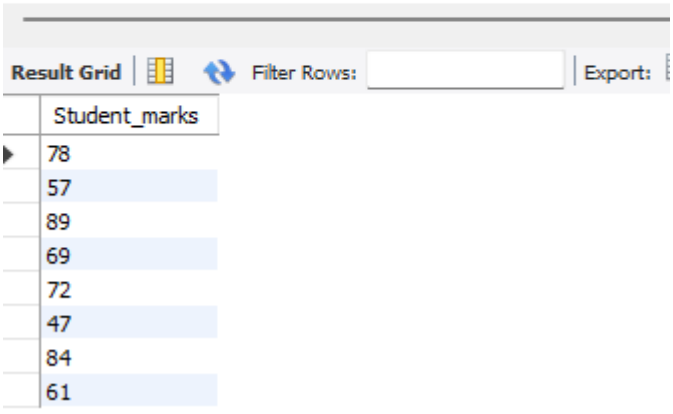


Result Grid | Filter Rows: | Export: | Wrap Cell Content:

student_name	student_marks
swathi	47
viki	57
nivetha	61
sindhu	69
divya	72
ranjani	78
lilly	84
sangeetha	89

****

```
1    select Student_marks from student2
```

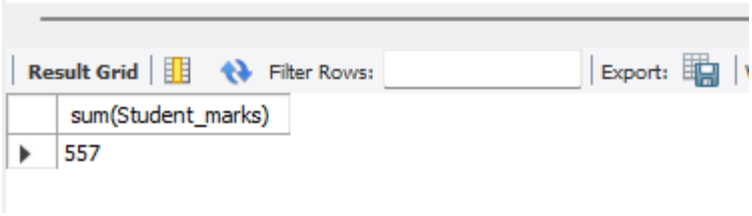


Result Grid | Filter Rows: | Export:

Student_marks
78
57
89
69
72
47
84
61

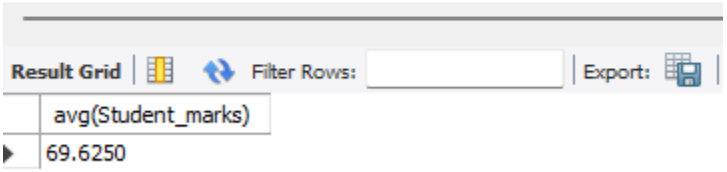
****

```
1    select sum(Student_marks) from student2
```



****

```
1    select avg(Student_marks) from student2
```



****

if we want to view all department by departmentwise then we have to use group by

after groupby we have to mention based on which field - here department will be common so we can use department

to find average mark in each department

select department,avg(Student_marks) from student2 group by department

```
1    select department,avg(Student_marks) from student2 group by department
```

Result Grid | Filter Rows: | Export: | Wrap Cell Content:

department	avg(Student_marks)
CSE	76.0000
ECE	71.0000
commerce	58.0000

to find student count in each department

here we can give anything inside count () function

select department,count(Student_marks) from student2 group by department

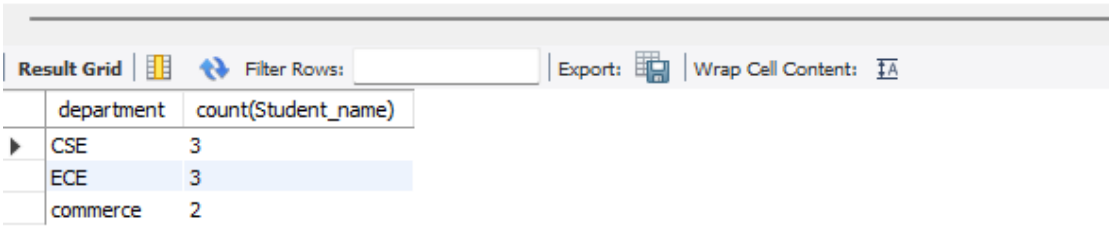
```
1    select department,count(Student_marks) from student2 group by department
```

Result Grid | Filter Rows: | Export: | Wrap Cell Content:

department	count(Student_marks)
CSE	3
ECE	3
commerce	2

select department,count(Student_name) from student2 group by department

```
1    select department,count(Student_name) from student2 group by department
```



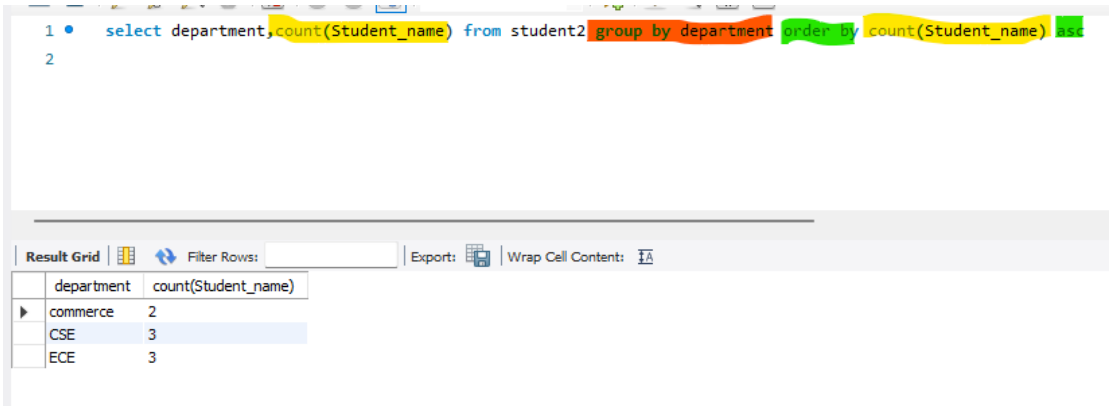
Result Grid | Filter Rows: | Export: | Wrap Cell Content:

department	count(Student_name)
CSE	3
ECE	3
commerce	2

with group by we can use order by as well

after order by whatever the aggregate function (avg(), sum() etc...)we used should be given after order by also followed by asc or desc

select department,count(Student_name) from student2 group by department order by count(Student_name) asc



```
1    select department,count(Student_name) from student2 group by department order by count(Student_name) asc
2
```

Result Grid | Filter Rows: | Export: | Wrap Cell Content:

department	count(Student_name)
commerce	2
CSE	3
ECE	3

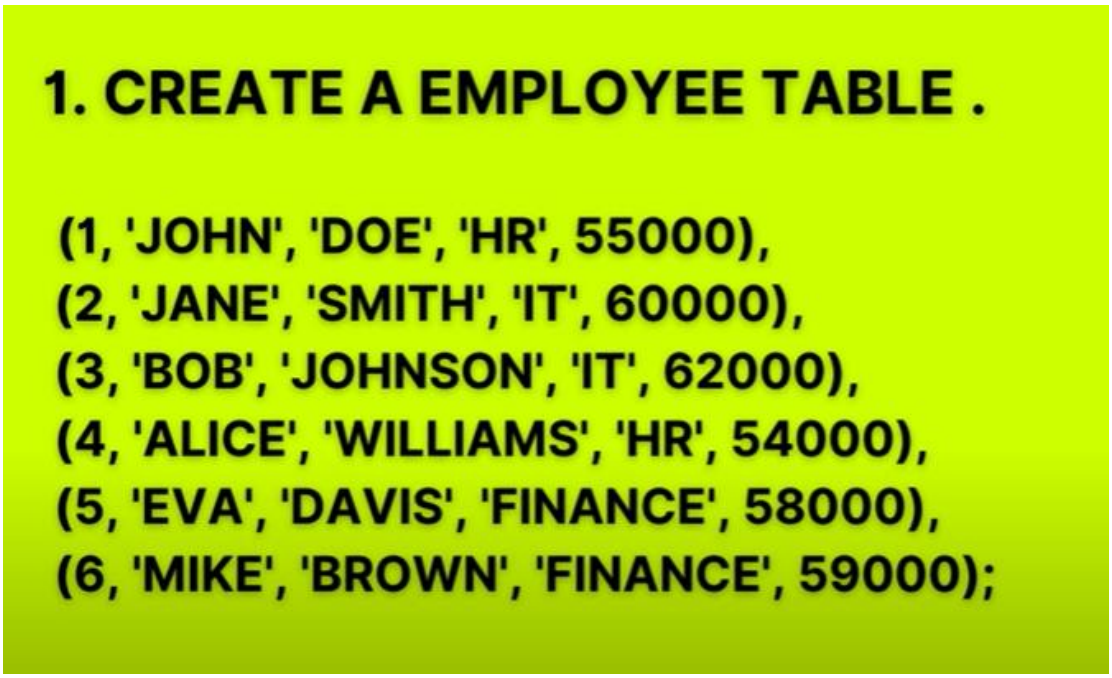
select department,count(Student_name) from student2 group by department order by count(Student_name) desc

```
1 •  select department,count(Student_name) from student2 group by department order by count(Student_name) desc
2
```

Result Grid | Filter Rows: | Export: | Wrap Cell Content:

department	count(Student_name)
CSE	3
ECE	3
commerce	2

****



```
use dummy;

create table employee(
E_ID int,
F_name varchar(50),
L_name varchar(50),
dept varchar(35),
salary int );

insert into employee (E_ID,F_name,L_name,dept,salary)
values
(1,"John", "Doe","HR",55000),
(2,"Jane","Smith","IT",60000),
(3,"Bob","Johnson","IT",62000),
(4,"Alice","Williams","HR",54000),
(5,"Eva","Davis","Finance",58000),
(6,"Mike","Brown","Finance",59000)
```

use dummy;

create table employee(

E_ID int,

F_name varchar(50),

L_name varchar(50),

dept varchar(35),

salary int);

insert into employee (E_ID,F_name,L_name,dept,salary)

values

(1,"John", "Doe","HR",55000),

(2,"Jane","Smith","IT",60000),

(3,"Bob","Johnson","IT",62000),

(4,"Alice","Williams","HR",54000),

(5,"Eva","Davis","Finance",58000),

(6,"Mike","Brown","Finance",59000)

✓	55	16:43:51	use dummy	0 row(s) aff
✓	56	16:47:39	create table employee(E_ID int, F_name varchar(50), L_name varchar(50), dept varchar(3...	0 row(s) aff
✓	57	16:52:34	insert into employee (E_ID,F_name,L_name,dept,salary) values (1,"John", "Doe","HR",55...	6 row(s) aff

```
19 •  select * from employee
20
```

