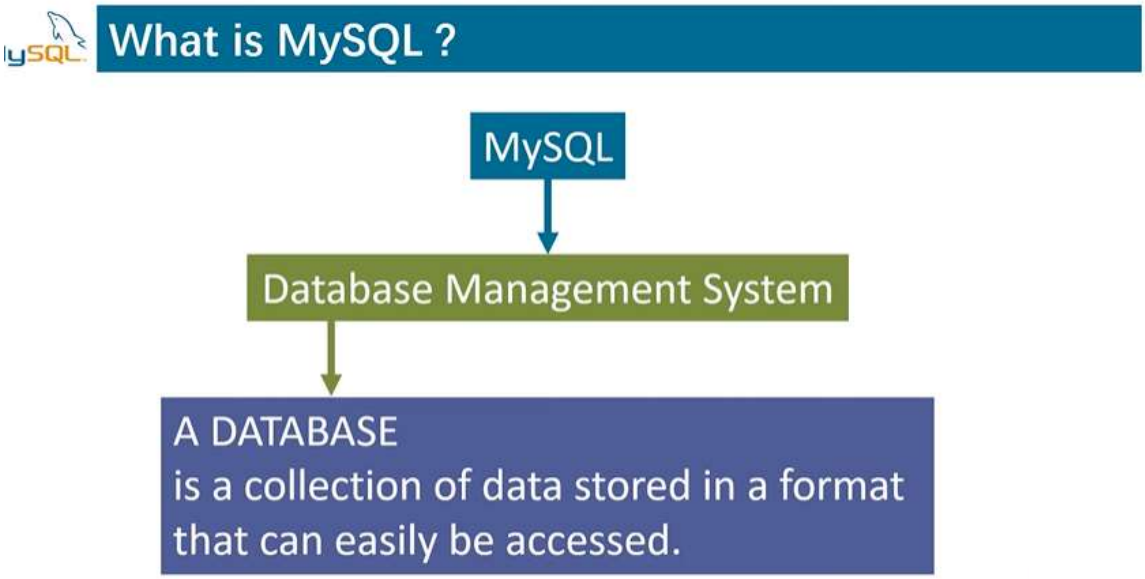
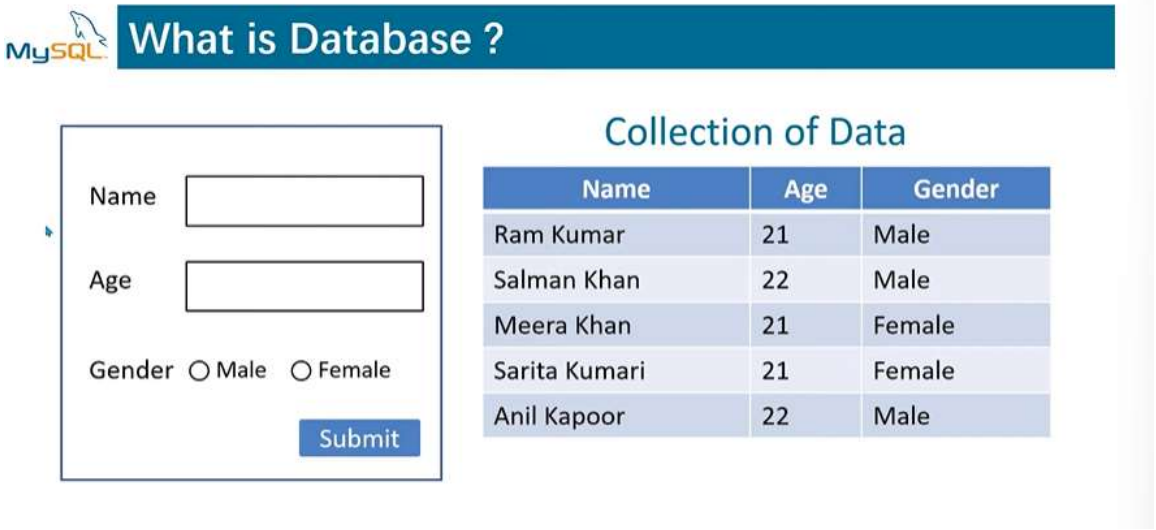
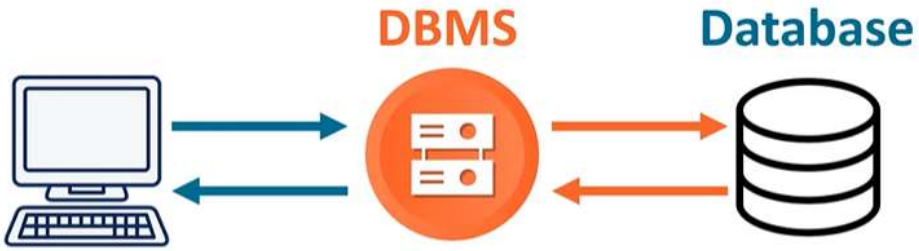
1. MySQL Introduction





How DBMS Works ?



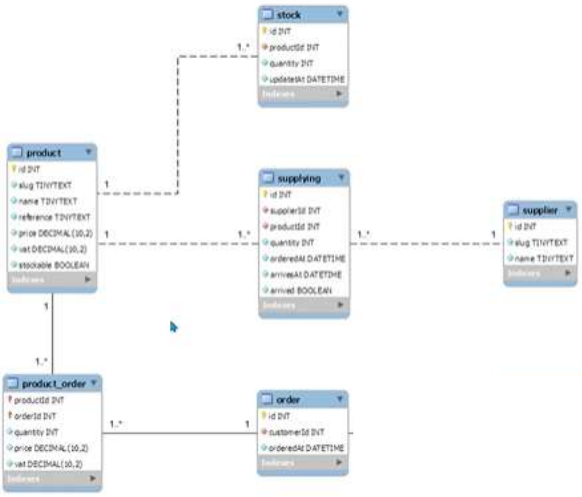
- Oracle
- MySQL
- MS SQL Server
- PostgreSQL
- MongoDB

Two type of Database :

Relational

- Relational Database (RDBMS)
- RDBMS use SQL

Structured Query Language



Relational Database Management System

- Oracle
- MySQL
- MS SQL Server
- PostgreSQL

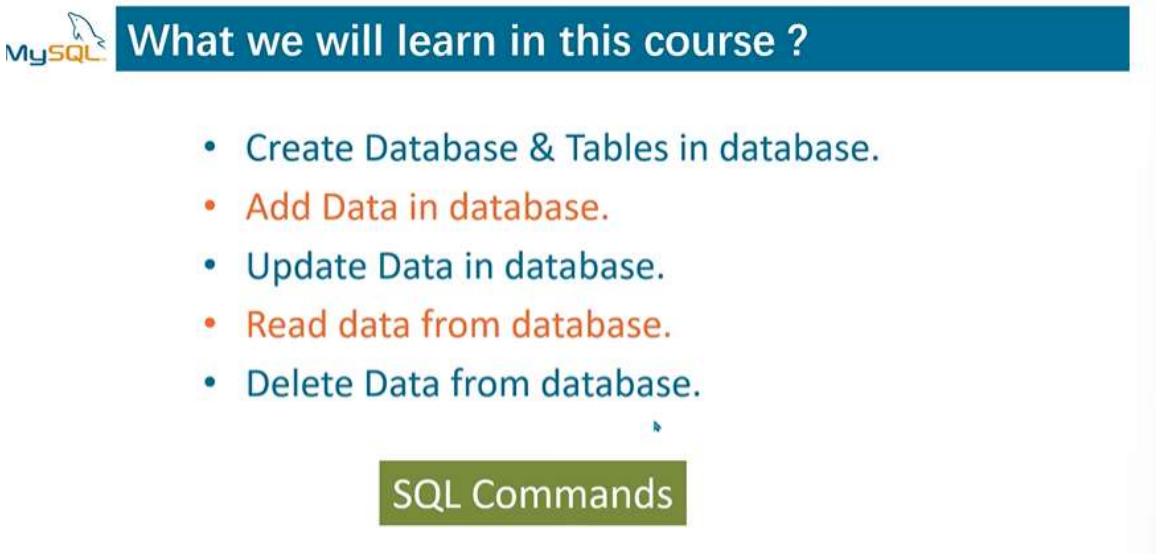
Two type of Database :

NoSQL

- NoSQL is not a Table-based Database.
- NoSQL databases are document based.
- MongoDB, Redis, Cassandra etc.

Advantage of MySQL :

- Cross Platform
- Used with multiple languages (PHP, NodeJS, Python, C#).
- MySQL software is Open Source.
- MySQL is RDBMS.
- The MySQL Database Server is fast, reliable, scalable, and easy to use.
- MySQL Server works in client/server or embedded systems.



2. MySQL Installation

MySQL Installation Method 1 :

Students of PHP Course

- Install XAMPP, WAMP, MAMP
- MySQL Workbench

MySQL Installation Method 2 :

- MySQL Community Server
- MySQL Workbench

3. MySQL Create Table

How to create SQL Table ?

Name	Age	Gender
Ram Kumar	21	Male
Salman Khan	22	Male
Meera Khan	21	Female
Sarita Kumari	21	Female
Anil Kapoor	22	Male

How to create SQL Table ?

Name = String

Age = Numeric

Gender = String

Column Names Column Datatypes

Name	Age	Gender
Ram Kumar	21	Male
Salman Khan	22	Male
Meera Khan	21	Female
Sarita Kumari	21	Female
Anil Kapoor	22	Male

Table Name

Create Table Syntax

```
CREATE TABLE table_name (
   column1 datatype,
   column2 datatype,
   column3 datatype,
  ....
);
```

Datatypes in MySQL

3 Type of Category in Datatypes :

1. String
2. Numeric
3. Date and Time

String Datatypes in MySQL

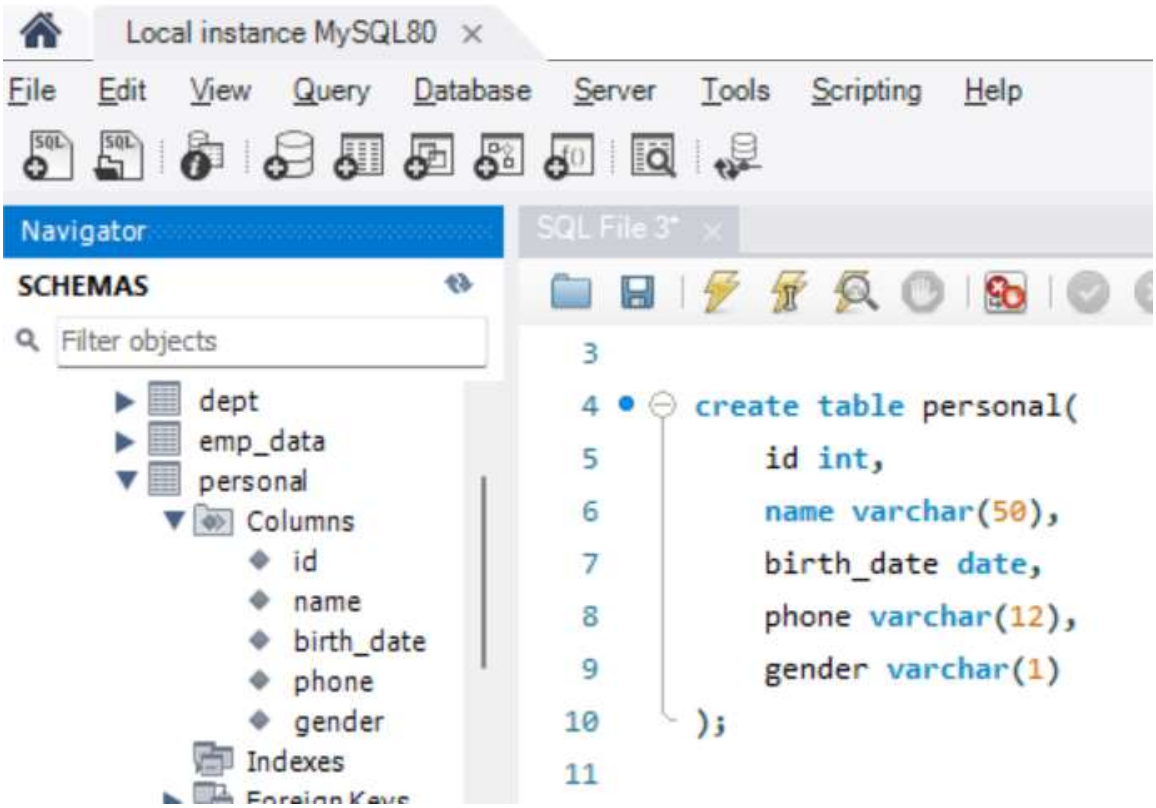
1. CHAR(size) 0 to 255
2. VARCHAR(size) 0 to 65535
3. BINARY(size)
4. VARBINARY(size)
5. TINYTEXT 255 characters
6. TEXT(size) 65,535 bytes
7. MEDIUMTEXT 16,777,215 characters
8. LONGTEXT 4,294,967,295 characters
9. TINYBLOB 255 bytes
10. BLOB(size) 65,535 bytes
11. MEDIUMBLOB 16,777,215 bytes
12. LONGBLOB 4,294,967,295 bytes
13. ENUM(val1, val2, val3, ...) list up to 65535 values
14. SET(val1, val2, val3, ...) list up to 64 values

Numeric Datatypes in MySQL

1. BIT(size) 1 to 64
2. TINYINT(size) -128 to 127
3. INT(size) -2147483648 to 2147483647
4. INTEGER(size)
5. SMALLINT(size) -32768 to 32767
6. MEDIUMINT(size) -8388608 to 8388607
7. BIGINT(size) -9223372036854775808 to 9223372036854775807
8. BOOL
9. BOOLEAN 0 / 1
10. FLOAT(p)
11. DOUBLE(size, d) 255.568
12. DECIMAL(size, d) Size = 60 , d = 30
13. DEC(size, d)

Date & Time Datatypes in MySQL

1. DATE '1000-01-01' to '9999-12-31'
2. DATETIME(fsp) YYYY-MM-DD hh:mm:ss
3. TIMESTAMP(fsp)
4. TIME(fsp) hh:mm:ss
5. YEAR four-digit format : 1901

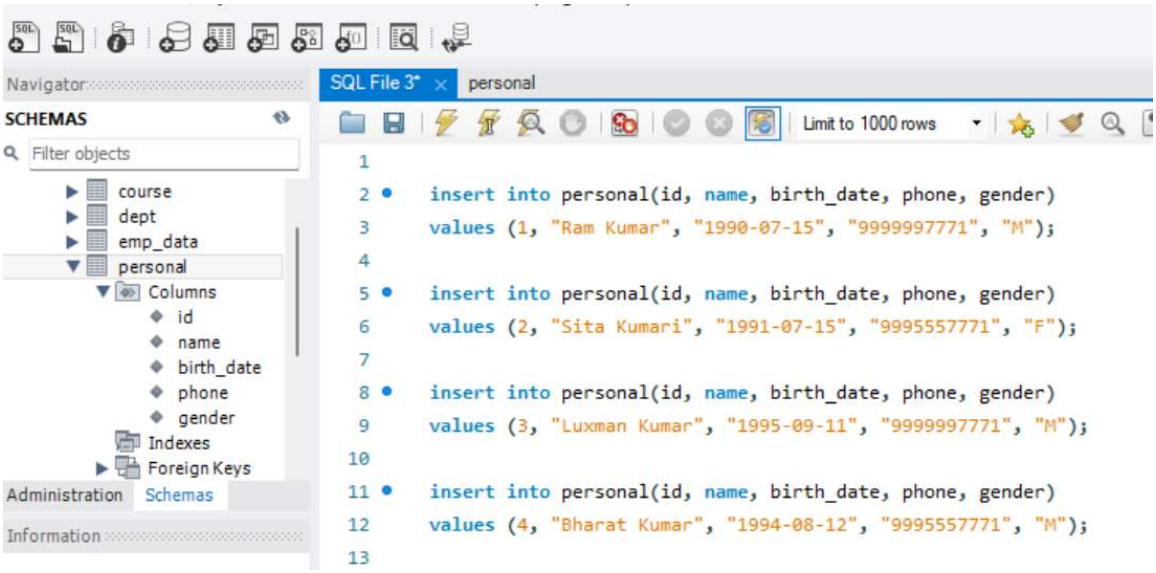


4. MySQL Insert

How to Insert data in Tables with SQL ?

Name	Age	Gender
Ram Kumar	21	Male
Salman Khan	22	Male
Meera Khan	21	Female
Sarita Kumari	21	Female
Anil Kapoor	22	Male

```
INSERT INTO table_name ( column1, column2, ....)
VALUES ( value1, value2,....);
```



5. MySQL INSERT Multiple Rows

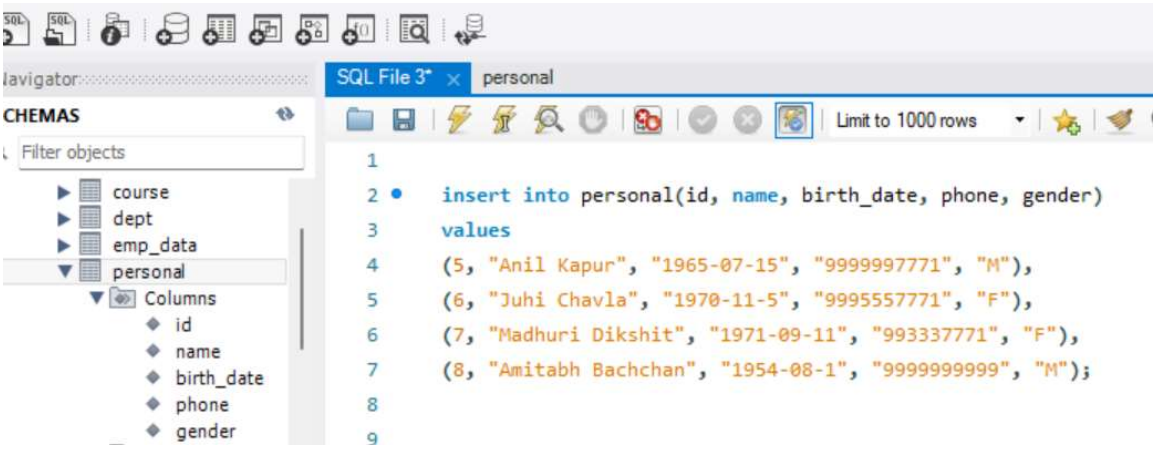
Insert Data in Tables with SQL :

Name	Age	Gender
Ram Kumar	21	Male
Salman Khan	22	Male
Meera Khan	21	Female
Sarita Kumari	21	Female
Anil Kapoor	22	Male

```
INSERT INTO table_name ( column1, column2, ....)
VALUES ( value1, value2,....);
```

Insert Multiple Rows Syntax :

```
INSERT INTO table_name ( column1, column2, ....)
VALUES
( value1, value2,....),
( value1, value2,....),
( value1, value2,....);
```



6. MySQL Constraints

Constraints meance restrictions

List of Constraints in MySQL

- NOT NULL
- UNIQUE
- DEFAULT
- CHECK
- FOREIGN KEY
- PRIMARY KEY

Data Table without Constraints

Id	Name	Age	Gender	Phone	City
1	Ram Kumar	17	Male	4022155	Agra
2	Salman Khan	19		4033244	Agra
3	Meera Khan	20	Female	4022155	Agra
	Sarita Kumari	18	Female	4066899	Agra
5	Anil Kapoor	19	Male	4188733	Agra

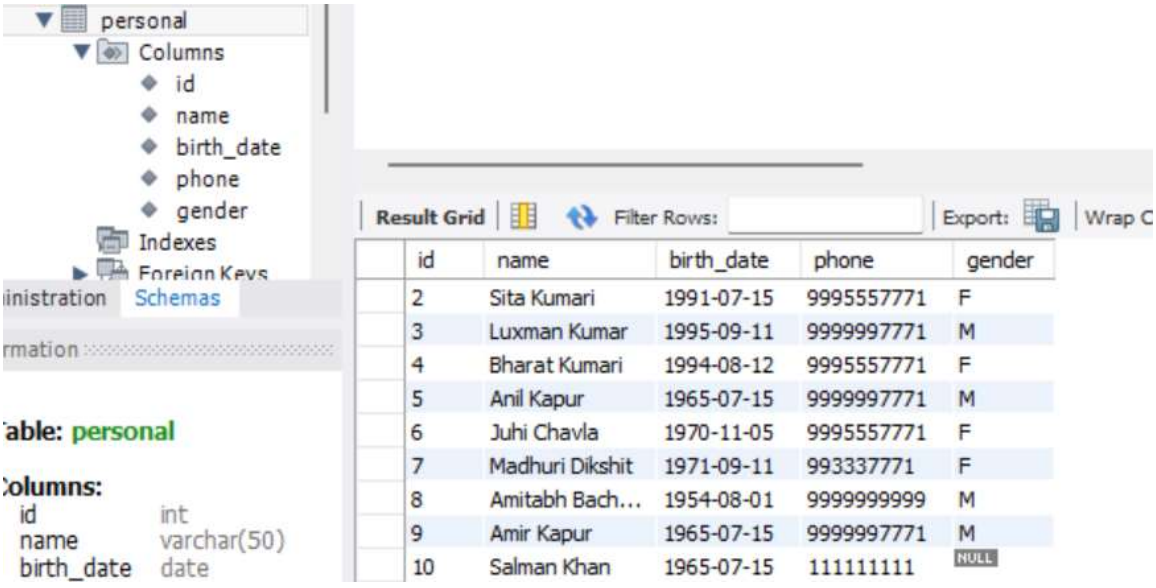
Data Table without Constraints

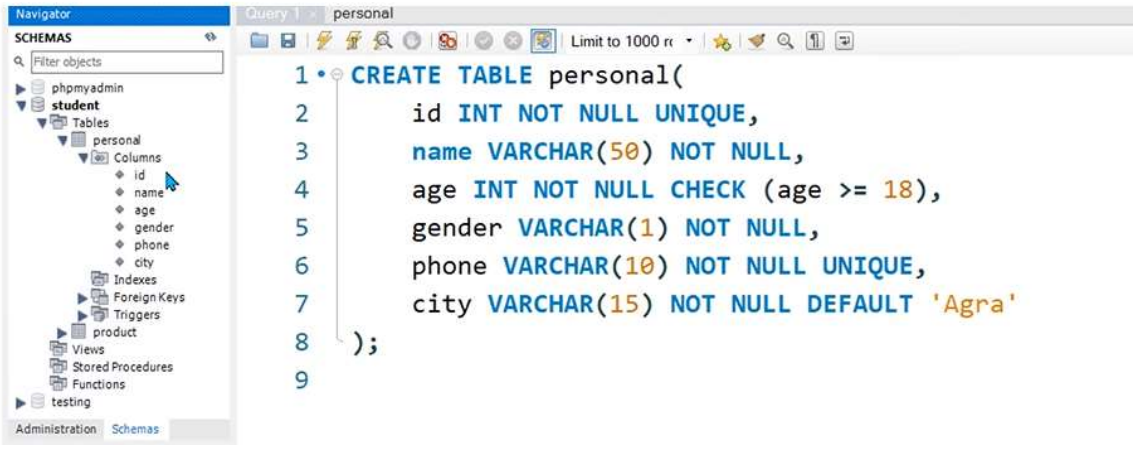
Id	Name	Age	Gender	Phone	City
1	Ram Kumar	17	Male	4022155	Agra
2	Salman Khan	19		4033244	Agra
3	Meera Khan	20	Female	4022155	Agra
	Sarita Kumari	18	Female	4066899	Agra
5	Anil Kapoor	19	Male	4188733	Agra

NOT NULL
UNIQUE
CHECK (age >= 18)
NOT NULL
UNIQUE
DEFAULT 'Agra'

Create Table Syntax

```
CREATE TABLE table_name (
    id INT NOT NULL UNIQUE,
    name VARCHAR(50) NOT NULL,
    age INT NOT NULL CHECK (age >= 18),
    gender VARCHAR(10) NOT NULL,
    phone VARCHAR(10) NOT NULL UNIQUE,
    city VARCHAR(10) NOT NULL DEFAULT 'Agra',
);
```





7. MySQL SELECT With WHERE Clause

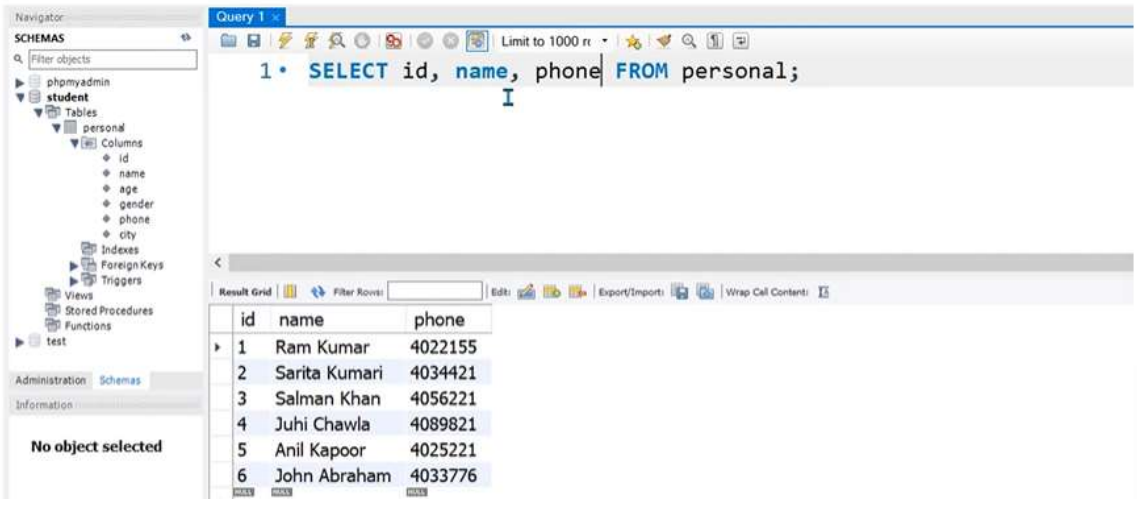
How to show data from Tables with SQL ?

Name	Age	Gender
Ram Kumar	19	Male
Salman Khan	22	Male
Meera Khan	21	Female
Sarita Kumari	18	Female
Anil Kapoor	22	Male

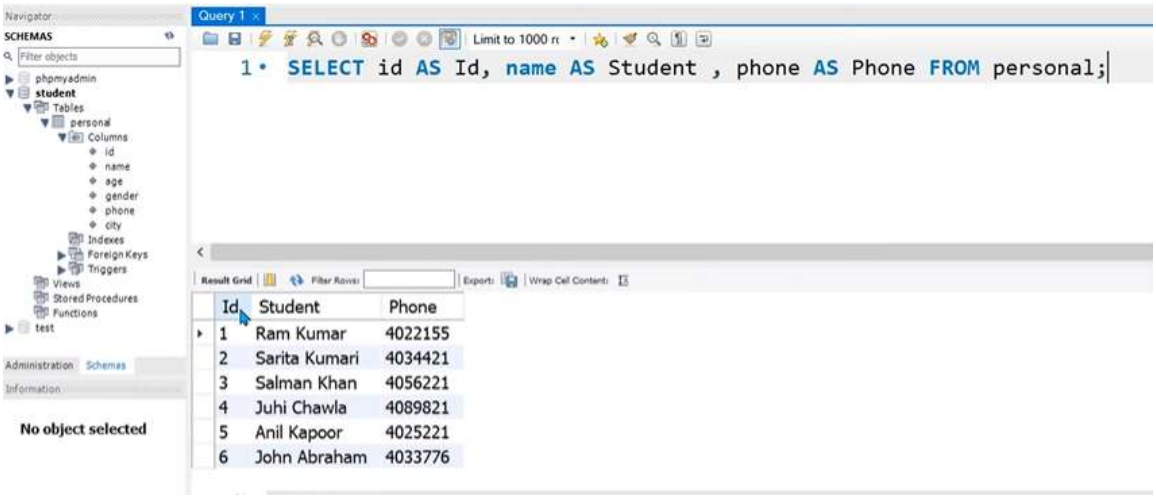
SELECT Command

SELECT Syntax

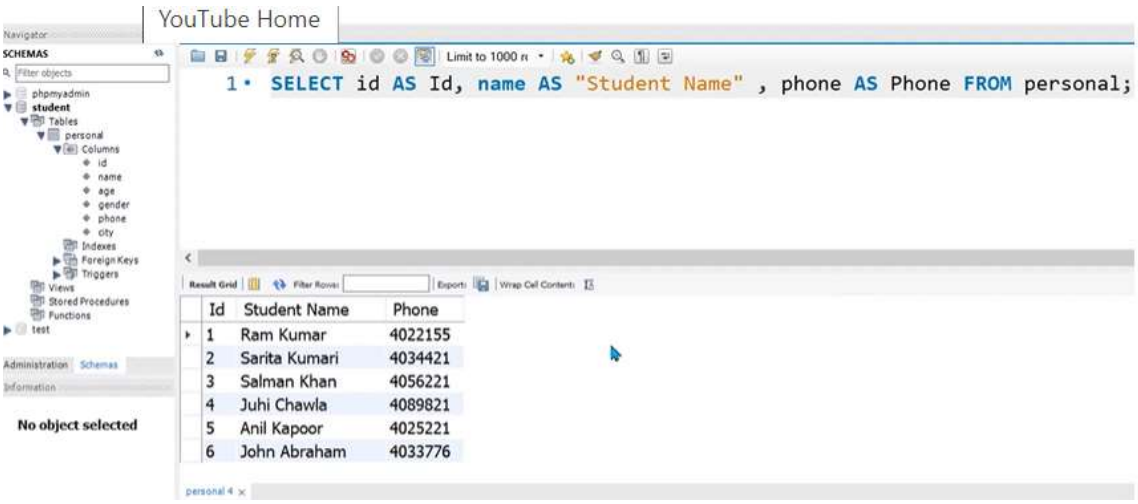
```
SELECT column1, column2, column3, ....
FROM table_name;

SELECT *
FROM table_name;
```



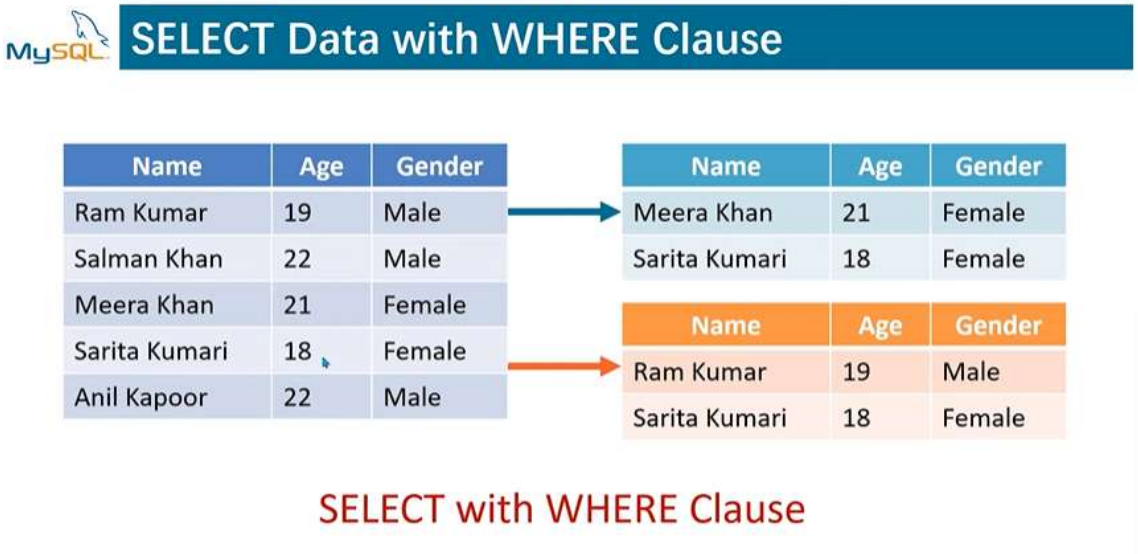
Using alis for column name



If column name is double that we need to use colon

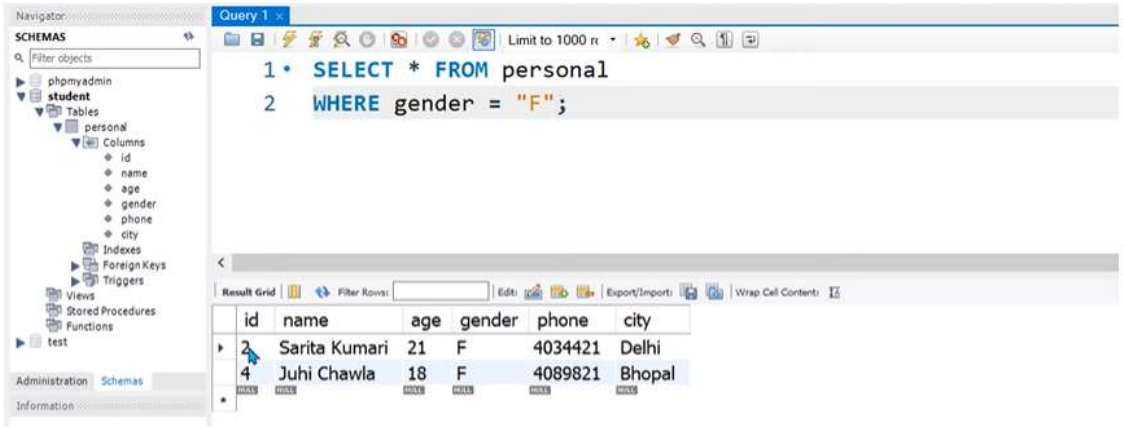


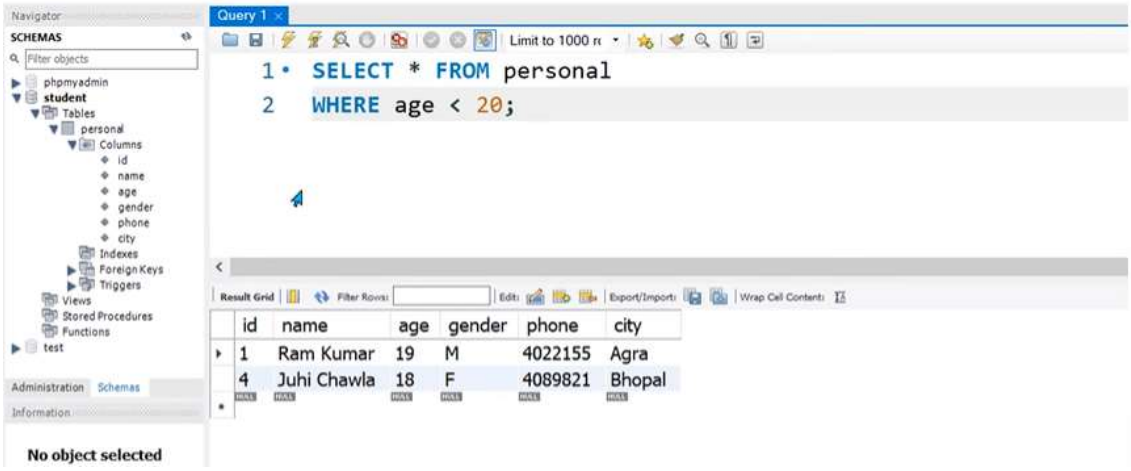
Conditional data checking

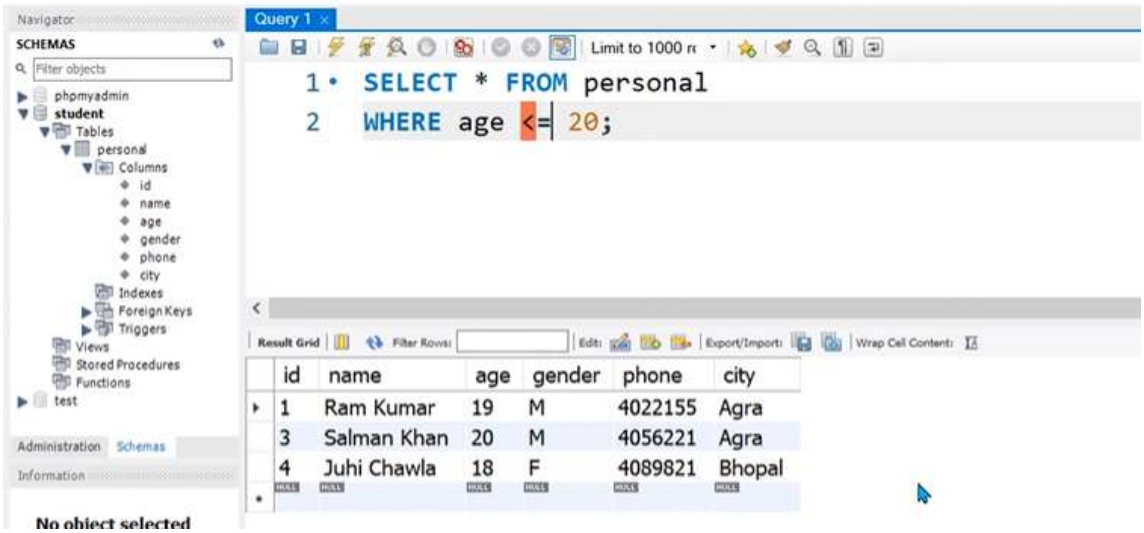


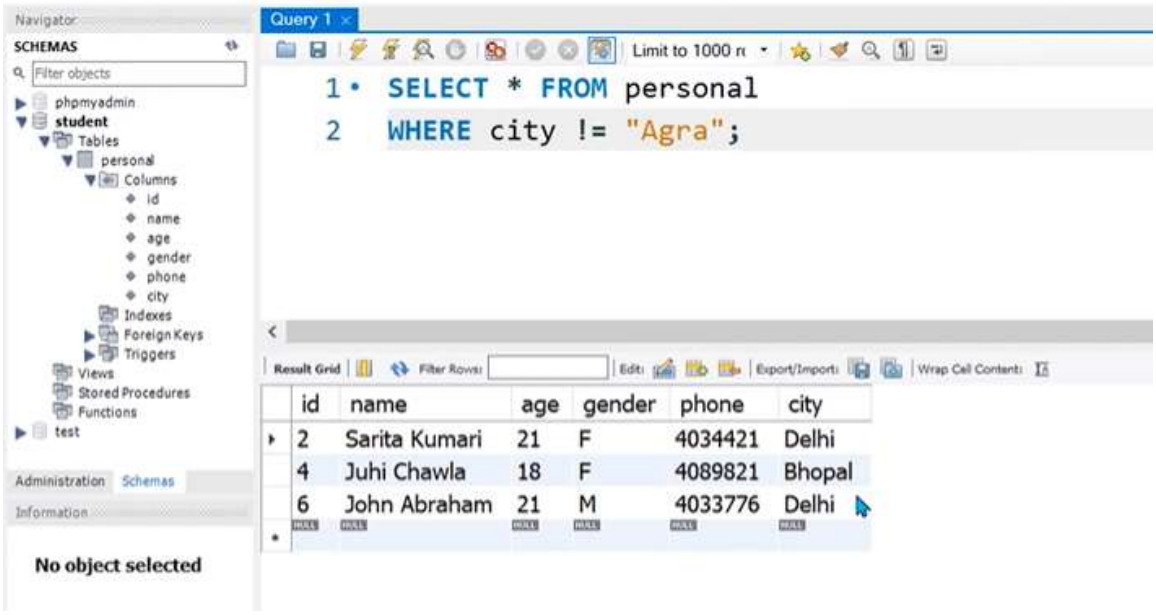
WHERE Comparison Operators

Operator	Description
=	Equal
>	Greater than
<	Less than
>=	Greater than or equal
<=	Less than or equal
<> Or !=	Not equal.
BETWEEN	Between a certain range
LIKE	Search for a pattern
IN	To specify multiple possible values for a column

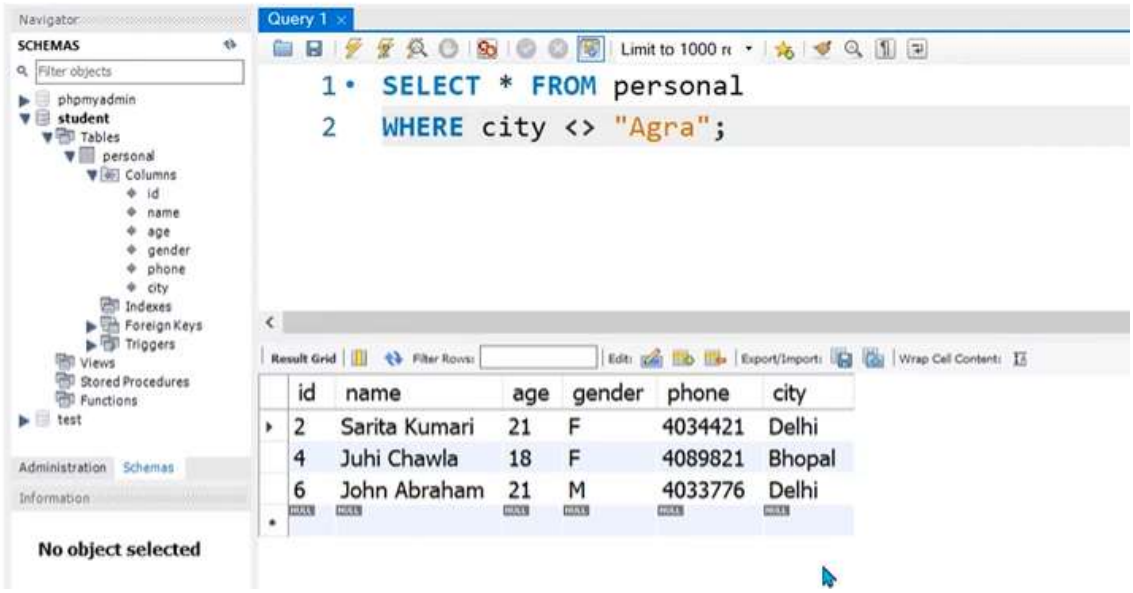








same with other sign



8. MySQL AND, OR, NOT Operators

SELECT Data with AND & OR Operators

WHERE Age >= 18 AND Age <= 21

Name	Age	Gender
Ram Kumar	19	Male
Salman Khan	22	Male
Meera Khan	21	Female
Sarita Kumari	18	Female
Anil Kapoor	22	Male

Name	Age	Gender
Ram Kumar	19	Male
Meera Khan	21	Female
Sarita Kumari	18	Female

SELECT Data with AND & OR Operators

WHERE Age >= 18 AND Age <= 21

Name	Age	Gender
Ram Kumar	19	Male
Salman Khan	22	Male
Meera Khan	21	Female
Sarita Kumari	18	Female
Anil Kapoor	22	Male