Result Grid | Filter Rows: | Exp

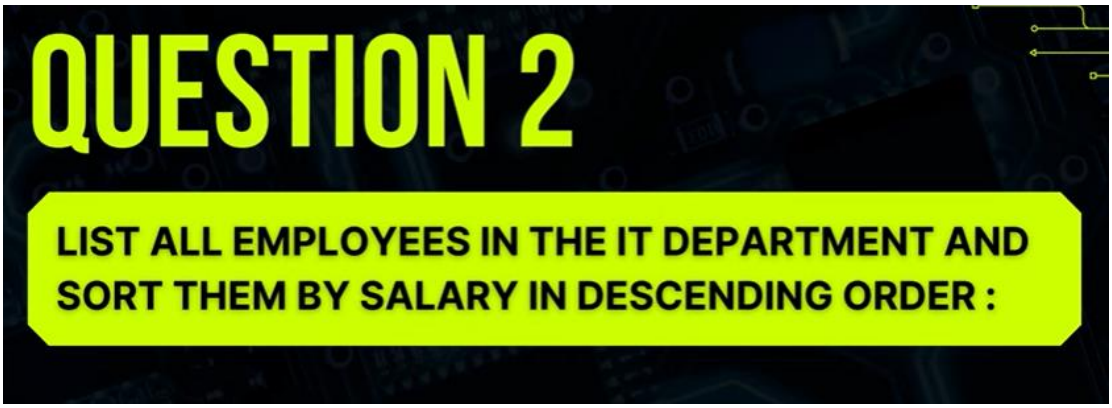
E_ID	F_name	L_name	dept	salary
1	John	Doe	HR	55000
2	Jane	Smith	IT	60000
3	Bob	Johnson	IT	62000
4	Alice	Williams	HR	54000
5	Eva	Davis	Finance	58000
6	Mike	Brown	Finance	59000

select * from employee order by L_name asc

```
19 •  select * from employee order by L_name asc
20
```

Result Grid | Filter Rows: | Export: | Wrap Cell C

E_ID	F_name	L_name	dept	salary
6	Mike	Brown	Finance	59000
5	Eva	Davis	Finance	58000
1	John	Doe	HR	55000
3	Bob	Johnson	IT	62000
2	Jane	Smith	IT	60000
4	Alice	Williams	HR	54000



select * from employee where dept="IT" order by salary desc

```
21 •  select * from employee where dept="IT" order by salary desc
22
```

Result Grid | Filter Rows: | Export: | Wrap Cell Content:

E_ID	F_name	L_name	dept	salary
3	Bob	Johnson	IT	62000
2	Jane	Smith	IT	60000

61	17:01:59	select * from employee order by salary desc where department="IT"	
62	17:02:55	select * from employee where dept="IT" order by salary desc LIMIT 0, 1000	

select dept,count(*) from employee group by dept

```
23 •    select dept,count(*) from employee group by dept
24
```

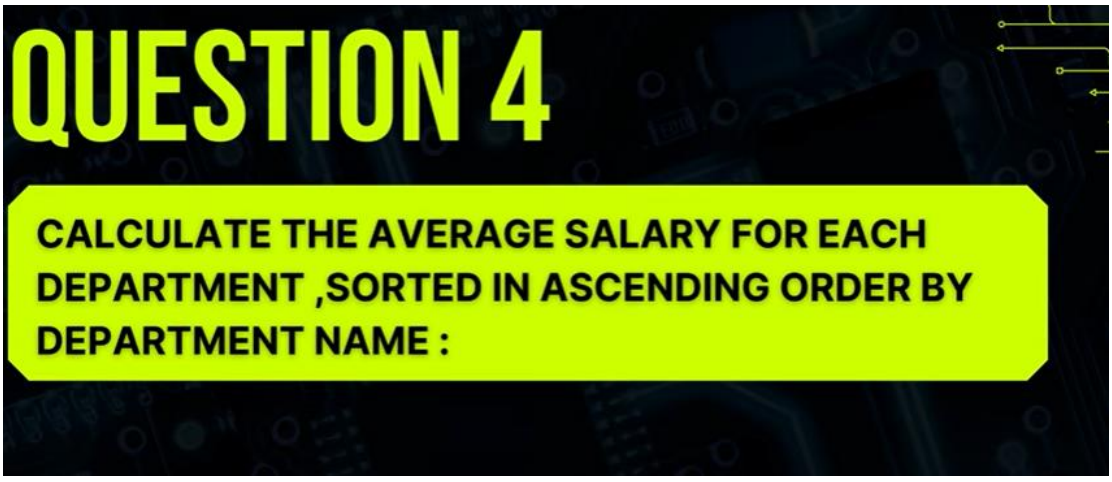
Result Grid | Filter Rows: | Export: | Wrap Cell Conte

dept	count(*)
HR	2
IT	2
Finance	2

if they ask for particular dept -- eg: IT .. then we can use where

for all dept - to find count - use groupby

****



select dept,avg(salary) from employee group by dept order by avg(salary) asc

```
25 •   select dept,avg(salary) from employee group by dept order by avg(salary) asc
26
27
```

Result Grid | Filter Rows: | Export: | Wrap Cell Content:

dept	avg(salary)
HR	54500.0000
Finance	58500.0000
IT	61000.0000

the above is for order by of salary - based on its ascending order it printed

****

bt the question is to sort by ascending order by dept name so..

based on alphabetical order

```
24
25 •   select dept,avg(salary) from employee group by dept order by dept asc
26
```

Result Grid | Filter Rows: | Export: | Wrap Cell Content:

dept	avg(salary)
Finance	58500.0000
HR	54500.0000
IT	61000.0000

****

select dept,avg(salary) from employee group by dept order by avg(salary) desc;

```
29 •  select dept,avg(salary) from employee group by dept order by avg(salary) desc;
30
31
32
33
```

Result Grid | Filter Rows: | Export: | Wrap Cell Content:

dept	avg(salary)
IT	61000.0000
Finance	58500.0000
HR	54500.0000

the qn. is to find **dept with highest avg salary**

limit 1 - prints only 1st row

```
29 •  select dept,avg(salary) from employee group by dept order by avg(salary) desc
30    limit 1
31
```

Result Grid | Filter Rows: | Export: | Wrap Cell Content: | Fetch rows:

dept	avg(salary)
IT	61000.0000

to find 2 dept with lowest avg. salary

limit 2 - prints first 2 rows

```
29 •  select dept,avg(salary) from employee group by dept order by avg(salary) asc
30    limit 2
31
32
33
```

Result Grid | Filter Rows: | Export: | Wrap Cell Content: | Fetch rows:

dept	avg(salary)
HR	54500.0000
Finance	58500.0000

****

Having clause

to find what are the department is earning less than 60000

⊗	71	20:13:16	select avg(salary) from employee where avg(salary)<60000 group by dept l
⊗	72	20:15:07	select avg(salary) from employee group by dept where avg(salary)<60000

select avg(salary) from employee group by dept where avg(salary)<60000

select avg(salary) from employee where avg(salary)<60000 group by dept

```
select avg(salary) from employee group by dept  where avg(salary)<60000

select avg(salary) from employee where avg(salary)<60000 group by dept
```

group by ku aprum where poda kudathu, so used b4 group by bt still getting error

we are getting error when we use where

bcoz inga aggregate function la condition use pana try pandrom

aggregate function la condition use pananum apdina having clause use pananum

select department,avg(salary) from employee group by dept having avg(salary)<60000

```
36
37 •   select department,avg(salary) from employee  group by dept having avg(salary)<60000
38
```

Result Grid | Filter Rows: | Export: | Wrap Cell Content:

avg(salary)
54500.0000
58500.0000

****

select dept,avg(salary) from employee group by dept having avg(salary)>55000

```
38
39 •   select dept,avg(salary) from employee group by dept having avg(salary)>55000
40
```

Result Grid | Filter Rows: | Export: | Wrap Cell Content:

dept	avg(salary)
IT	61000.0000
Finance	58500.0000

more than 1 employee

```
41
42 •  select dept,count(*) from employee group by dept having count(*)>1
43
```

Result Grid | Filter Rows: | Export: | Wrap Cell Content:

dept	count(*)
HR	2
IT	2
Finance	2

more than 2 employees - no more than 2 - so no values

```
42 •  select dept,count(*) from employee group by dept having count(*)>2
43
44
```

Result Grid | Filter Rows: | Export: | Wrap Cell Content:

dept	count(*)

```
42 •  select dept,count(*) from employee group by dept having count(*)>=2
43
```

Result Grid | Filter Rows: | Export: | Wrap Cell Content:

dept	count(*)
HR	2
IT	2
Finance	2

in question they asked to find both avg salary greater , more than 2 employees at once

select dept, avg(salary), count(*) from employee

```
select dept, avg(salary), count(*) from employee
```

```
85  20:52:48  select dept,count(*) from employee group by dept having count(*)>=
86  20:55:55  select dept, avg(salary), count(*) from employee LIMIT 0, 1000
```

here we have not given group by so error

****

select dept, avg(salary), count(*) from employee group by dept having avg(salary)>55000 or count(*)>=2

```
45
46 •  select dept, avg(salary), count(*) from employee group by dept having avg(salary)>55000 or count(*)>=2
47
```

Result Grid | Filter Rows: | Export: | Wrap Cell Content:

dept	avg(salary)	count(*)
HR	54500.0000	2
IT	61000.0000	2
Finance	58500.0000	2

select dept, avg(salary), count(*) from employee group by dept having avg(salary)>55000 and count(*)>=2

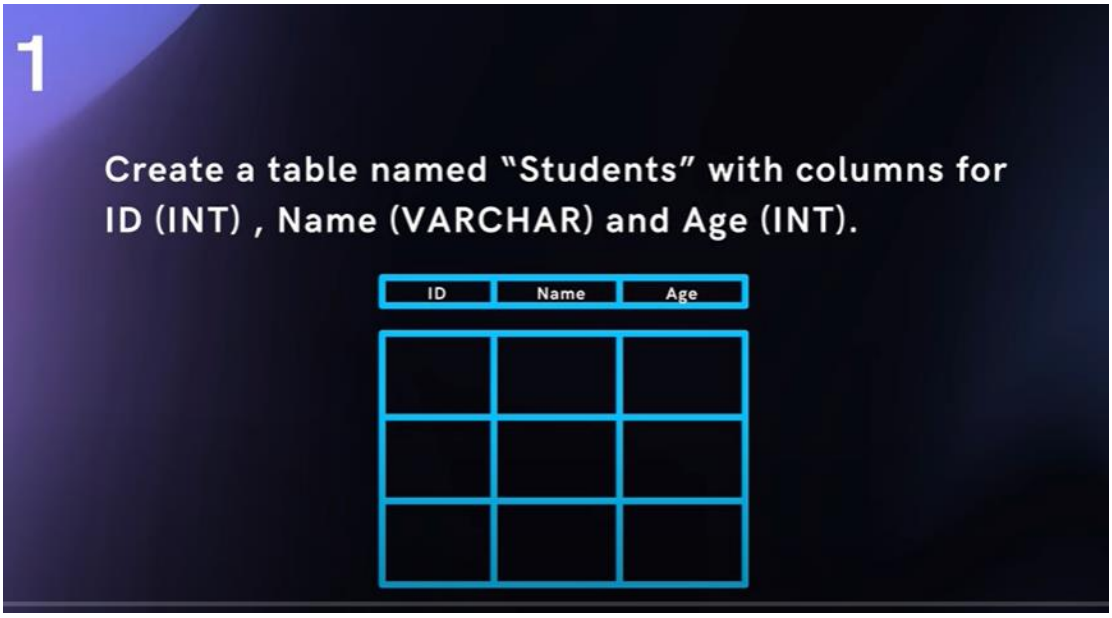
```
45
46 •  select dept, avg(salary), count(*) from employee group by dept having avg(salary)>55000 and count(*)>=2
47
```

Result Grid | Filter Rows: | Export: | Wrap Cell Content:

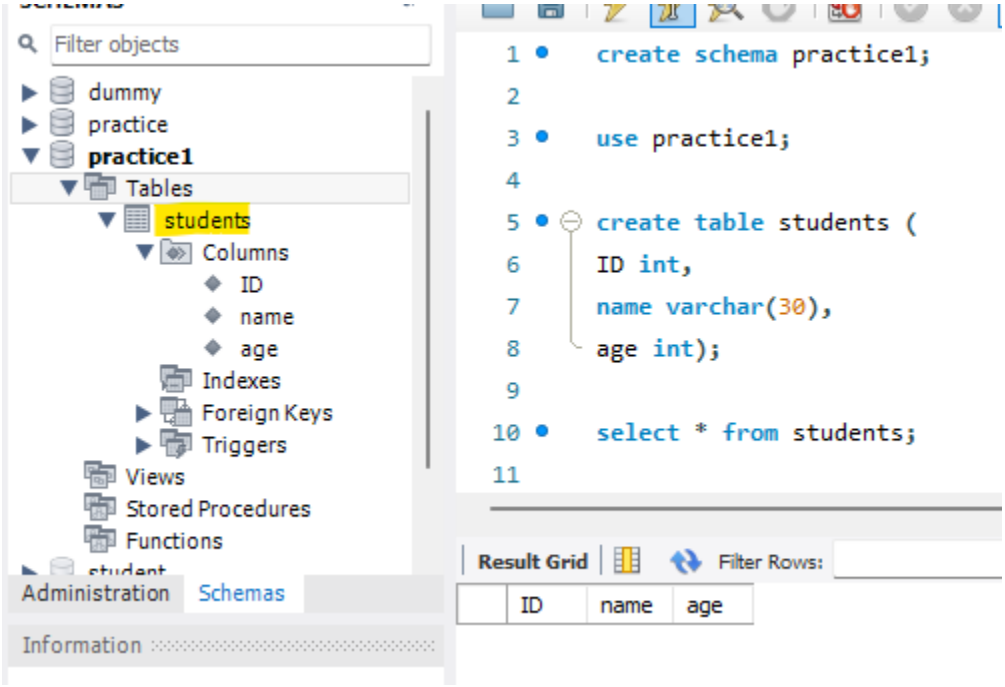
dept	avg(salary)	count(*)
IT	61000.0000	2
Finance	58500.0000	2

****

25 Practice Questions | DDL, DML, DQL, Group by, Having

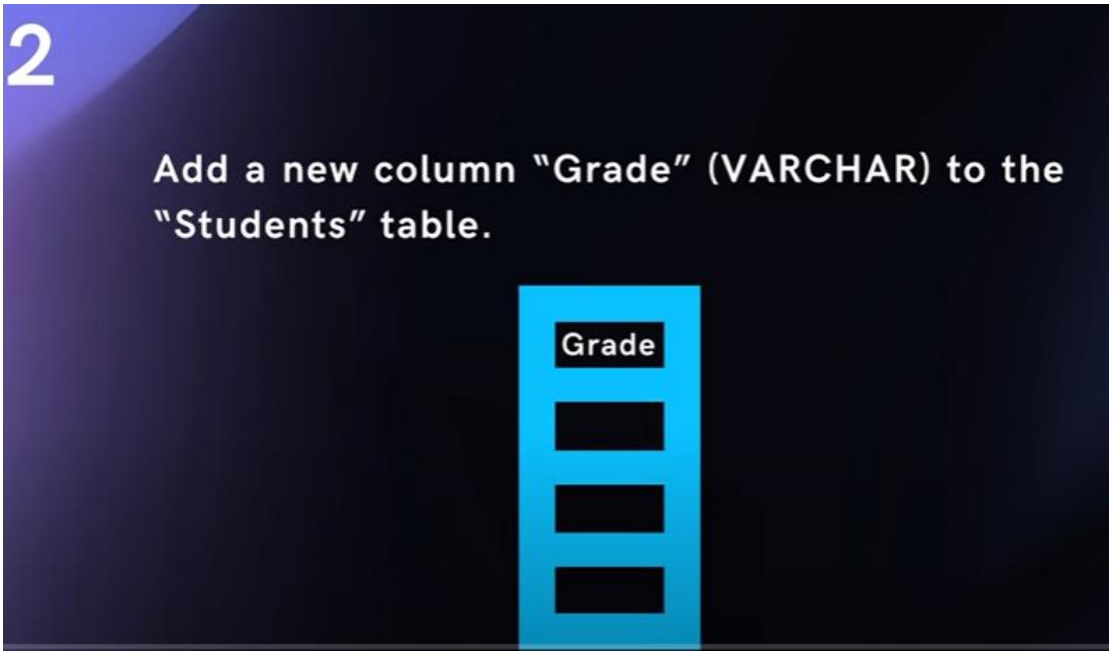



```
create schema practice1;

use practice1;

create table students (
ID int,
name varchar(30),
age int);

select * from students;
```



Action Output

#	Time	Action
1	21:14:02	create schema practice1
2	21:16:18	create table students (ID int, name varchar(30), age int)
3	21:16:47	use practice1 create table students (ID int, name varchar(30), age int)
4	21:17:02	use practice1
5	21:17:21	create table students (ID int, name varchar(30), age int)
6	21:17:59	select * from students LIMIT 0, 1000



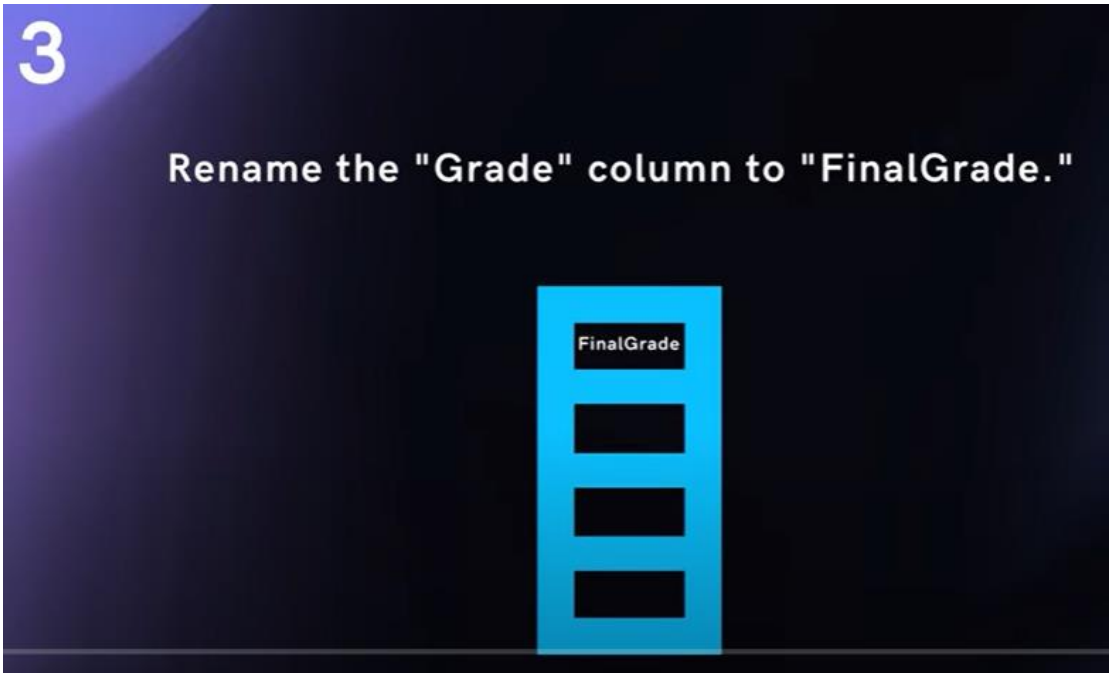
alter table students add column grade varchar(20)

```
1 •  alter table students add column grade varchar(20)
2
```

Result Grid | Filter Rows: | Export: | Wrap Cell Cor

ID	name	age	grade

✓	7	21:21:08	alter table students add column grade varchar(20)
✓	8	21:21:20	select * from students LIMIT 0, 1000



alter table students change column grade FinalGrade varchar(20)

```
1 •  alter table students change column grade FinalGrade varchar(20);
2 •  select * from students
3
```

Result Grid | Filter Rows: | Export: | Wrap Cell Content:

ID	name	age	FinalGrade

✓	9	21:27:59	alter table students change column grade FinalGrade varchar(20)
✓	10	21:28:13	select * from students LIMIT 0, 1000

insert into students(ID,name, age,FinalGrade)

values

(101,"John Doe", 20,"A"),

(102,"Jane Smith",22,"B"),

(103,"Bob Johnson",19,"C"),

(104,"Alice Brown", 21,"A"),

(105,"Charlie Davis",20,"B"),

(106,"Emma Wilson",23,"A"),

(107,"Michael Lee",20,"C"),

(108,"Olivia Moore",19,"B"),

(109,"William Turner",21,"A"),

(110,"Sophia Rodriguez",22,"C")

```
1  • insert into students(ID,name, age,FinalGrade)
2    values
3    (101,"John Doe", 20,"A"),
4    (102,"Jane Smith",22,"B"),
5    (103,"Bob Johnson",19,"C"),
6    (104,"Alice Brown", 21,"A"),
7    (105,"Charlie Davis",20,"B"),
8    (106,"Emma Wilson",23,"A"),
9    (107,"Michael Lee",20,"C"),
10   (108,"Olivia Moore",19,"B"),
11   (109,"William Turner",21,"A"),
12   (110,"Sophia Rodriguez",22,"C")
```

Result Grid | Filter Rows: | Export: | Wrap

ID	name	age	FinalGrade
101	John Doe	20	A
102	Jane Smith	22	B
103	Bob Johnson	19	C
104	Alice Brown	21	A
105	Charlie Davis	20	B
106	Emma Wilson	23	A
107	Michael Lee	20	C
108	Olivia Moore	19	B
109	William Turner	21	A
110	Sophia Rodriguez	22	C