Name	Age	Gender
Ram Kumar	19	Male
Meera Khan	21	Female
Sarita Kumari	18	Female

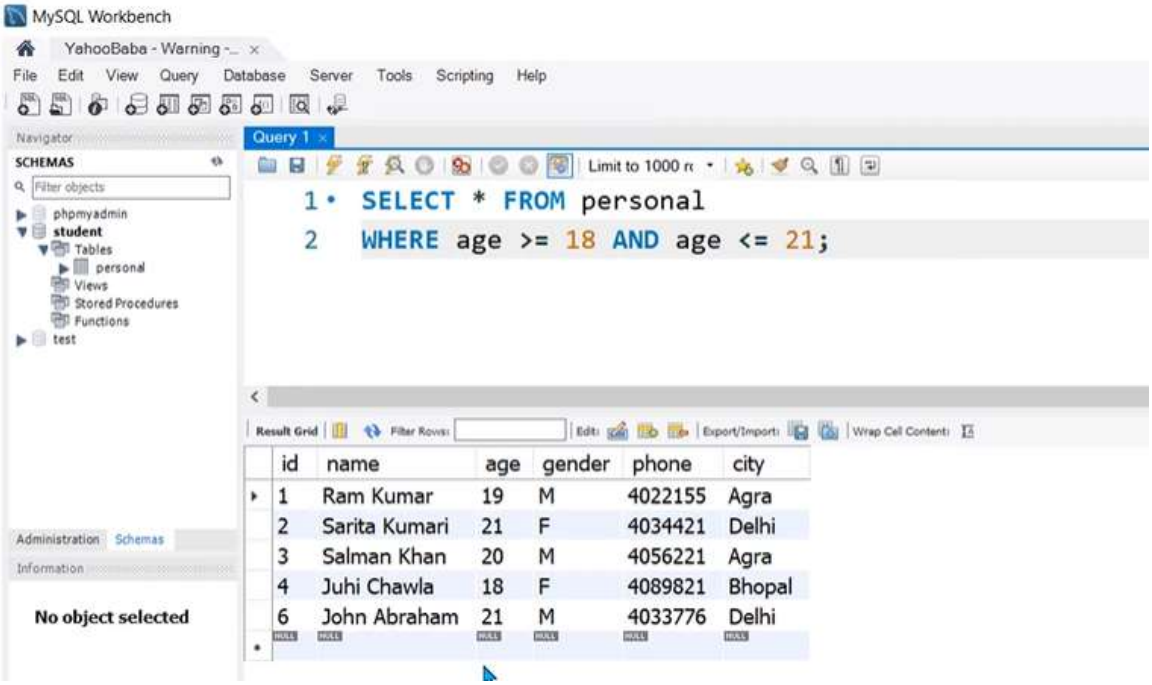
Name	Age	Gender
Meera Khan	21	Female
Sarita Kumari	18	Female

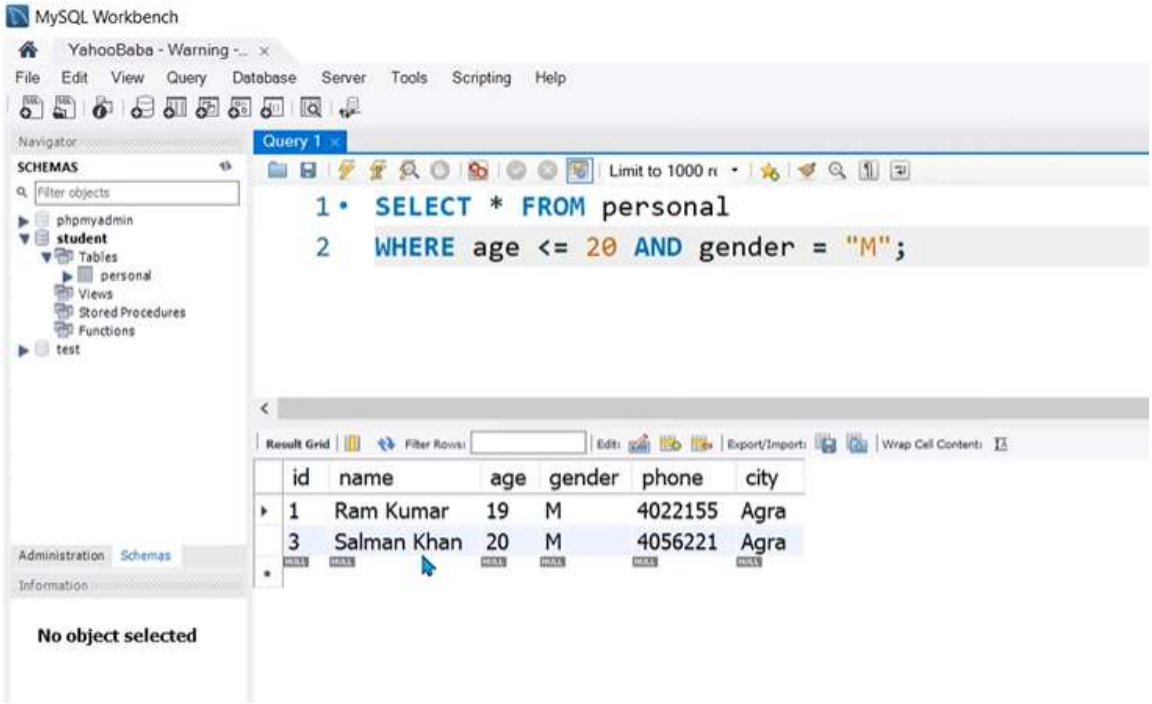
WHERE Age = 18 OR Age = 21

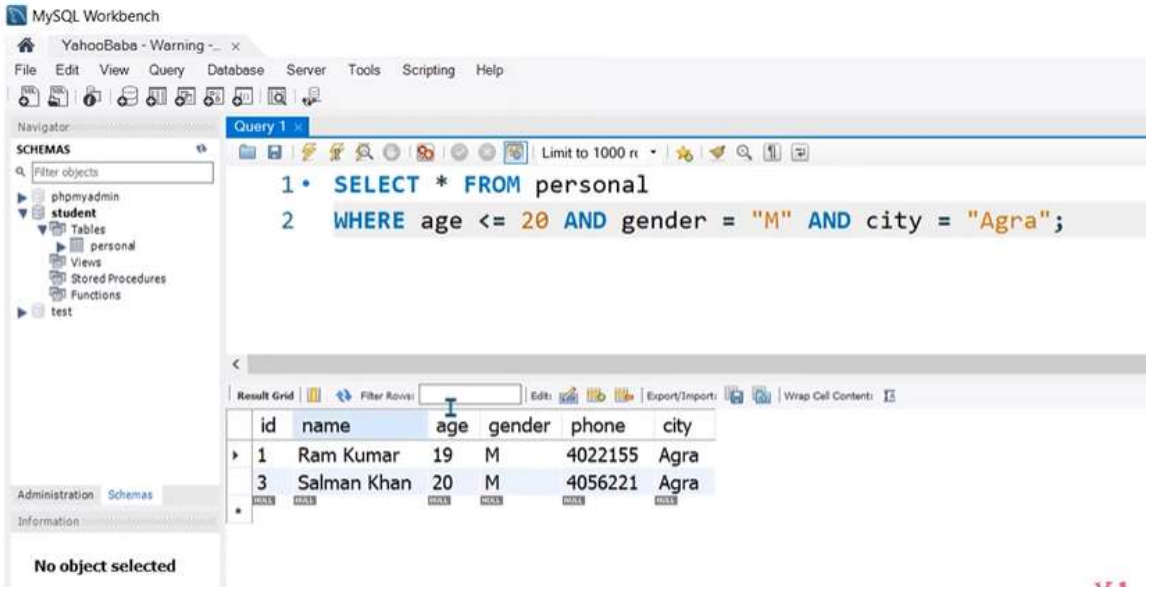
SELECT with AND & OR Operator Syntax

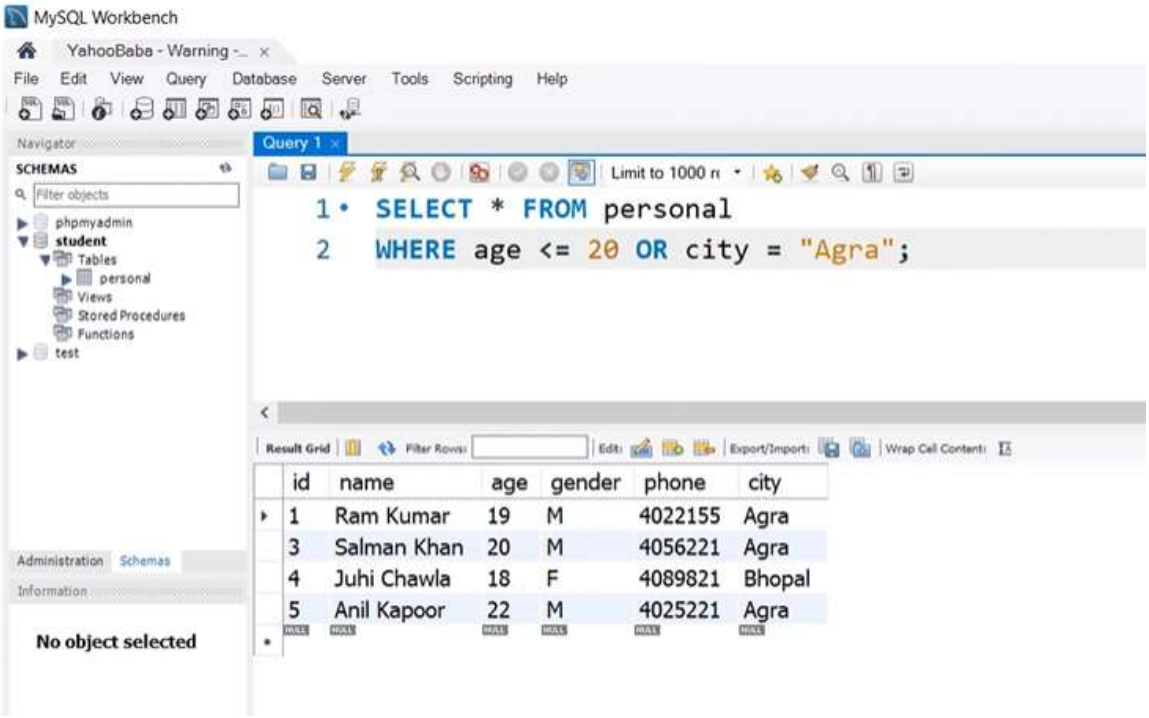
```
SELECT column1, column2, column3, ....
FROM table_name
WHERE condition1 AND condition2 AND condition3 ...;

SELECT column1, column2, column3, ....
FROM table_name
WHERE condition1 OR condition2 OR condition3 ...;
```

Practical Implementation






MySQL Workbench
YahooBaba - Warning -...
File Edit View Query Database Server Tools Scripting Help
Navigator
SCHEMAS
Filter objects
phpmyadmin
student
Tables
personal
Views
Stored Procedures
Functions
test
Query 1
Limit to 1000 r
1 • SELECT * FROM personal
2 WHERE age <= 20 AND gender = "M" AND city = "Agra";
Result Grid
Filter Rows:
Edit:
Export/Import:
Wrap Cell Content:
id name age gender phone city
1 Ram Kumar 19 M 4022155 Agra
3 Salman Khan 20 M 4056221 Agra
Administration Schemas
Information
No object selected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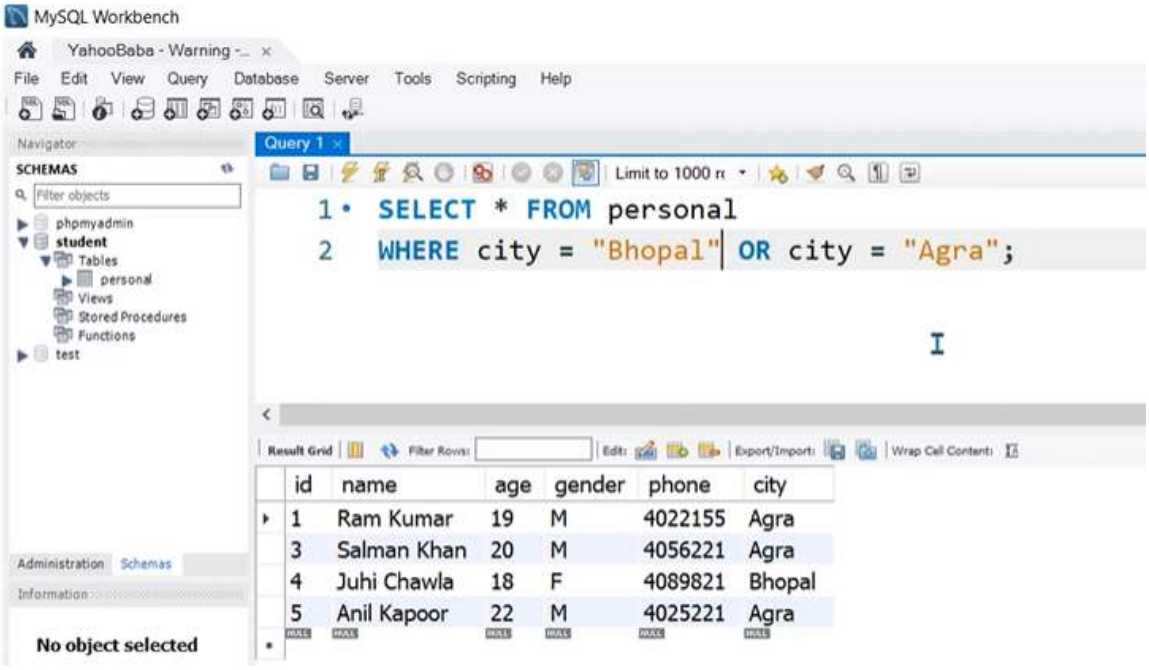
Result Grid
Filter Rows:
Edit:
Export/Import:
Wrap Cell Content:
id name age gender phone city
1 Ram Kumar 19 M 4022155 Agra
3 Salman Khan 20 M 4056221 Agra
4 Juhi Chawla 18 F 4089821 Bhopal
5 Anil Kapoor 22 M 4025221 Agra
Administration Schemas
Information
No object selected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Filter objects
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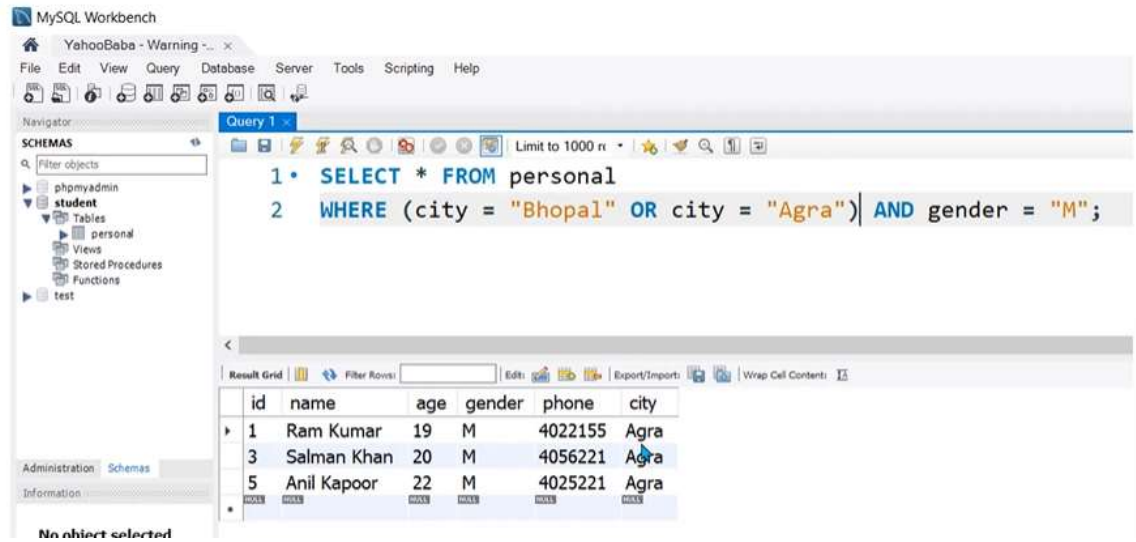
Tables
personal
Views
Stored Procedures
Functions
test
Administration Schemas
Information
No object selected
Query 1
Limit to 1000 r
1 • SELECT * FROM personal
2 WHERE city = "Bhopal" OR city = "Agra";
Result Grid Filter Rows: Edit: Export/Import: Wrap Cell Content:
id name age gender phone city
1 Ram Kumar 19 M 4022155 Agra
3 Salman Khan 20 M 4056221 Agra
4 Juhi Chawla 18 F 4089821 Bhopal
5 Anil Kapoor 22 M 4025221 Agra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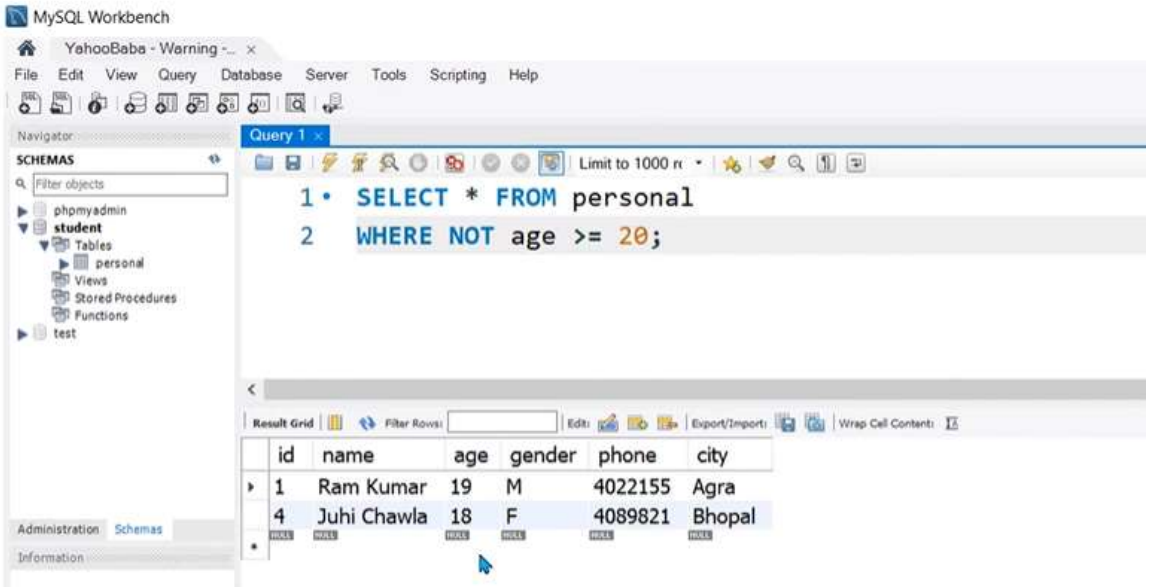
YahooBaba - Warning -...
File Edit View Query Database Server Tools Scripting Help
Navigator
SCHEMAS
Filter objects
phpmyadmin
student
Tables
personal
Views
Stored Procedures
Functions
test
Administration Schemas
Information
No object selected
Query 1
Limit to 1000 r
1 • SELECT * FROM personal
2 WHERE (city = "Bhopal" OR city = "Agra") AND gender = "M";
Result Grid Filter Rows: Edit: Export/Import: Wrap Cell Content:
id name age gender phone city
1 Ram Kumar 19 M 4022155 Agra
3 Salman Khan 20 M 4056221 Agra
5 Anil Kapoor 22 M 4025221 Agra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YahooBaba - Warning -...
File Edit View Query Database Server Tools Scripting Help
Navigator
SCHEMAS
Filter objects
phpmyadmin
student
Tables
personal
Views
Stored Procedures
Functions
test
Administration Schemas
Information
Query 1
Limit to 1000 r
1 • SELECT * FROM personal
2 WHERE NOT age >= 20;
Result Grid Filter Rows: Edit: Export/Import: Wrap Cell Content:
id name age gender phone city
1 Ram Kumar 19 M 4022155 Agra
4 Juhi Chawla 18 F 4089821 Bhopal

9. MySQL IN Operator

SELECT Data with IN Operator

Name	Age	Gender
Ram Kumar	19	Male
Salman Khan	22	Male
Meera Khan	21	Female
Sarita Kumari	18	Female
Anil Kapoor	22	Male

Name	Age	Gender
Meera Khan	21	Female
Sarita Kumari	18	Female

WHERE Age = 18 OR Age = 21

SELECT Data with IN Operator

Name	Age	Gender
Ram Kumar	19	Male
Salman Khan	22	Male
Meera Khan	21	Female
Sarita Kumari	18	Female
Anil Kapoor	22	Male

WHERE Age IN (18, 21)

Name	Age	Gender
Meera Khan	21	Female
Sarita Kumari	18	Female

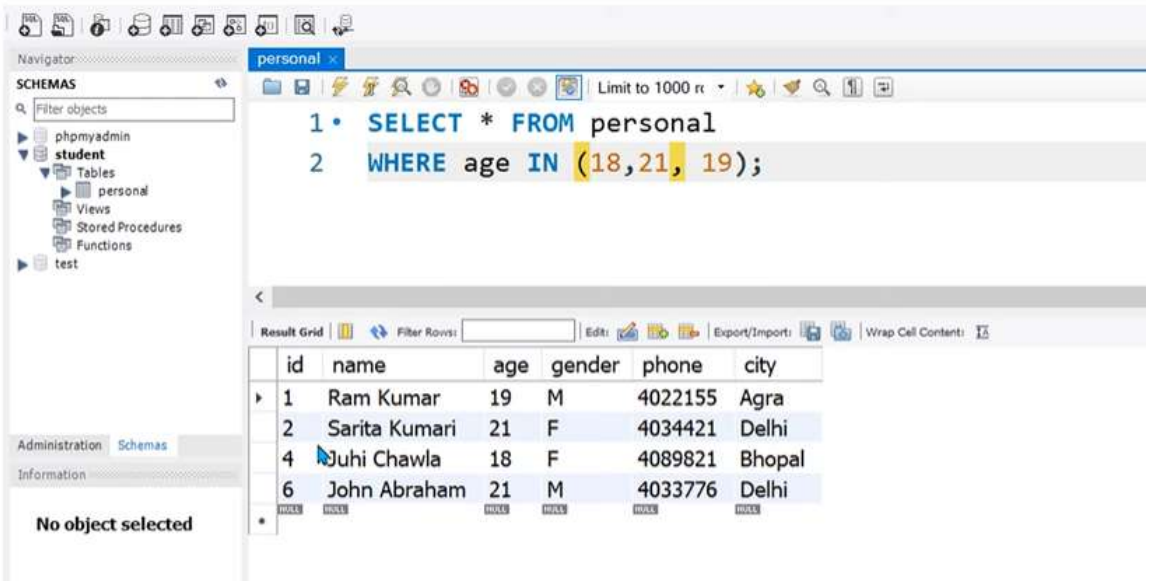
WHERE Age = 18 OR Age = 21

SELECT with IN Operator Syntax

```
SELECT column1, column2, column3, ....
FROM table_name
WHERE column_name IN (value1, value2, ...);

SELECT column1, column2, column3, ....
FROM table_name
WHERE column_name NOT IN (value1, value2, ...);
```

Practical Implementation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Filter objects
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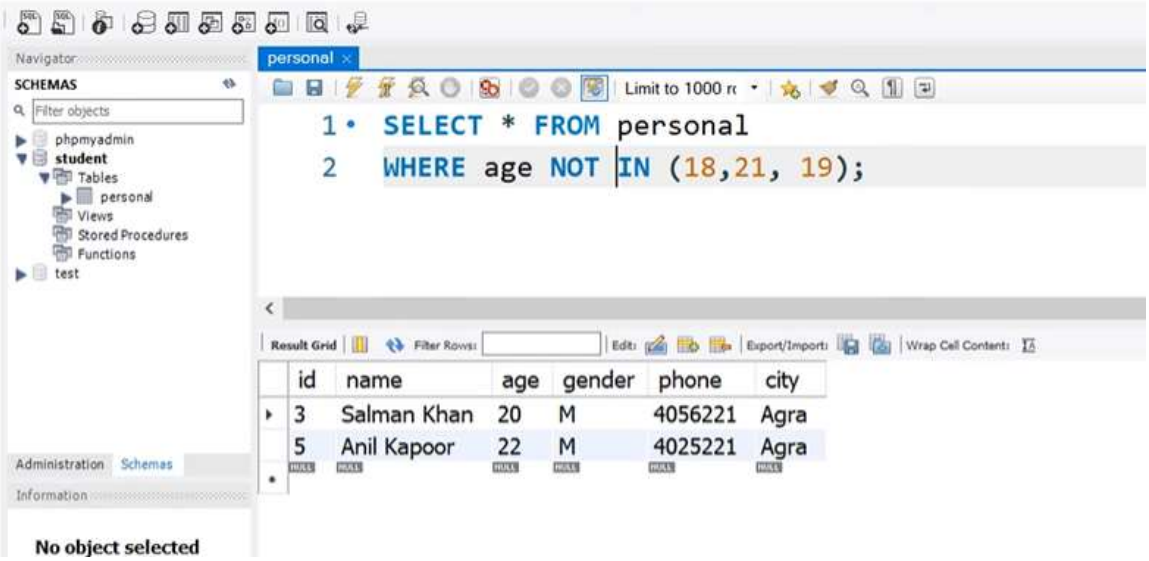
student
Tables
personal
Views
Stored Procedures
Functions
test
Administration
Schemas
Information
No object selected
personal
Limit to 1000 r
1 • SELECT * FROM personal
2 WHERE age IN (18,21, 19);
Result Grid
Filter Rows:
Edit:
Export/Import:
Wrap Cell Content:
id name age gender phone city
1 Ram Kumar 19 M 4022155 Agra
2 Sarita Kumari 21 F 4034421 Delhi
4 Juhi Chawla 18 F 4089821 Bhopal
6 John Abraham 21 M 4033776 Delhi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Functions
test
Administration
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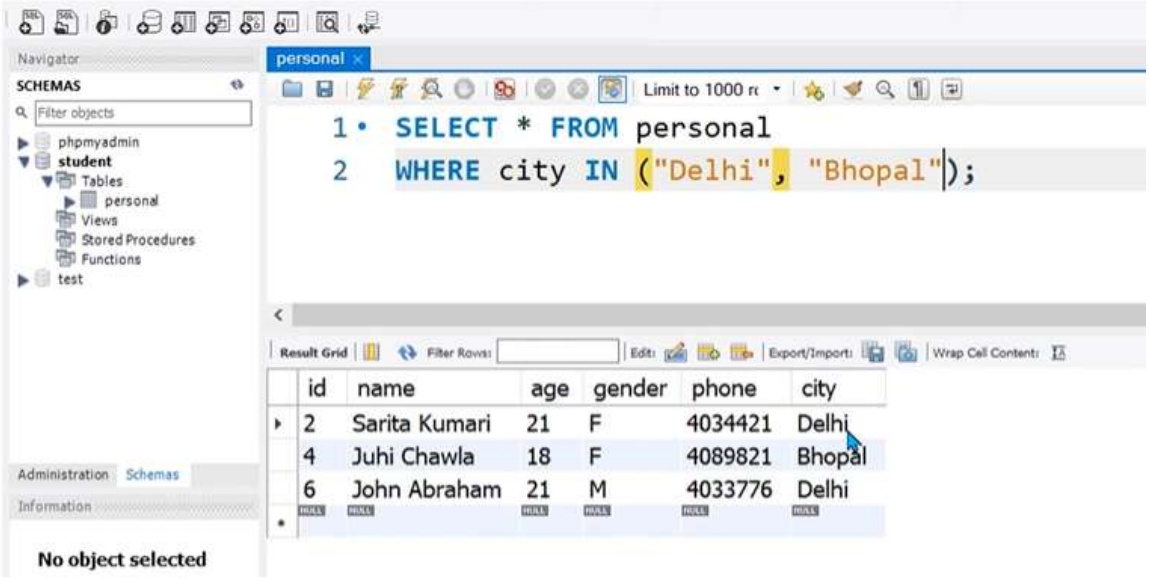
Information
No object selected
personal
Limit to 1000 r
1 • SELECT * FROM personal
2 WHERE age NOT IN (18,21, 19);
Result Grid
Filter Rows:
Edit:
Export/Import:
Wrap Cell Content:
id name age gender phone city
3 Salman Khan 20 M 4056221 Agra
5 Anil Kapoor 22 M 4025221 Agra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personal
Views
Stored Procedures
Functions
test
Administration
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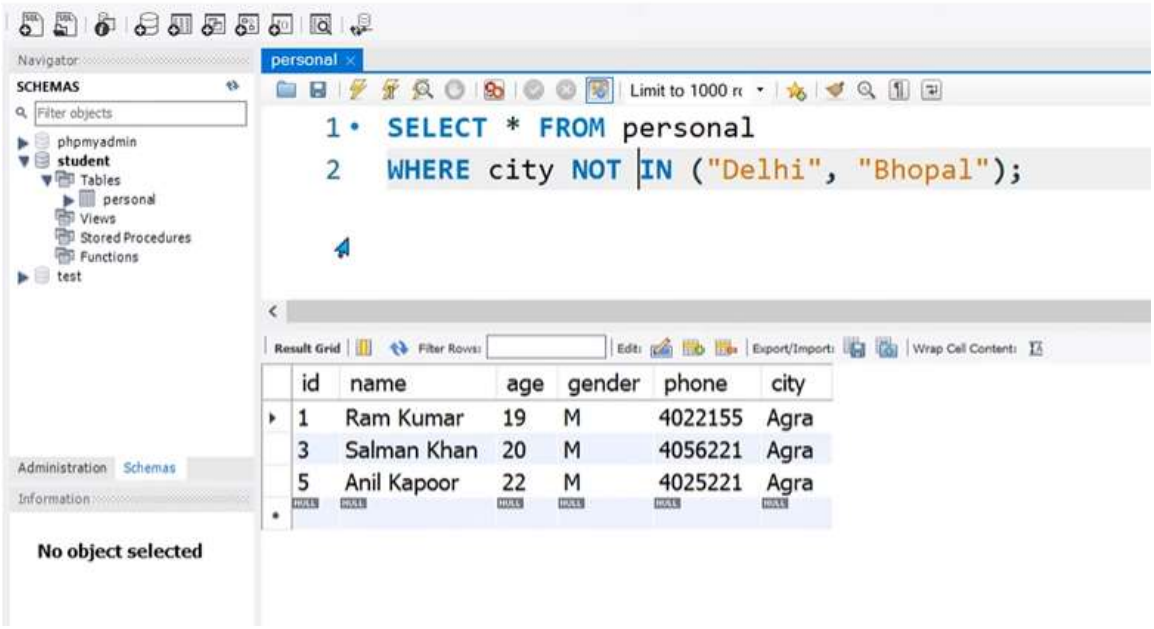
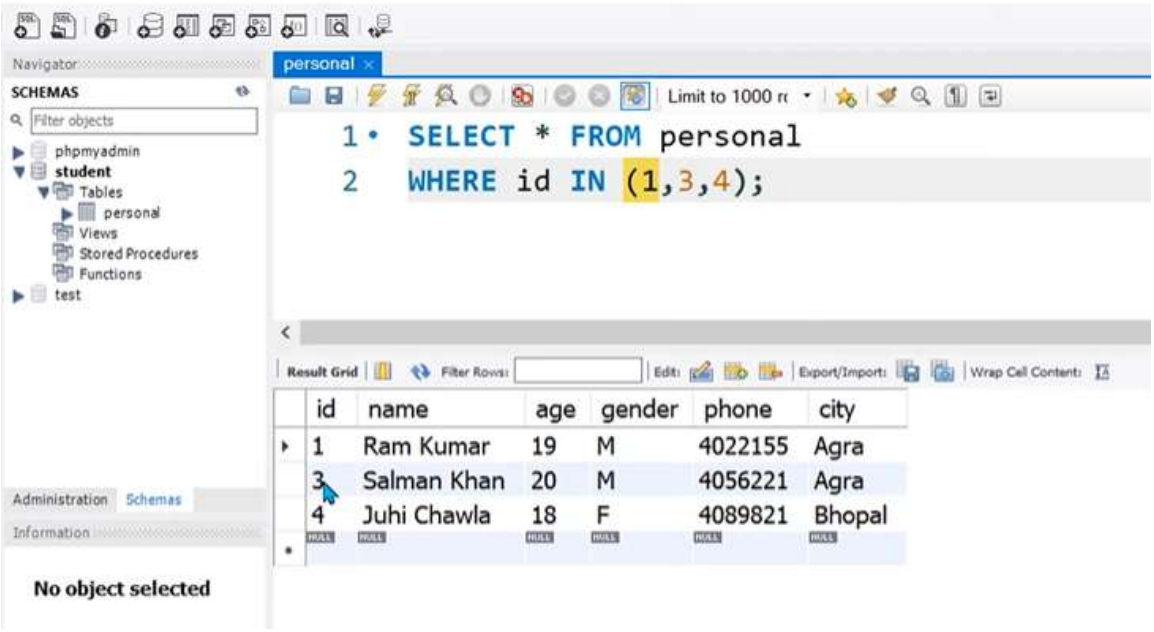
Information
No object selected
personal
Limit to 1000 r
1 • SELECT * FROM personal
2 WHERE city IN ("Delhi", "Bhopal");
Result Grid
Filter Rows:
Edit:
Export/Import:
Wrap Cell Content:
id name age gender phone city
2 Sarita Kumari 21 F 4034421 Delhi
4 Juhi Chawla 18 F 4089821 Bhopal
6 John Abraham 21 M 4033776 Delhi





10. MySQL BETWEEN & NOT BETWEEN Operator

SELECT Data with BETWEEN Operator

Student Table

Name	Age	Gender	DOB
Ram Kumar	19	Male	1998-02-10
Salman Khan	17	Male	1999-07-22
Meera Khan	19	Female	1998-05-11
Sarita Kumari	21	Female	1996-10-15
Anil Kapoor	20	Male	1997-03-12

WHERE Age BETWEEN 18 AND 20

Name	Age	Gender
Ram Kumar	19	Male
Meera Khan	19	Female
Anil Kapoor	20	Male

January 1998 to June 1998

Name	Age	Gender
Ram Kumar	19	Male
Meera Khan	19	Female

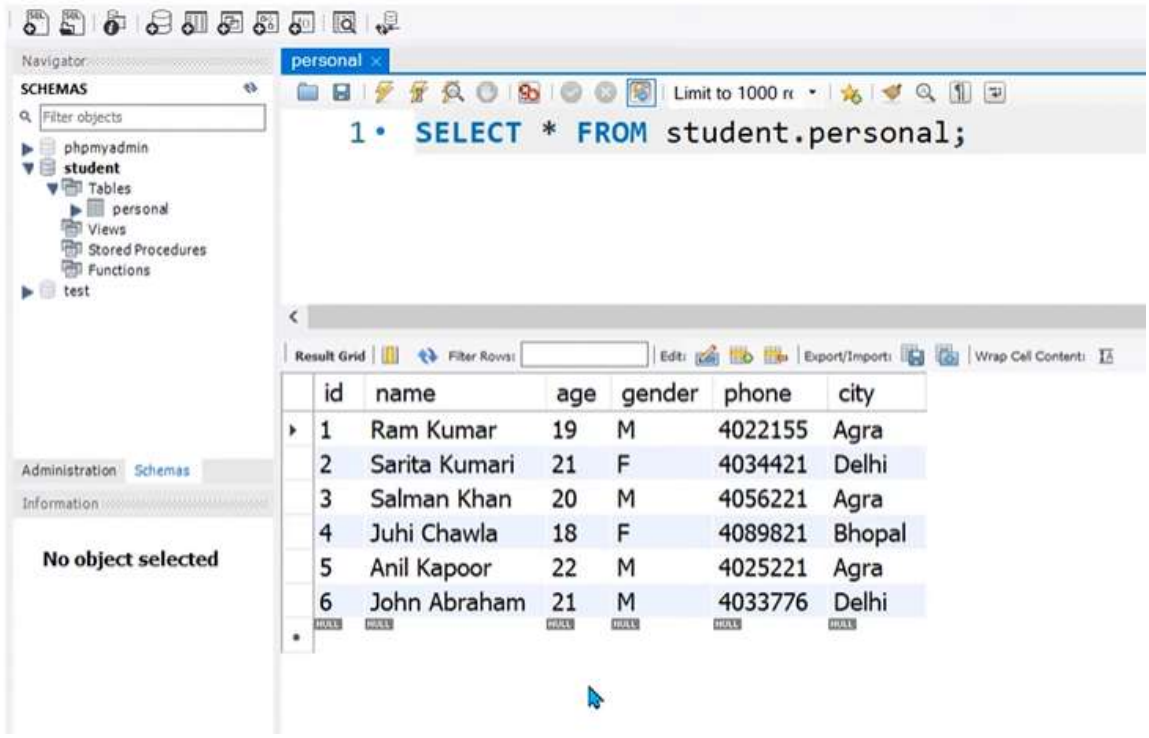
WHERE DOB BETWEEN 1998-01-01 AND 1998-06-30

SELECT with BETWEEN Operator Syntax

```
SELECT column1, column2, column3, ....
FROM table_name
WHERE column_name BETWEEN value1 AND value2;

SELECT column1, column2, column3, ....
FROM table_name
WHERE column_name NOT BETWEEN value1 AND value2;
```

Practical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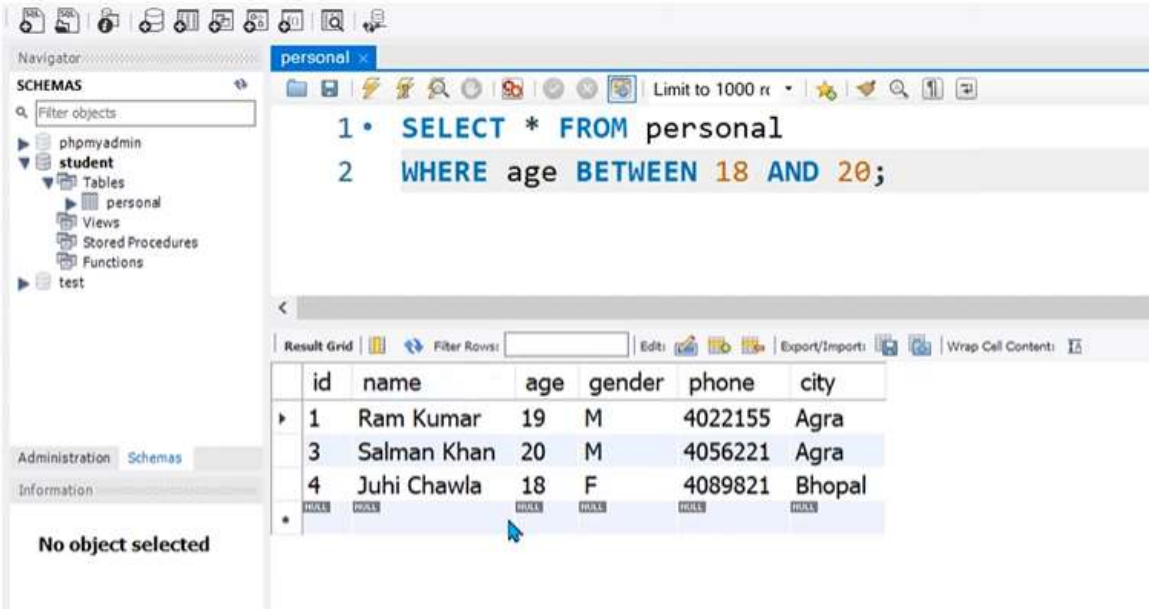
Views
Stored Procedures
Functions
test
Administration
Schemas
Information
No object selected
personal
Limit to 1000 r
1 • SELECT * FROM student.personal;
Result Grid
Filter Rows:
Edit:
Export/Import:
Wrap Cell Content:
id name age gender phone city
1 Ram Kumar 19 M 4022155 Agra
2 Sarita Kumari 21 F 4034421 Delhi
3 Salman Khan 20 M 4056221 Agra
4 Juhi Chawla 18 F 4089821 Bhopal
5 Anil Kapoor 22 M 4025221 Agra
6 John Abraham 21 M 4033776 Delhi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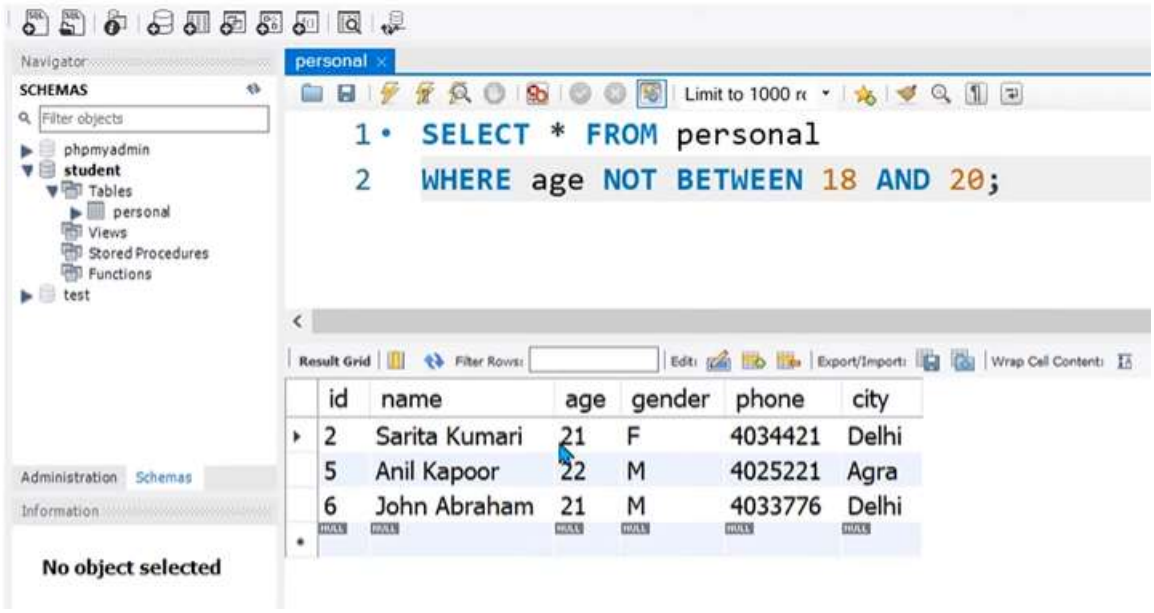
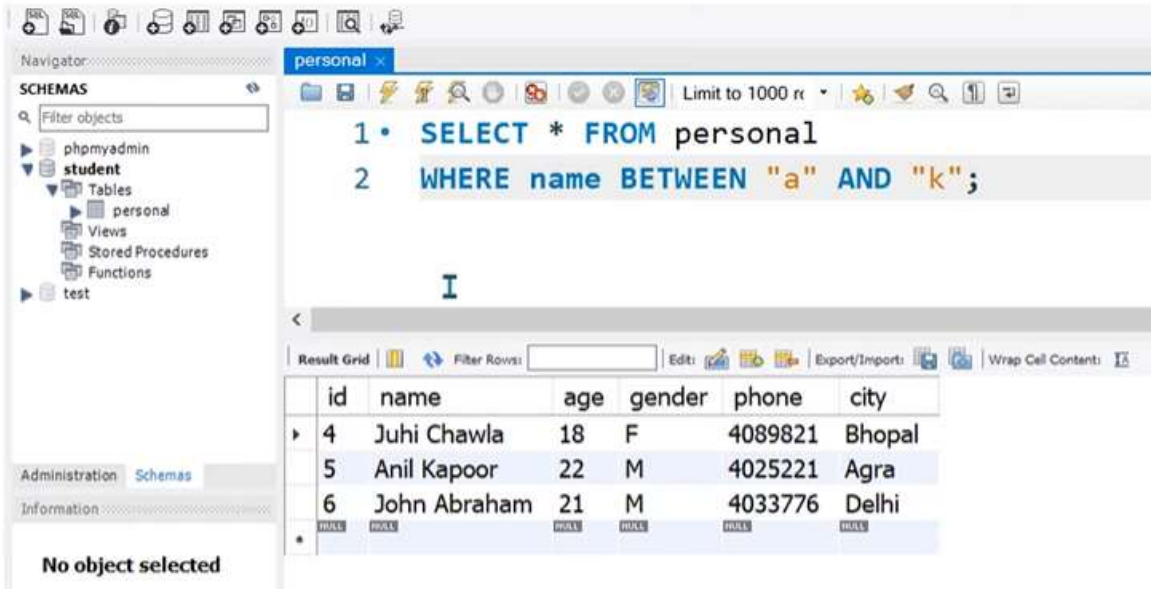
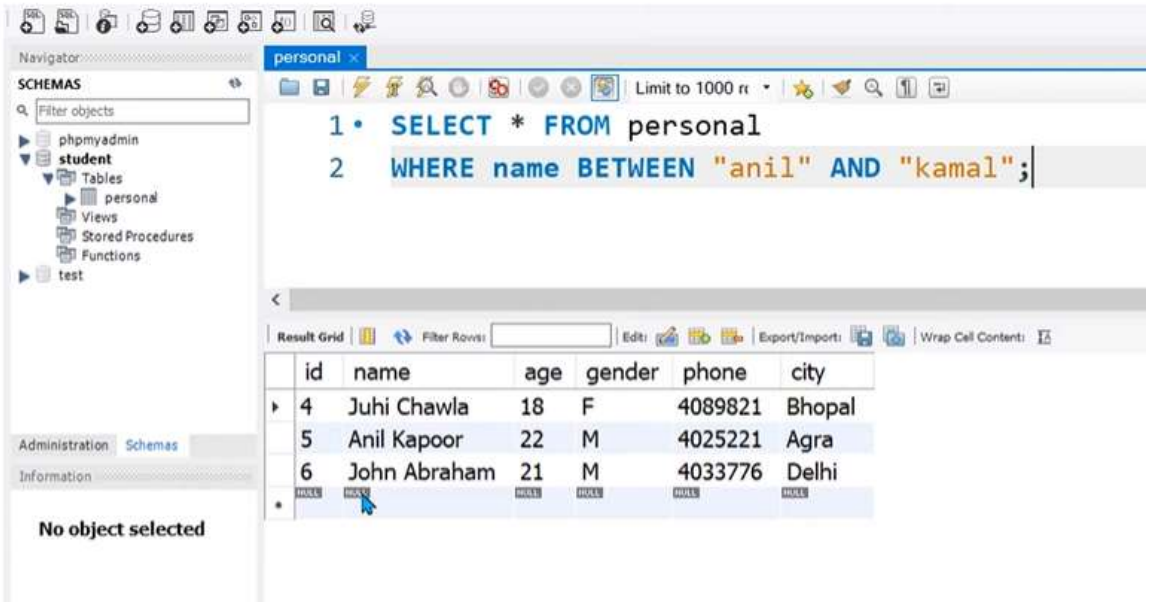
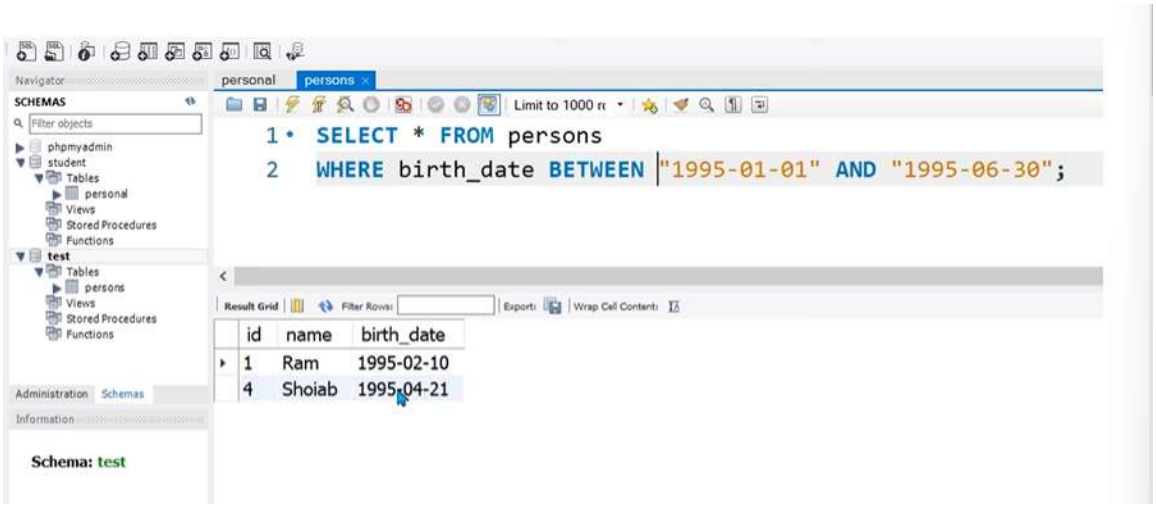
student
Tables
personal
Views
Stored Procedures
Functions
test
Administration
Schemas
Information
No object selected
personal
Limit to 1000 r
1 • SELECT * FROM personal
2 WHERE age BETWEEN 18 AND 20;
Result Grid
Filter Rows:
Edit:
Export/Import:
Wrap Cell Content:
id name age gender phone city
1 Ram Kumar 19 M 4022155 Agra
3 Salman Khan 20 M 4056221 Agra
4 Juhi Chawla 18 F 4089821 Bhopal





same as above





11. MySQL LIKE Operator & Wildcards

SELECT Data with LIKE Operator

Student Table

Name	Age	Gender
Ram Kumar	19	Male
Salman Khan	18	Male
Meera Khan	19	Female
Sarita Kumari	21	Female
Anil Kapoor	20	Male