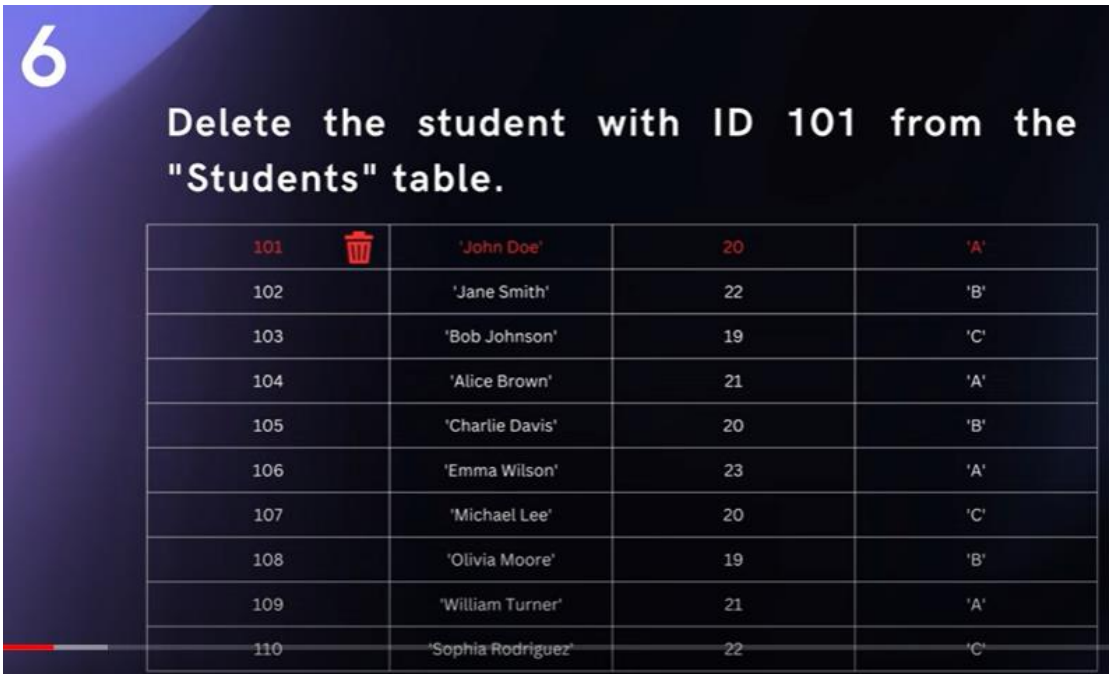
update students set age=21 where ID=101

```
14 •  update students set age=21 where ID=101;
15
16 •  select * from students
```

Result Grid | Filter Rows: | Export:

ID	name	age	FinalGrade
101	John Doe	21	A
102	Jane Smith	22	B
103	Bob Johnson	19	C

24	22:07:10	update students set age=21 where ID=101
25	22:07:30	select * from students LIMIT 0, 1000



delete from students where ID=101

```
18 •    delete from students where ID=101
```

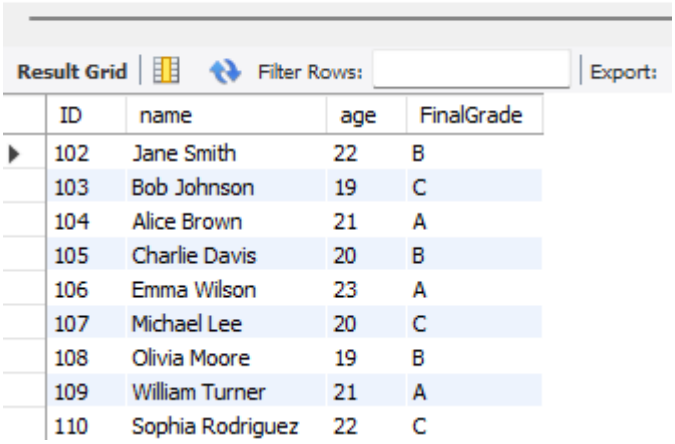
Result Grid | Filter Rows: | Export:

ID	name	age	FinalGrade
102	Jane Smith	22	B
103	Bob Johnson	19	C
104	Alice Brown	21	A
105	Charlie Davis	20	B

26	22:10:43	drop from students where ID=101	
27	22:11:37	drop from table students where ID=101	
28	22:12:23	delete from students where ID=101	
29	22:12:31	select * from students LIMIT 0, 1000	

select * from students where age>=19

```
3 •   select * from students where age>=19
```



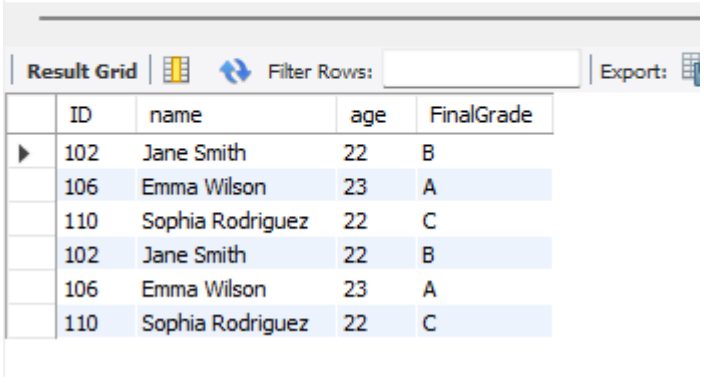
Result Grid | Filter Rows: | Export:

ID	name	age	FinalGrade
102	Jane Smith	22	B
103	Bob Johnson	19	C
104	Alice Brown	21	A
105	Charlie Davis	20	B
106	Emma Wilson	23	A
107	Michael Lee	20	C
108	Olivia Moore	19	B
109	William Turner	21	A
110	Sophia Rodriguez	22	C

greater than 21

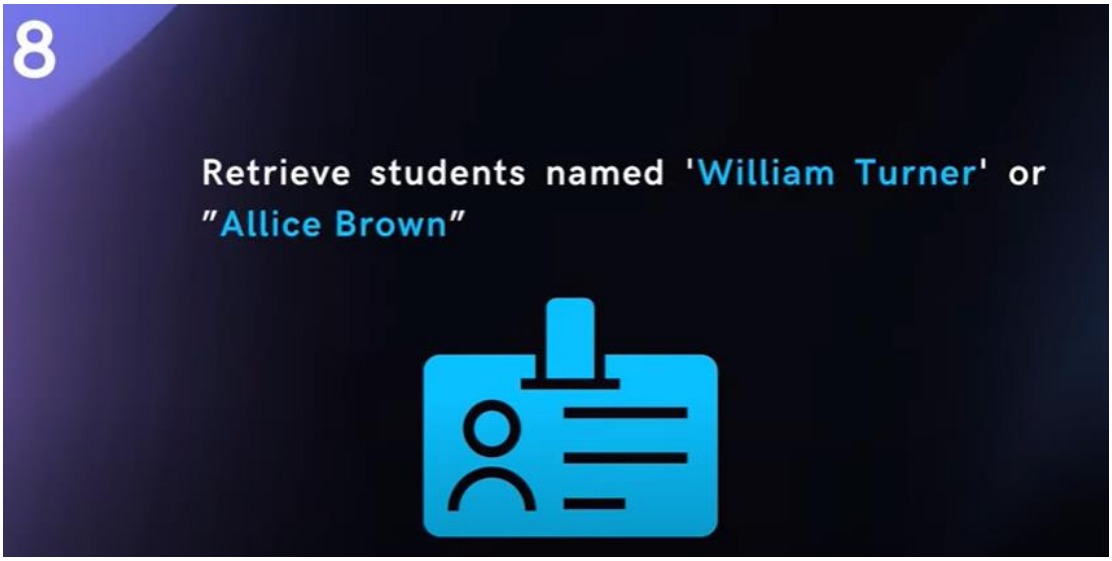
select * from students where age>21

```
3 •   select * from students where age>21
```



Result Grid | Filter Rows: | Export:

ID	name	age	FinalGrade
102	Jane Smith	22	B
106	Emma Wilson	23	A
110	Sophia Rodriguez	22	C
102	Jane Smith	22	B
106	Emma Wilson	23	A
110	Sophia Rodriguez	22	C



select * from students where age=21

here we have only less data and we can see age 21 only for these 2 so we used this..if lot of data we cant use this-- find below

```
1 •   select * from students where age=21
2
3
```

Result Grid | Filter Rows: | Export:

ID	name	age	FinalGrade
104	Alice Brown	21	A
109	William Turner	21	A

select * from students where name="William Turner" or name="Alice Brown"

```
1 •   select * from students where name="William Turner" or name="Alice Brown"
2
3
```

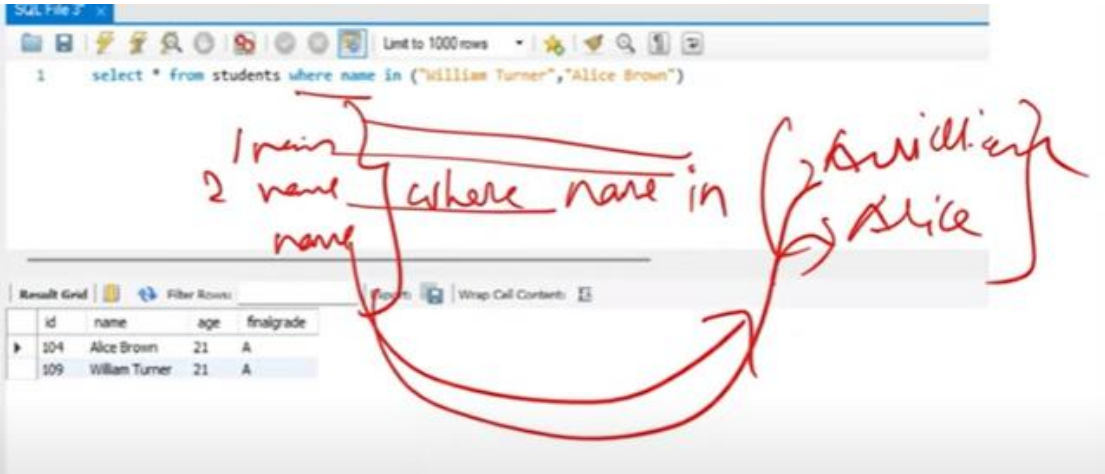
Result Grid | Filter Rows: | Export: | Wrap Cell Content:

ID	name	age	FinalGrade
104	Alice Brown	21	A
109	William Turner	21	A

we are using **in** operator to perform this

this we used in python operations samewise

here we will have some list of jobs, we will check if the given job is in the list.. if s it will be printed -- like wise in operator works here



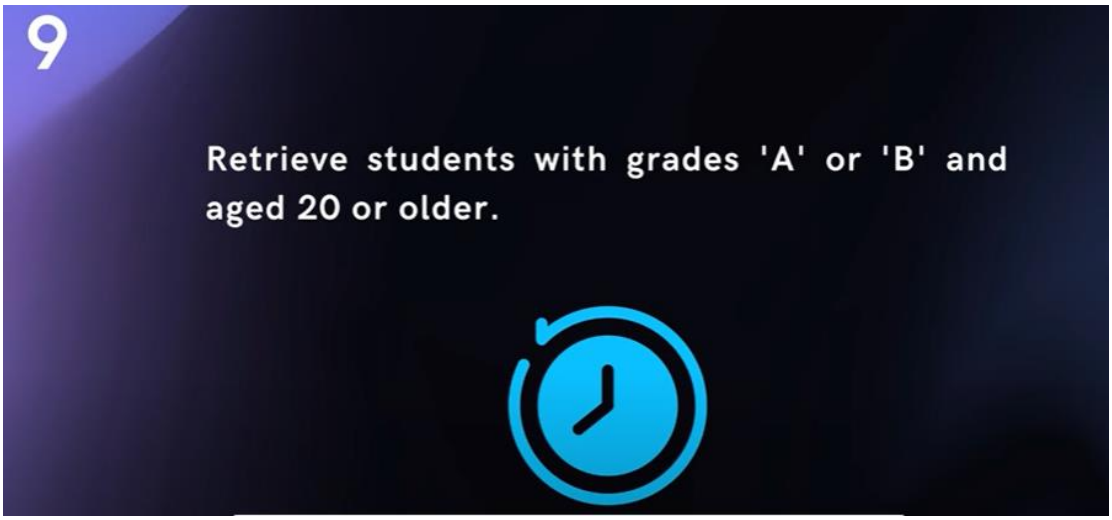
select * from students where name in ("William Turner" ,"Alice Brown")

```
1 •   select * from students where name in ("William Turner" ,"Alice Brown")
2
3
```

Result Grid | Filter Rows: | Export: | Wrap Cell Content:

ID	name	age	FinalGrade
104	Alice Brown	21	A
109	William Turner	21	A

38	18:29:14	select * from students where name="William Turner" or name="Alice Brown" LIMIT 0, 1000	
39	18:33:41	select * from students where name in ("William Turner" ,"Alice Brown") LIMIT 0, 1000	



select * from students where FinalGrade in ("A","B") and age>=20

```
1 •  select * from students where FinalGrade in ("A","B") and age>=20
2
3
```

Result Grid | Filter Rows: | Export: | Wrap Cell Content:

ID	name	age	FinalGrade
102	Jane Smith	22	B
104	Alice Brown	21	A
105	Charlie Davis	20	B
106	Emma Wilson	23	A
109	William Turner	21	A

select * from students where FinalGrade="A" or FinalGrade="B" and age>=20

```
1 •  select * from students where FinalGrade="A" or FinalGrade="B" and age>=20
2
3
```

Result Grid | Filter Rows: | Export: | Wrap Cell Content:

ID	name	age	FinalGrade
102	Jane Smith	22	B
104	Alice Brown	21	A
105	Charlie Davis	20	B
106	Emma Wilson	23	A
109	William Turner	21	A

40	18:39:39	select * from students where FinalGrade in ("A","B") and age>=20 LIMIT 0, 1000	
41	18:42:55	select * from students where FinalGrade="A" or FinalGrade="B" and age>=20 LIMIT 0, 1000	

for 18 to 21

select * from students where age>=18 and age<=21

```
1 •   select * from students where age>=18 and age<=21
2
3
```

Result Grid | Filter Rows: | Export: | Wrap Cell Co

ID	name	age	FinalGrade
103	Bob Johnson	19	C
104	Alice Brown	21	A
105	Charlie Davis	20	B
107	Michael Lee	20	C
108	Olivia Moore	19	B
109	William Turner	21	A

between key is used here

select * from students where age between 18 and 20

```
1 •  select * from students where age between 18 and 20
2
3
```

Result Grid | Filter Rows: | Export: | Wrap Cell Content

ID	name	age	FinalGrade
103	Bob Johnson	19	C
105	Charlie Davis	20	B
107	Michael Lee	20	C
108	Olivia Moore	19	B

select * from students where age between 18 and 25

```
1 •  select * from students where age between 18 and 25
2
3
```

Result Grid | Filter Rows: | Export: | Wrap Cell Con

ID	name	age	FinalGrade
102	Jane Smith	22	B
103	Bob Johnson	19	C
104	Alice Brown	21	A
105	Charlie Davis	20	B
106	Emma Wilson	23	A
107	Michael Lee	20	C
108	Olivia Moore	19	B
109	William Turner	21	A
110	Sophia Rodriguez	22	C

no student is less than 18

select * from students where age<18

```
1 •   select * from students where age<18
2
3
```

Result Grid | Filter Rows: | Export:

ID	name	age	FinalGrade

less than 21

select * from students where age<21

```
1 •  select * from students where age<21
2
3
```

Result Grid | Filter Rows: | Export:

ID	name	age	FinalGrade
103	Bob Johnson	19	C
105	Charlie Davis	20	B
107	Michael Lee	20	C
108	Olivia Moore	19	B

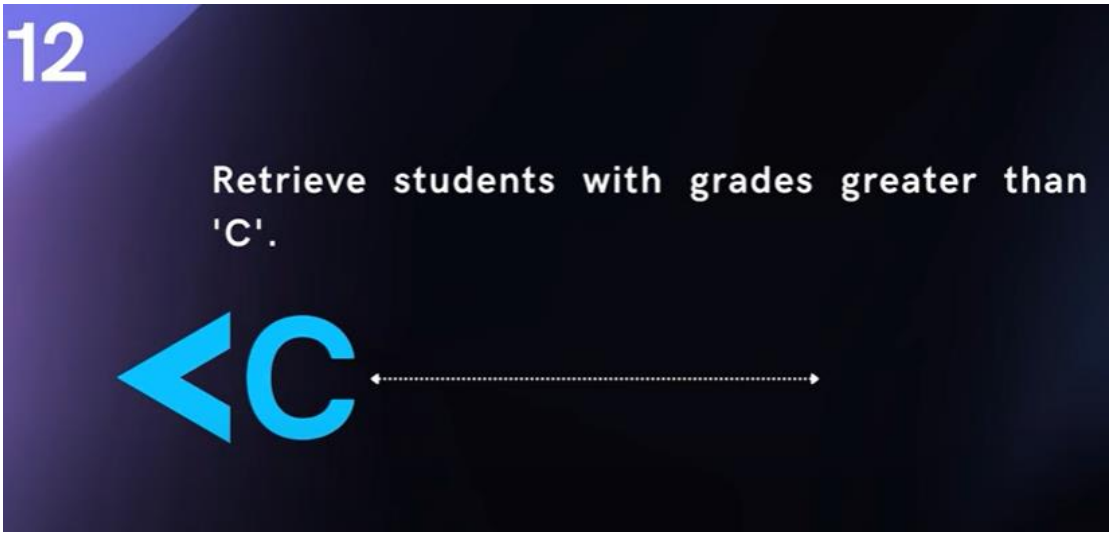
less than 20

select * from students where age<20

```
1 •  select * from students where age<20
2
3
```

Result Grid | Filter Rows: | Export

ID	name	age	FinalGrade
103	Bob Johnson	19	C
108	Olivia Moore	19	B



no student is greater than C

select * from students where FinalGrade>"C"

```
1 •  select * from students where FinalGrade>"C"
2
3
```

Result Grid | Filter Rows: | Export: | Wrap

ID	name	age	FinalGrade

select * from students where FinalGrade>"B"

```
1 •  select * from students where FinalGrade>"B"
2
3
```

Result Grid | Filter Rows: | Export: | Wrap Ce

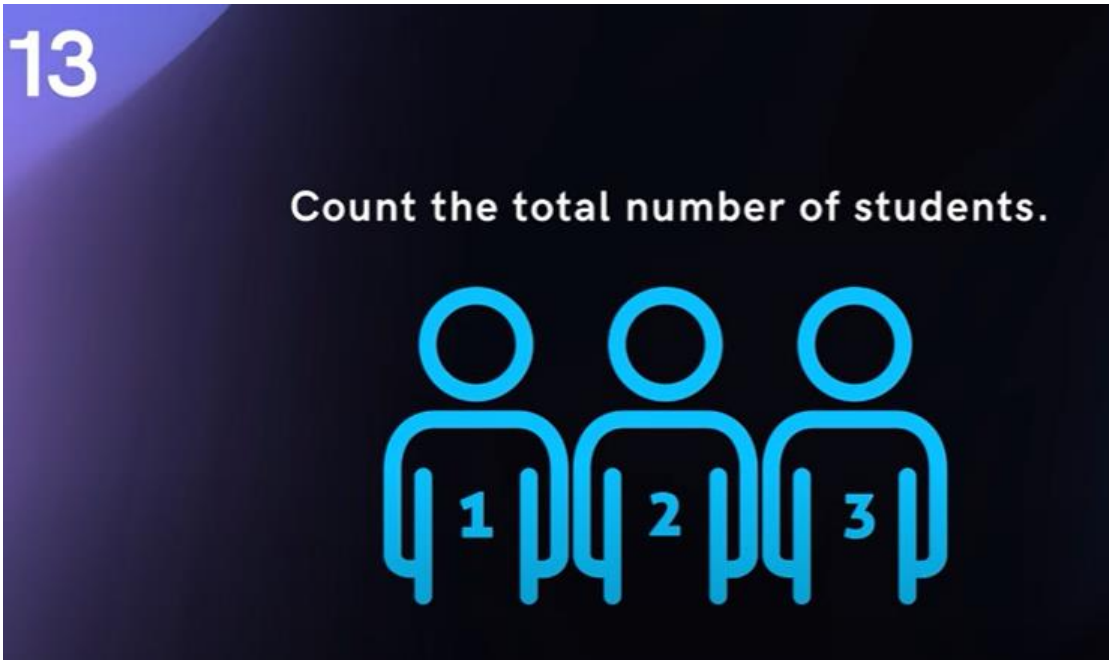
ID	name	age	FinalGrade
103	Bob Johnson	19	C
107	Michael Lee	20	C
110	Sophia Rodriguez	22	C

select * from students where FinalGrade>"A"

```
1 •  select * from students where FinalGrade>"A"
2
3
```

Result Grid | Filter Rows: | Export: | Wrap Cell

ID	name	age	FinalGrade
102	Jane Smith	22	B
103	Bob Johnson	19	C
105	Charlie Davis	20	B
107	Michael Lee	20	C
108	Olivia Moore	19	B
110	Sophia Rodriguez	22	C



select count(ID) from students

```
1 •   select count(ID) from students
2
3
```

Result Grid | Filter Rows:

count(ID)
10

select count(name) from students

```
1 •  select count(name) from students
2
3
```