WHERE Name LIKE "s%"

Name	Age	Gender
Salman Khan	18	Male
Sarita Kumari	21	Female

WildCard Characters :

% **Percentage Sign** : Represents zero, one, or multiple characters

_ **Underscore** : Represents a single character

LIKE Operator with Wildcard Patterns

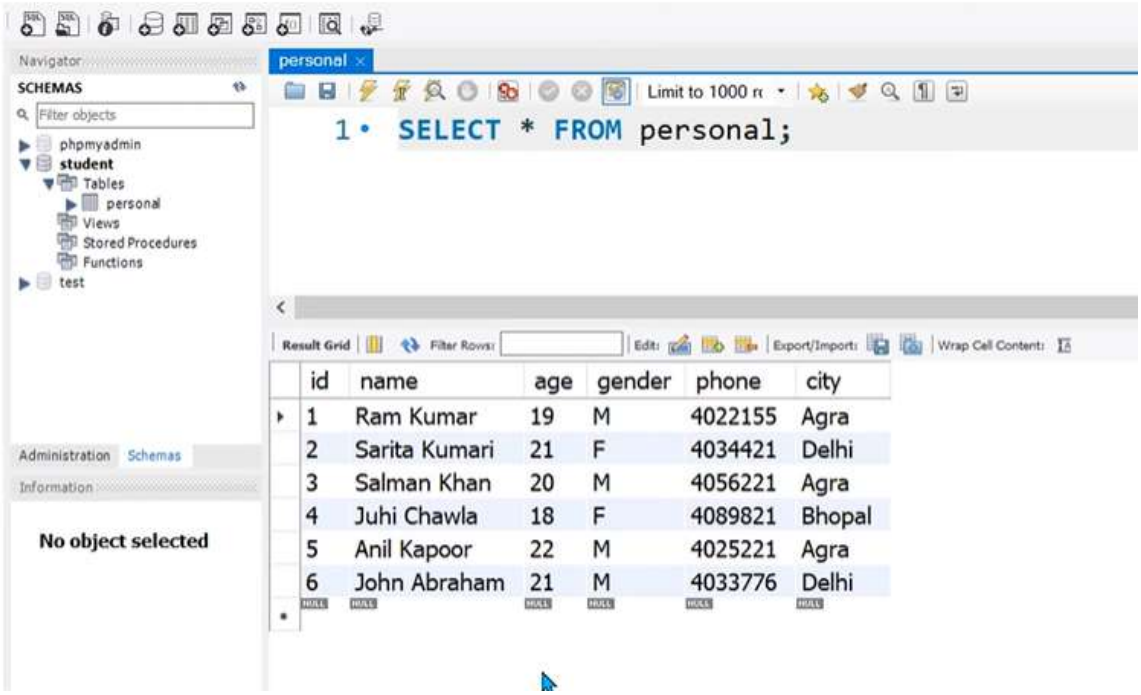
Pattern	Description
LIKE 'a%'	Start with "a"
LIKE '%a'	End with "a"
LIKE '%am%'	Have "am" in any position
LIKE 'a%m'	Start with "a" and Ends with "m"
LIKE '_a%'	"a" in the second position
LIKE '__a%'	"a" in the third position
LIKE '_oy'	"o" in the second and "y" in the third position

SELECT with LIKE Operator Syntax

```
SELECT column1, column2, column3, ....
FROM table_name
WHERE column_name LIKE pattern;

SELECT column1, column2, column3, ....
FROM table_name
WHERE column_name NOT LIKE pattern;
```

Practical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Information
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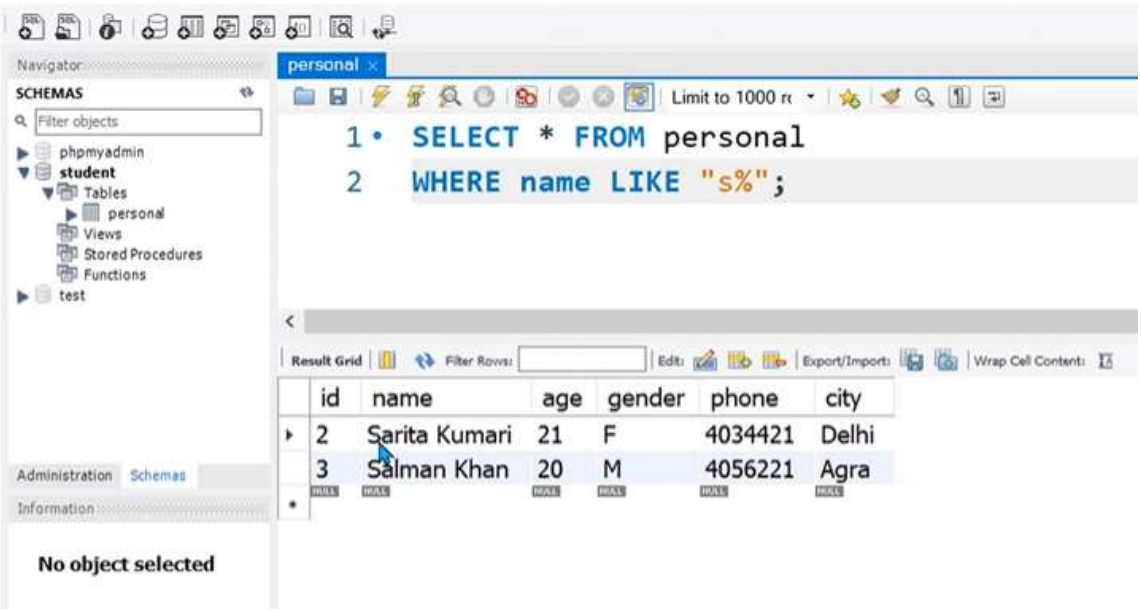
personal
Limit to 1000 r
1 • SELECT * FROM personal;
Result Grid
Filter Rows:
Edit:
Export/Import:
Wrap Cell Content:
id name age gender phone city
1 Ram Kumar 19 M 4022155 Agra
2 Sarita Kumari 21 F 4034421 Delhi
3 Salman Khan 20 M 4056221 Agra
4 Juhi Chawla 18 F 4089821 Bhopal
5 Anil Kapoor 22 M 4025221 Agra
6 John Abraham 21 M 4033776 Delhi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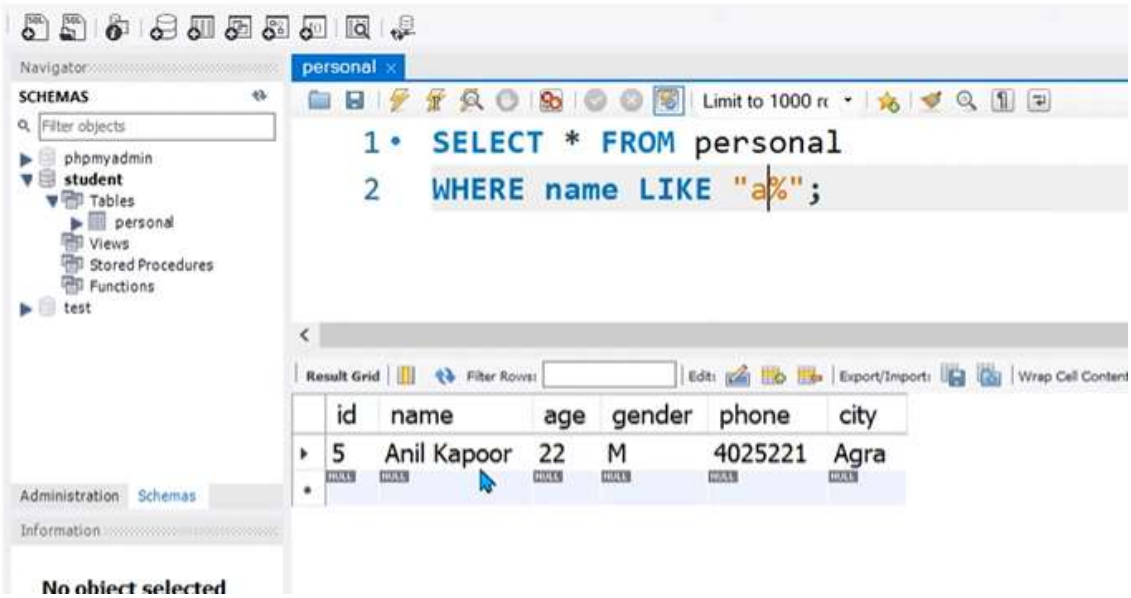
Information
No object selected
personal
Limit to 1000 r
1 • SELECT * FROM personal
2 WHERE name LIKE "s%";
Result Grid
Filter Rows:
Edit:
Export/Import:
Wrap Cell Content:
id name age gender phone city
2 Sarita Kumari 21 F 4034421 Delhi
3 Salman Khan 20 M 4056221 Agra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Functions
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Information
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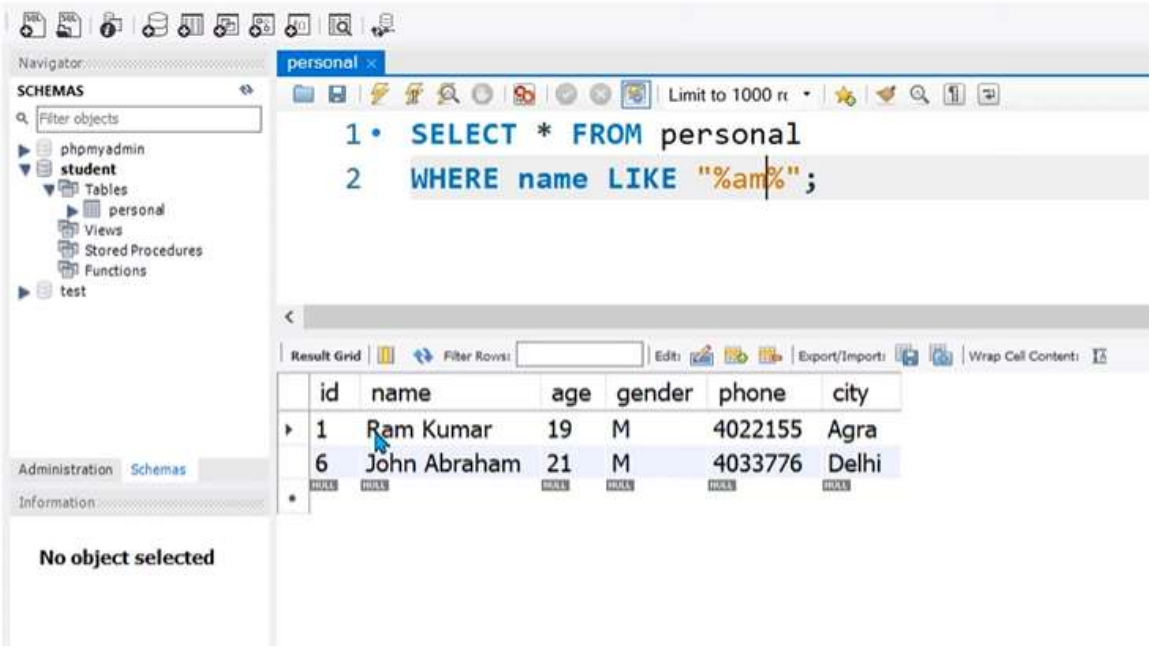
personal
Limit to 1000 r
1 • SELECT * FROM personal
2 WHERE name LIKE "a%";
Result Grid
Filter Rows:
Edit:
Export/Import:
Wrap Cell Content
id
name
age
gender
phone
city
5
Anil Kapoor
22
M
4025221
Agra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Information
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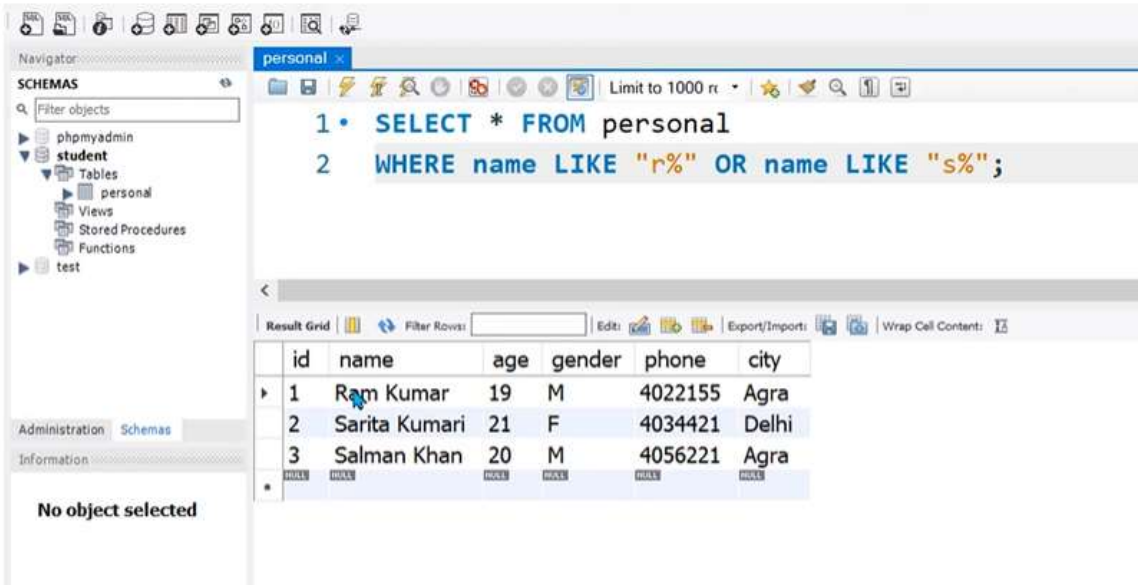
personal
Limit to 1000 r
1 • SELECT * FROM personal
2 WHERE name LIKE "%am%";
Result Grid
Filter Rows:
Edit:
Export/Import:
Wrap Cell Content:
id
name
age
gender
phone
city
1
Ram Kumar
19
M
4022155
Agra
6
John Abraham
21
M
4033776
Delhi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Information
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personal
Limit to 1000 r
1 • SELECT * FROM personal
2 WHERE name LIKE "r%" OR name LIKE "s%";
Result Grid
Filter Rows:
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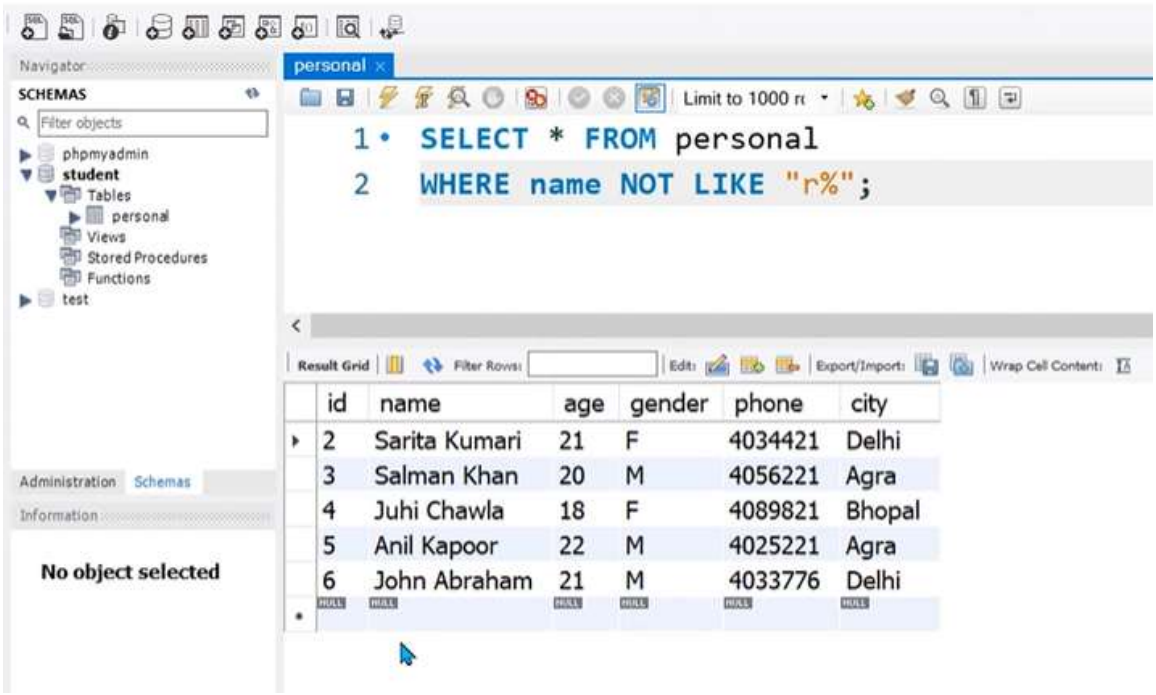
Wrap Cell Content:
id name age gender phone city
1 Ram Kumar 19 M 4022155 Agra
2 Sarita Kumari 21 F 4034421 Delhi
3 Salman Khan 20 M 4056221 Agra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Information
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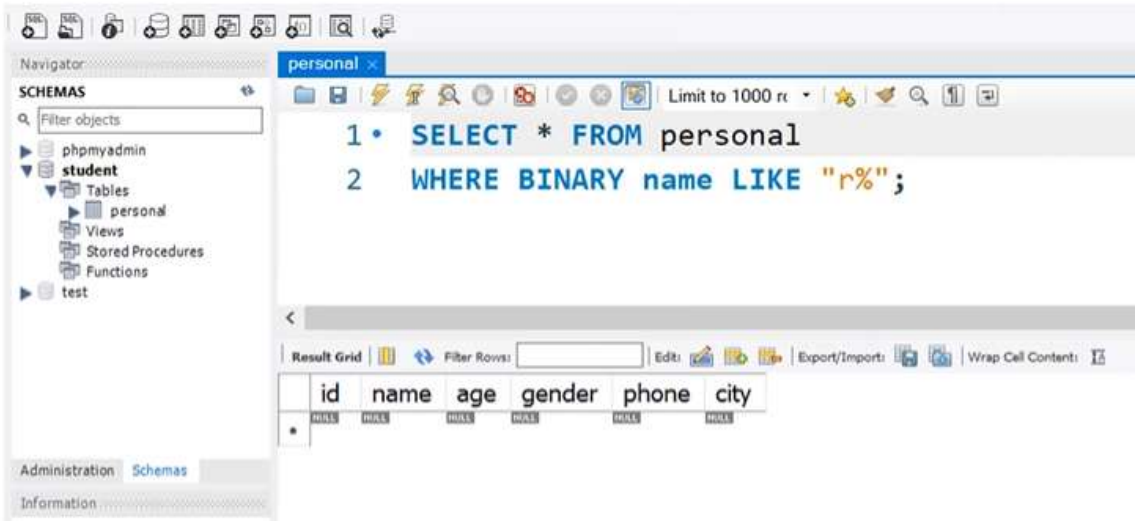
Limit to 1000 r
1 • SELECT * FROM personal
2 WHERE name NOT LIKE "r%";
Result Grid
Filter Rows:
Edit:
Export/Import:
Wrap Cell Content:
id name age gender phone city
2 Sarita Kumari 21 F 4034421 Delhi
3 Salman Khan 20 M 4056221 Agra
4 Juhi Chawla 18 F 4089821 Bhopal
5 Anil Kapoor 22 M 4025221 Agra
6 John Abraham 21 M 4033776 Delhi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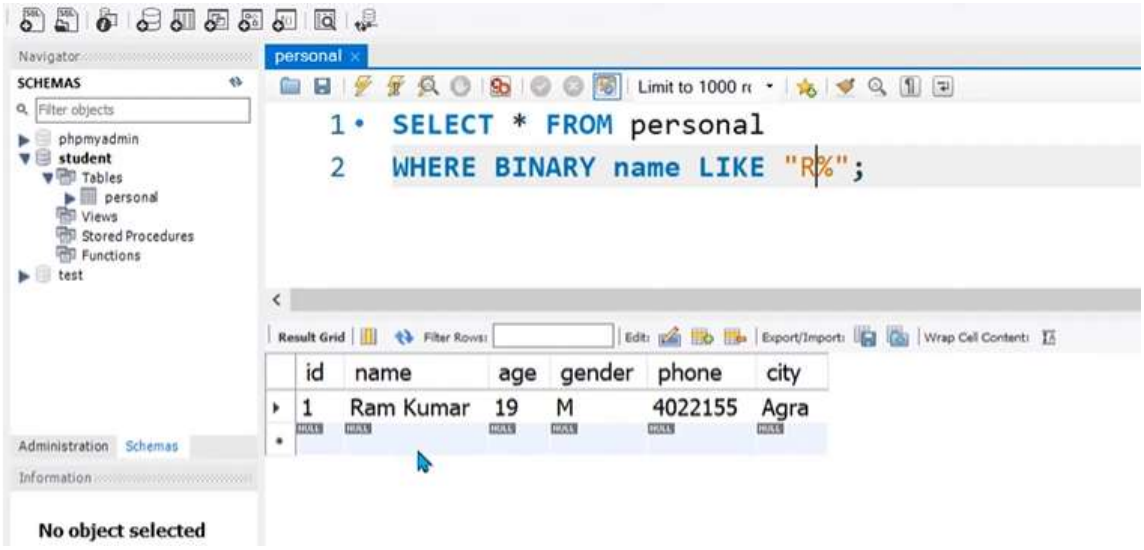
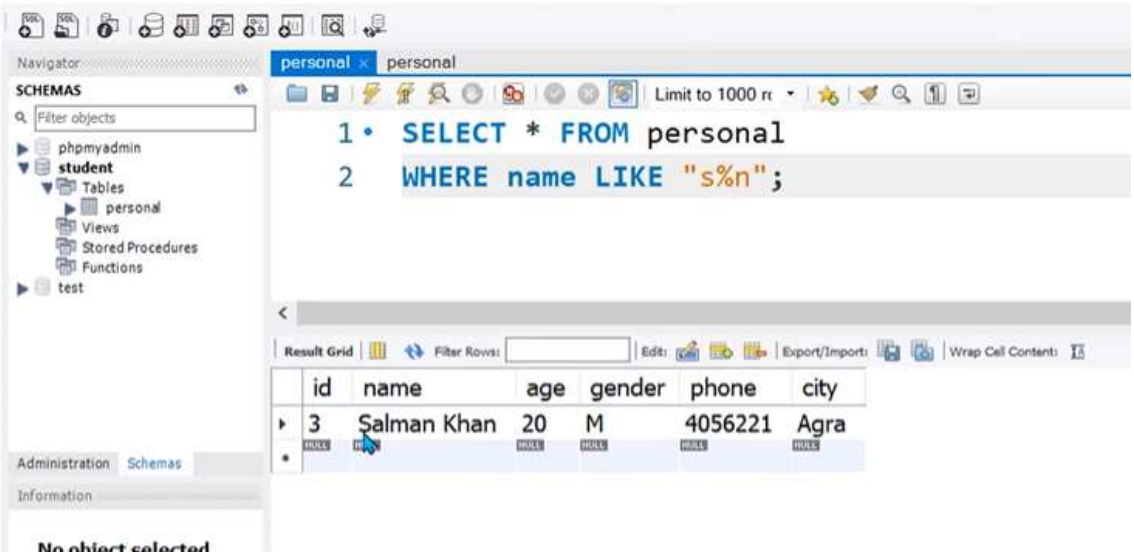
Information
personal
Limit to 1000 r
1 • SELECT * FROM personal
2 WHERE BINARY name LIKE "r%";
Result Grid
Filter Rows:
Edit:
Export/Import:
Wrap Cell Content:
id name age gender phone city





12. MySQL Regular Expression

SELECT Data with Regular Expression

Student Table

Name	Age	Gender
Ram Kumar	19	Male
Salman Khan	18	Male
Meera Khan	19	Female
Sarita Kumari	21	Female
Anil Kapoor	20	Male

WHERE Name REGEXP "khan$ | poor"

Name	Age	Gender
Salman Khan	18	Male
Meera Khan	19	Female
Anil Kapoor	20	Male

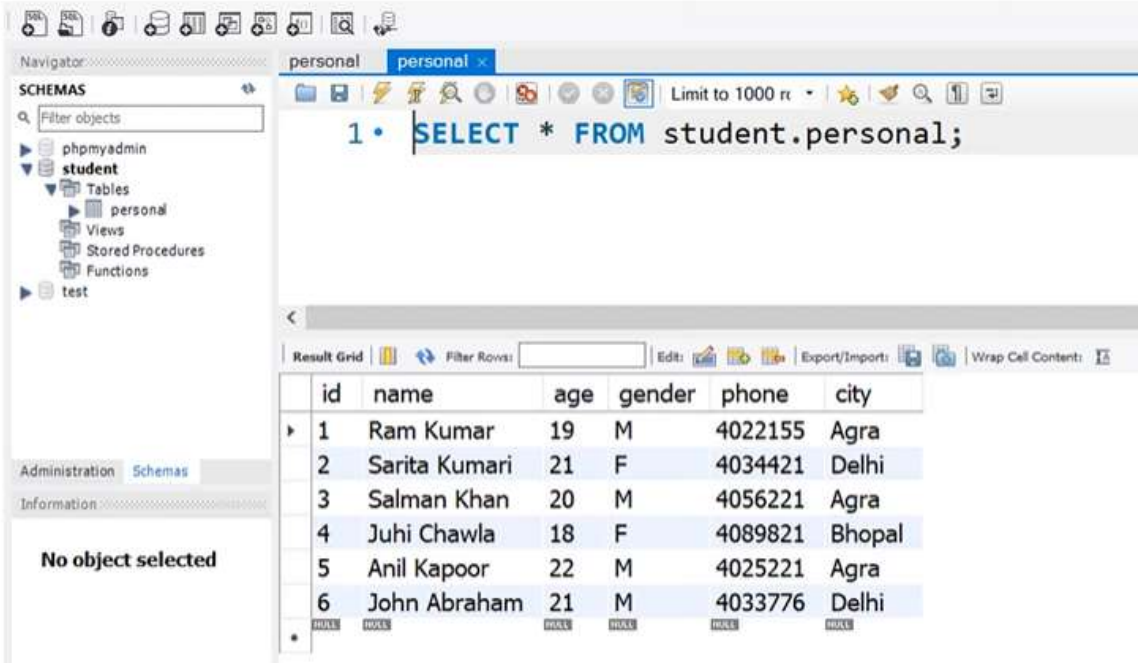
Regular Expression Patterns with Description

Sign	Pattern	Description
^	'^ra'	Beginning of string
$	'an$'	End of string
[...]	'[rms]'	Any character listed between the square brackets
^[...]	'^[rms]'	Begins with Any character listed between the square brackets
[a-z]	'[a-h]e'	Match with in the range
p1|p2|p3	'tom|dick|harry'	matches any of the patterns p1, p2, or p3

SELECT with Regular Expression Syntax

```
SELECT column1, column2, column3, ....
FROM table_name
WHERE column_name REGEXP pattern;
```

Practical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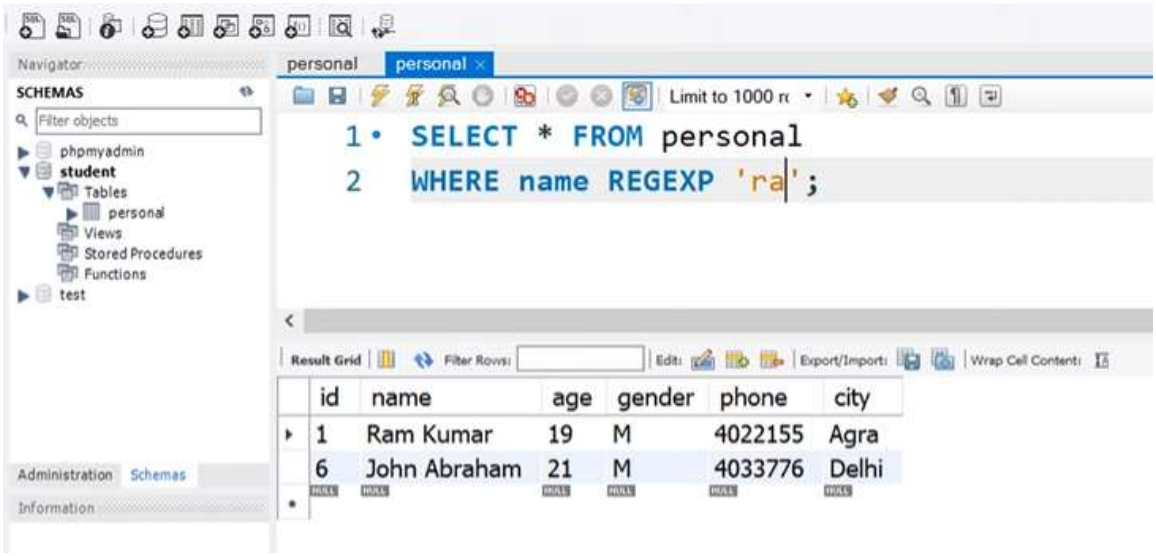
Information
No object selected
personal
personal
Limit to 1000 r
1 • SELECT * FROM student.personal;
Result Grid
Filter Rows:
Edit:
Export/Import:
Wrap Cell Content:
id name age gender phone city
1 Ram Kumar 19 M 4022155 Agra
2 Sarita Kumari 21 F 4034421 Delhi
3 Salman Khan 20 M 4056221 Agra
4 Juhi Chawla 18 F 4089821 Bhopal
5 Anil Kapoor 22 M 4025221 Agra
6 John Abraham 21 M 4033776 Delhi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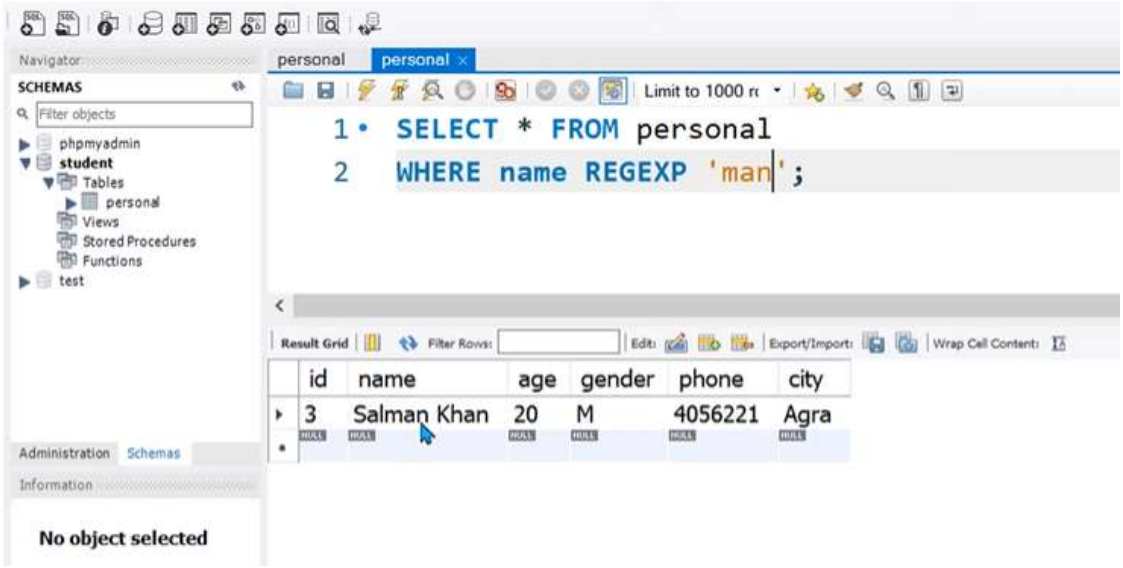
Information
personal
personal
Limit to 1000 r
1 • SELECT * FROM personal
2 WHERE name REGEXP 'ra';
Result Grid
Filter Rows:
Edit:
Export/Import:
Wrap Cell Content:
id name age gender phone city
1 Ram Kumar 19 M 4022155 Agra
6 John Abraham 21 M 4033776 Delhi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Information
No object selected
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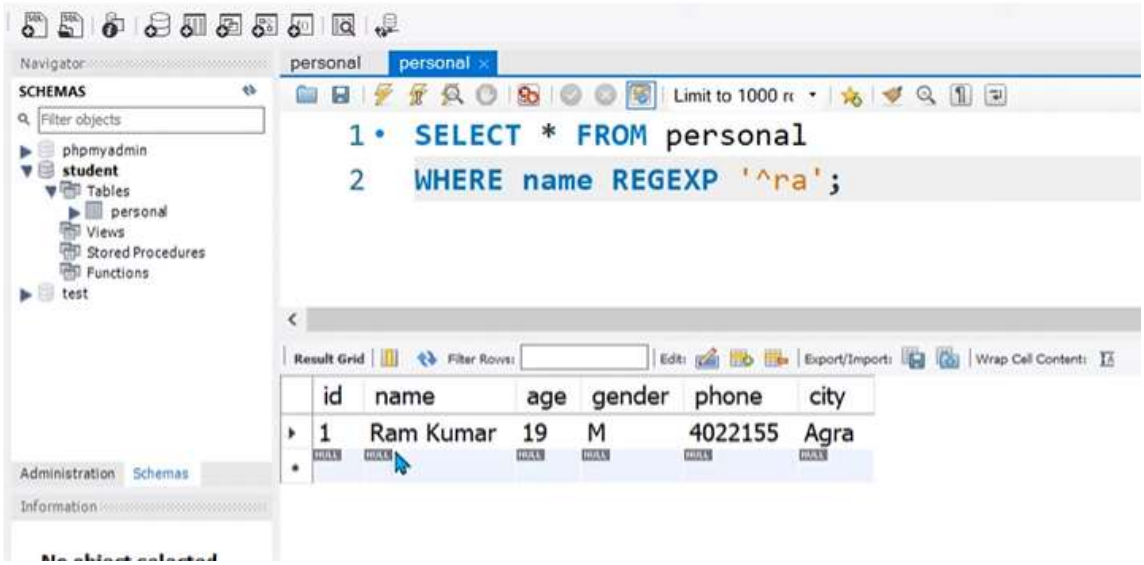
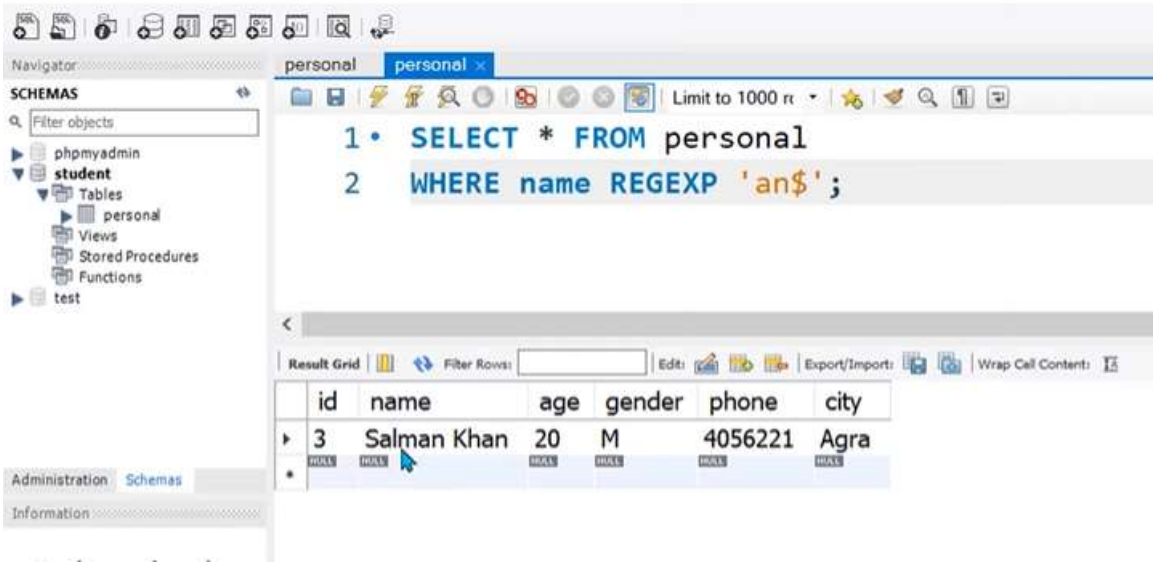
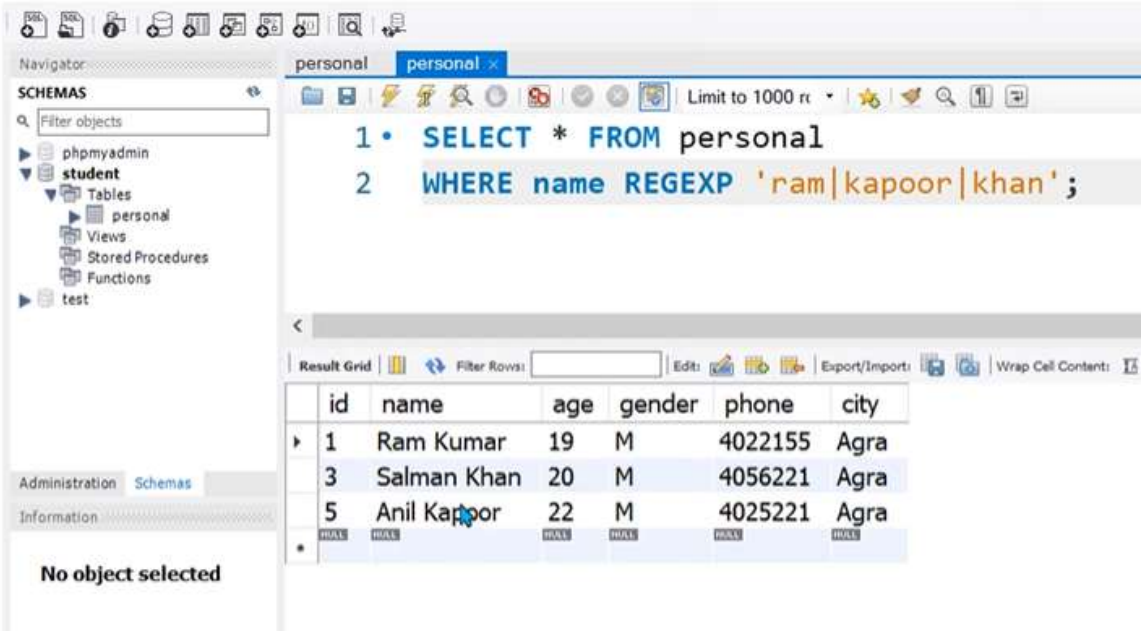
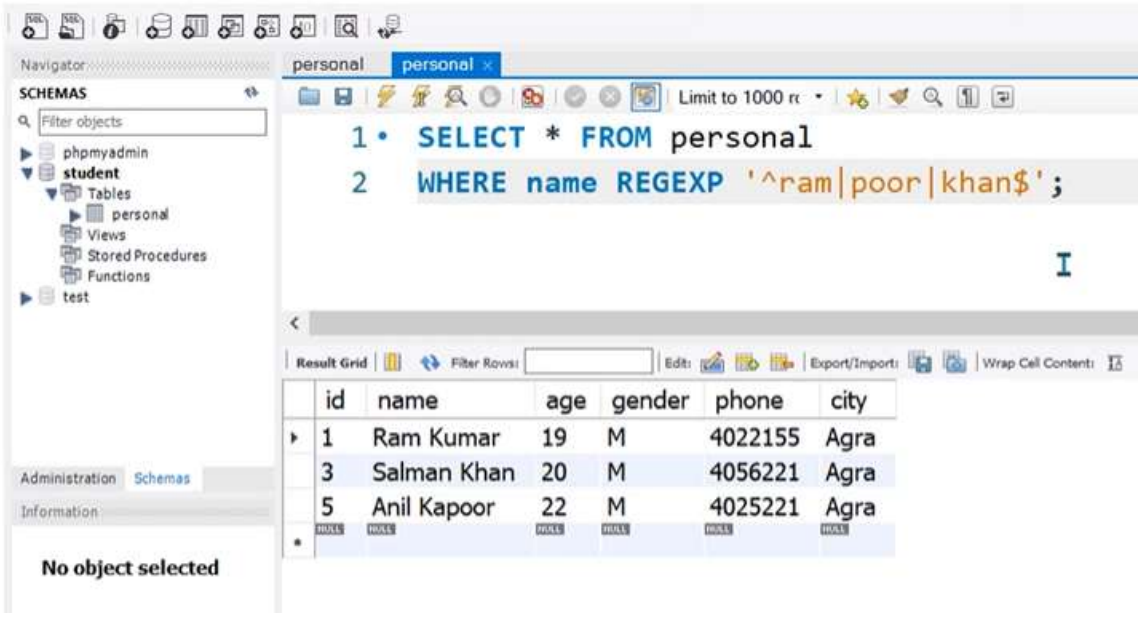
personal
Limit to 1000 r
1 • SELECT * FROM personal
2 WHERE name REGEXP 'man';
Result Grid
Filter Rows:
Edit:
Export/Import:
Wrap Cell Content:
id name age gender phone city
3 Salman Khan 20 M 4056221 Agra