Result Grid | Filter Rows: | Ex

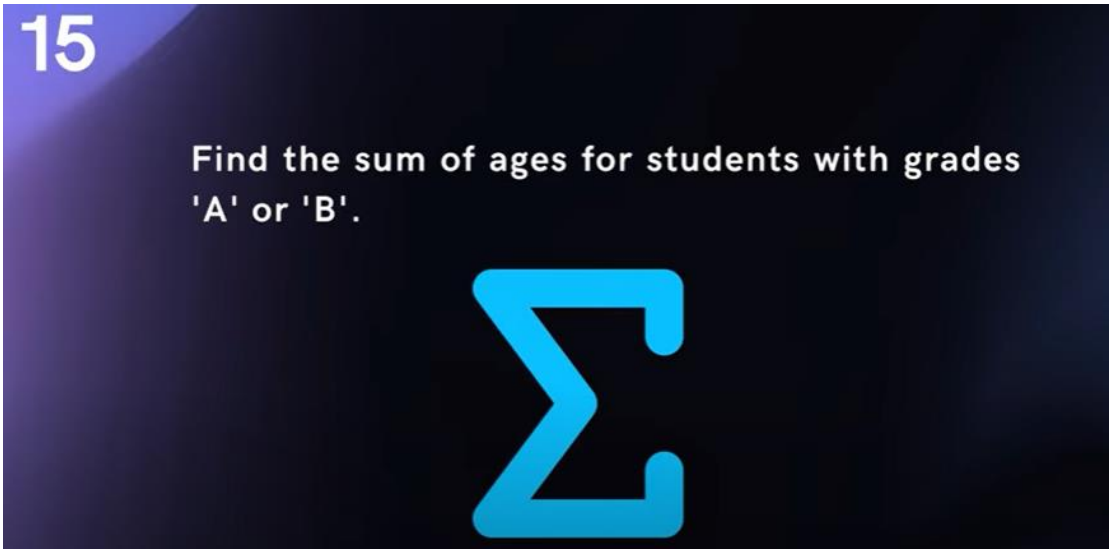
	count(name)
▶	10

select avg(age) as average_age from students

```
1 •  select avg(age) as average_age from students
2
3
```

Result Grid | Filter Rows: | Export: | Wrap

	average_age
▶	20.7000



select sum(age) from students where FinalGrade="A" or FinalGrade="B"

```
1 •   select sum(age) from students where FinalGrade="A" or FinalGrade="B"
2
3
```

Result Grid | Filter Rows: | Export: | Wrap Cell Content:

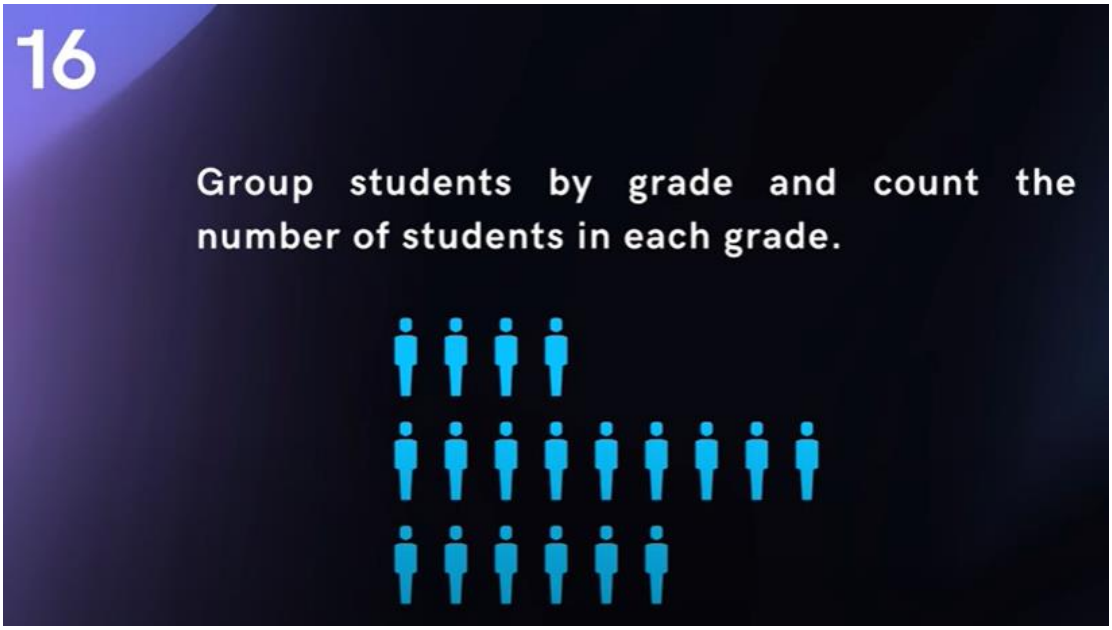
sum(age)
146

select sum(age) from students where FinalGrade in ("A","B")

```
1 •  select sum(age) from students where FinalGrade in ("A","B")
2
3
```

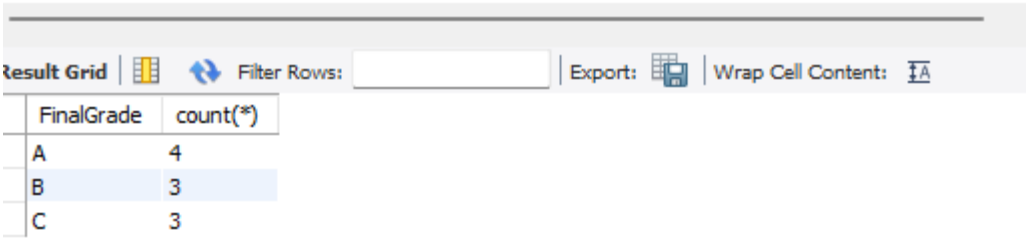
Result Grid | Filter Rows: | Export: | Wrap Cell Content:

	sum(age)
▶	146



select FinalGrade,count(*) from students group by FinalGrade

```
1 •  select FinalGrade,count(*) from students group by FinalGrade
```



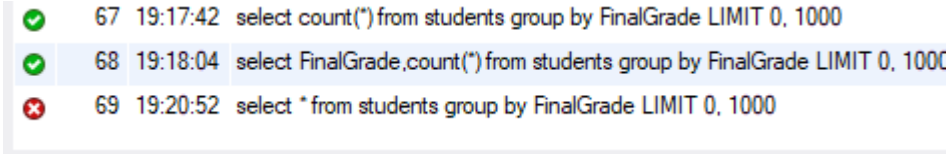
when we used aggregate function and group by it worked

bt when i want to find only group by it throws error

no output - error

select FinalGrade,count(*) from students group by FinalGrade

```
1 •  select * from students group by FinalGrade
```



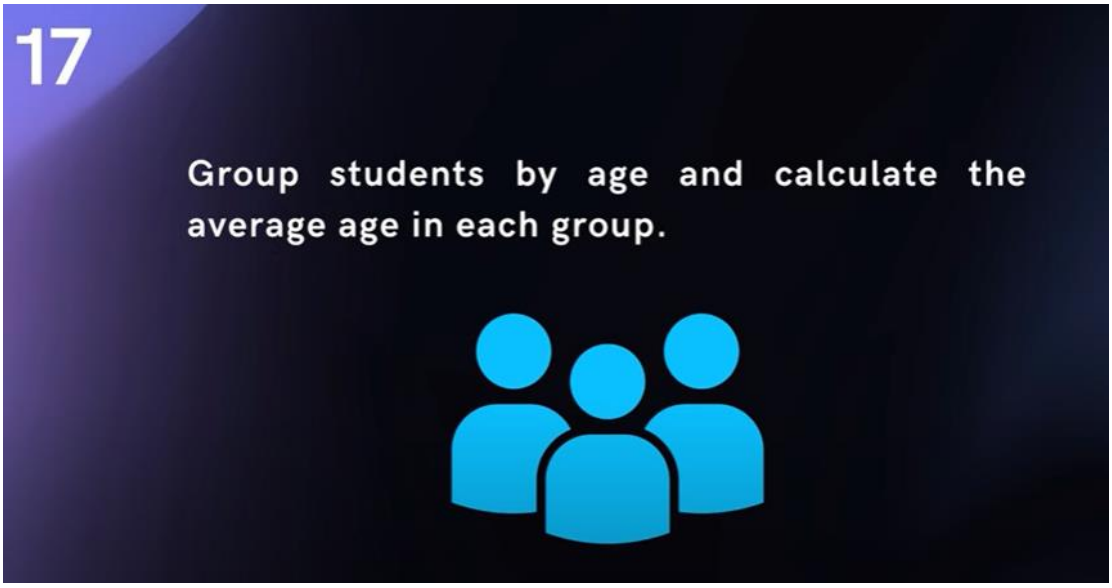
the error is -- u want to group by bt wat function u wanna perform on group by - use that aggregate function - so when we given aggregate function it worked

select FinalGrade,count(*) from students group by FinalGrade order by count(*) asc

```
1 •  select FinalGrade,count(*) from students group by FinalGrade order by count(*) asc
2
```

Result Grid | Filter Rows: | Export: | Wrap Cell Content:

FinalGrade	count(*)
B	3
C	3
A	4

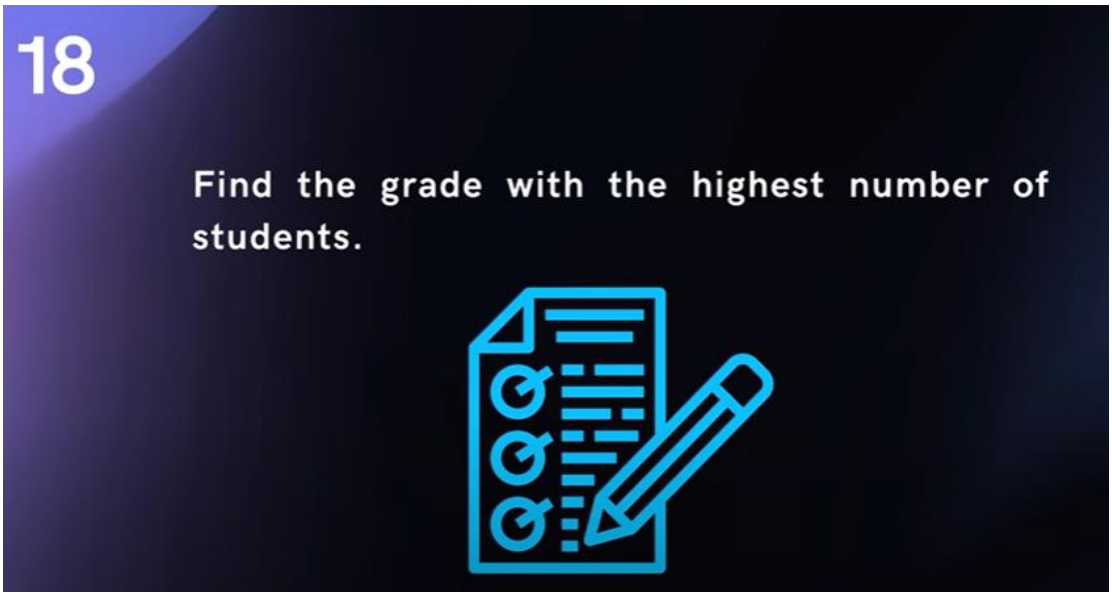


select FinalGrade,avg(age) from students group by FinalGrade order by avg(age) asc

```
1 •  select FinalGrade,avg(age) from students group by FinalGrade order by avg(age) asc
2
```

Result Grid | Filter Rows: | Export: | Wrap Cell Content:

FinalGrade	avg(age)
B	20.3333
C	20.3333
A	21.2500




```
1 •  select FinalGrade,count(*) from students group by FinalGrade order by count(*) desc
2
```