no limit for "|" sign we can use as required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Information
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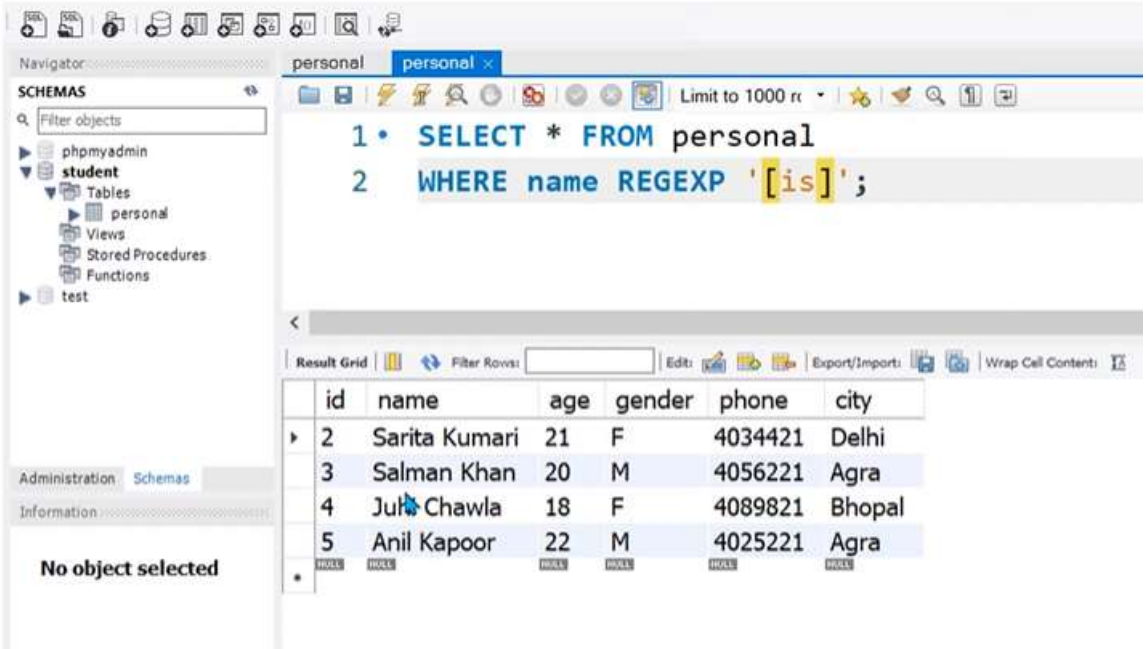
personal
Limit to 1000 r
1 • SELECT * FROM personal
2 WHERE name REGEXP '^ram|poor|khan$';
Result Grid
Filter Rows:
Edit:
Export/Import:
Wrap Cell Content:
id name age gender phone city
1 Ram Kumar 19 M 4022155 Agra
3 Salman Khan 20 M 4056221 Agra
5 Anil Kapoor 22 M 4025221 Agra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Information
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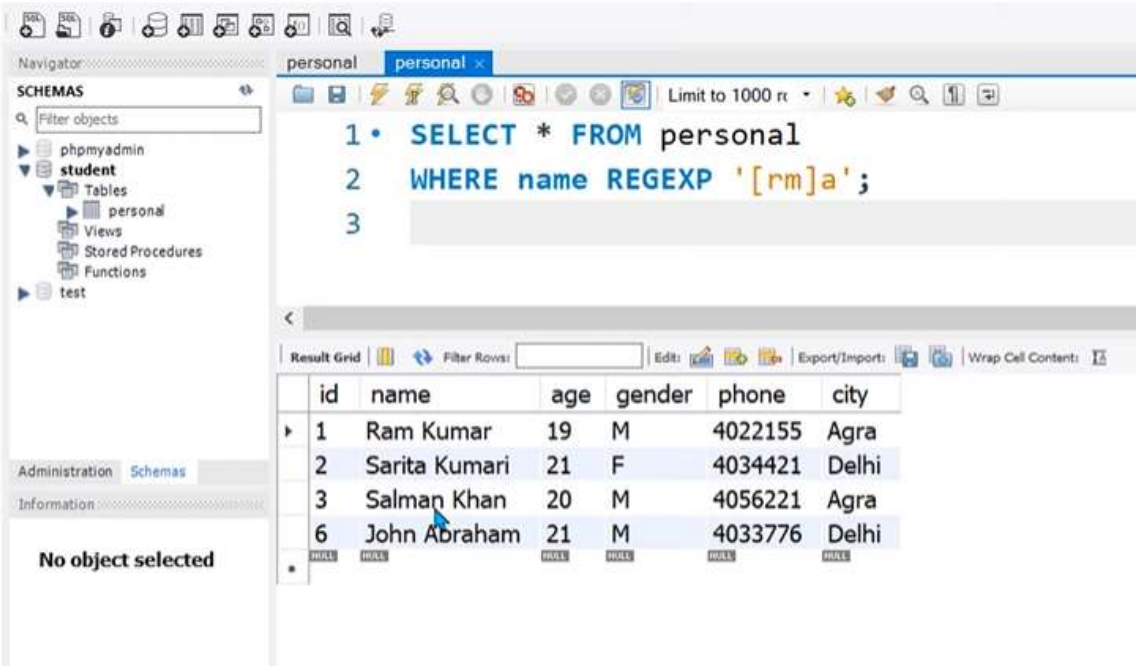
personal
personal
Limit to 1000 r
1 • SELECT * FROM personal
2 WHERE name REGEXP '[is]';
Result Grid
Filter Rows:
Edit:
Export/Import:
Wrap Cell Content:
id name age gender phone city
2 Sarita Kumari 21 F 4034421 Delhi
3 Salman Khan 20 M 4056221 Agra
4 Juh Chawla 18 F 4089821 Bhopal
5 Anil Kapoor 22 M 4025221 Agra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Information
No object selected
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personal
Limit to 1000 r
1 • SELECT * FROM personal
2 WHERE name REGEXP '[rm]a';
3
Result Grid
Filter Rows:
Edit:
Export/Import:
Wrap Cell Content:
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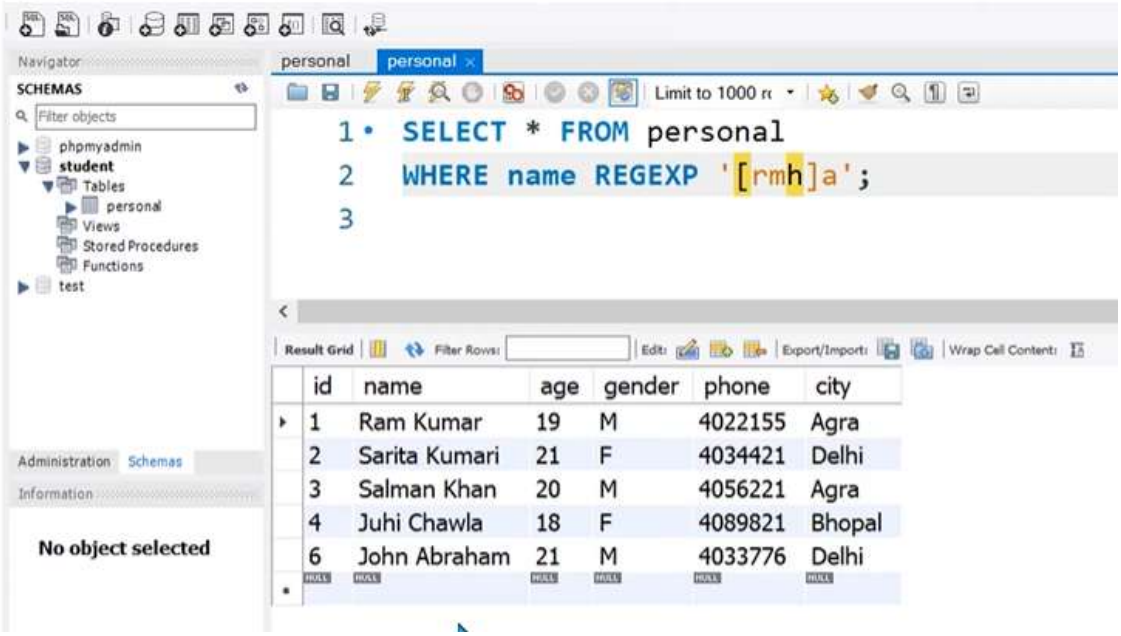
2 Sarita Kumari 21 F 4034421 Delhi
3 Salman Khan 20 M 4056221 Agra
6 John Abraham 21 M 4033776 Delhi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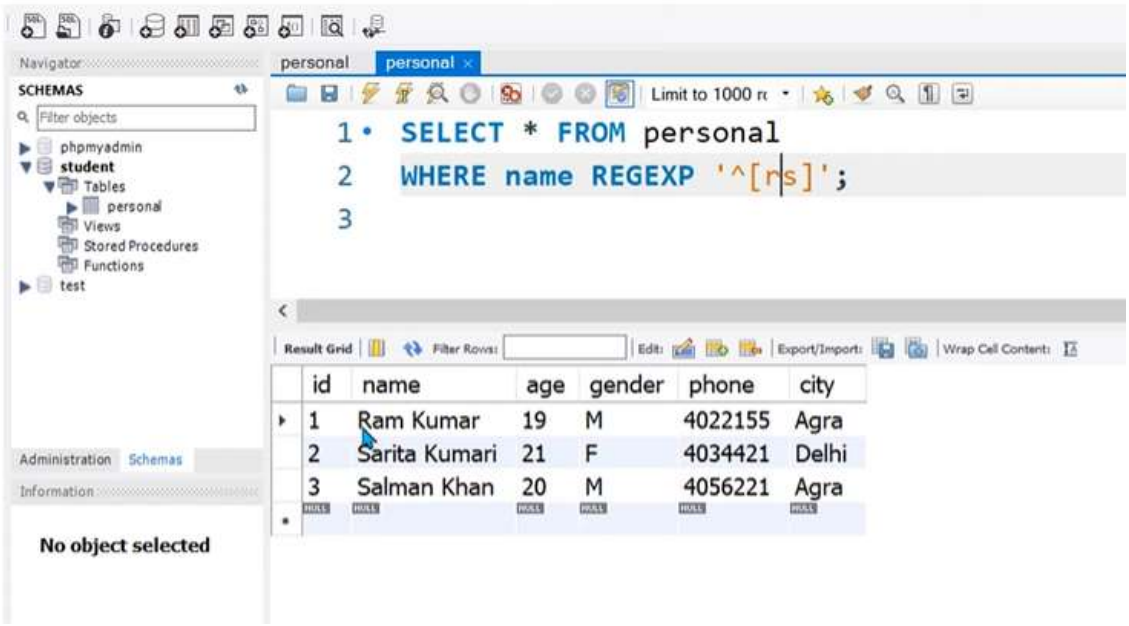
Stored Procedures
Functions
test
Administration
Schemas
Information
No object selected
personal
personal
Limit to 1000 r
1 • SELECT * FROM personal
2 WHERE name REGEXP '[rmh]a';
3
Result Grid
Filter Rows:
Edit:
Export/Import:
Wrap Cell Content:
id name age gender phone city
1 Ram Kumar 19 M 4022155 Agra
2 Sarita Kumari 21 F 4034421 Delhi
3 Salman Khan 20 M 4056221 Agra
4 Juhi Chawla 18 F 4089821 Bhopal
6 John Abraham 21 M 4033776 Delhi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Views
Stored Procedures
Functions
test
Administration
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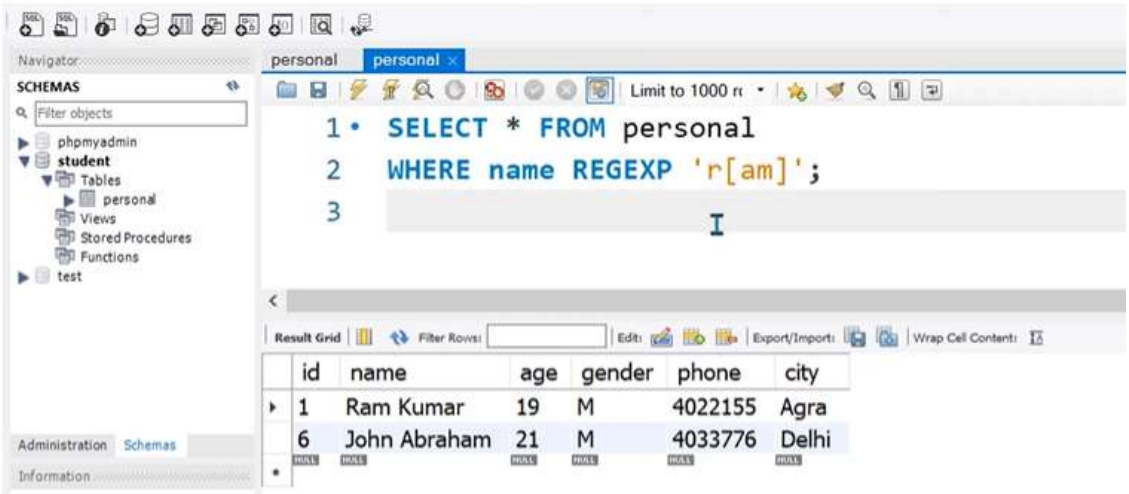
Information
No object selected
personal
personal
Limit to 1000 r
1 • SELECT * FROM personal
2 WHERE name REGEXP '^[rs]';
3
Result Grid
Filter Rows:
Edit:
Export/Import:
Wrap Cell Content:
id name age gender phone city
1 Ram Kumar 19 M 4022155 Agra
2 Sarita Kumari 21 F 4034421 Delhi
3 Salman Khan 20 M 4056221 Agra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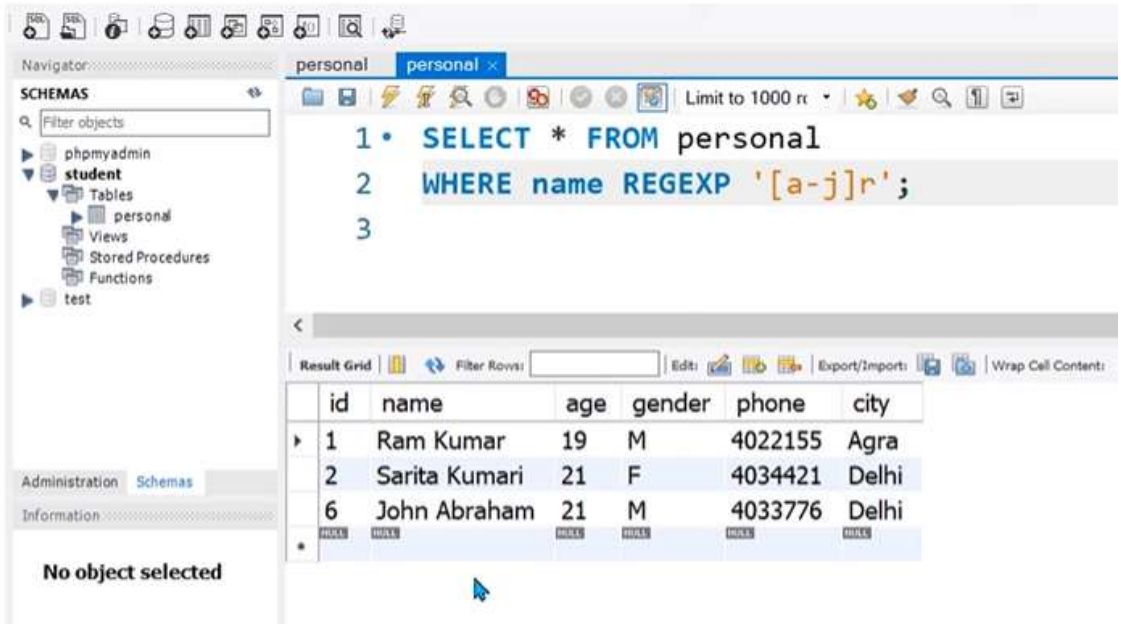
Views
Stored Procedures
Functions
test
Administration
Schemas
Information
personal
personal
Limit to 1000 r
1 • SELECT * FROM personal
2 WHERE name REGEXP 'r[am]';
3
Result Grid
Filter Rows:
Edit:
Export/Import:
Wrap Cell Content:
id name age gender phone city
1 Ram Kumar 19 M 4022155 Agra
6 John Abraham 21 M 4033776 Delhi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Filter objects
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student
Tables
personal
Views
Stored Procedures
Functions
test
Administration
Schemas
Information
No object selected
personal
personal
Limit to 1000 r
1 • SELECT * FROM personal
2 WHERE name REGEXP '[a-j]r';
3
Result Grid
Filter Rows:
Edit:
Export/Import:
Wrap Cell Content:
id name age gender phone city
1 Ram Kumar 19 M 4022155 Agra
2 Sarita Kumari 21 F 4034421 Delhi
6 John Abraham 21 M 4033776 Delhi

13. MySQL ORDER BY & DISTINCT

SELECT Data with ORDER BY

Student Table

Name	Age	Gender
Ram Kumar	19	Male
Salman Khan	18	Male
Meera Khan	19	Female
Sarita Kumari	21	Female
Anil Kapoor	20	Male

Ascending Order

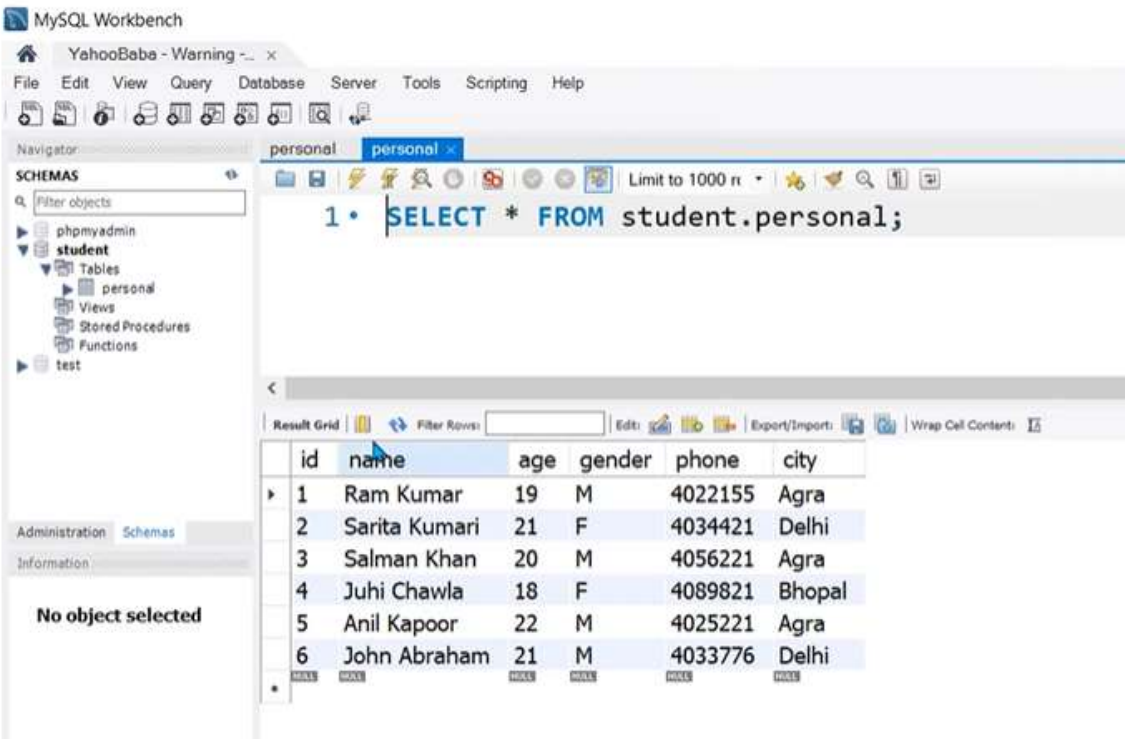
Name	Age	Gender
Anil Kapoor	20	Male
Meera Khan	19	Female
Ram Kumar	19	Male
Salman Khan	18	Male
Sarita Kumari	21	Female

```
ORDER BY Name ASC
ORDER BY Name DESC
```

SELECT with ORDER BY Syntax

```
SELECT column1, column2, column3, ....
FROM table_name
ORDER BY column1, column2, .... ASC | DESC;
```

Practical


MySQL Workbench
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Filter objects
phpmyadmin
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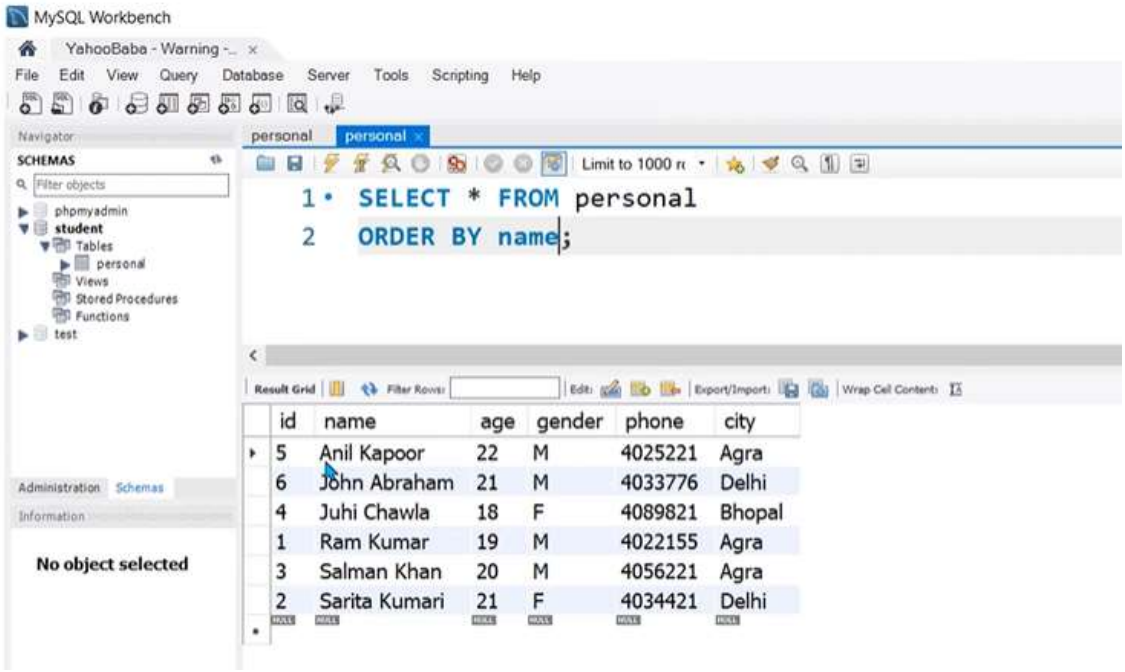
Tables
personal
Views
Stored Procedures
Functions
test
Administration Schemas
Information
No object selected
personal personal
Limit to 1000 r
1 • SELECT * FROM student.personal;
Result Grid Filter Rows: Edit: Export/Import: Wrap Cell Content:
id name age gender phone city
1 Ram Kumar 19 M 4022155 Agra
2 Sarita Kumari 21 F 4034421 Delhi
3 Salman Khan 20 M 4056221 Agra
4 Juhi Chawla 18 F 4089821 Bhopal
5 Anil Kapoor 22 M 4025221 Agra
6 John Abraham 21 M 4033776 Delhi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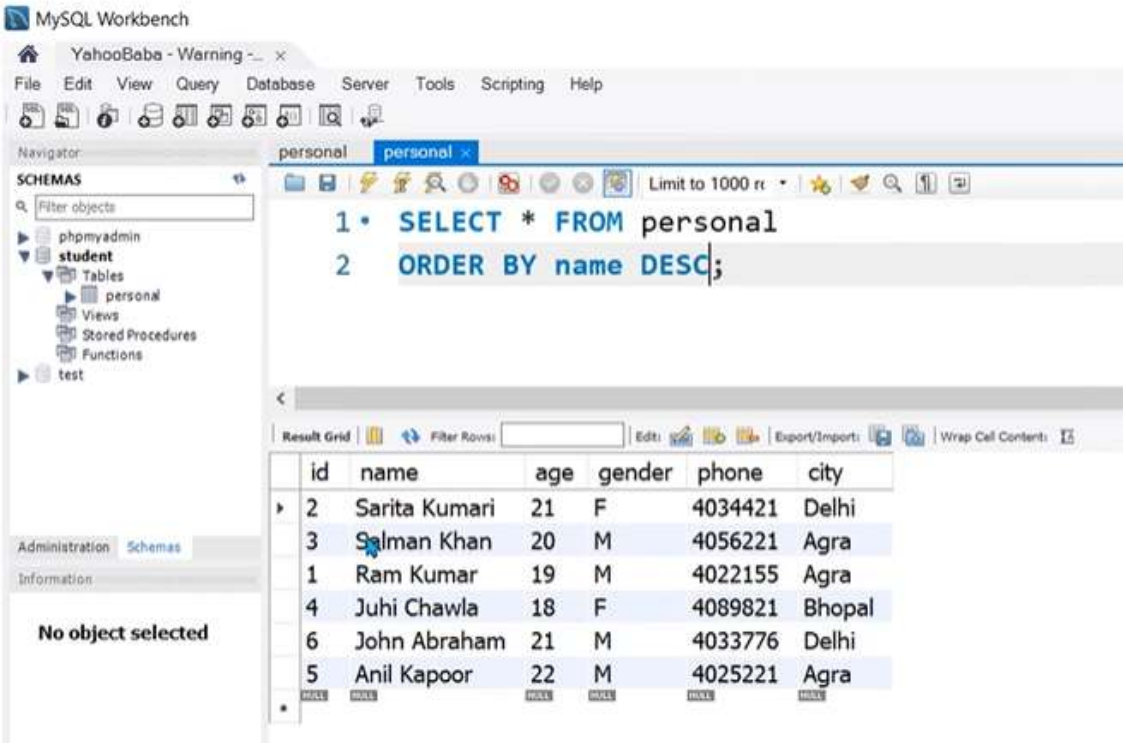
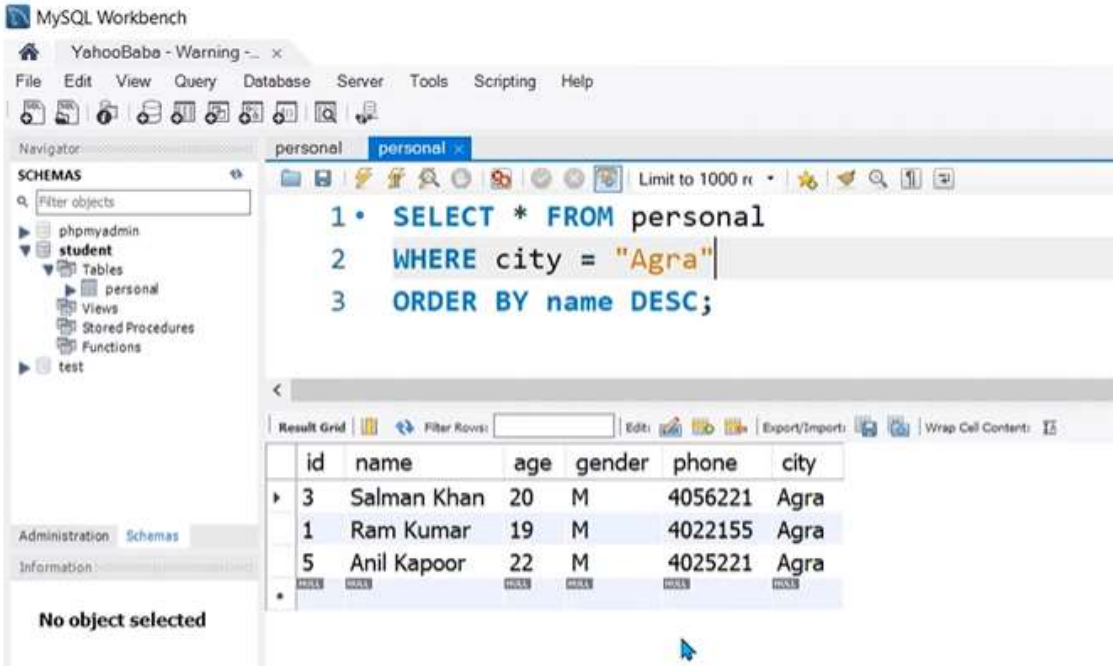
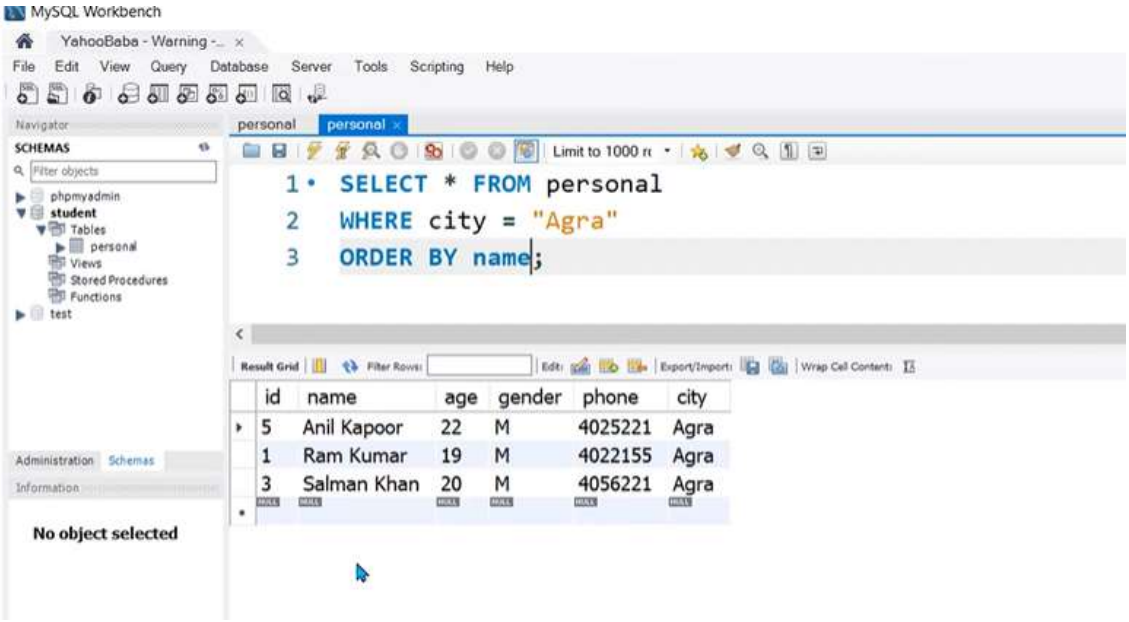
Filter objects
phpmyadmin
student
Tables
personal
Views
Stored Procedures
Functions
test
Administration Schemas
Information
No object selected
personal personal
Limit to 1000 r
1 • SELECT * FROM personal
2 ORDER BY name;
Result Grid Filter Rows: Edit: Export/Import: Wrap Cell Content:
id name age gender phone city
5 Anil Kapoor 22 M 4025221 Agra
6 John Abraham 21 M 4033776 Delhi
4 Juhi Chawla 18 F 4089821 Bhopal
1 Ram Kumar 19 M 4022155 Agra
3 Salman Khan 20 M 4056221 Agra
2 Sarita Kumari 21 F 4034421 Delhi



ascending and descending with condition




MySQL Workbench
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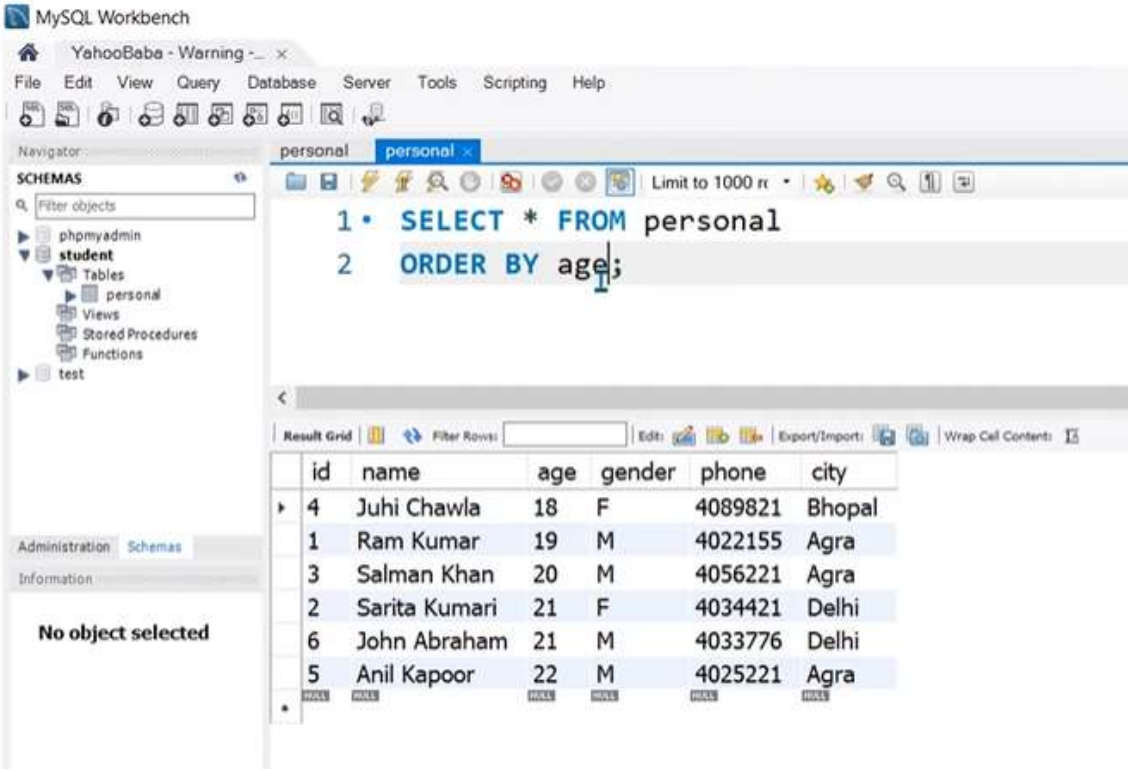
Filter objects
phpmyadmin
student
Tables
personal
Views
Stored Procedures
Functions
test
Administration Schemas
Information
No object selected
personal personal
Limit to 1000 r
1 • SELECT * FROM personal
2 WHERE city = "Agra"
3 ORDER BY name;
Result Grid Filter Rows: Edit: Export/Import: Wrap Cell Content:
id name age gender phone city
5 Anil Kapoor 22 M 4025221 Agra
1 Ram Kumar 19 M 4022155 Agra
3 Salman Khan 20 M 4056221 Agra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YahooBaba - Warning -...
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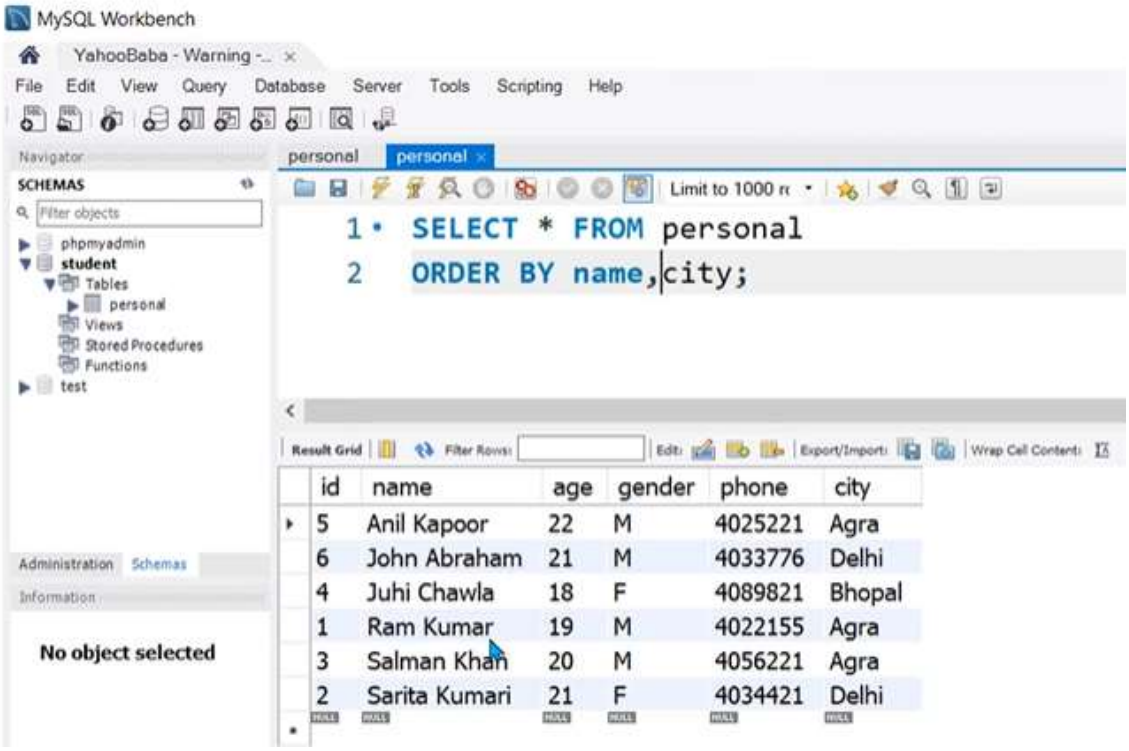
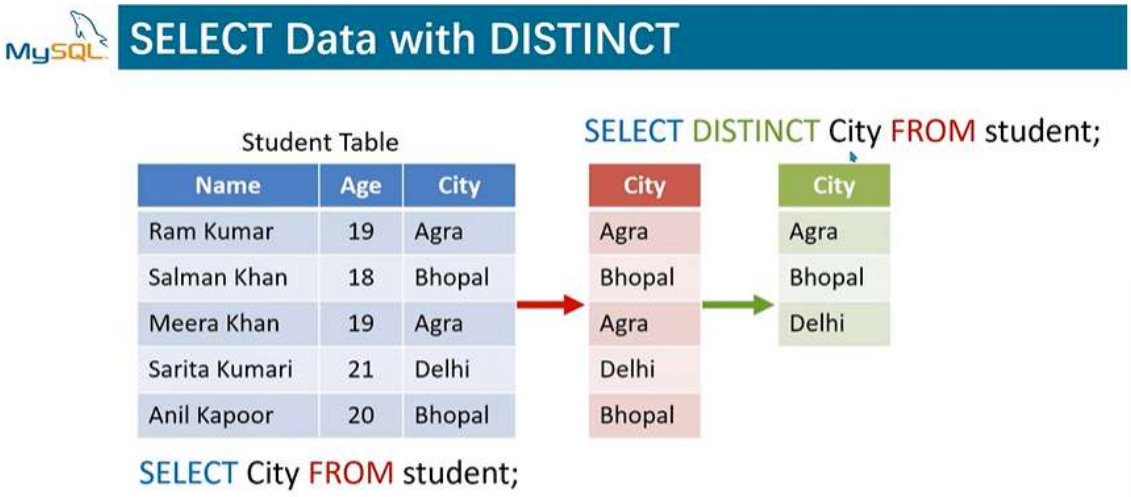
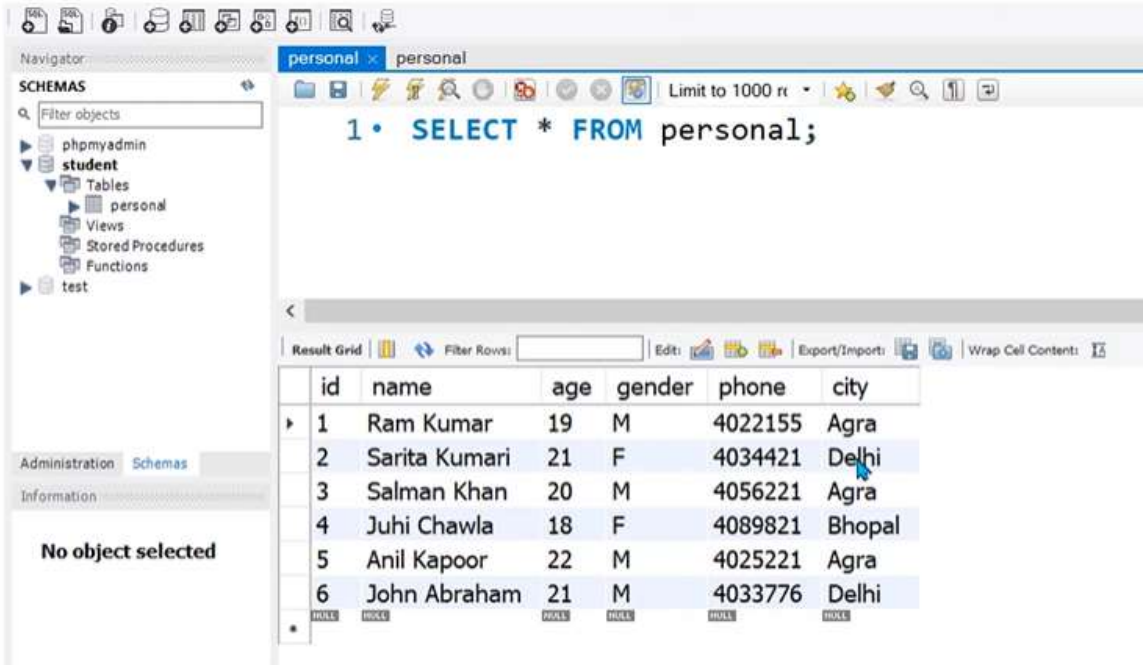
Filter objects
phpmyadmin
student
Tables
personal
Views
Stored Procedures
Functions
test
Administration Schemas
Information
No object selected
personal personal
Limit to 1000 r
1 • SELECT * FROM personal
2 ORDER BY age;
Result Grid Filter Rows: Edit: Export/Import: Wrap Cell Content:
id name age gender phone city
4 Juhi Chawla 18 F 4089821 Bhopal
1 Ram Kumar 19 M 4022155 Agra
3 Salman Khan 20 M 4056221 Agra
2 Sarita Kumari 21 F 4034421 Delhi
6 John Abraham 21 M 4033776 Delhi
5 Anil Kapoor 22 M 4025221 Agra