Result Grid | Filter Rows: | Export: | Wrap Cell Content:

FinalGrade	count(*)
A	4
B	3
C	3

highest

select FinalGrade,count(*) from students group by FinalGrade order by count(*) desc

limit 1

```
1  select FinalGrade,count(*) from students group by FinalGrade order by count(*) desc
2  limit 1
```

Result Grid | Filter Rows: | Export: | Wrap Cell Content: | Fetch rows:

FinalGrade	count(*)
A	4

```
1 •  select FinalGrade,avg(age) from students group by FinalGrade
```

Result Grid | Filter Rows: | Export: | Wrap Cell Content:

FinalGrade	avg(age)
A	21.2500
B	20.3333
C	20.3333

select FinalGrade,avg(age) from students group by FinalGrade having avg(age)>22

```
1 •  select FinalGrade,avg(age) from students group by FinalGrade having avg(age)>22
```

Result Grid | Filter Rows: | Export: | Wrap Cell Content:

FinalGrade	avg(age)

select FinalGrade,avg(age) from students group by FinalGrade having avg(age)>21

```
1 •  select FinalGrade,avg(age) from students group by FinalGrade having avg(age)>21
```

Result Grid | Filter Rows: | Export: | Wrap Cell Content:

FinalGrade	avg(age)
A	21.2500

select FinalGrade,avg(age) from students group by FinalGrade having avg(age)>20.5

```
1 •  select FinalGrade,avg(age) from students group by FinalGrade having avg(age)>20.5
```

Result Grid | Filter Rows: | Export: | Wrap Cell Content:

FinalGrade	avg(age)
A	21.2500

select FinalGrade,avg(age) from students group by FinalGrade having avg(age)>20

```
1 •  select FinalGrade,avg(age) from students group by FinalGrade having avg(age)>20
```

Result Grid | Filter Rows: | Export: | Wrap Cell Content:

FinalGrade	avg(age)
A	21.2500
B	20.3333
C	20.3333

select FinalGrade,count(*) from students group by FinalGrade having count(*)<3

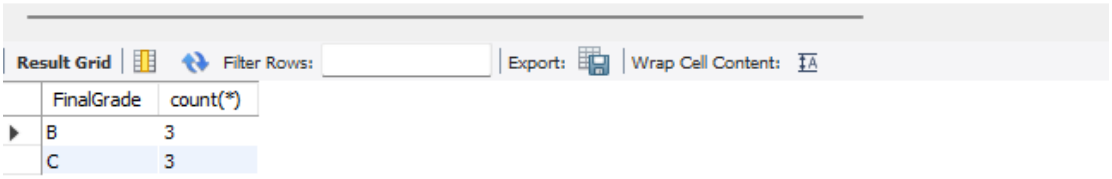
```
1 •  select FinalGrade,count(*) from students group by FinalGrade having count(*)<3
```

Result Grid | Filter Rows: | Export: | Wrap Cell Content:

FinalGrade	count(*)

select FinalGrade,count(*) from students group by FinalGrade having count(*)<4

```
1 •  select FinalGrade,count(*) from students group by FinalGrade having count(*)<4
```



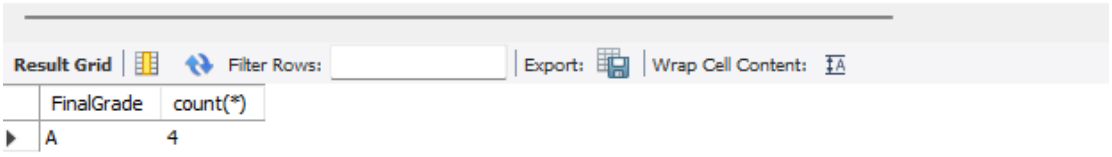
Result Grid | Filter Rows: | Export: | Wrap Cell Content:

FinalGrade	count(*)
B	3
C	3

greater than 3

select FinalGrade,count(*) from students group by FinalGrade having count(*)>3

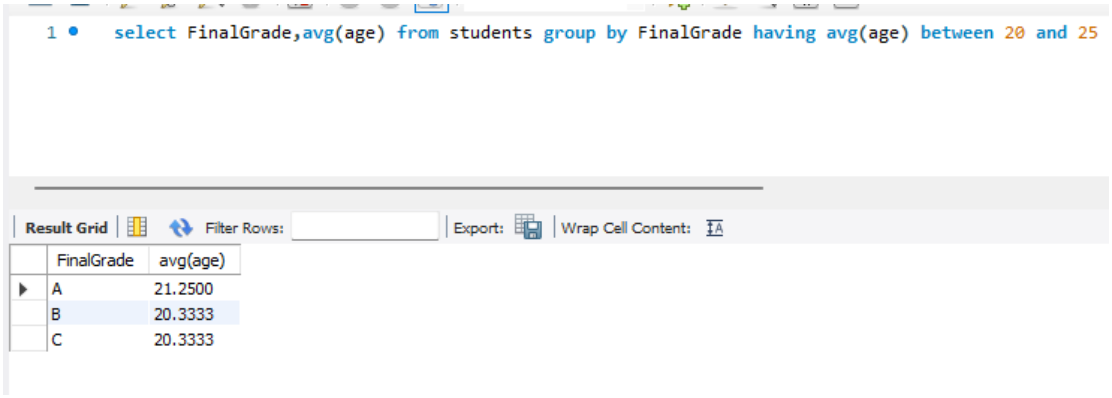
```
1 •  select FinalGrade,count(*) from students group by FinalGrade having count(*)>3
```



Result Grid | Filter Rows: | Export: | Wrap Cell Content:

FinalGrade	count(*)
A	4

select FinalGrade,avg(age) from students group by FinalGrade having avg(age) between 20 and 25



select FinalGrade,avg(age) from students group by FinalGrade having avg(age) between 20 and 21

```
1 •  select FinalGrade,avg(age) from students group by FinalGrade having avg(age) between 20 and 21
```

Result Grid | Filter Rows: | Export: | Wrap Cell Content:

FinalGrade	avg(age)
B	20.3333
C	20.3333

select * from students order by age asc

```
1 •  select * from students order by age asc
```

Result Grid | Filter Rows: | Export: | Wrap Cell Content:

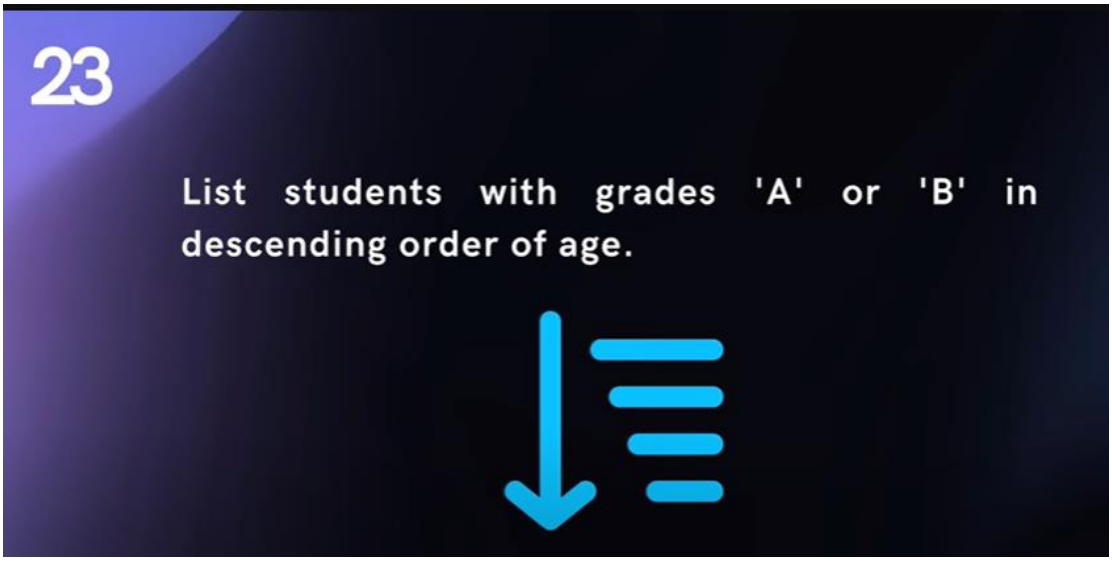
ID	name	age	FinalGrade
103	Bob Johnson	19	C
108	Olivia Moore	19	B
101	John Doe	20	A
105	Charlie Davis	20	B
107	Michael Lee	20	C
104	Alice Brown	21	A
109	William Turner	21	A
102	Jane Smith	22	B
110	Sophia Rodriguez	22	C
106	Emma Wilson	23	A

select name,age from students order by age asc

```
1 •  select name,age from students order by age asc
```

Result Grid | Filter Rows: | Export: | Wrap Cell Cont

name	age
Bob Johnson	19
Olivia Moore	19
John Doe	20
Charlie Davis	20
Michael Lee	20
Alice Brown	21
William Turner	21
Jane Smith	22
Sophia Rodriguez	22
Emma Wilson	23

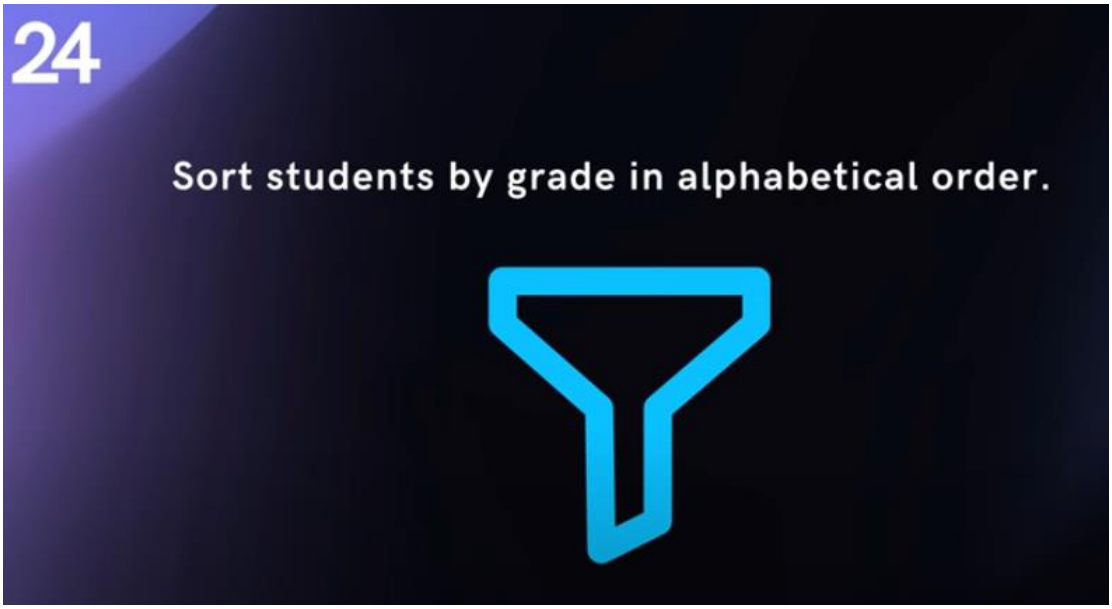


select name,age,FinalGrade from students where FinalGrade="A" or FinalGrade="B" order by age desc

```
1 •  select name,age,FinalGrade from students where FinalGrade="A" or FinalGrade="B" order by age desc
```

Result Grid | Filter Rows: | Export: | Wrap Cell Content:

name	age	FinalGrade
Emma Wilson	23	A
Jane Smith	22	B
Alice Brown	21	A
William Turner	21	A
John Doe	20	A
Charlie Davis	20	B
Olivia Moore	19	B



here i have used name to order by - so name will be in alphabetical order

select name,FinalGrade from students order by name asc

```
1 •   select name,FinalGrade from students order by name asc
```

Result Grid | Filter Rows: | Export: | Wrap Cell Content:

name	FinalGrade
Alice Brown	A
Bob Johnson	C
Charlie Davis	B
Emma Wilson	A
Jane Smith	B
John Doe	A
Michael Lee	C
Olivia Moore	B
Sophia Rodriguez	C
William Turner	A

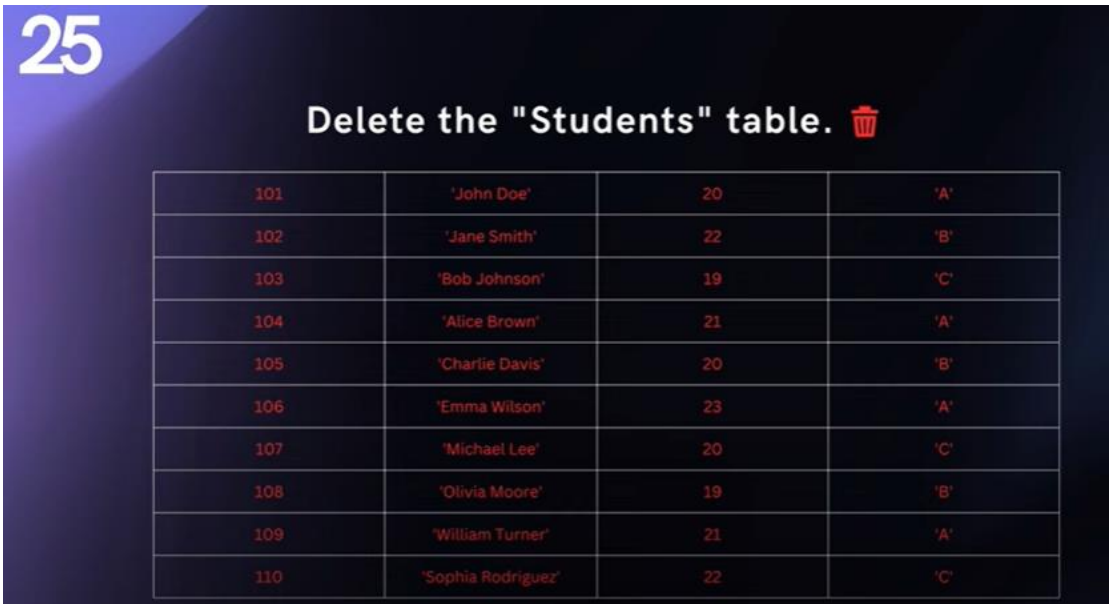
bt qn. is to sort by finalgrade in alphabetical order

select * from students order by FinalGrade asc

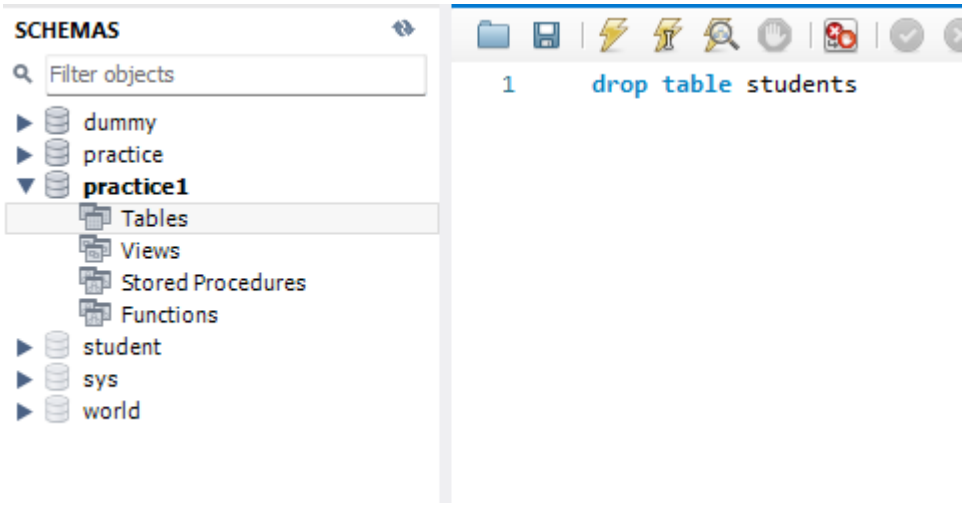
```
1 •  select * from students order by FinalGrade asc
```

Result Grid | Filter Rows: | Export: | Wrap Cell Co

ID	name	age	FinalGrade
101	John Doe	20	A
104	Alice Brown	21	A
106	Emma Wilson	23	A
109	William Turner	21	A
102	Jane Smith	22	B
105	Charlie Davis	20	B
108	Olivia Moore	19	B
103	Bob Johnson	19	C
107	Michael Lee	20	C
110	Sophia Rodriguez	22	C



drop table students



entire table deleted

****

PRIMARY KEY

we have created 2 table and inserted values

✓	2	12:35:03	use dummy
✓	3	12:35:03	create table books(b_ID int, title varchar(50))
✓	4	12:35:03	create table author(a_ID int, name varchar(50))
✓	5	12:35:19	select * from books LIMIT 0, 1000
✓	6	12:35:41	select * from author LIMIT 0, 1000
✓	7	12:38:09	insert into books (b_ID,title) values (1,"bookone"), (2,"booktwo"), (3,"bookthree")
✓	8	12:38:09	insert into author (a_ID,name) values (1,"sangee"), (2,"sindhu"), (3,"saras")
✓	9	12:38:23	select * from books LIMIT 0, 1000
✓	10	12:38:31	select * from author LIMIT 0, 1000

```
3 •  select * from books
4
5
```

Result Grid | Filter Rows:

b_ID	title
1	bookone
2	booktwo
3	bookthree

now i am adding extra 1 data by giving b_ID as 3 which already exists

here we got same 3 as b_Id

```
3 •  select * from books;
4
5 •  insert into books values(3,"bookfour")
```

Result Grid | Filter Rows: | Export:

b_ID	title
1	bookone
2	booktwo
3	bookthree
3	bookfour

bt for ID we need unique values , it should not get repeated

then we use primary key

now we can delete id=3 - both will be deleted

```
1 •  delete from books where b_id=3
```

Result Grid | Filter Rows: | Exp

b_ID	title
1	bookone
2	booktwo

now we can add primary key

primary key - set of rules

eg: oru column la oru ID once tha irukanum , duplicate data ethum iruka kudathunu rules set pandrom

book ID la tha duplicate id iruka kudathu so rule b_id ku poduvom by using primary key

constraint - means rules in database - what to do, wat not to do

we hv to give name to constraint - anything

we have to decide primary key rule entha column ku podanumnu - there we have to use primary key

alter table books add constraint pk_bid primary key(b_ID);

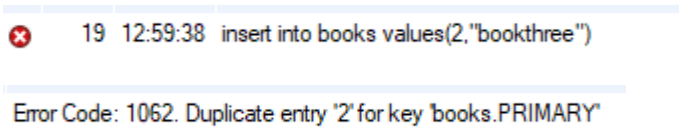
```
1 •   alter table books add constraint pk_bid primary key(b_ID)
2
```

Result Grid | Filter Rows: | Edit: | Export/Import:

b_ID	title
1	bookone
2	booktwo
NULL	NULL

now we will try to insert values by using existing b_ID

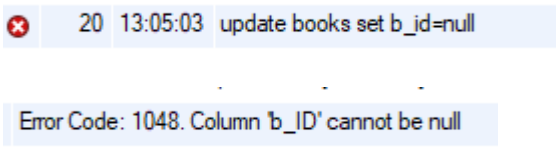
```
insert into books values(2,"bookthree")
```



when we used primary key rule - and inserted 2 which is already existing it gives error = duplicate entry

..... now we can update b_id column with null values

update books set b_id=null



if we added primary key, then after we cant add null values to that column

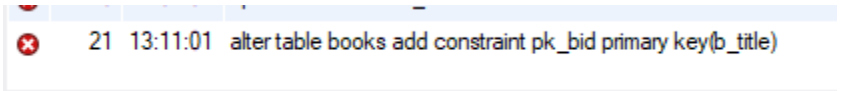
primary key - no duplicates, no null values

for one table only one primary key can be used

here already we have given primary key for b_Id for books table

when we try to give for same table-for other column title- error

alter table books add constraint pk_bid primary key(b_title);



Error Code: 1068. Multiple primary key defined

here we 1st created table and then altered by adding constraint as primary key to avoid duplicate

****

we can also use primary key while creating table itself - better

```
create table books1(
id int primary key,
title varchar(30))
```

✔	22	13:17:21	create table books1(id int primary key, title varchar(30))	0 row(s) affected

```
insert into books1 (id, title)
values
(1,"abc"),
(2,"def"),
(1,"ghi")
```

✖	23	13:19:39	insert into books1 (id, title) values (1,"abc"), (2,"def"), (2,"ghi")
✖	24	13:19:53	insert into books1 (id, title) values (1,"abc"), (2,"def"), (1,"ghi")

Error Code: 1062. Duplicate entry '2' for key 'books1.PRIMARY'

Error Code: 1062. Duplicate entry '1' for key 'books1.PRIMARY'

while creating itself if we use primary key by default it wont accept duplicate values-- if we missed while creating then we can alter it by adding constraints rules

****

TASK

use primary key for authour table - ID

select * from author;

alter table author add constraint author_ID primary key(a_ID);

insert into author values(3,"anbu");

insert into author values(4,"anbu")

```
select * from author;

alter table author add constraint author_ID primary key(a_ID);

insert into author values(3,"anbu");
insert into author values(4,"anbu")
```

✓	26	13:24:39	select * from author LIMIT 0, 1000	3 row(s) returned
✓	27	13:28:45	alter table author add constraint author_ID primary key(a_ID)	0 row(s) affected Records: 0 Duplicates: 0 Warnings: 0
✗	28	13:29:17	insert into author values(3,"anbu")	Error Code: 1062. Duplicate entry '3' for key 'author.PRIMARY'
✓	29	13:29:30	insert into author values(4,"anbu")	1 row(s) affected

**********Error makes Clever SQL tutorial completed