Ordering with distinct(unique)




```
SELECT DISTINCT column1, column2, ....
FROM table_name;
```


Navigator
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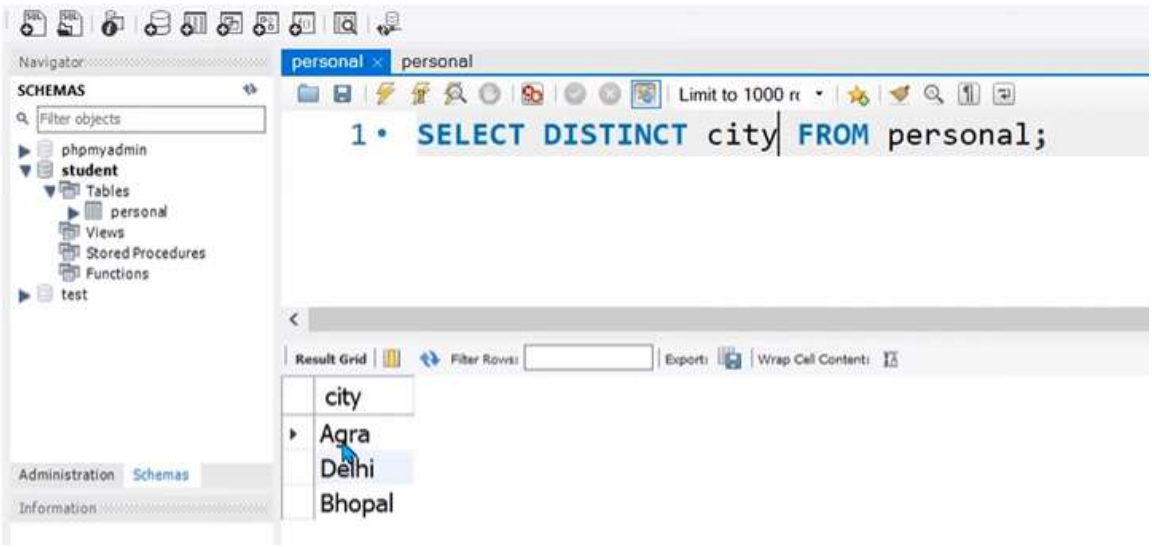
personal
Views
Stored Procedures
Functions
test
Administration
Schemas
Information
No object selected
personal
personal
Limit to 1000 r
1 • SELECT * FROM personal;
Result Grid
Filter Rows:
Edit:
Export/Import:
Wrap Cell Content:
id name age gender phone city
1 Ram Kumar 19 M 4022155 Agra
2 Sarita Kumari 21 F 4034421 Delhi
3 Salman Khan 20 M 4056221 Agra
4 Juhi Chawla 18 F 4089821 Bhopal
5 Anil Kapoor 22 M 4025221 Agra
6 John Abraham 21 M 4033776 Delhi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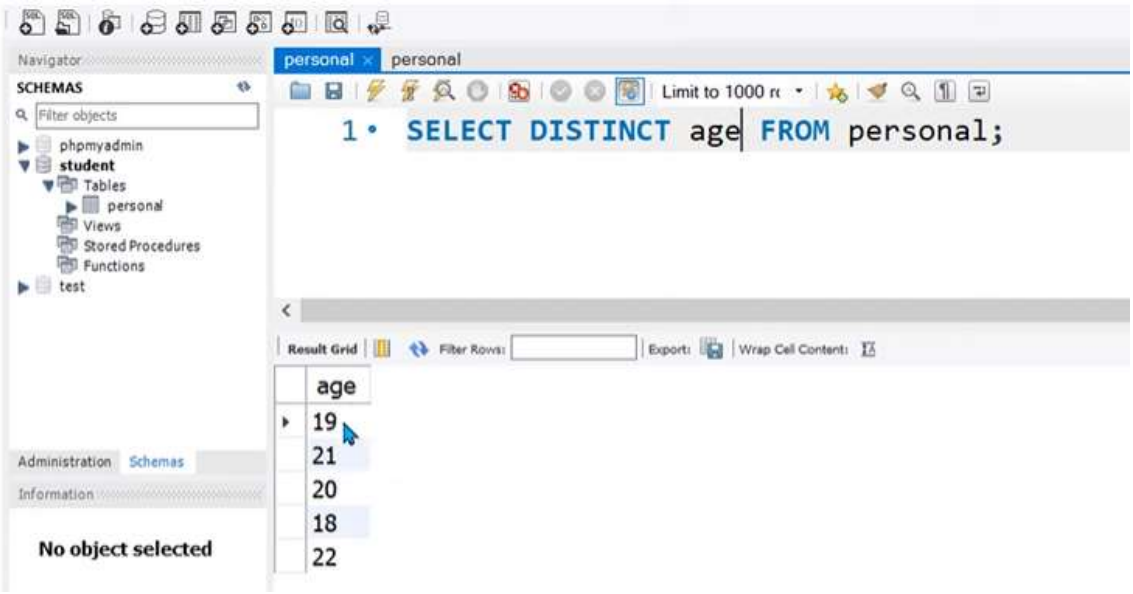
Filter objects
phpmyadmin
student
Tables
personal
Views
Stored Procedures
Functions
test
Administration
Schemas
Information
personal
personal
Limit to 1000 r
1 • SELECT DISTINCT city FROM personal;
Result Grid
Filter Rows:
Export:
Wrap Cell Content:
city
Agra
Delhi
Bhopal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Filter objects
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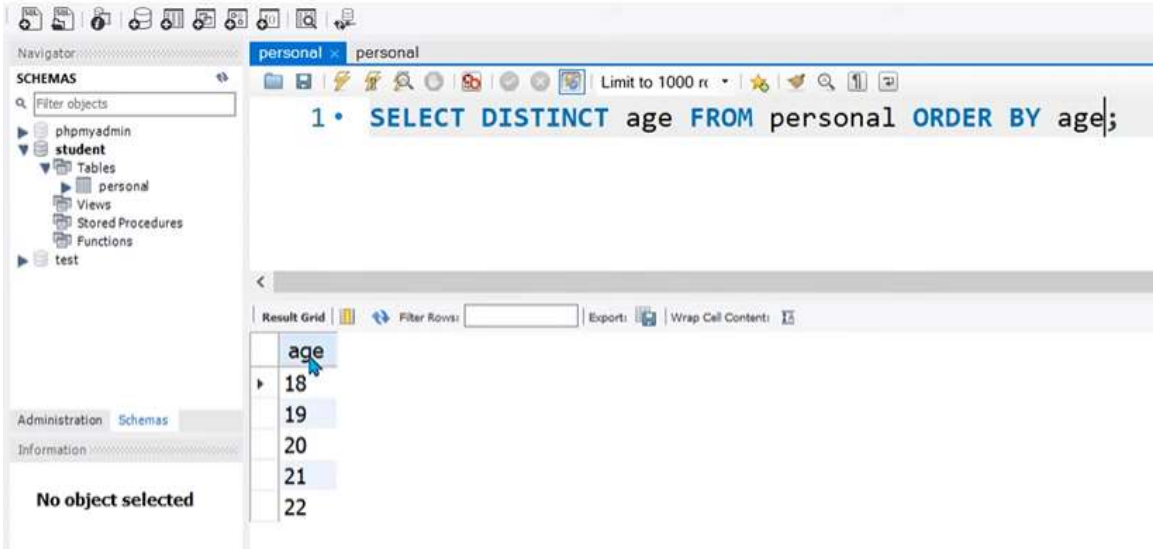
student
Tables
personal
Views
Stored Procedures
Functions
test
Administration
Schemas
Information
No object selected
personal
personal
Limit to 1000 r
1 • SELECT DISTINCT age FROM personal;
Result Grid
Filter Rows:
Export:
Wrap Cell Content:
age
19
21
20
18
22

distinct with order



14. MySQL IS NULL & IS NOT NULL

SELECT Data with IS NULL

Student Table

Name	Age	Gender
Ram Kumar	19	Male
Salman Khan	18	Male
Meera Khan		Female
Sarita Kumari	21	Female
Anil Kapoor	20	Male

WHERE Age IS NULL

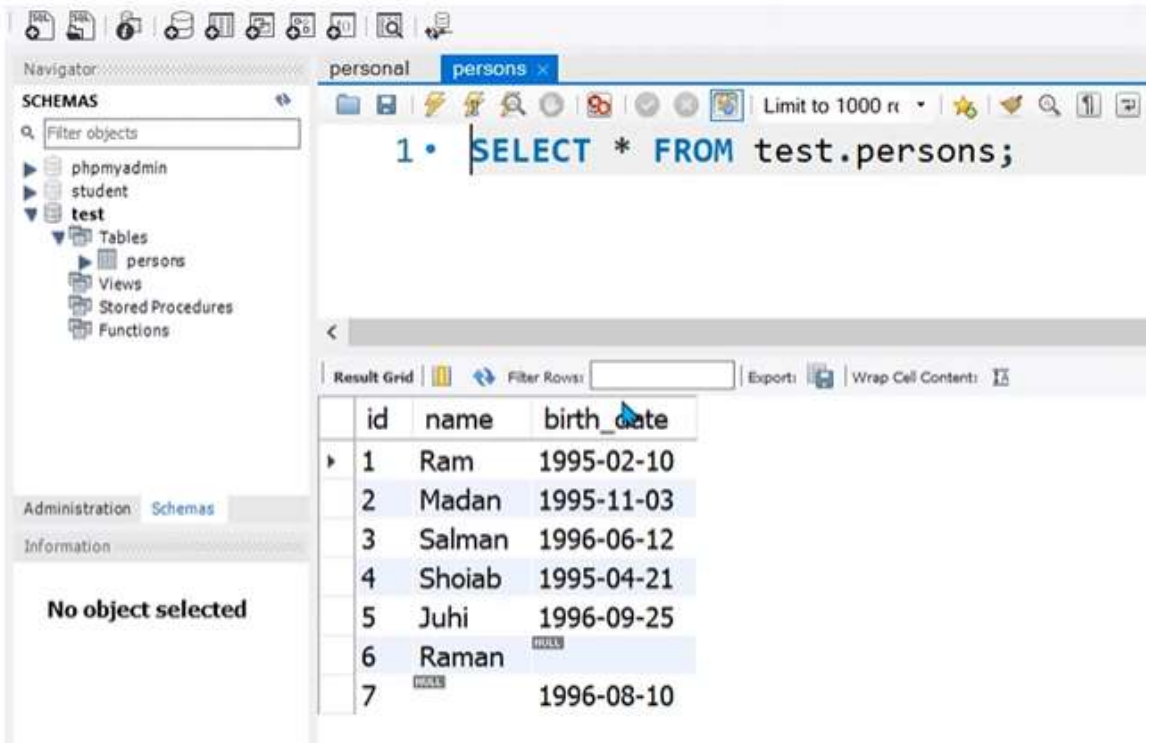
Name	Age	Gender
Meera Khan		Female

SELECT with IS NULL Syntax

```
SELECT column1, column2, column3, ....
FROM table_name
WHERE column IS NULL;
```

```
SELECT column1, column2, column3, ....
FROM table_name
WHERE column IS NOT NULL;
```

practical


Navigator
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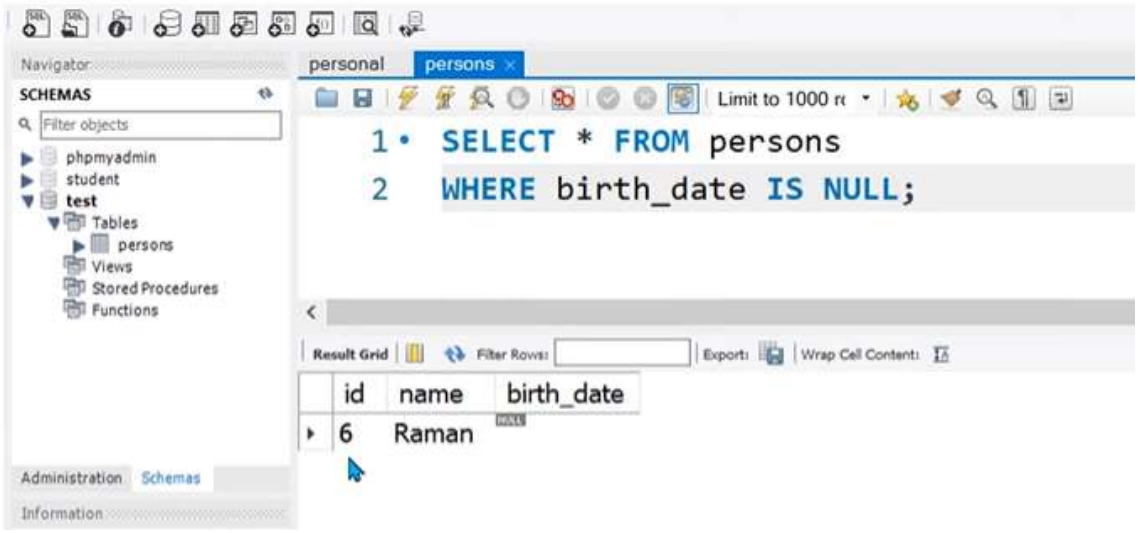
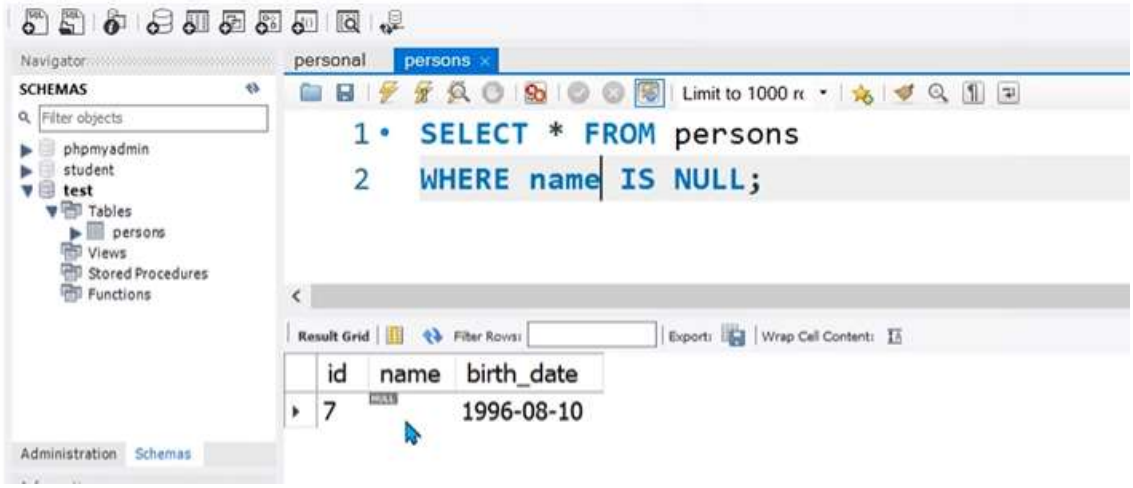
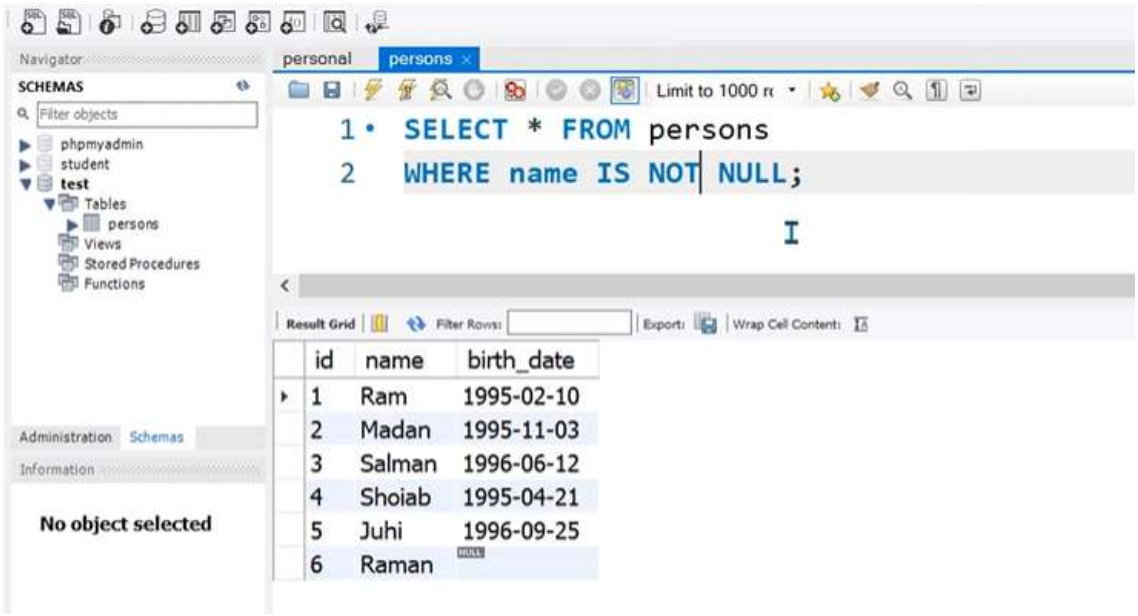
phpmyadmin
student
test
Tables
persons
Views
Stored Procedures
Functions
Administration
Schemas
Information
No object selected
personal
persons
Limit to 1000 r
1 • SELECT * FROM test.persons;
Result Grid
Filter Rows:
Export:
Wrap Cell Content:
id name birth_date
1 Ram 1995-02-10
2 Madan 1995-11-03
3 Salman 1996-06-12
4 Shoiab 1995-04-21
5 Juhi 1996-09-25
6 Raman NULL
7 NULL 1996-08-10


Navigator
SCHEMAS
Filter objects
phpmyadmin
student
test
Tables
persons
Views
Stored Procedures
Functions
Administration
Schemas
Information
personal
persons
Limit to 1000 r
1 • SELECT * FROM persons
2 WHERE birth_date IS NULL;
Result Grid
Filter Rows:
Export:
Wrap Cell Content:
id name birth_date
6 Raman NULL





15. MySQL LIMIT & OFFSET

SELECT Data with LIMIT

Student Table

Name	Age	Gender
Ram Kumar	19	Male
Salman Khan	18	Male
Meera Khan	20	Female
Sarita Kumari	21	Female
Anil Kapoor	20	Male
Shahid Kapoor	19	Male
Virat Kohli	21	Male

LIMIT 3

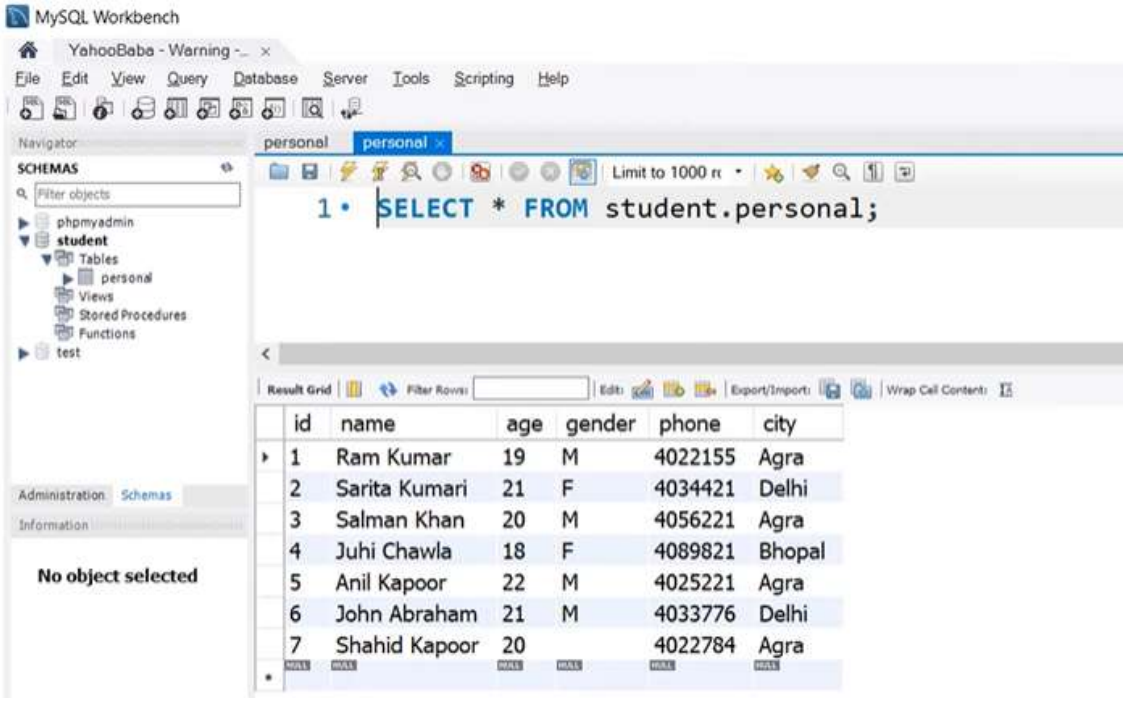
Name	Age	Gender
Ram Kumar	19	Male
Salman Khan	18	Male
Meera Khan	20	Female

```
SELECT * FROM student;
```

SELECT with LIMIT Syntax

```
SELECT column1, column2, column3, ....
FROM table_name
WHERE condition
LIMIT number;
```

Practical


MySQL Workbench
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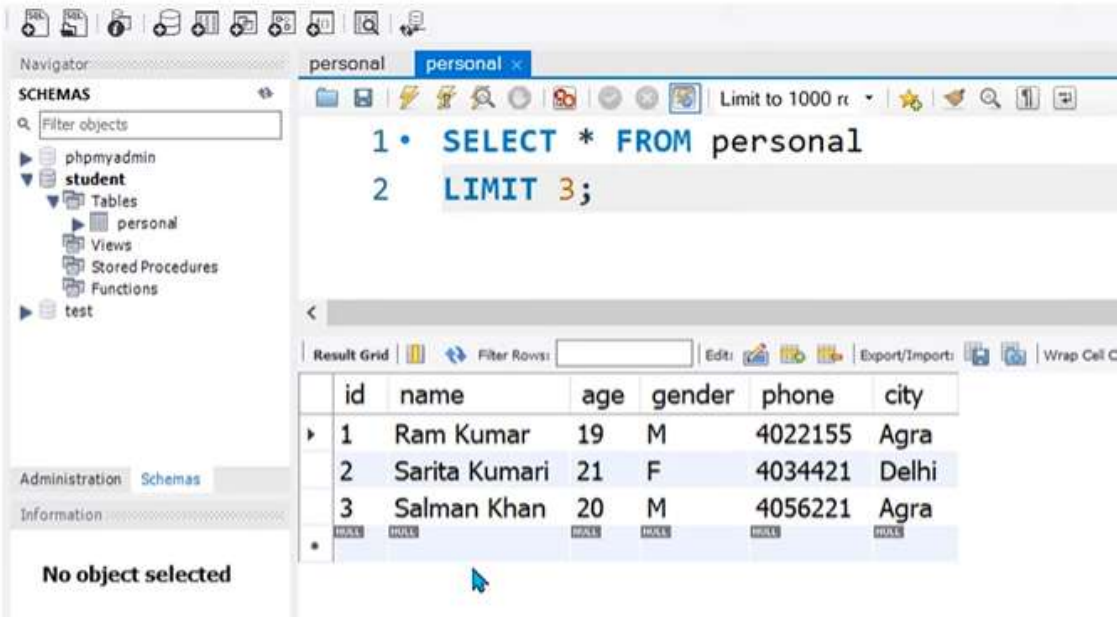
personal
Views
Stored Procedures
Functions
test
Administration Schemas
Information
No object selected
personal
personal
Limit to 1000 r
1 • SELECT * FROM student.personal;
Result Grid
Filter Rows:
Edit:
Export/Import:
Wrap Cell Content:
id name age gender phone city
1 Ram Kumar 19 M 4022155 Agra
2 Sarita Kumari 21 F 4034421 Delhi
3 Salman Khan 20 M 4056221 Agra
4 Juhi Chawla 18 F 4089821 Bhopal
5 Anil Kapoor 22 M 4025221 Agra
6 John Abraham 21 M 4033776 Delhi
7 Shahid Kapoor 20 4022784 Agra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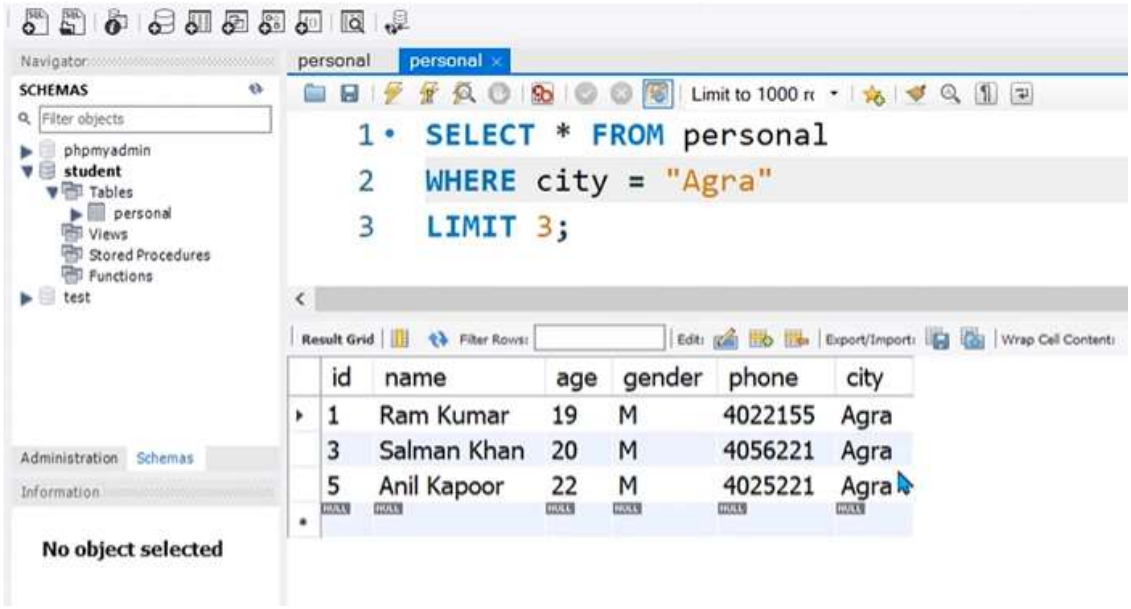
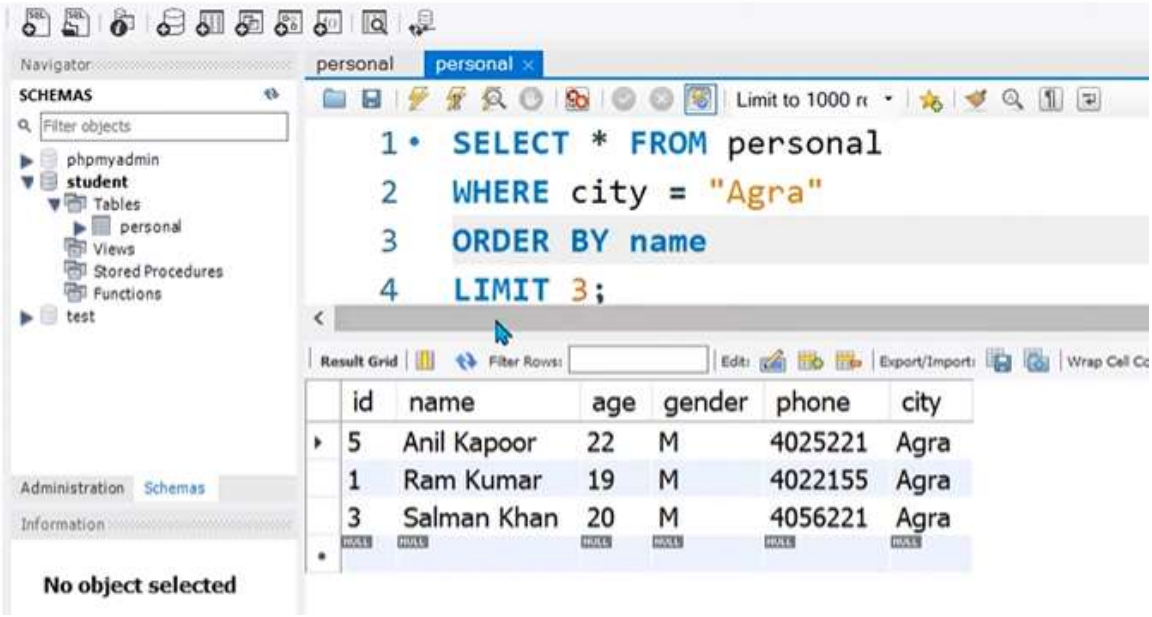
Filter objects
phpmyadmin
student
Tables
personal
Views
Stored Procedures
Functions
test
Administration Schemas
Information
No object selected
personal
personal
Limit to 1000 r
1 • SELECT * FROM personal
2 LIMIT 3;
Result Grid
Filter Rows:
Edit:
Export/Import:
id name age gender phone city
1 Ram Kumar 19 M 4022155 Agra
2 Sarita Kumari 21 F 4034421 Delhi
3 Salman Khan 20 M 4056221 Agra





limit with offset

SELECT Data with LIMIT & OFFSET

Student Table

Name	Age	Gender
Ram Kumar	19	Male
Salman Khan	18	Male
Meera Khan	20	Female
Sarita Kumari	21	Female
Anil Kapoor	20	Male
Shahid Kapoor	19	Male
Virat Kohli	21	Male

LIMIT 3

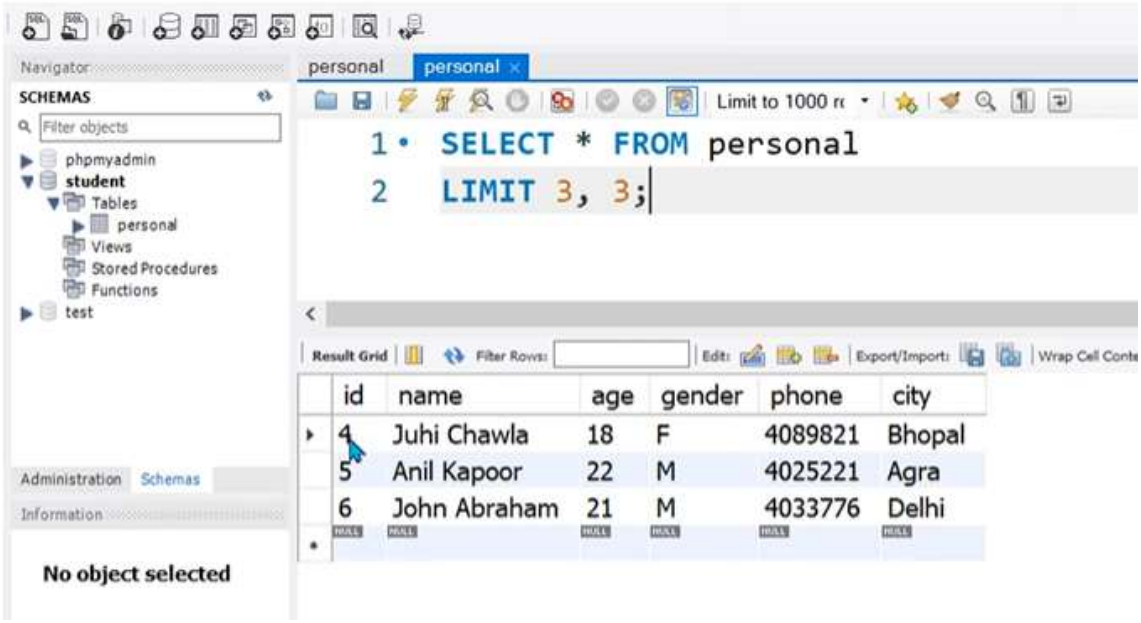
Name	Age	Gender
Ram Kumar	19	Male
Salman Khan	18	Male
Meera Khan	20	Female

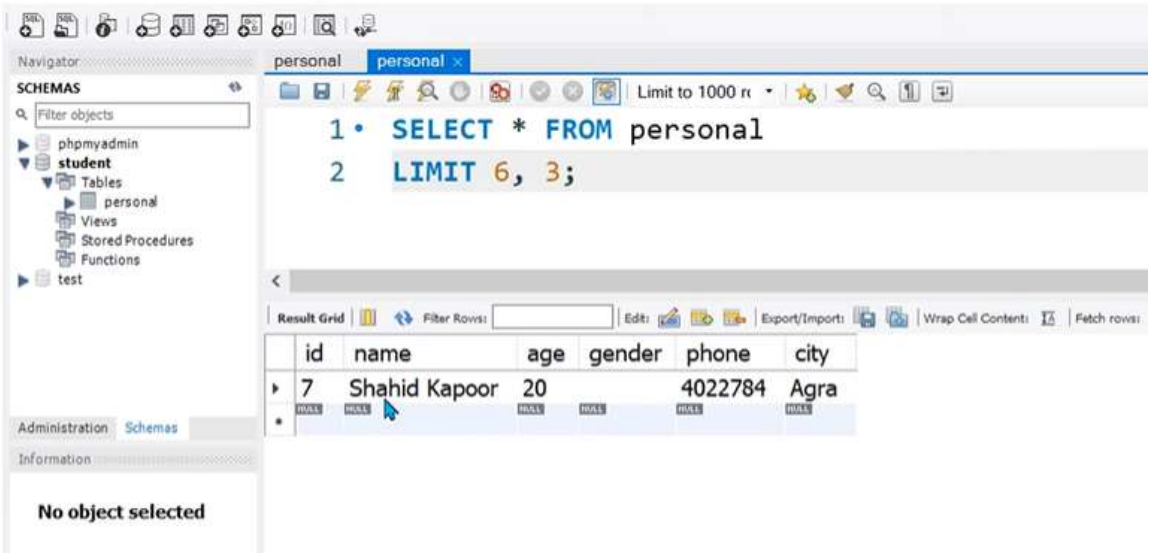
LIMIT 3, 3

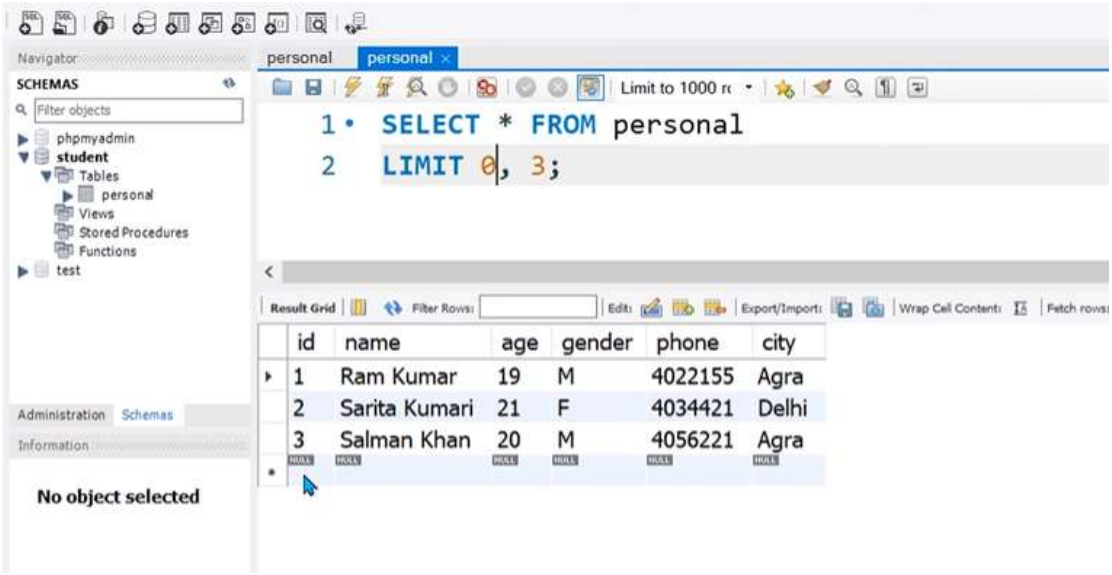
OFFSET LIMIT NUMBER

SELECT with LIMIT & OFFSET Syntax

```
SELECT column1, column2, column3, ....
FROM table_name
WHERE condition
LIMIT offset , number;
```







16. MySQL Count, Sum, Min, Max, Avg

SELECT Data with Aggregate Functions

Employee Table

Name	Age	Gender	Salary
Ram Kumar	19	Male	4500
Salman Khan	18	Male	5200
Meera Khan	20	Female	6000
Sarita Kumari	21	Female	8500
Anil Kapoor	20	Male	6300
Shahid Kapoor	19	Male	4800
Virat Kohli	21	Male	5700

COUNT(column_name)

MAX(column_name)

MIN(column_name)

SUM(column_name)

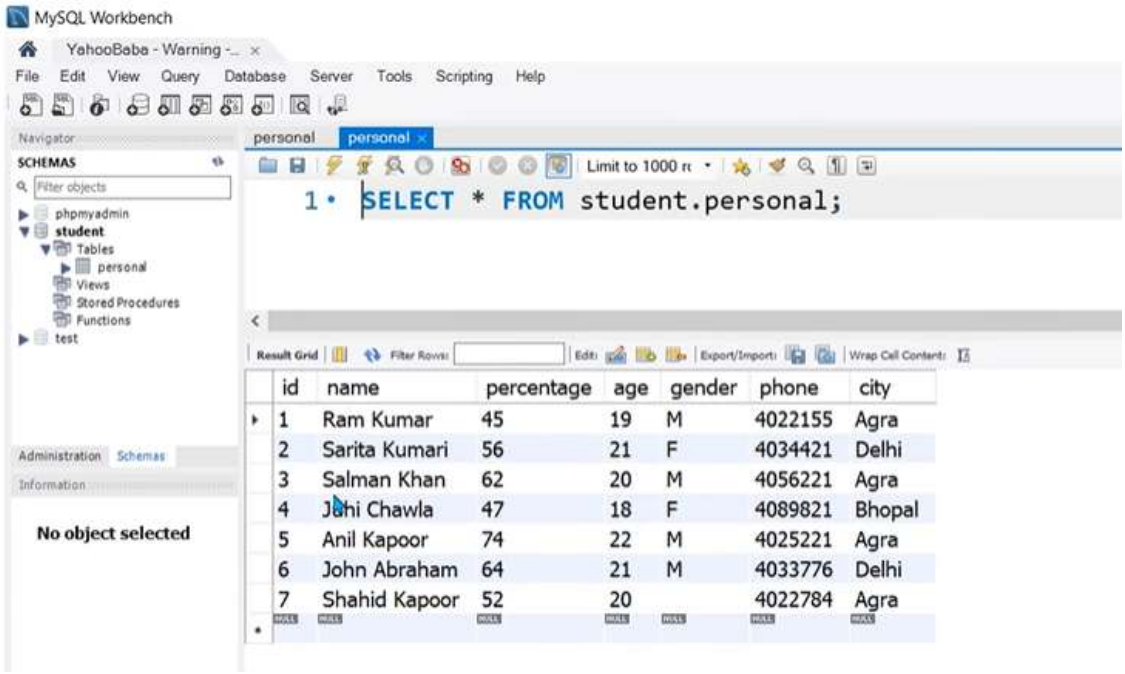
AVG(column_name)

SELECT with Aggregate Functions Syntax

```
SELECT COUNT(column_name)
FROM table_name
WHERE condition;

SELECT SUM(column_name)
FROM table_name
WHERE condition;
```

Practical


MySQL Workbench
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Filter objects
phpmyadmin
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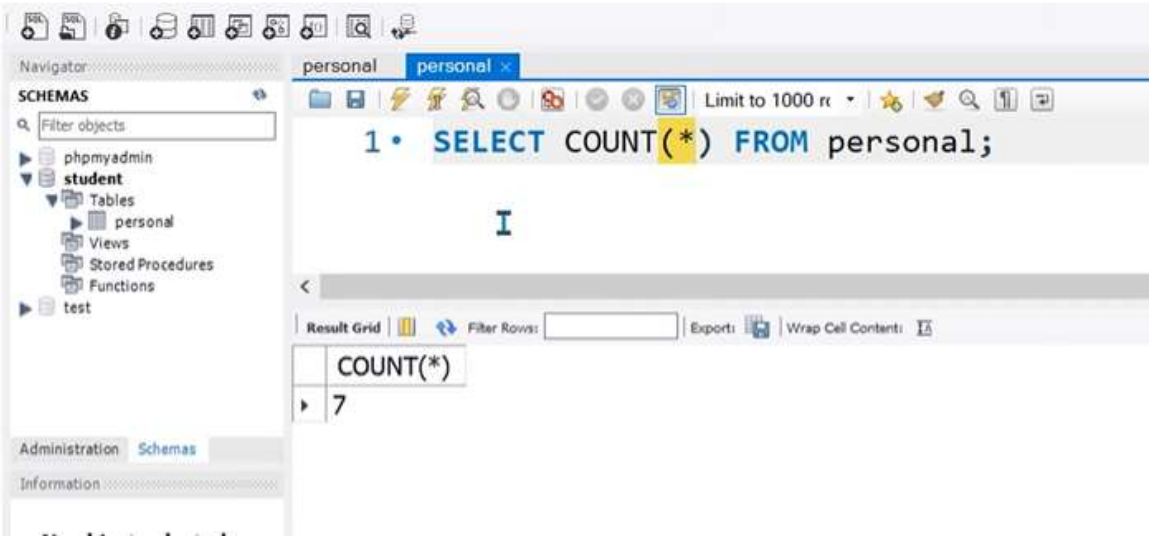
Tables
personal
Views
Stored Procedures
Functions
test
Administration Schemas
Information
No object selected
personal personal
Limit to 1000 r
1 • SELECT * FROM student.personal;
Result Grid Filter Rows: Edit: Export/Import: Wrap Cell Content:
id name percentage age gender phone city
1 Ram Kumar 45 19 M 4022155 Agra
2 Sarita Kumari 56 21 F 4034421 Delhi
3 Salman Khan 62 20 M 4056221 Agra
4 Jahi Chawla 47 18 F 4089821 Bhopal
5 Anil Kapoor 74 22 M 4025221 Agra
6 John Abraham 64 21 M 4033776 Delhi
7 Shahid Kapoor 52 20 4022784 Agra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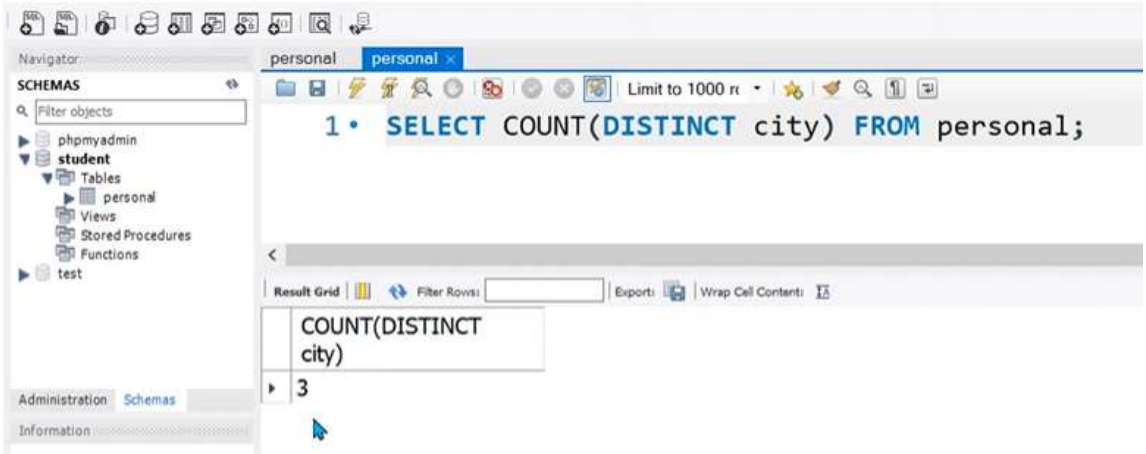
personal
Views
Stored Procedures
Functions
test
Administration Schemas
Information
personal personal
Limit to 1000 r
1 • SELECT COUNT(*) FROM personal;
Result Grid Filter Rows: Export: Wrap Cell Content:
COUNT(*)
7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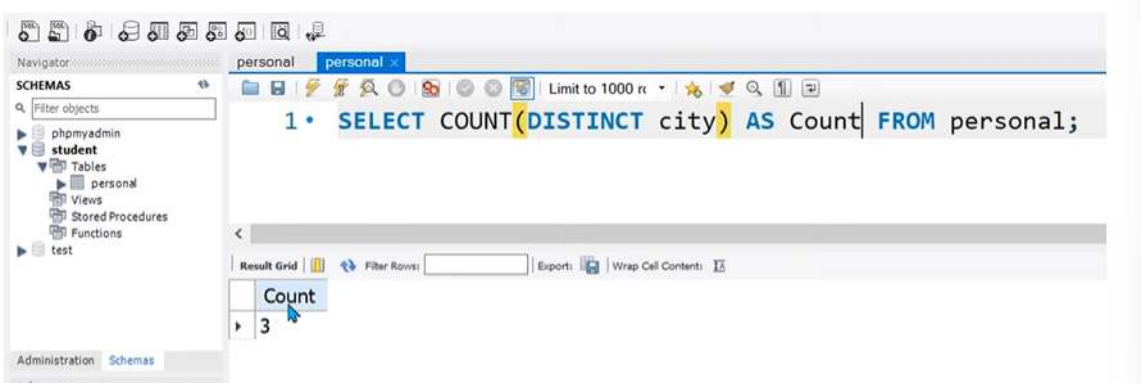
Filter objects
phpmyadmin
student
Tables
personal
Views
Stored Procedures
Functions
test
Administration Schemas
Information
personal personal
Limit to 1000 r
1 • SELECT COUNT(DISTINCT city) FROM personal;
Result Grid Filter Rows: Export: Wrap Cell Content:
COUNT(DISTINCT city)
3


Navigator
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Filter objects
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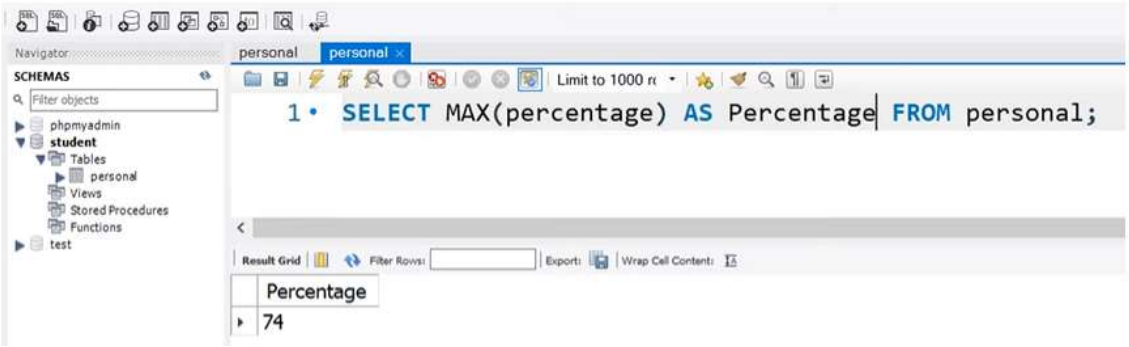
Limit to 1000 r
1 • SELECT COUNT(DISTINCT city) AS Count FROM personal;
Result Grid
Filter Rows:
Export:
Wrap Cell Content:
Count
3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Filter objects
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Tables
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Views
Stored Procedures
Functions
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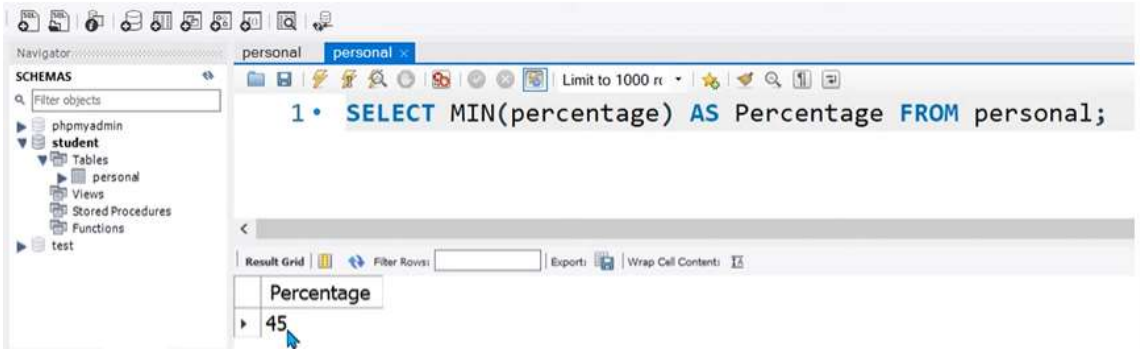
Limit to 1000 r
1 • SELECT MAX(percentage) AS Percentage FROM personal;
Result Grid
Filter Rows:
Export:
Wrap Cell Content:
Percentage
74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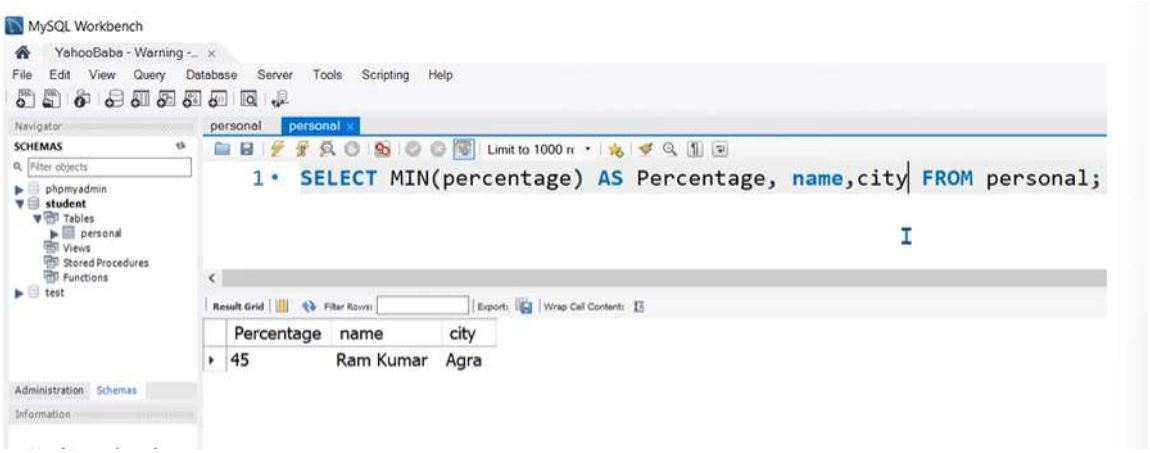
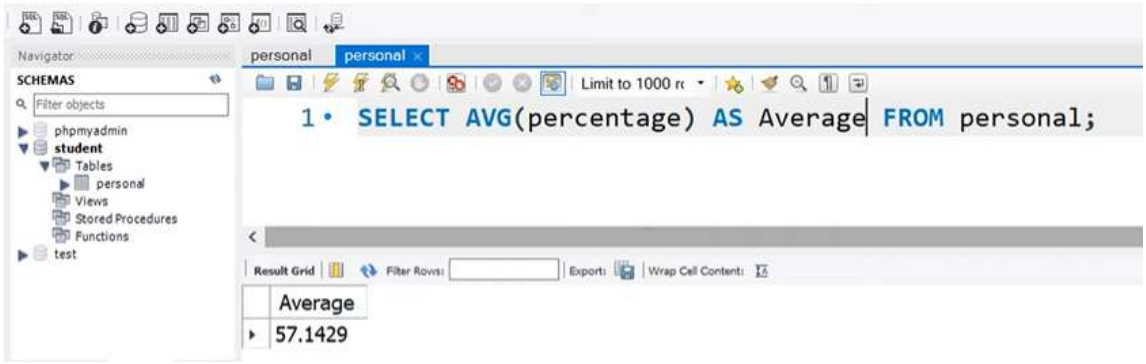
Limit to 1000 r
1 • SELECT MIN(percentage) AS Percentage FROM personal;
Result Grid
Filter Rows:
Export:
Wrap Cell Content:
Percentage
45





17. MySQL UPDATE

How to update data in Tables with SQL ?

Employee Table

Name	Age	Gender	Salary
Ram Kumar	19	Male	4500
Salman Khan	18	Male	5200
Meera Khan	20	Female	6000
Sarita Kumari	21	Female	8500
Anil Kapoor	20	Male	6300

6000

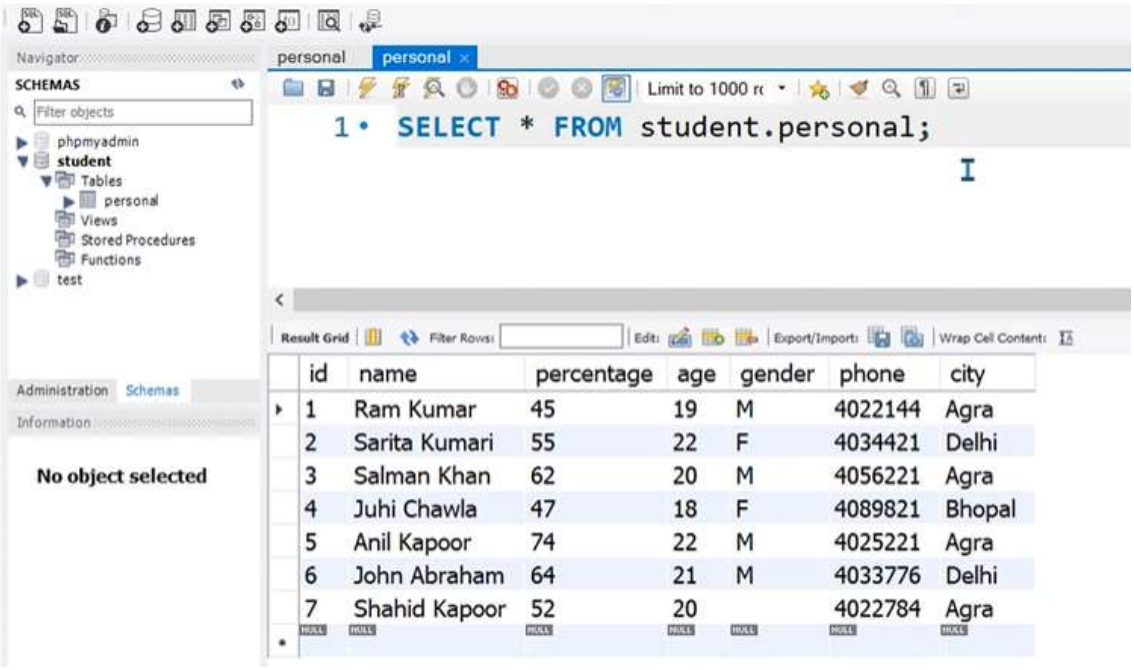
22

UPDATE Command

UPDATE Syntax

```
UPDATE table_name
SET column1_name = value1, column2_name = value2,...
WHERE condition;
```

Practical




Navigator
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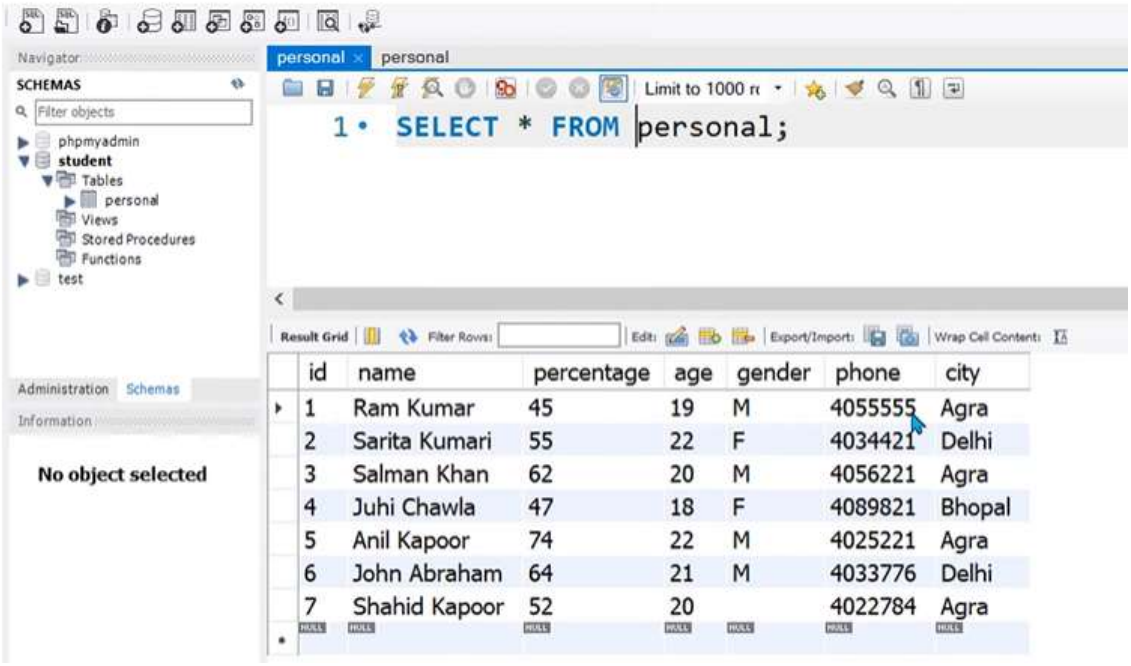
Limit to 1000 r
1 UPDATE personal
2 SET phone = "4055555"
3 WHERE id = 1;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Filter objects
phpmyadmin
student
Tables
personal
Views
Stored Procedures
Functions
test
Administration
Schemas
Information
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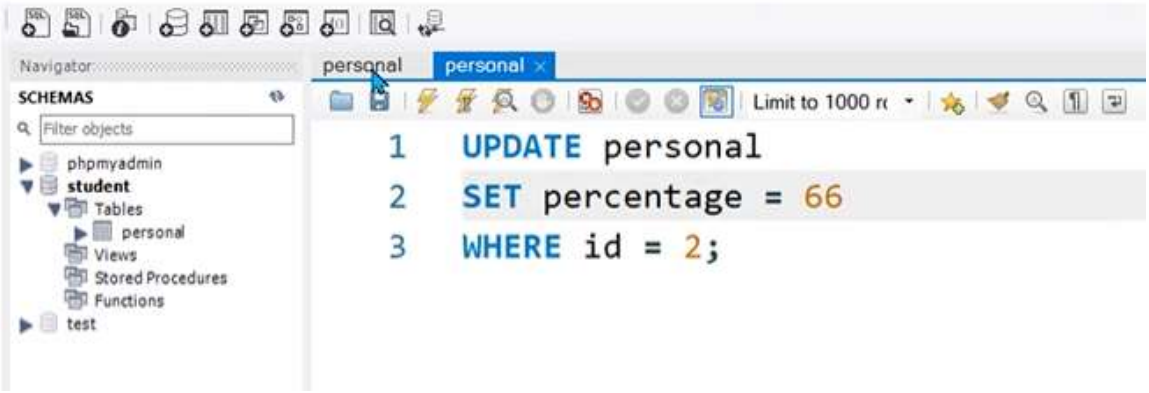
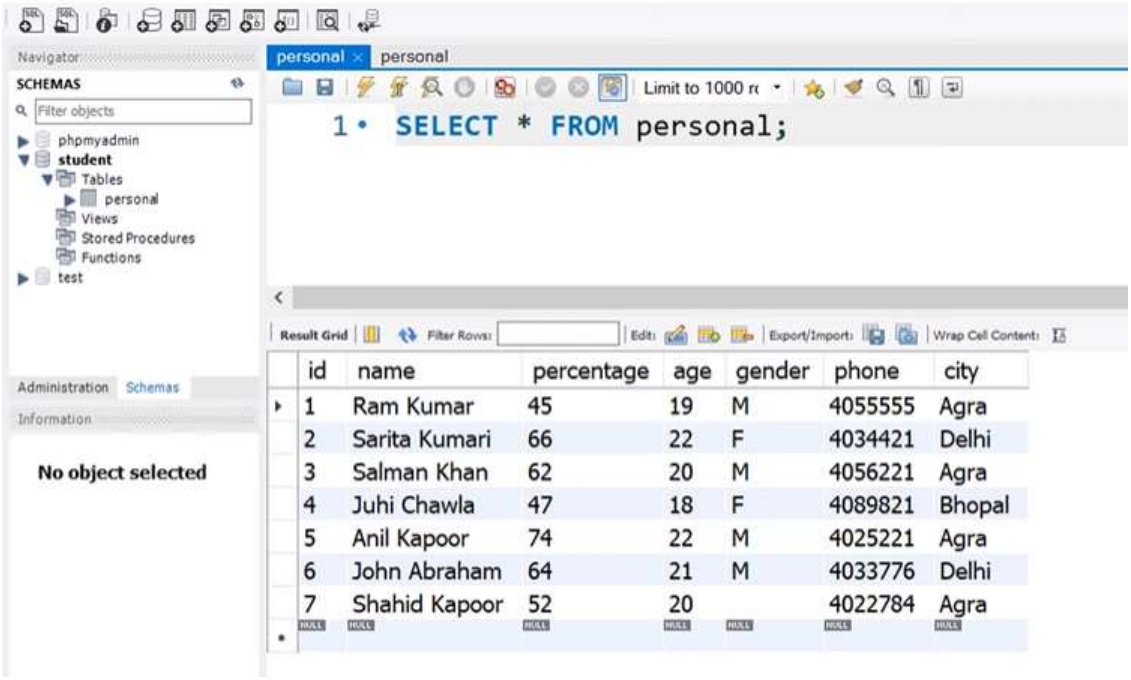
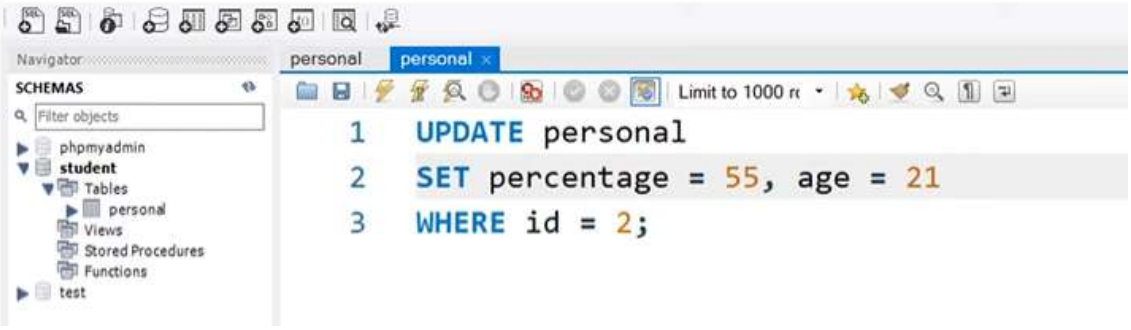
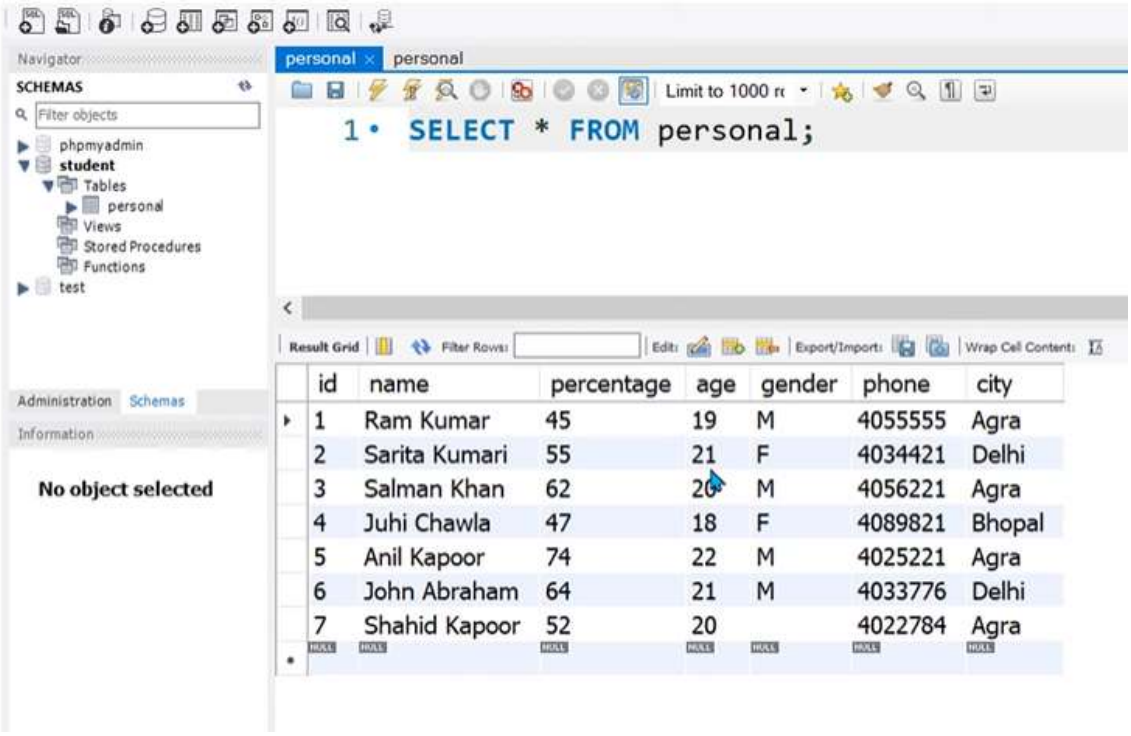
personal
personal
Limit to 1000 r
1 • SELECT * FROM personal;
Result Grid
Filter Rows:
Edit:
Export/Import:
Wrap Cell Content:
id name percentage age gender phone city
1 Ram Kumar 45 19 M 4055555 Agra
2 Sarita Kumari 55 22 F 4034421 Delhi
3 Salman Khan 62 20 M 4056221 Agra
4 Juhi Chawla 47 18 F 4089821 Bhopal
5 Anil Kapoor 74 22 M 4025221 Agra
6 John Abraham 64 21 M 4033776 Delhi
7 Shahid Kapoor 52 20 4022784 Agra


Navigator
SCHEMAS
Filter objects
phpmyadmin
student
Tables
personal
Views
Stored Procedures
Functions
test
personal
personal
Limit to 1000 r
1 UPDATE personal
2 SET percentage = 66
3 WHERE id = 2;

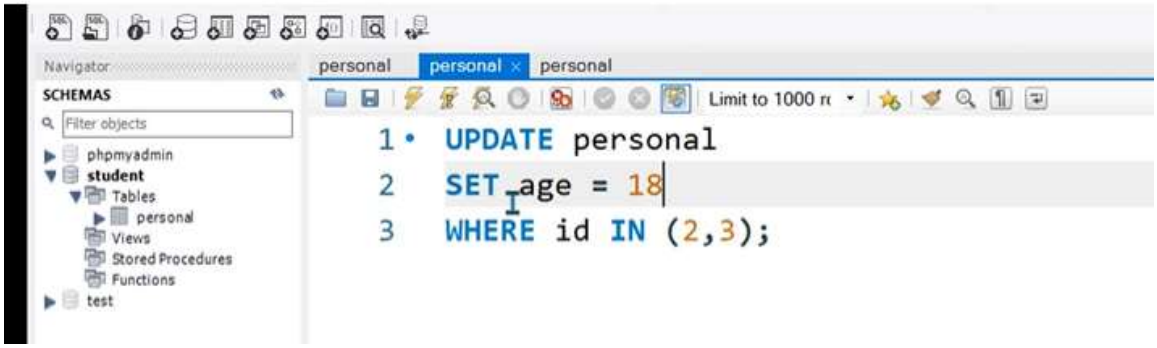


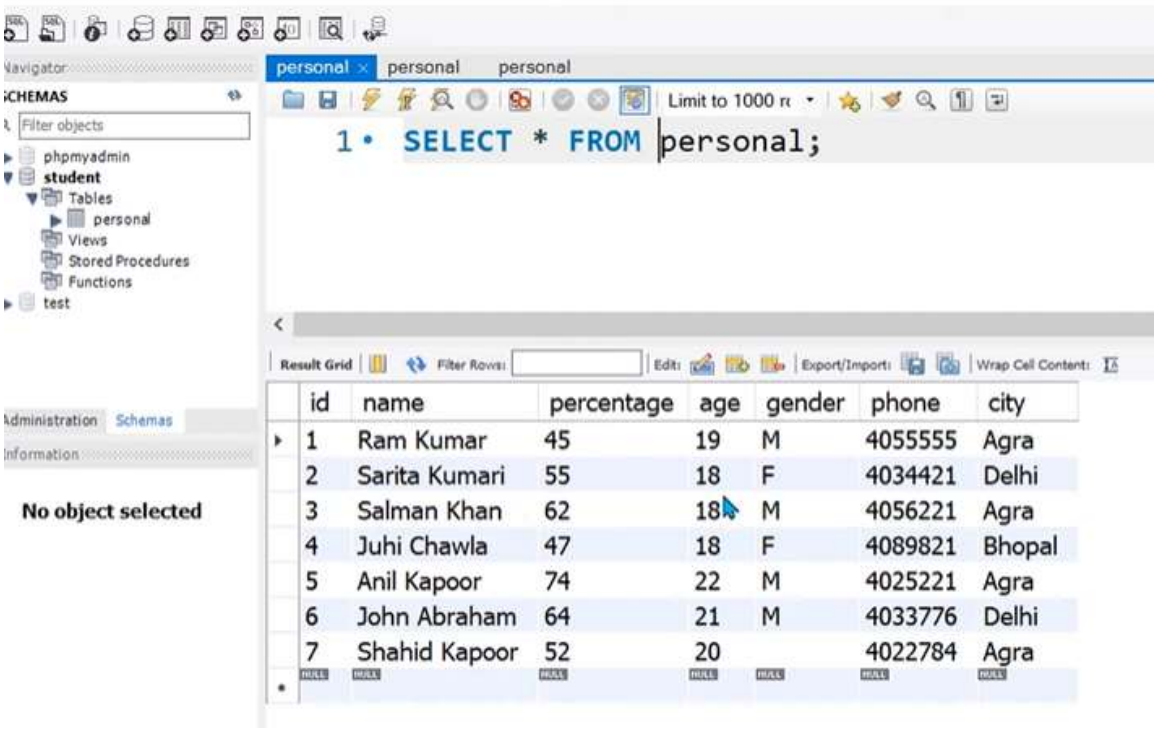
update multiple columns



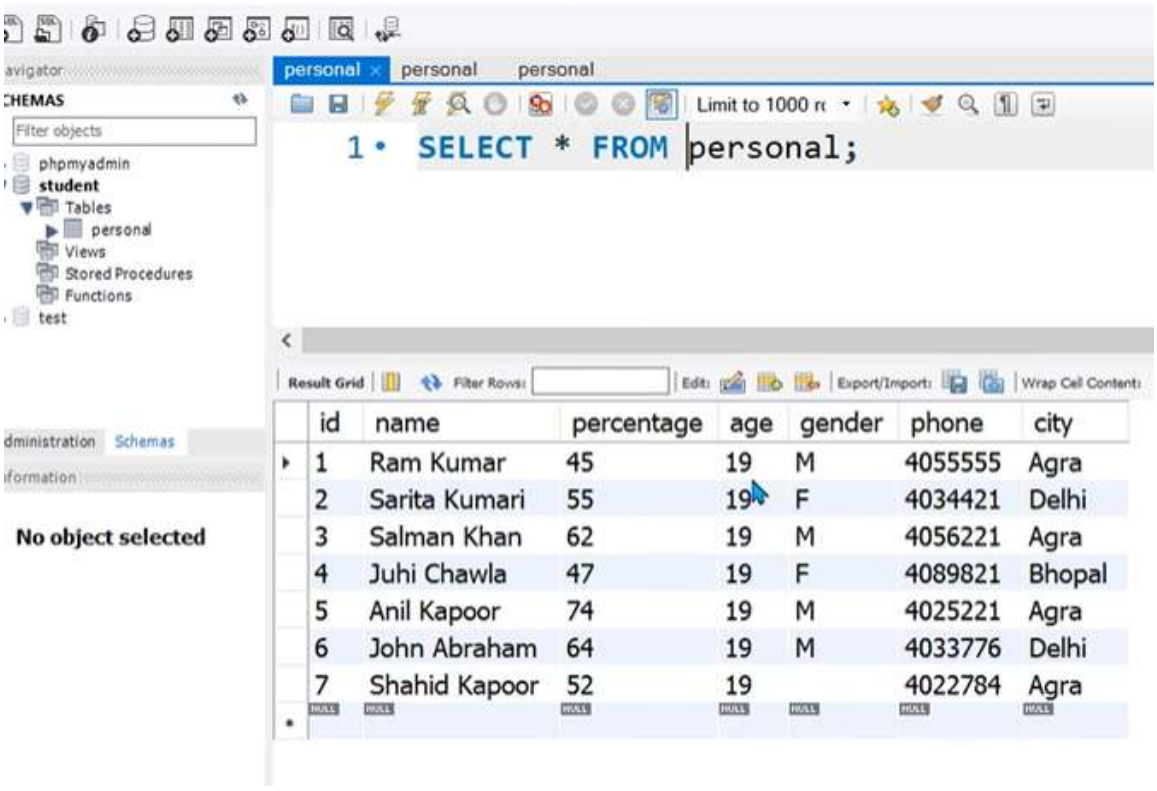


update multiple rows

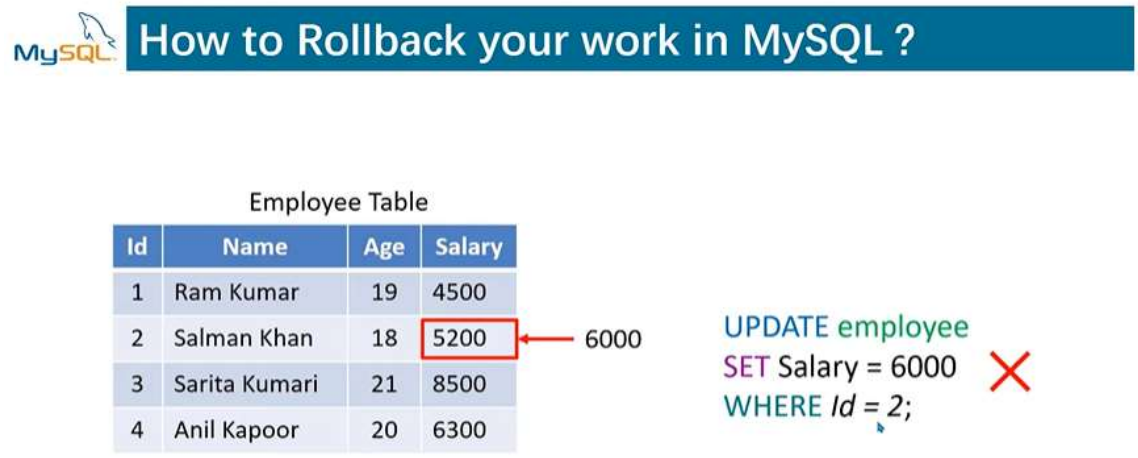




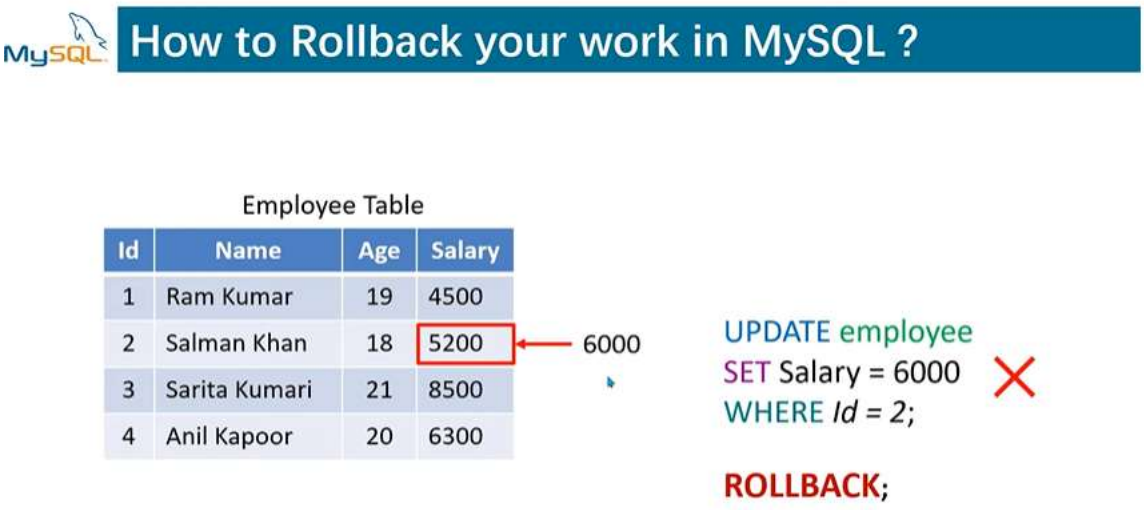
update without where clause



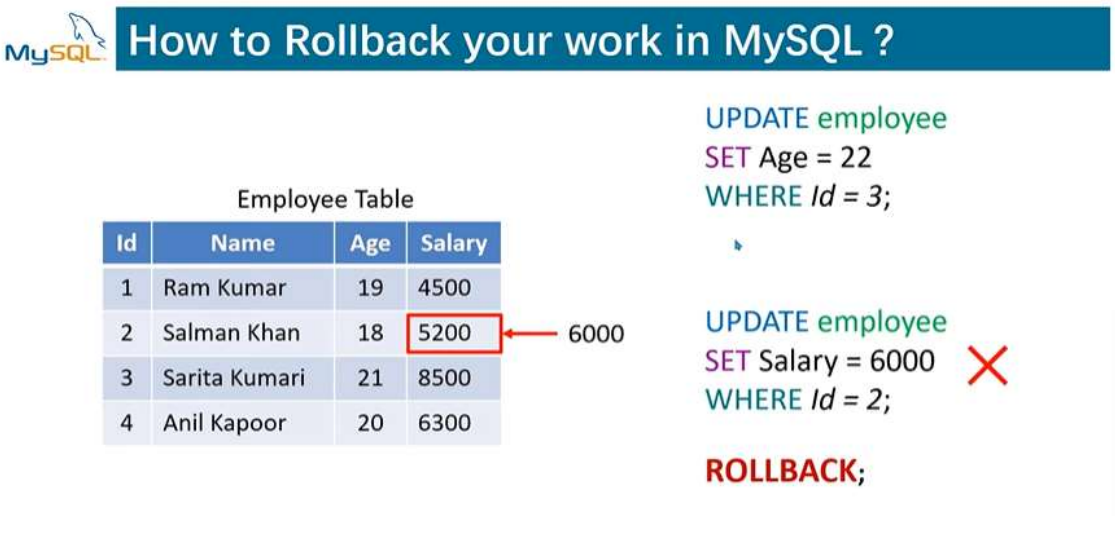
18. MySQL COMMIT & ROLLBACK



option-1 with same command with changes option-2 rollback



will rollback previous commands



so for that we have solution "commit" command

How to Rollback your work in MySQL ?

Employee Table

Id	Name	Age	Salary
1	Ram Kumar	19	4500
2	Salman Khan	18	5200
3	Sarita Kumari	21	8500
4	Anil Kapoor	20	6300

6000

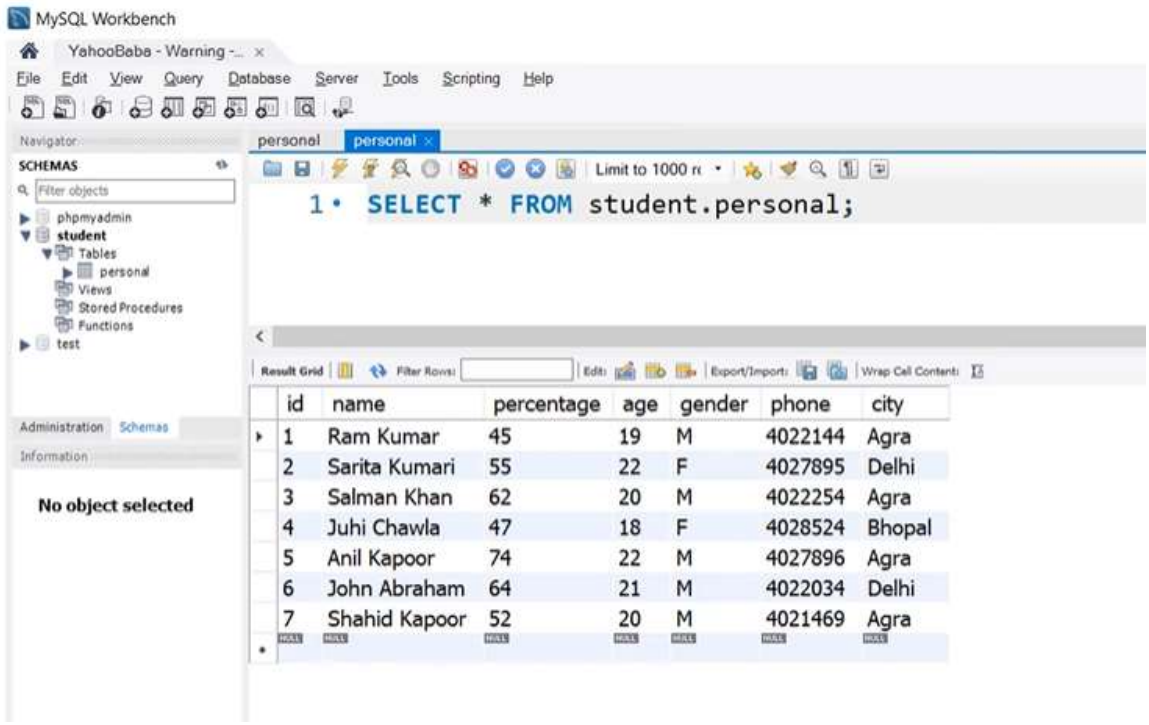
22

```
UPDATE employee
SET Age = 22
WHERE Id = 3;

COMMIT;

UPDATE employee
SET Salary = 6000
WHERE Id = 2;

ROLLBACK;
```

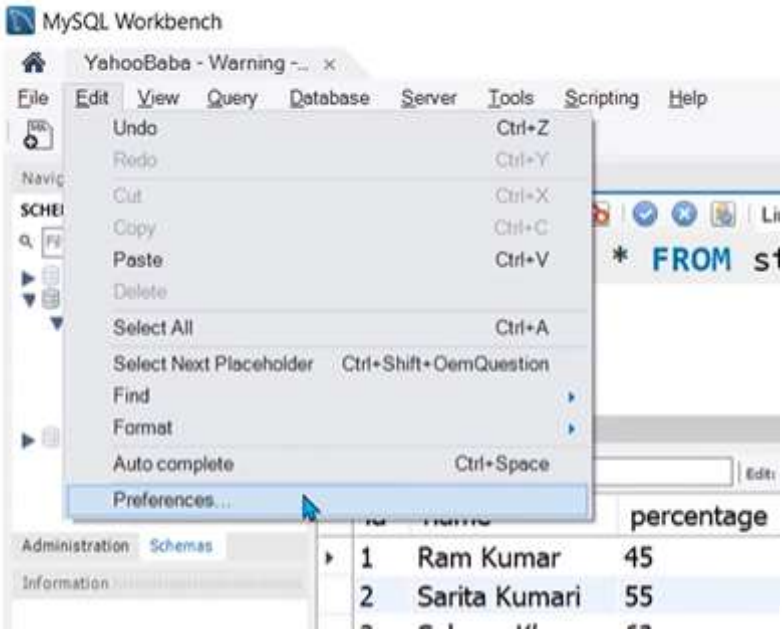
COMMIT & ROLLBACK Works for :

- INSERT
- UPDATE
- DELETE

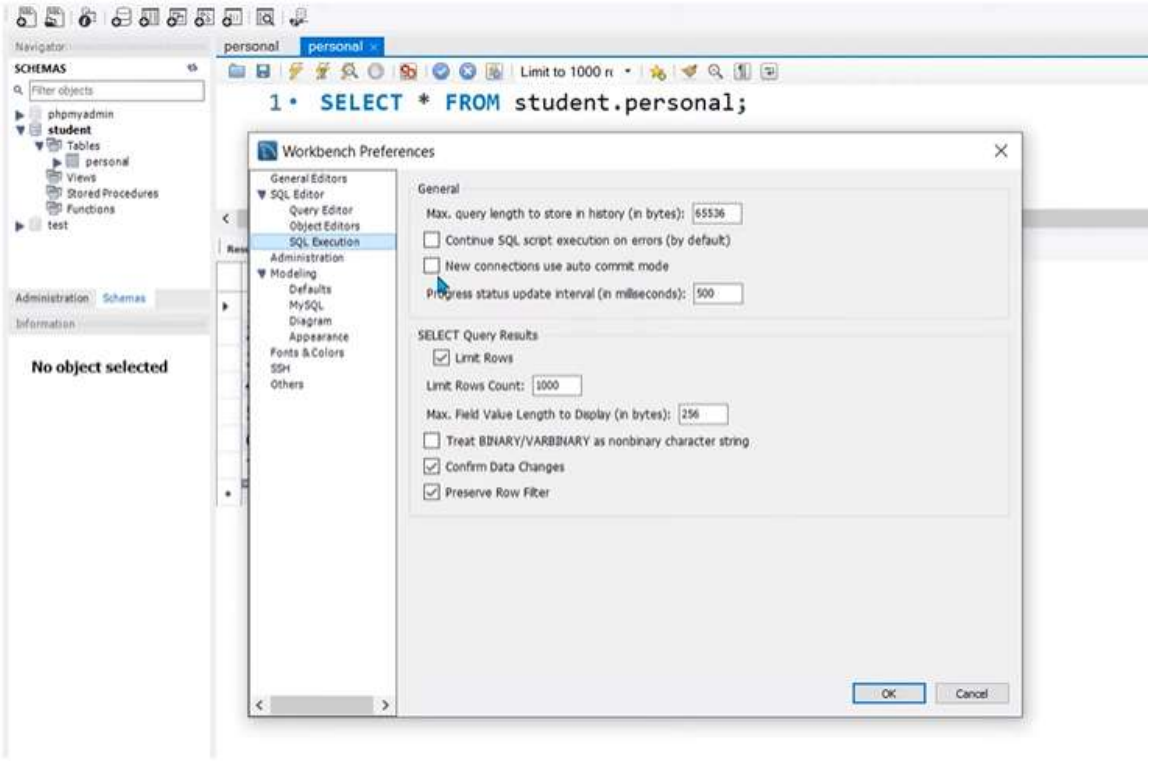
Practical



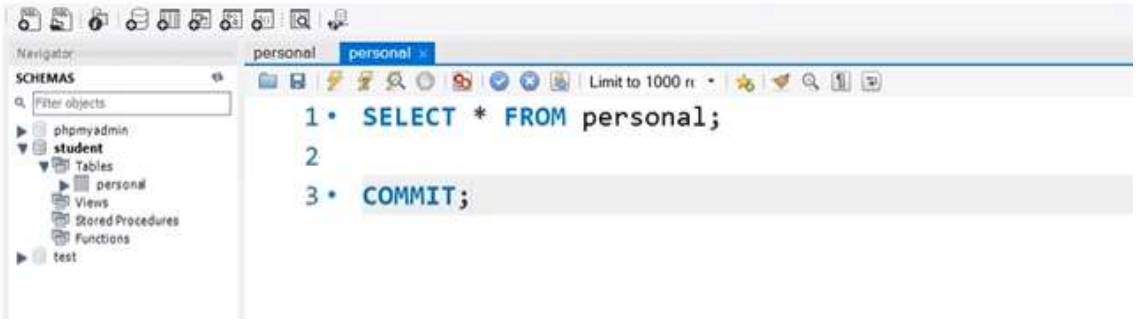
Before start for commit and rollback we need make changes in mysql setting

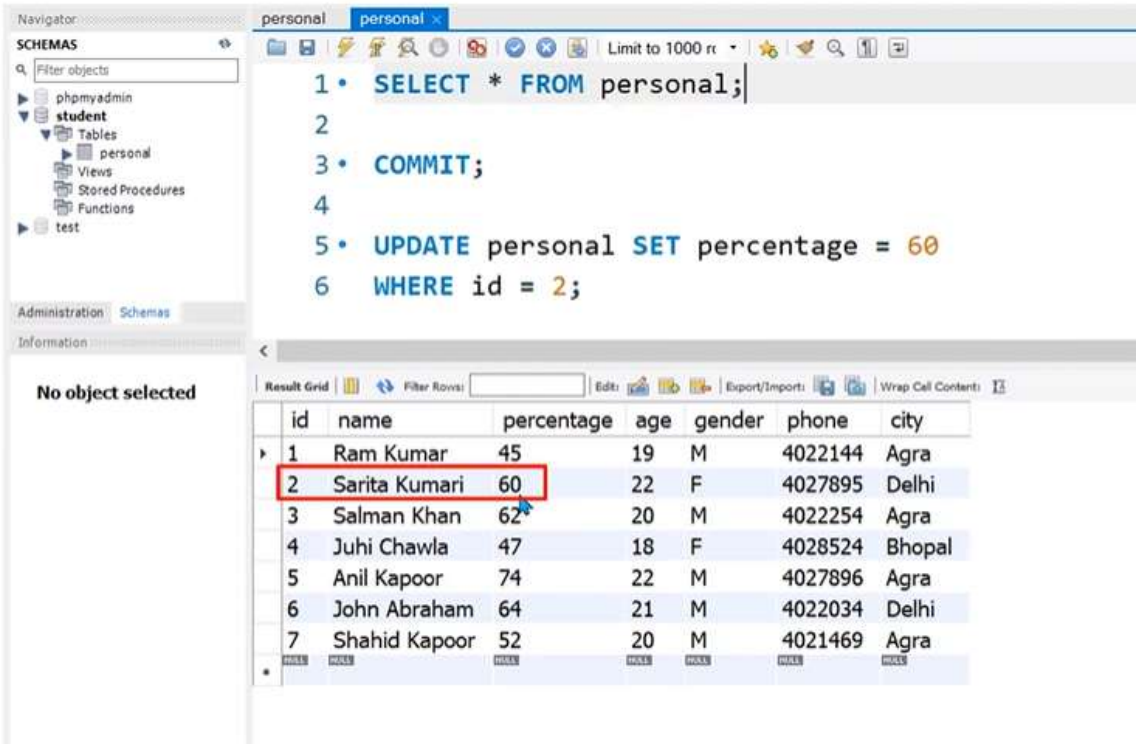


uncheck new connection use auto commit mode then restart mysql workbench



commit for we dont want changes in previous commands




Navigator
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Filter objects
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Administration
Schemas
Information
No object selected
personal
personal
Limit to 1000 r
1 • SELECT * FROM personal;
2
3 • COMMIT;
4
5 • UPDATE personal SET percentage = 60
6 WHERE id = 2;
Result Grid
Filter Rows:
Edit:
Export/Import:
Wrap Cell Content:
id name percentage age gender phone city
1 Ram Kumar 45 19 M 4022144 Agra
2 Sarita Kumari 60 22 F 4027895 Delhi
3 Salman Khan 62 20 M 4022254 Agra
4 Juhi Chawla 47 18 F 4028524 Bhopal
5 Anil Kapoor 74 22 M 4027896 Agra
6 John Abraham 64 21 M 4022034 Delhi
7 Shahid Kapoor 52 20 M 4021469 Agra

rollback


Navigator
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Filter objects
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Tables
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Views
Stored Procedures
Functions
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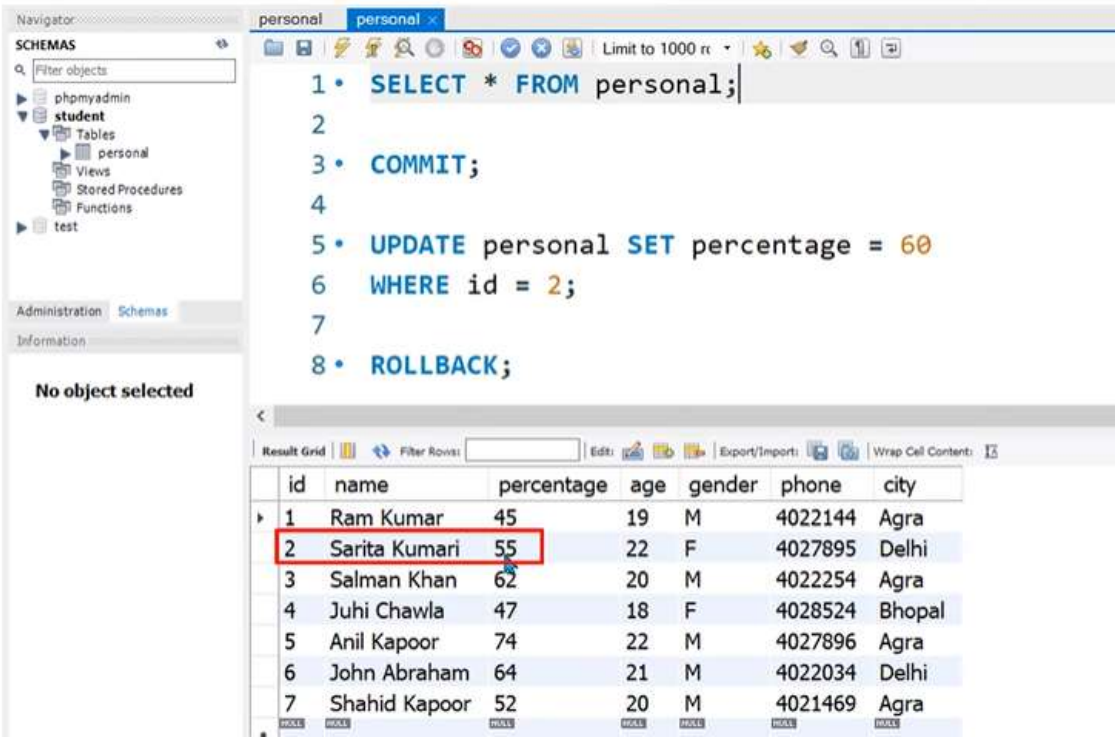
Administration
Schemas
Information
No object selected
personal
personal
Limit to 1000 r
1 • SELECT * FROM personal;
2
3 • COMMIT;
4
5 • UPDATE personal SET percentage = 60
6 WHERE id = 2;
7
8 • ROLLBACK;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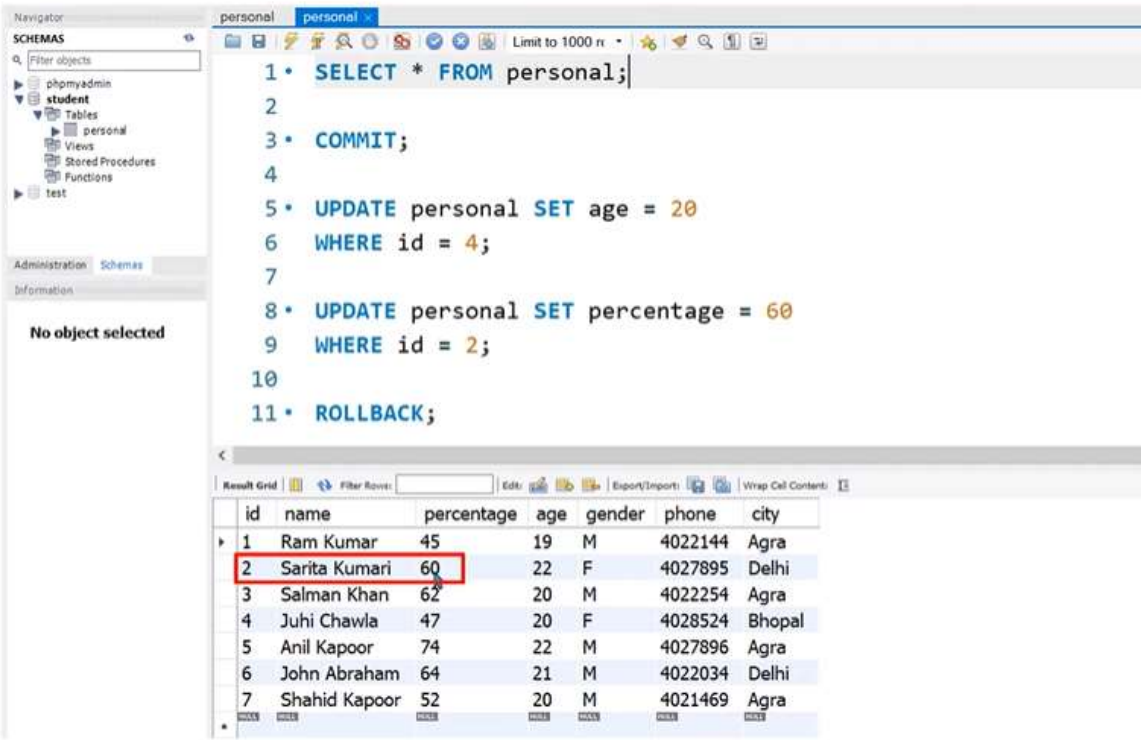
Limit to 1000 r
1 • SELECT * FROM personal;
2
3 • COMMIT;
4
5 • UPDATE personal SET percentage = 60
6 WHERE id = 2;
7
8 • ROLLBACK;
Result Grid
Filter Rows:
Edit:
Export/Import:
Wrap Cell Content:
id name percentage age gender phone city
1 Ram Kumar 45 19 M 4022144 Agra
2 Sarita Kumari 55 22 F 4027895 Delhi
3 Salman Khan 62 20 M 4022254 Agra
4 Juhi Chawla 47 18 F 4028524 Bhopal
5 Anil Kapoor 74 22 M 4027896 Agra
6 John Abraham 64 21 M 4022034 Delhi
7 Shahid Kapoor 52 20 M 4021469 Agra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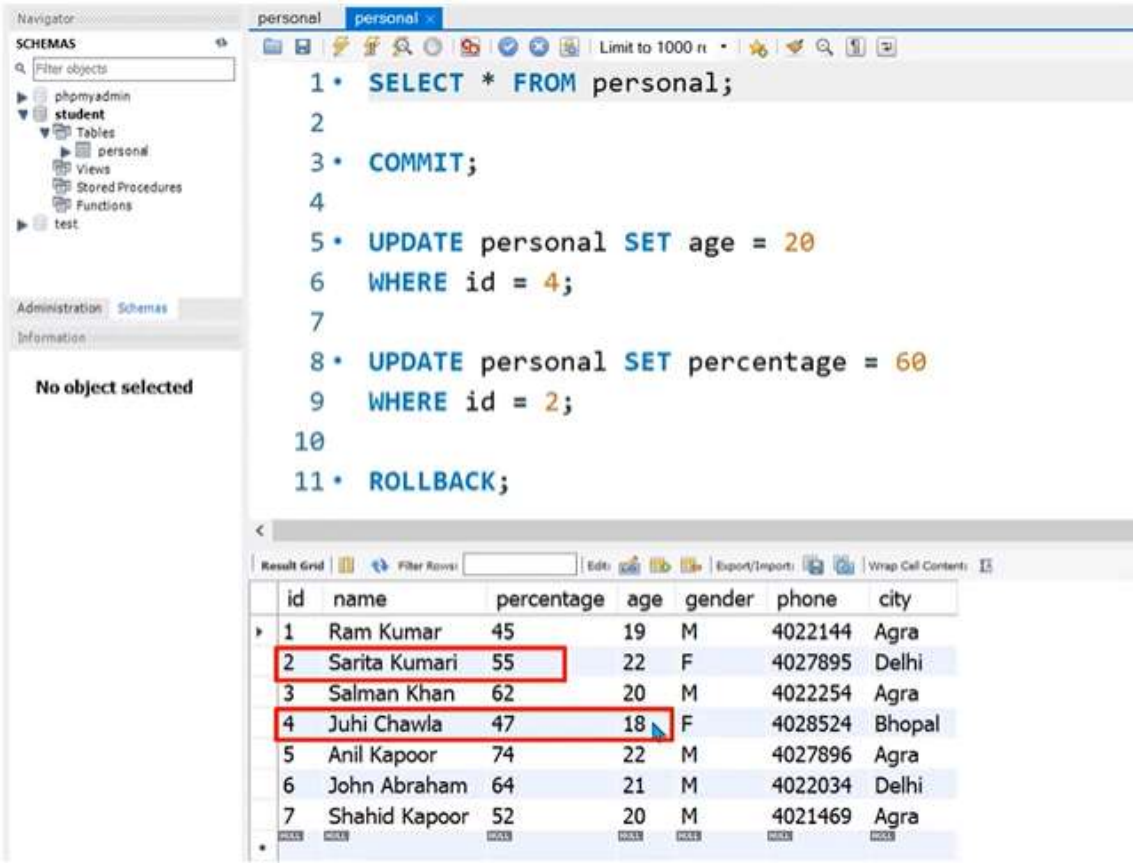
Information
No object selected
personal
personal
Limit to 1000 r
1 • SELECT * FROM personal;
2
3 • COMMIT;
4
5 • UPDATE personal SET age = 20
6 WHERE id = 4;
7
8 • UPDATE personal SET percentage = 60
9 WHERE id = 2;
10
11 • ROLLBACK;
Result Grid
Filter Rows:
Edit:
Export/Import:
Wrap Cell Content:
id name percentage age gender phone city
1 Ram Kumar 45 19 M 4022144 Agra
2 Sarita Kumari 60 22 F 4027895 Delhi
3 Salman Khan 62 20 M 4022254 Agra
4 Juhi Chawla 47 20 F 4028524 Bhopal
5 Anil Kapoor 74 22 M 4027896 Agra
6 John Abraham 64 21 M 4022034 Delhi
7 Shahid Kapoor 52 20 M 4021469 Agra



19. MySQL DELETE

How to delete data from Tables with SQL ?

Employee Table

Name	Age	Gender	Salary
Ram Kumar	19	Male	4500
Salman Khan	18	Male	5200
Meera Khan	20	Female	6000
Sarita Kumari	21	Female	8500
Anil Kapoor	20	Male	6300

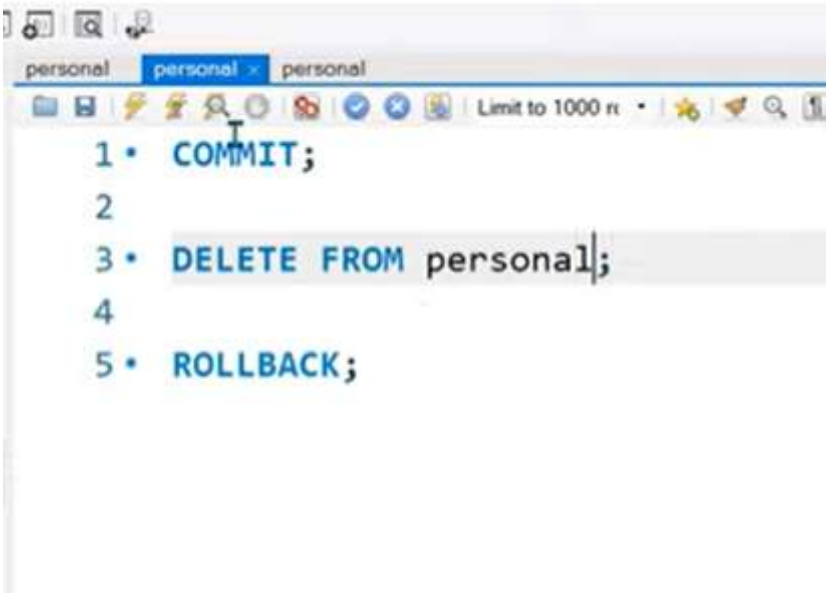
DELETE Command

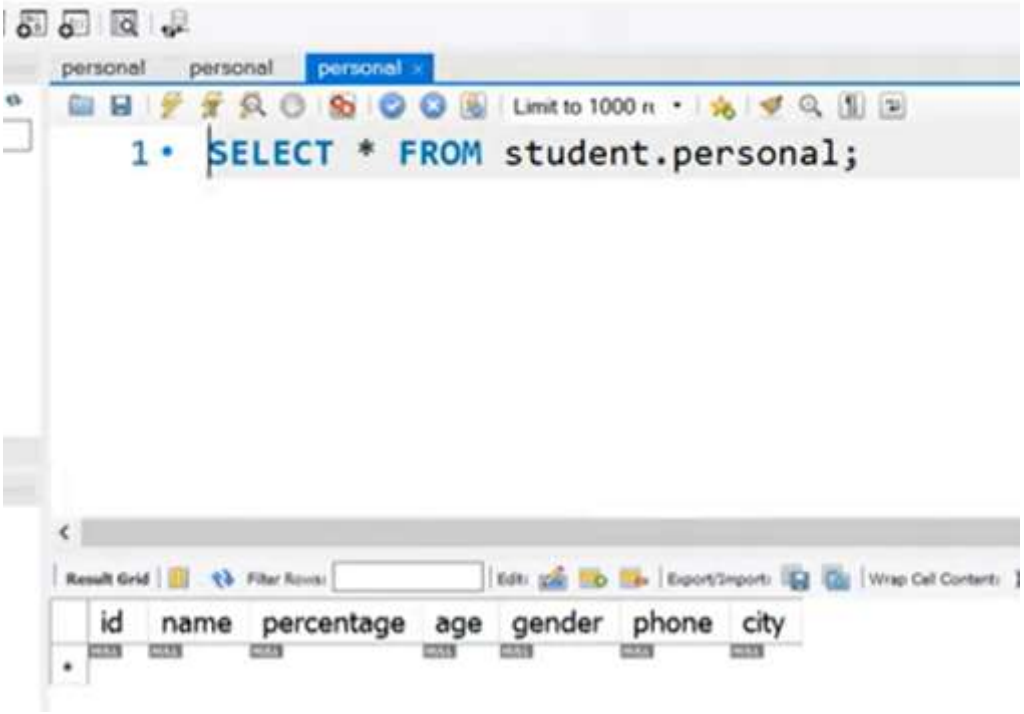
DELETE Syntax

```
DELETE FROM table_name
WHERE condition;
```

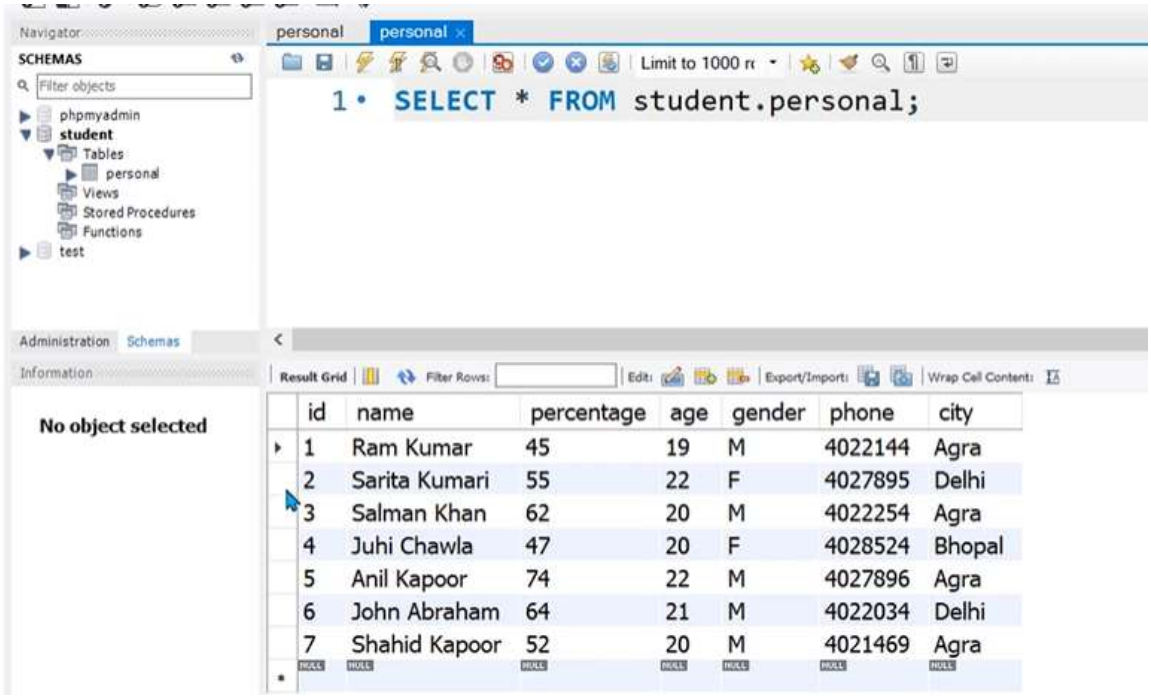
if we use delete command without where then all data will be delete so need to take care

```
DELETE FROM table_name;
```


personal
personal
personal
Limit to 1000 r
1 • COMMIT;
2
3 • DELETE FROM personal;
4
5 • ROLLBACK;


personal
personal
personal
Limit to 1000 r
1 • SELECT * FROM student.personal;
Result Grid
Filter Rows:
Edit:
Export/Import:
Wrap Cell Content:
id
name
percentage
age
gender
phone
city

Practical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Information
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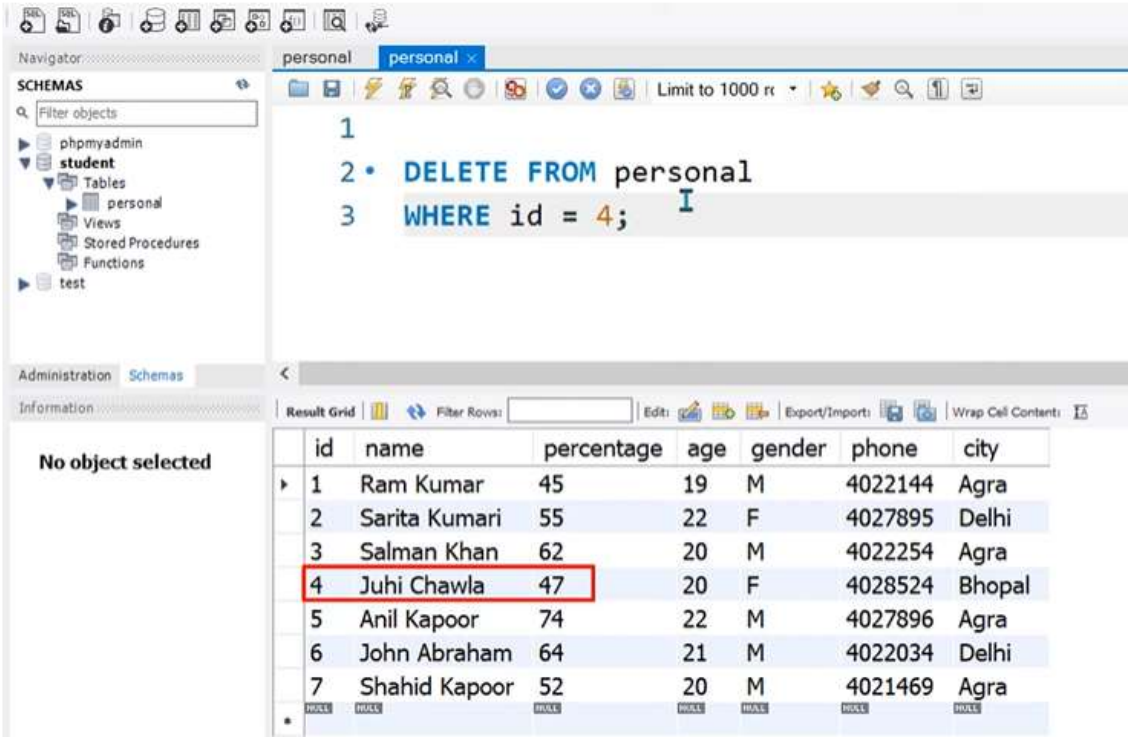
Limit to 1000 r
1 • SELECT * FROM student.personal;
Result Grid
Filter Rows:
Edit:
Export/Import:
Wrap Cell Content:
id name percentage age gender phone city
1 Ram Kumar 45 19 M 4022144 Agra
2 Sarita Kumari 55 22 F 4027895 Delhi
3 Salman Khan 62 20 M 4022254 Agra
4 Juhi Chawla 47 20 F 4028524 Bhopal
5 Anil Kapoor 74 22 M 4027896 Agra
6 John Abraham 64 21 M 4022034 Delhi
7 Shahid Kapoor 52 20 M 4021469 Agra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Filter objects
phpmyadmin
student
Tables
personal
Views
Stored Procedures
Functions
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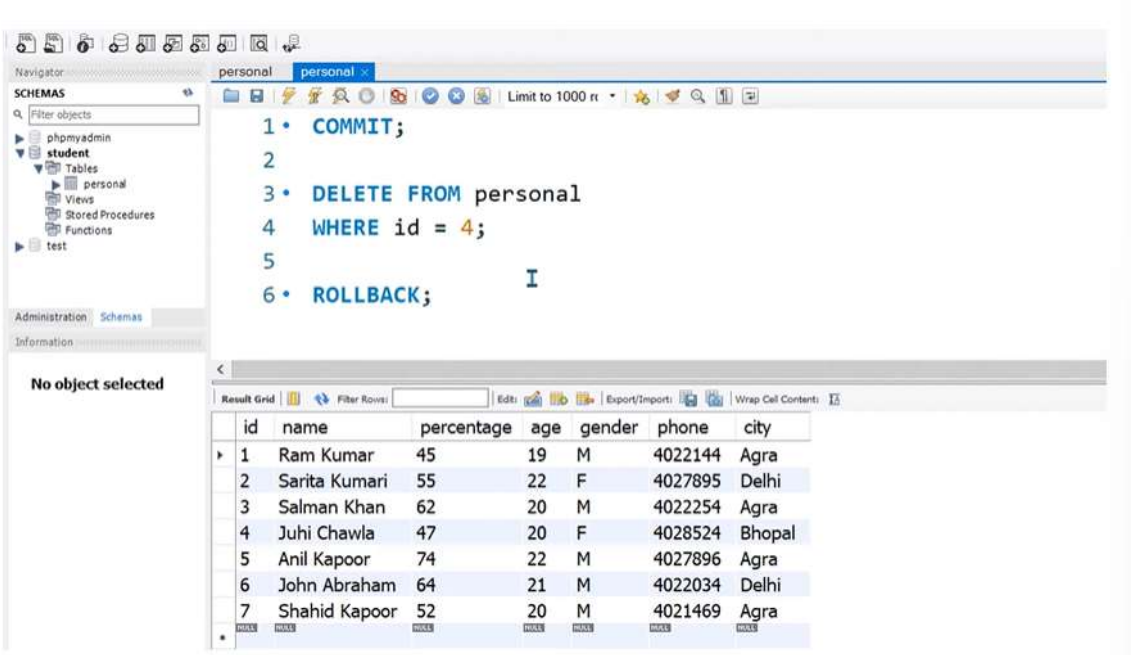
Administration
Schemas
Information
No object selected
personal
personal
Limit to 1000 r
1
2 • DELETE FROM personal
3 WHERE id = 4;
Result Grid
Filter Rows:
Edit:
Export/Import:
Wrap Cell Content:
id name percentage age gender phone city
1 Ram Kumar 45 19 M 4022144 Agra
2 Sarita Kumari 55 22 F 4027895 Delhi
3 Salman Khan 62 20 M 4022254 Agra
4 Juhi Chawla 47 20 F 4028524 Bhopal
5 Anil Kapoor 74 22 M 4027896 Agra
6 John Abraham 64 21 M 4022034 Delhi
7 Shahid Kapoor 52 20 M 4021469 Agra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Information
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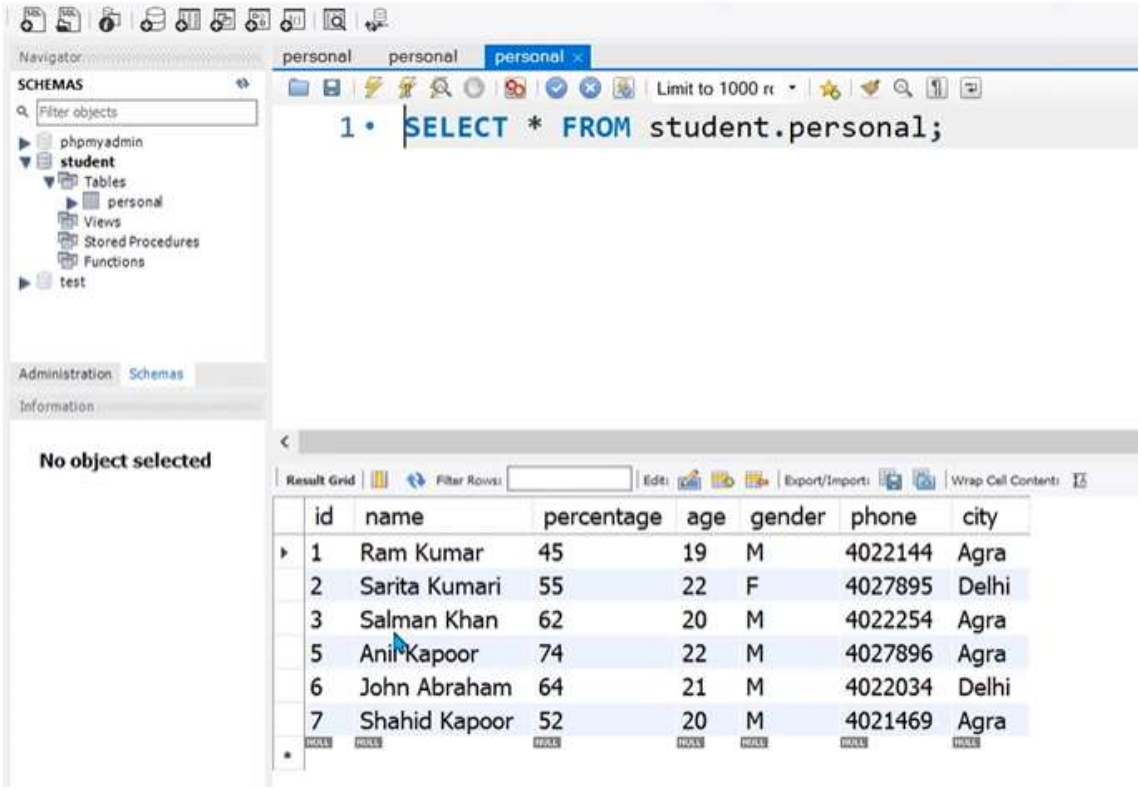
Limit to 1000 r
1 • COMMIT;
2
3 • DELETE FROM personal
4 WHERE id = 4;
5
6 • ROLLBACK;
Result Grid
Filter Rows:
Edit:
Export/Import:
Wrap Cell Content:
id name percentage age gender phone city
1 Ram Kumar 45 19 M 4022144 Agra
2 Sarita Kumari 55 22 F 4027895 Delhi
3 Salman Khan 62 20 M 4022254 Agra
4 Juhi Chawla 47 20 F 4028524 Bhopal
5 Anil Kapoor 74 22 M 4027896 Agra
6 John Abraham 64 21 M 4022034 Delhi
7 Shahid Kapoor 52 20 M 4021469 Agra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Views
Stored Procedures
Functions
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Schemas
Information
No object selected
personal
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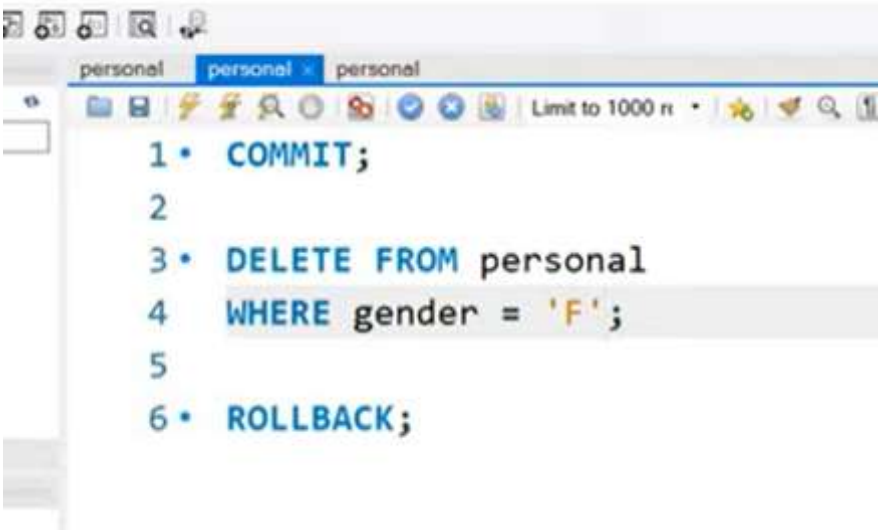
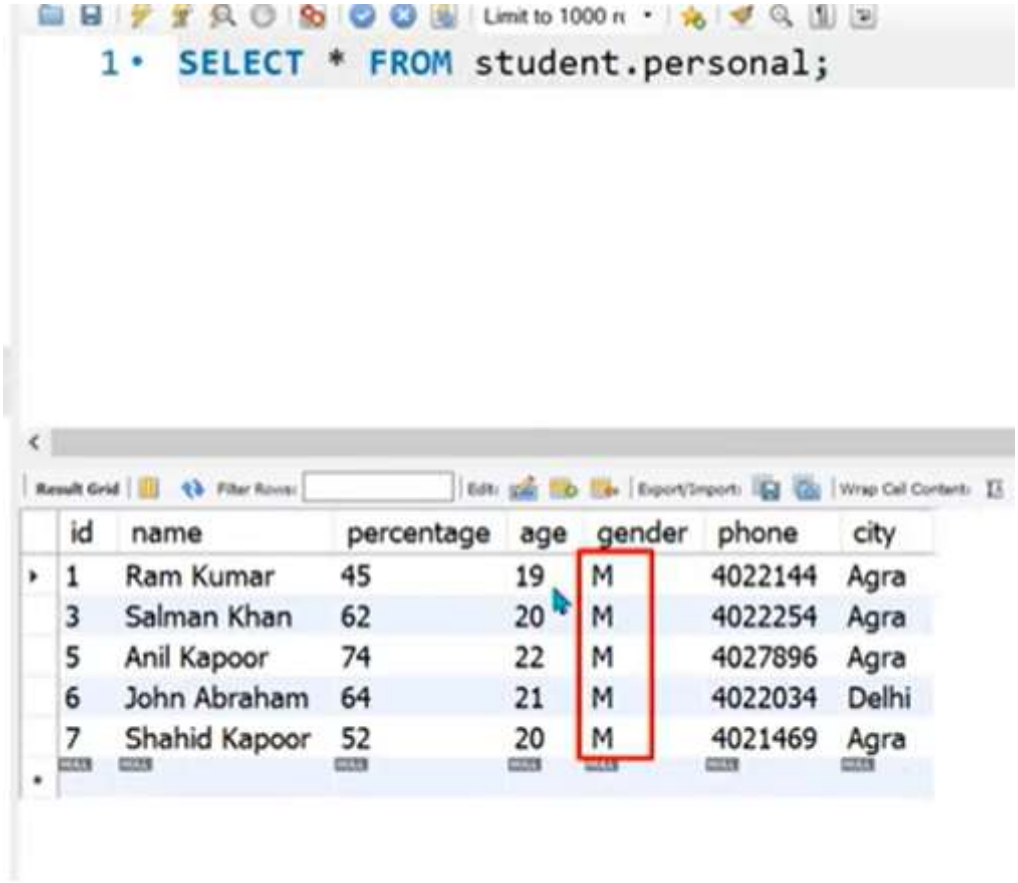
personal
Limit to 1000 r
1 • SELECT * FROM student.personal;
Result Grid
Filter Rows:
Edit:
Export/Import:
Wrap Cell Content:
id name percentage age gender phone city
1 Ram Kumar 45 19 M 4022144 Agra
2 Sarita Kumari 55 22 F 4027895 Delhi
3 Salman Khan 62 20 M 4022254 Agra
5 Anil Kapoor 74 22 M 4027896 Agra
6 John Abraham 64 21 M 4022034 Delhi
7 Shahid Kapoor 52 20 M 4021469 Agra





20. MySQL PRIMARY KEY & FOREIGN KEY

List of Constraints in MySQL

- NOT NULL
- UNIQUE
- DEFAULT
- CHECK
- PRIMARY KEY
- FOREIGN KEY

What is PRIMARY KEY Constraint ?

- Primary key always has unique data.
- A primary key cannot have null value.
- A table can contain only one primary key constraint.

Student Table

PRIMARY KEY
- Unique Data
- No Null Value

Id	Name	Age	City
1	Ram Kumar	19	Agra
2	Salman Khan	18	Bhopal
3	Meera Khan	19	Agra
4	Sarita Kumari	21	Delhi

option-1 for primary key

Create Table with PRIMARY KEY Syntax

```
CREATE TABLE table_name (
  id INT NOT NULL AUTO_INCREMENT,
  name VARCHAR(50) NOT NULL,
  age INT NOT NULL,
  city VARCHAR(10) NOT NULL ,
  PRIMARY KEY (id)
);
```

option-2 for primary key (already exist table)

Alter Table with PRIMARY KEY Syntax

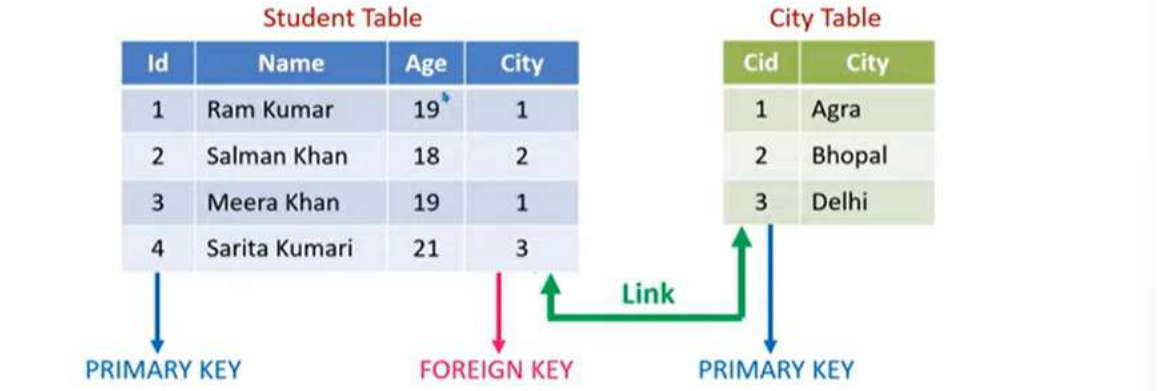
```
ALTER TABLE table_name
ADD PRIMARY KEY (id);
```

Foreign Key

What is FOREIGN KEY Constraint ?

- A FOREIGN KEY is a key used to link two tables together.
- A FOREIGN key in one table used to point PRIMARY key in another table.

FOREIGN KEY in Table



option-1

Create Table with FOREIGN KEY Syntax

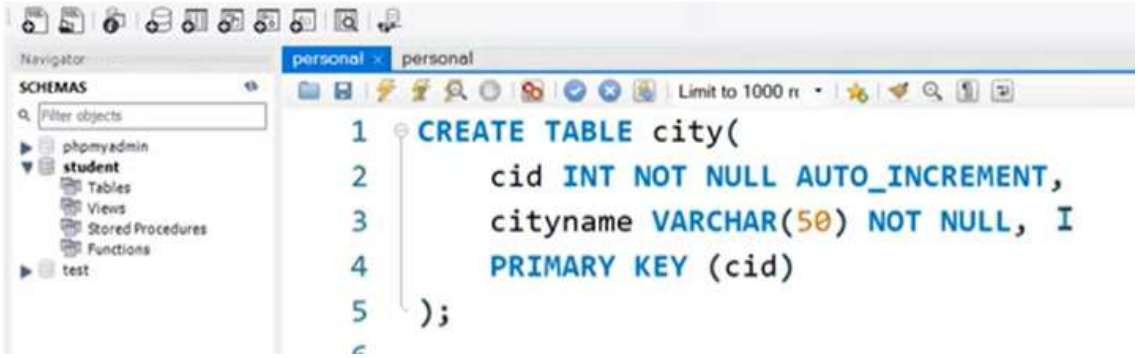
```
CREATE TABLE student(
    id INT NOT NULL AUTO_INCREMENT,
    name VARCHAR(50) NOT NULL,
    age INT NOT NULL,
    city VARCHAR(10) NOT NULL ,
    PRIMARY KEY (id),
    FOREIGN KEY (city) REFERENCES City (cid)
);
```

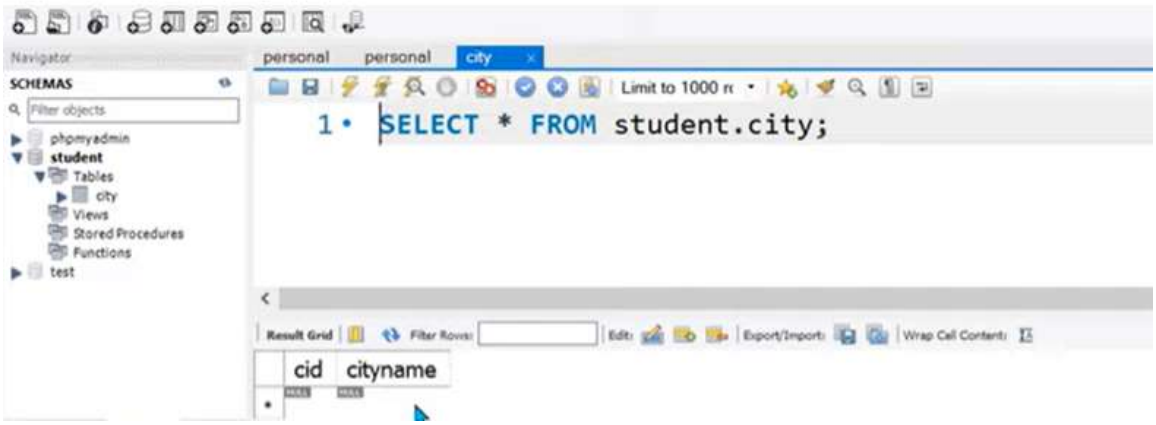
option-2

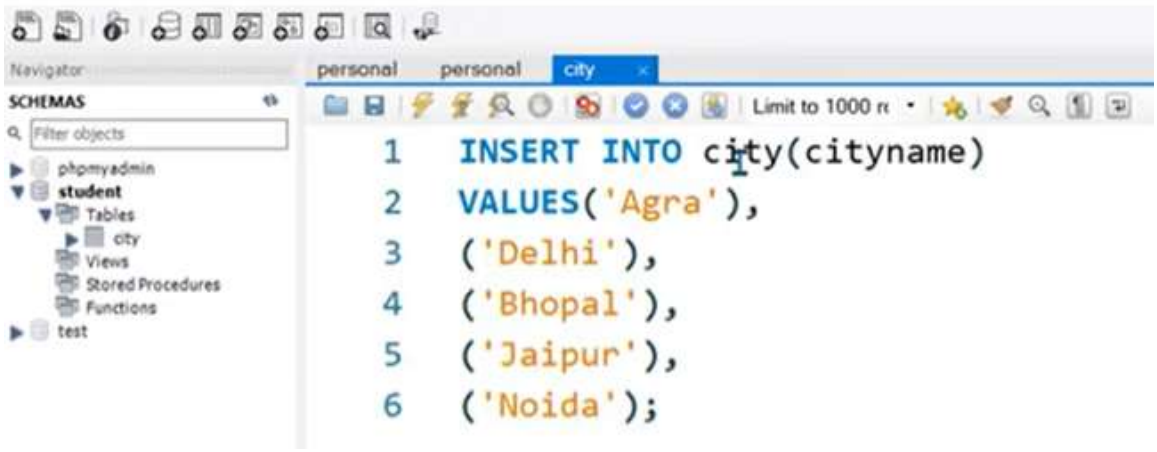
Alter Table with FOREIGN KEY Syntax

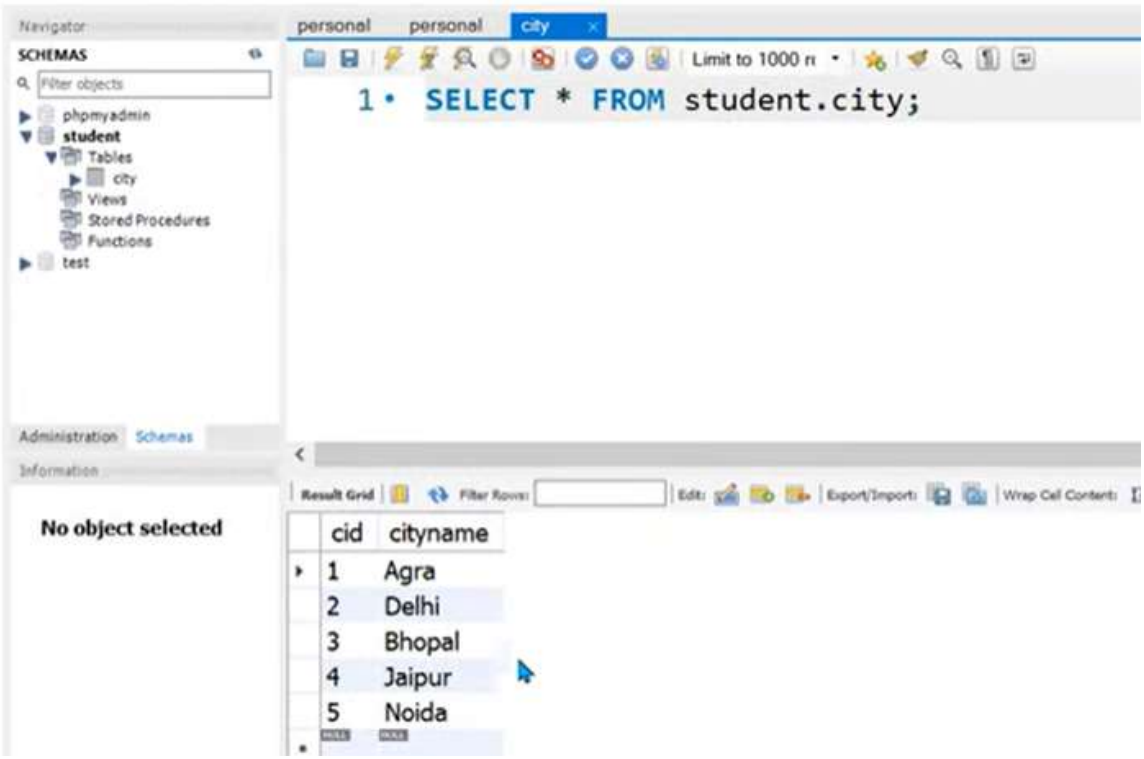
```
ALTER TABLE table_name
ADD FOREIGN KEY (city) REFERENCES City (cid);
```

Practical






Navigator
SCHEMAS
Filter objects
phpmyadmin
student
Tables
city
Views
Stored Procedures
Functions
test
personal
personal
city
Limit to 1000 r
1 INSERT INTO city(cityname)
2 VALUES('Agra'),
3 ('Delhi'),
4 ('Bhopal'),
5 ('Jaipur'),
6 ('Noida');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SCHEMAS
Filter objects
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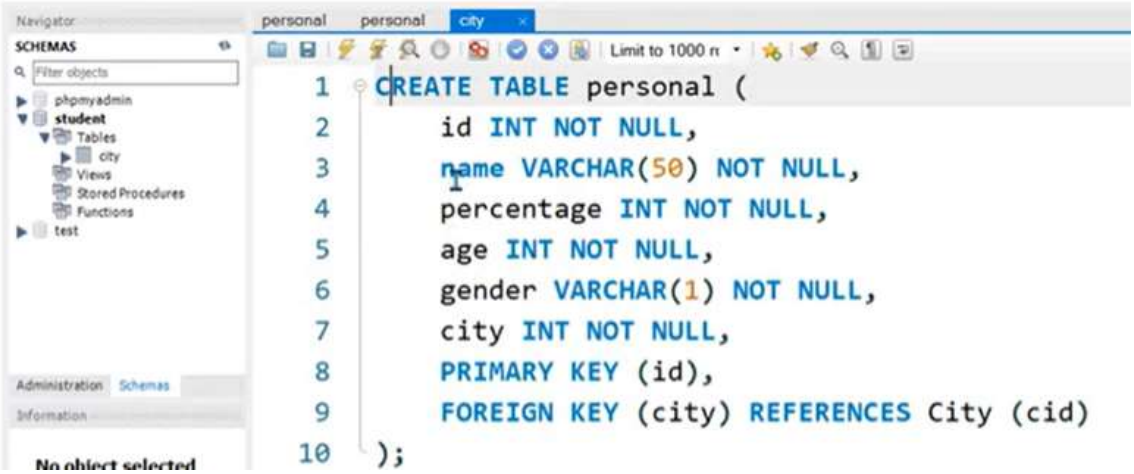
student
Tables
city
Views
Stored Procedures
Functions
test
Administration
Schemas
Information
No object selected
personal
personal
city
Limit to 1000 r
1 SELECT * FROM student.city;
Result Grid
Filter Rows:
Edit:
Export/Import:
Wrap Cell Content:
cid
cityname
1 Agra
2 Delhi
3 Bhopal
4 Jaipur
5 Noida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Functions
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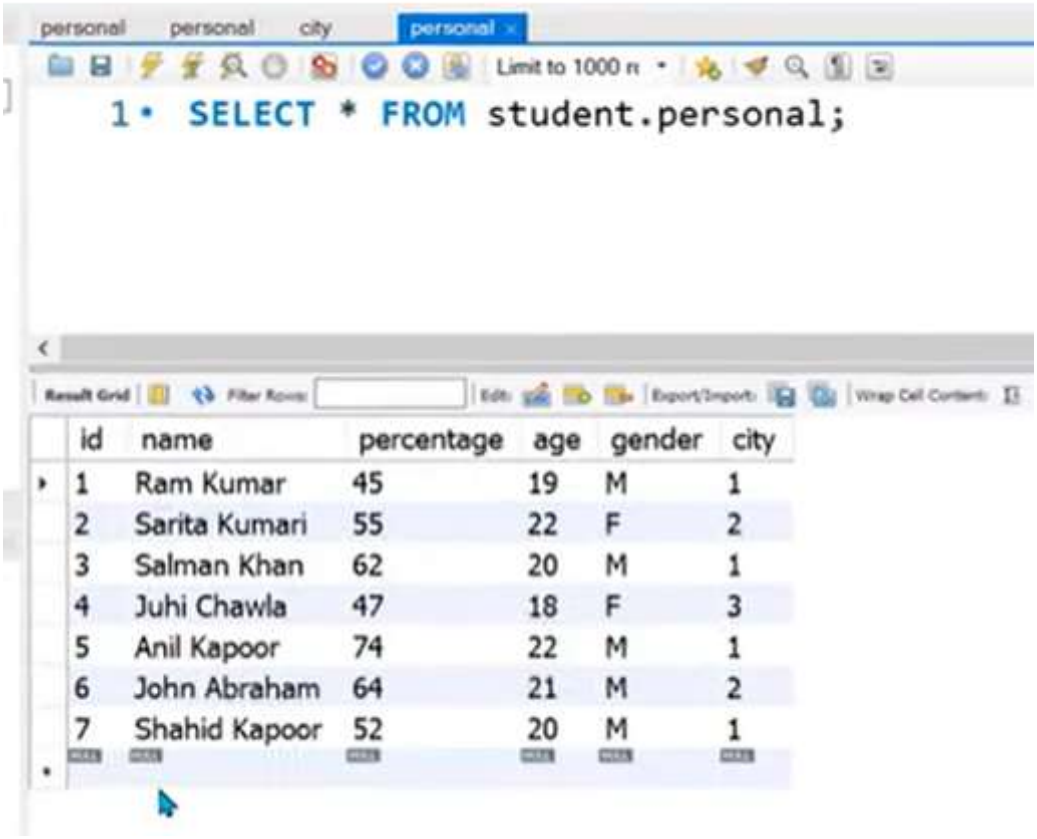
Administration
Schemas
Information
personal
personal
city
Limit to 1000 r
1 CREATE TABLE personal (
2 id INT NOT NULL,
3 name VARCHAR(50) NOT NULL,
4 percentage INT NOT NULL,
5 age INT NOT NULL,
6 gender VARCHAR(1) NOT NULL,
7 city INT NOT NULL,
8 PRIMARY KEY (id),
9 FOREIGN KEY (city) REFERENCES City (cid)
10);

```
11
12 • INSERT INTO personal (id, name, percentage, age, gender, city)
13   VALUES (1, "Ram Kumar",45, 19, "M" , 1),
14   (2, "Sarita Kumari",55, 22, "F" , 2),
15   (3, "Salman Khan",62, 20, "M" , 1),
16   (4, "Juhi Chawla",47, 18, "F" , 3),
17   (5, "Anil Kapoor",74, 22, "M" , 1),
18   (6, "John Abraham",64, 21, "M" , 2),
19   (7, "Shahid Kapoor",52, 20, "M" , 1);
20
```



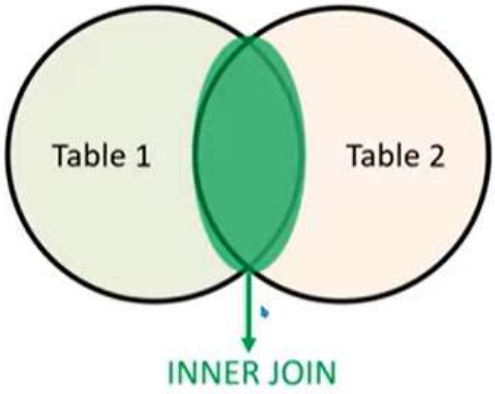
id	name	percentage	age	gender	city
1	Ram Kumar	45	19	M	1
2	Sarita Kumari	55	22	F	2
3	Salman Khan	62	20	M	1
4	Juhi Chawla	47	18	F	3
5	Anil Kapoor	74	22	M	1
6	John Abraham	64	21	M	2
7	Shahid Kapoor	52	20	M	1

21. MySQL INNER JOIN

Types of JOINS in MySQL

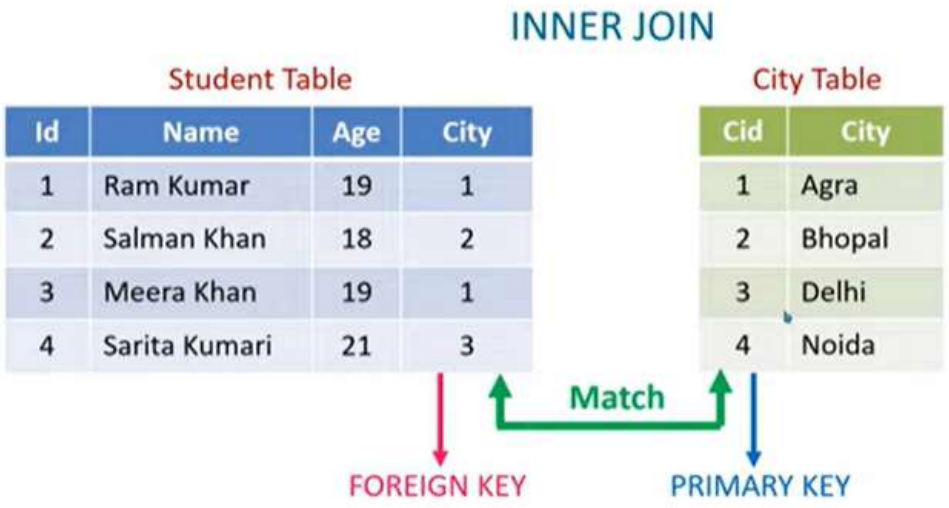
- INNER JOIN
- LEFT JOIN
- RIGHT JOIN
- CROSS JOIN

What is INNER JOIN ?



The INNER JOIN selects records that have matching values in both tables.

JOIN Two Tables



Id	Name	Age	City
1	Ram Kumar	19	1
2	Salman Khan	18	2
3	Meera Khan	19	1
4	Sarita Kumari	21	3

Cid	City
1	Agra
2	Bhopal
3	Delhi
4	Noida

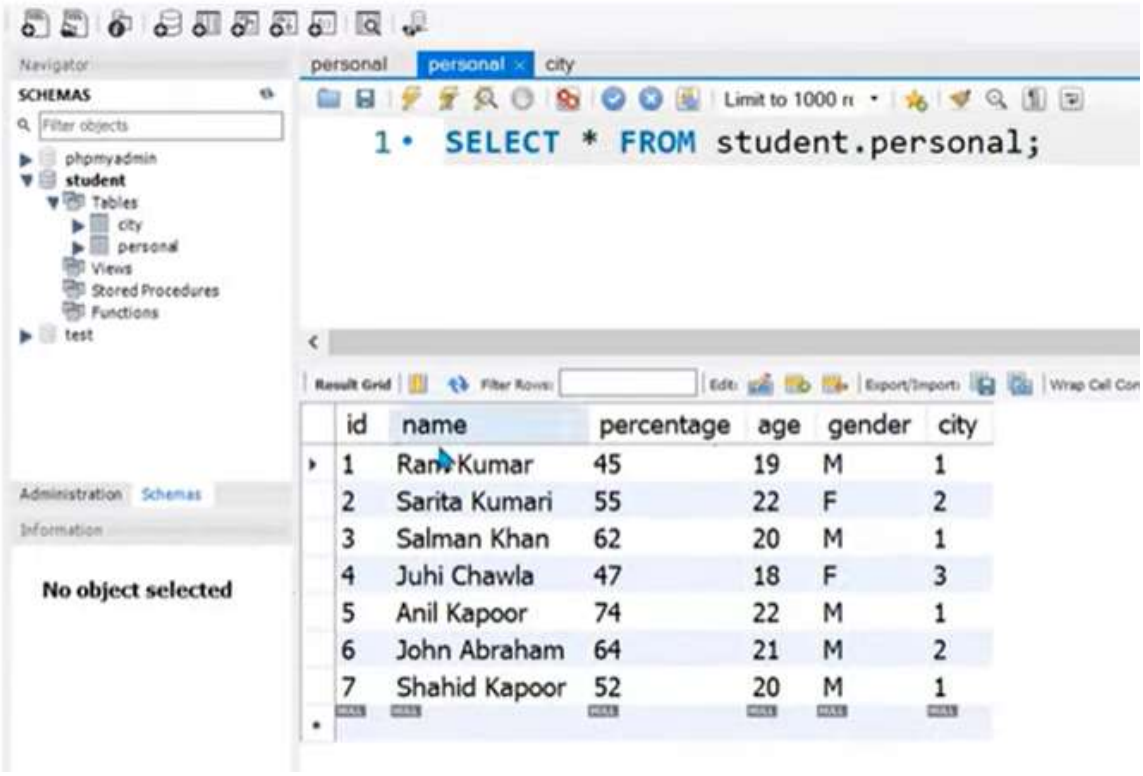
INNER JOIN Syntax

```
SELECT columns
FROM table1
INNER JOIN table2
ON table1.column_name = table2.column_name;
```

FOREIGN KEY

PRIMARY KEY

Practical


Navigator
SCHEMAS
Filter objects
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student
Tables
city
personal
Views
Stored Procedures
Functions
test
Administration
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Information
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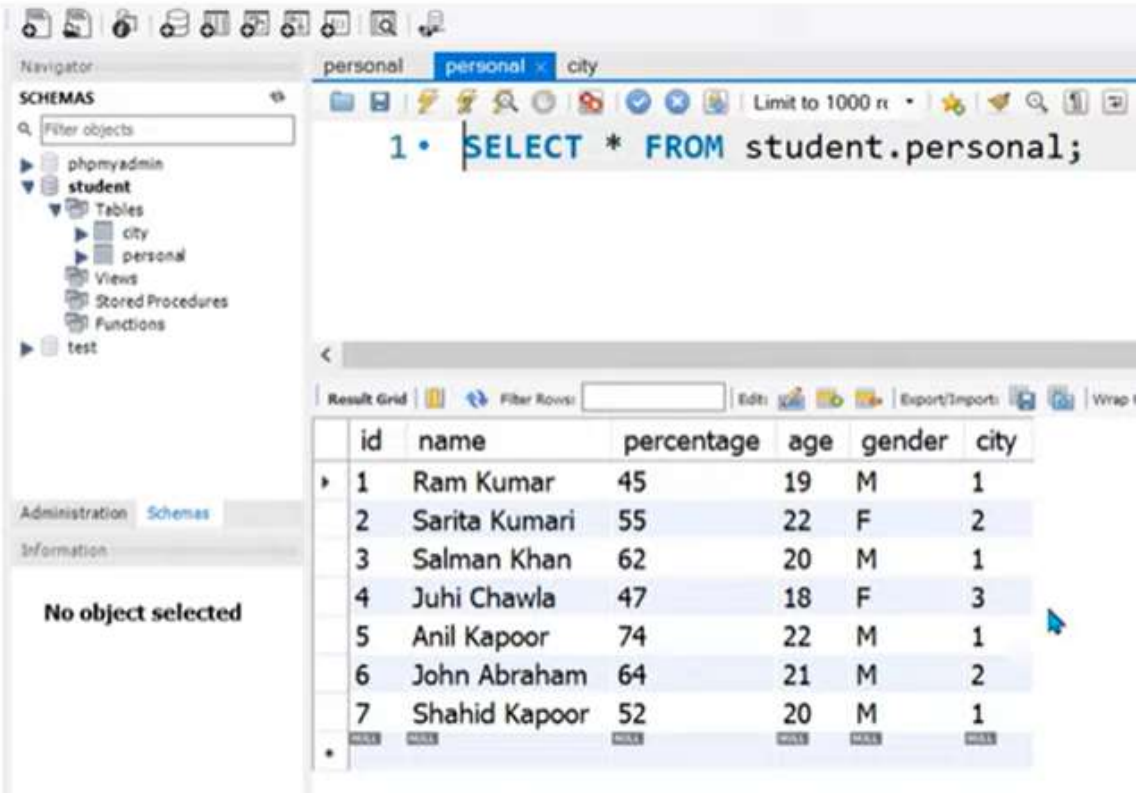
city
Limit to 1000 r
1 • SELECT * FROM student.personal;
Result Grid
Filter Rows:
Edit:
Export/Import:
Wrap Cell Con
id name percentage age gender city
1 Ram Kumar 45 19 M 1
2 Sarita Kumari 55 22 F 2
3 Salman Khan 62 20 M 1
4 Juhi Chawla 47 18 F 3
5 Anil Kapoor 74 22 M 1
6 John Abraham 64 21 M 2
7 Shahid Kapoor 52 20 M 1


Navigator
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Filter objects
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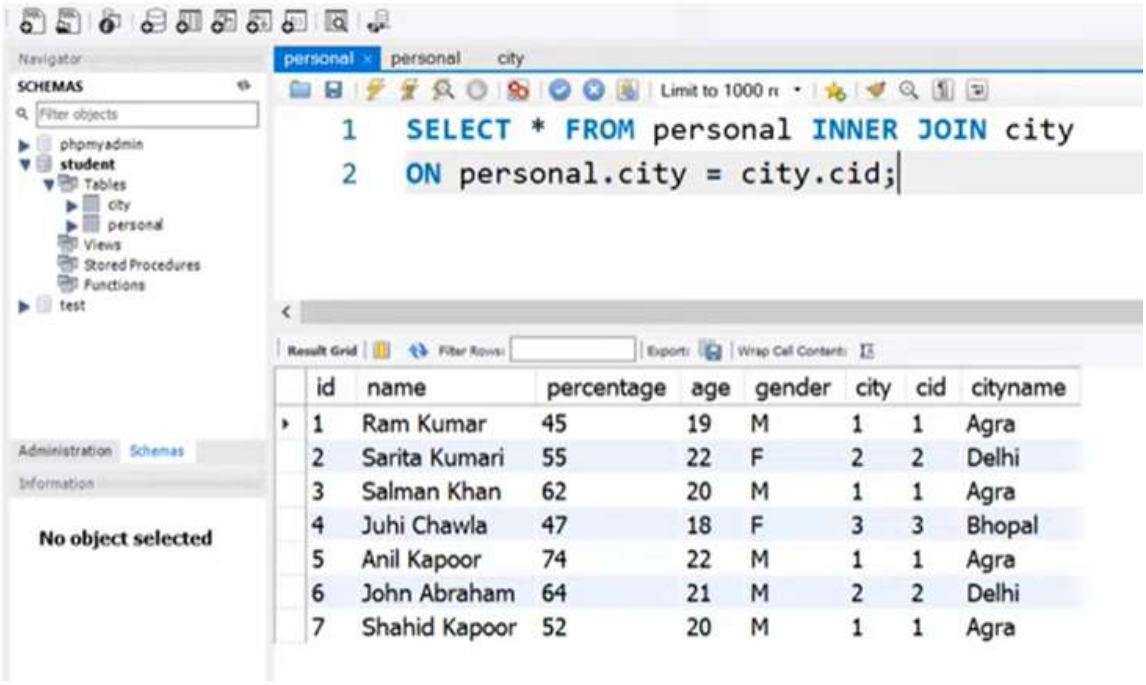
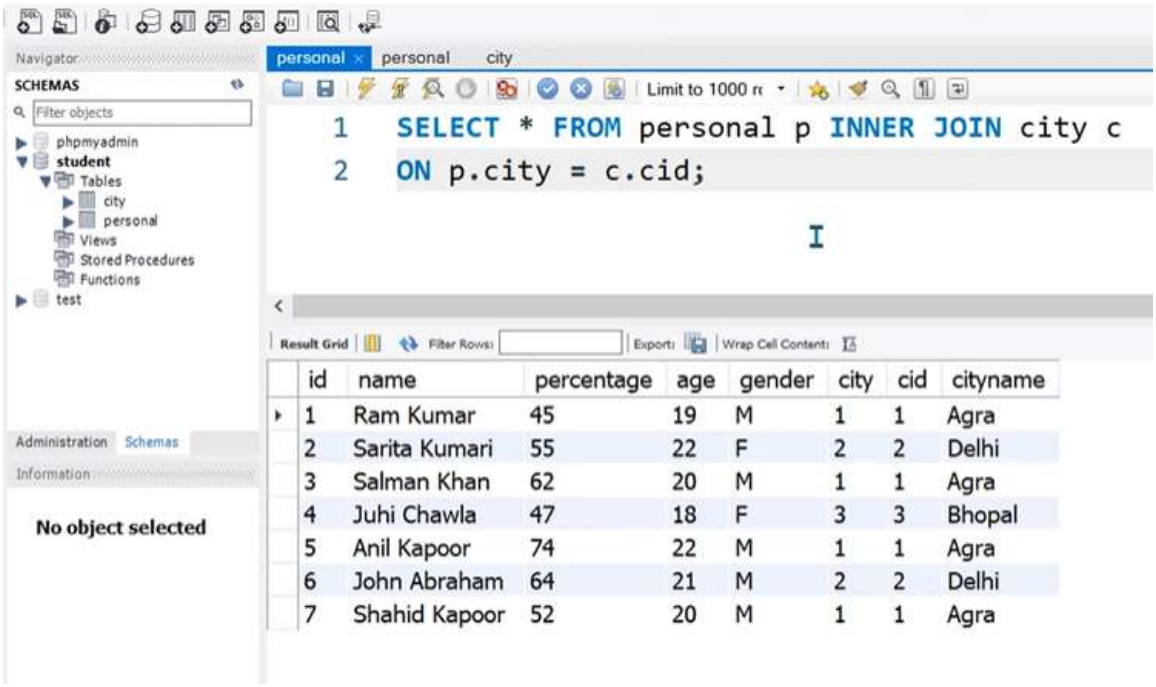
student
Tables
city
personal
Views
Stored Procedures
Functions
test
Administration
Schemas
Information
No object selected
personal
personal
city
Limit to 1000 r
1 • SELECT * FROM student.personal;
Result Grid
Filter Rows:
Edit:
Export/Import:
id name percentage age gender city
1 Ram Kumar 45 19 M 1
2 Sarita Kumari 55 22 F 2
3 Salman Khan 62 20 M 1
4 Juhi Chawla 47 18 F 3
5 Anil Kapoor 74 22 M 1
6 John Abraham 64 21 M 2
7 Shahid Kapoor 52 20 M 1

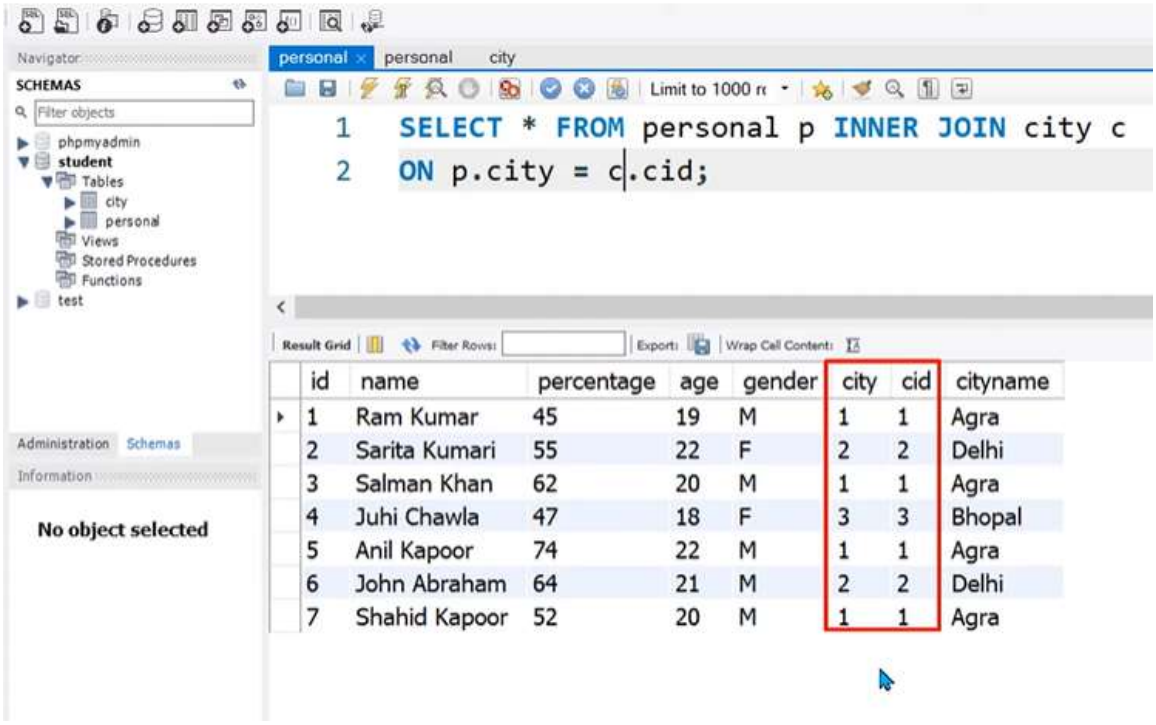


id	name	percentage	age	gender	city	cid	cityname
1	Ram Kumar	45	19	M	1	1	Agra
2	Sarita Kumari	55	22	F	2	2	Delhi
3	Salman Khan	62	20	M	1	1	Agra
4	Juhi Chawla	47	18	F	3	3	Bhopal
5	Anil Kapoor	74	22	M	1	1	Agra
6	John Abraham	64	21	M	2	2	Delhi
7	Shahid Kapoor	52	20	M	1	1	Agra

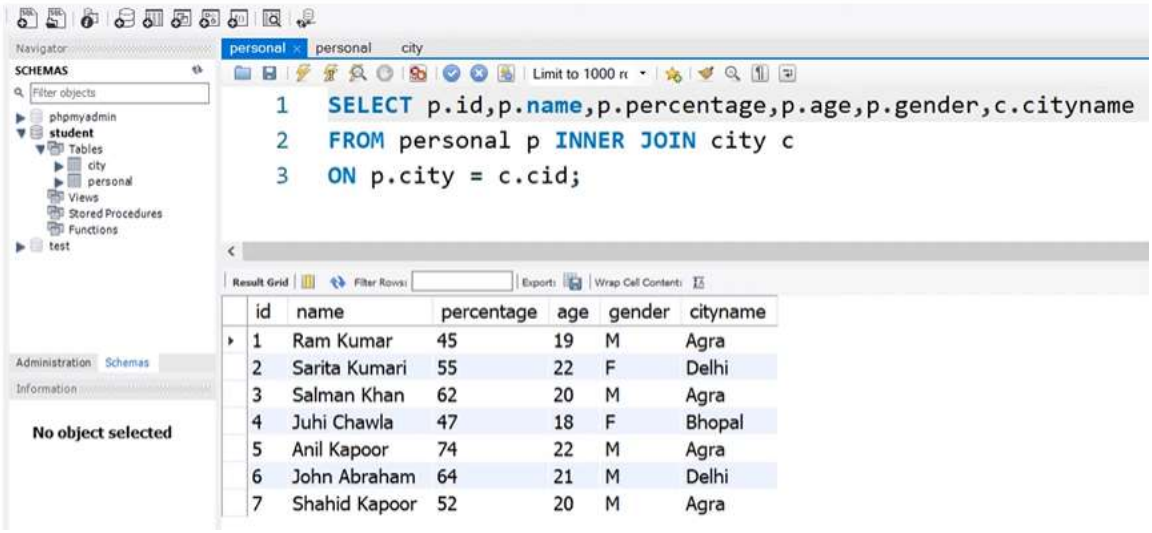
Used alis for table name



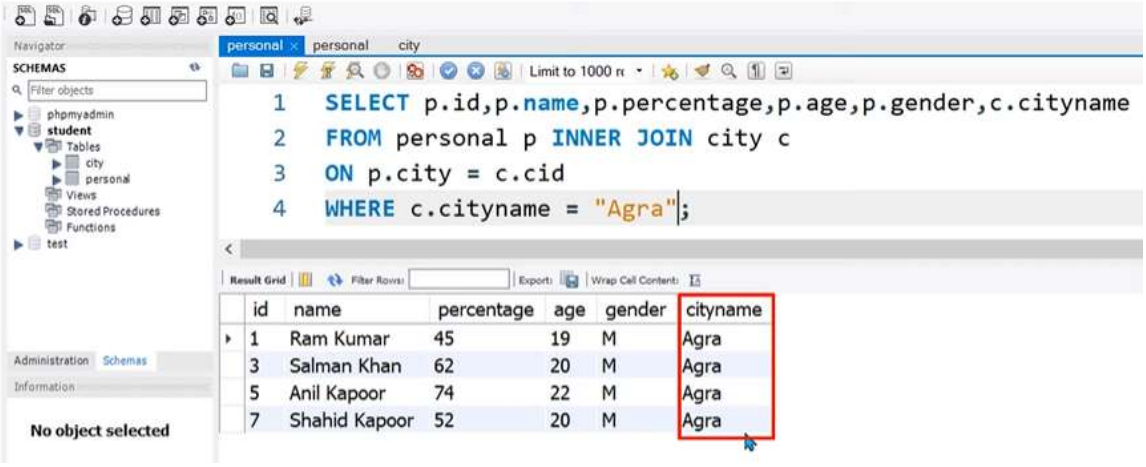
id	name	percentage	age	gender	city	cid	cityname
1	Ram Kumar	45	19	M	1	1	Agra
2	Sarita Kumari	55	22	F	2	2	Delhi
3	Salman Khan	62	20	M	1	1	Agra
4	Juhi Chawla	47	18	F	3	3	Bhopal
5	Anil Kapoor	74	22	M	1	1	Agra
6	John Abraham	64	21	M	2	2	Delhi
7	Shahid Kapoor	52	20	M	1	1	Agra



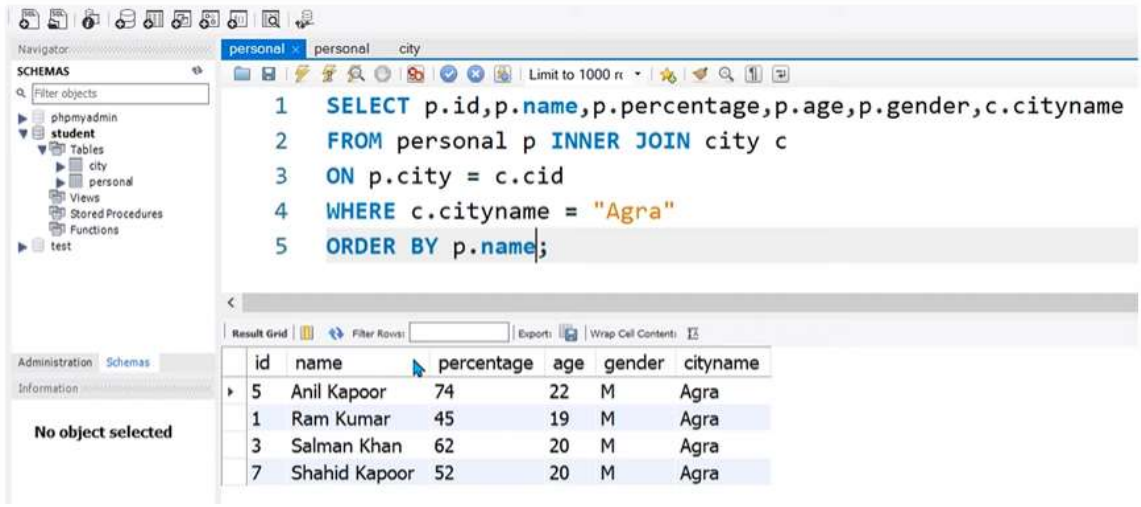
we dont want whole table , just want required columns



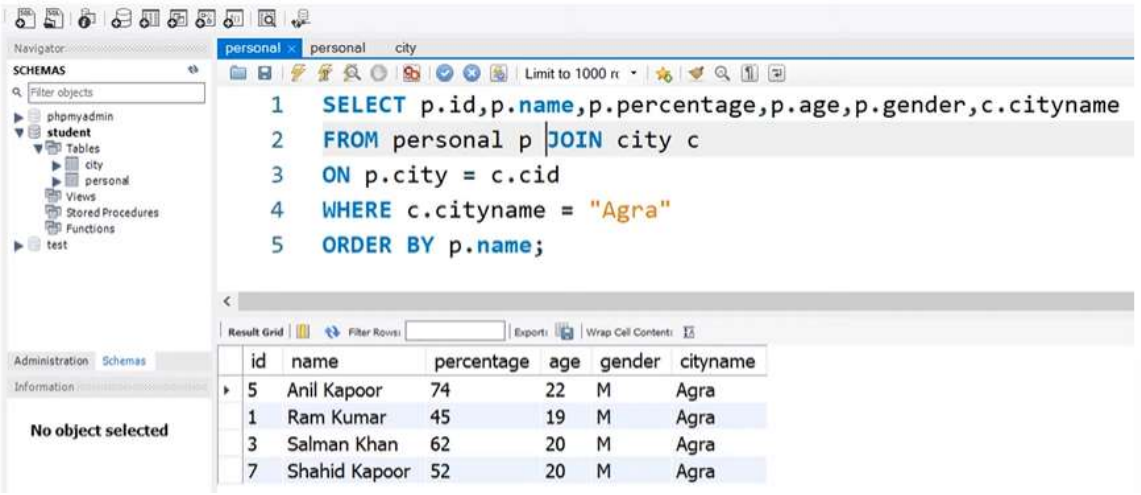
using where clause with condition



using order by clause



inner join and join both works same



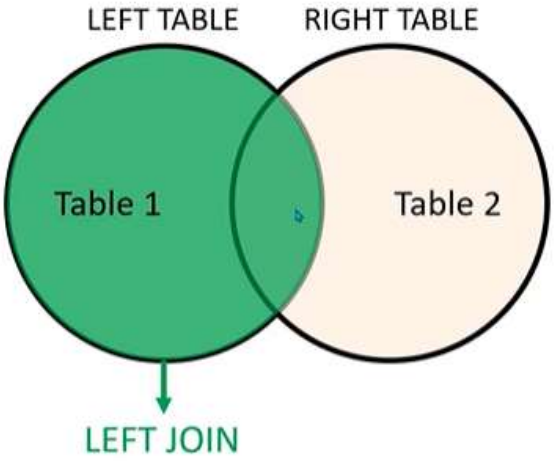
22. MySQL LEFT JOIN & RIGHT JOIN

Left Join

Types of JOINS in MySQL

- INNER JOIN
- LEFT JOIN
- RIGHT JOIN
- CROSS JOIN

What is LEFT JOIN ?



The LEFT JOIN returns all records from the left table (table1), and the matched records from the right table (table2)

JOIN Two Tables

LEFT JOIN

Student Table

Id	Name	Age	City
1	Ram Kumar	19	1
2	Salman Khan	18	2
3	Meera Khan	19	
4	Sarita Kumari	21	3

City Table

Cid	City
1	Agra
2	Bhopal
3	Delhi
4	Noida

LEFT JOIN Syntax

```
SELECT columns
FROM table1
LEFT JOIN table2
ON table1.column_name = table2.column_name;
```

FOREIGN KEY

PRIMARY KEY

Practical

Table-1 (Personal)

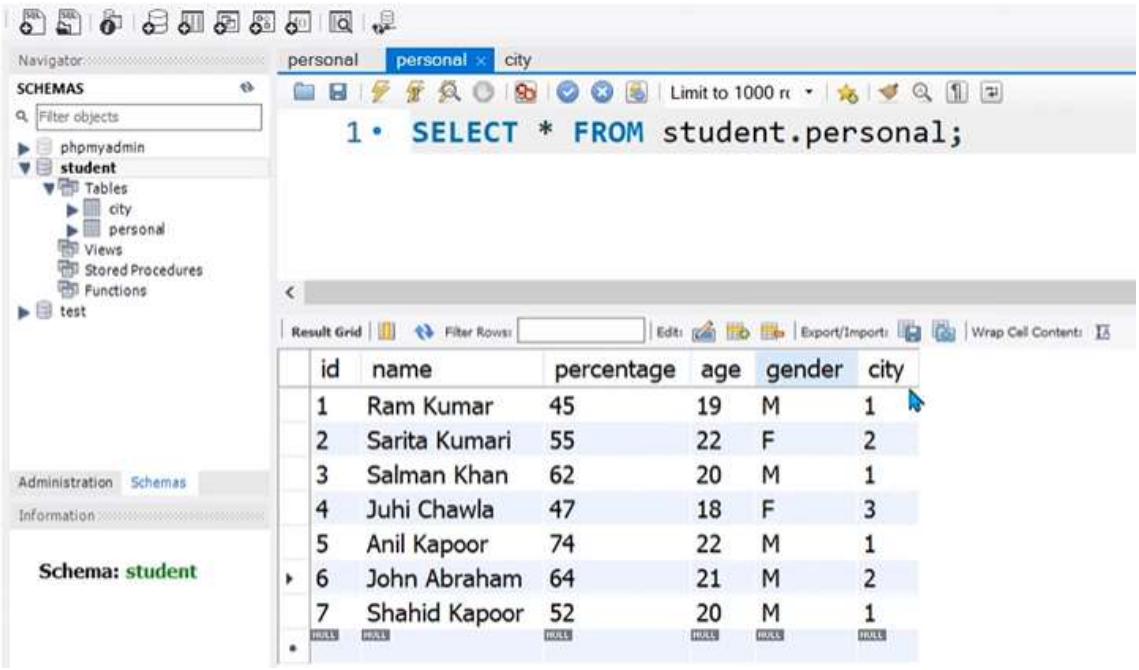
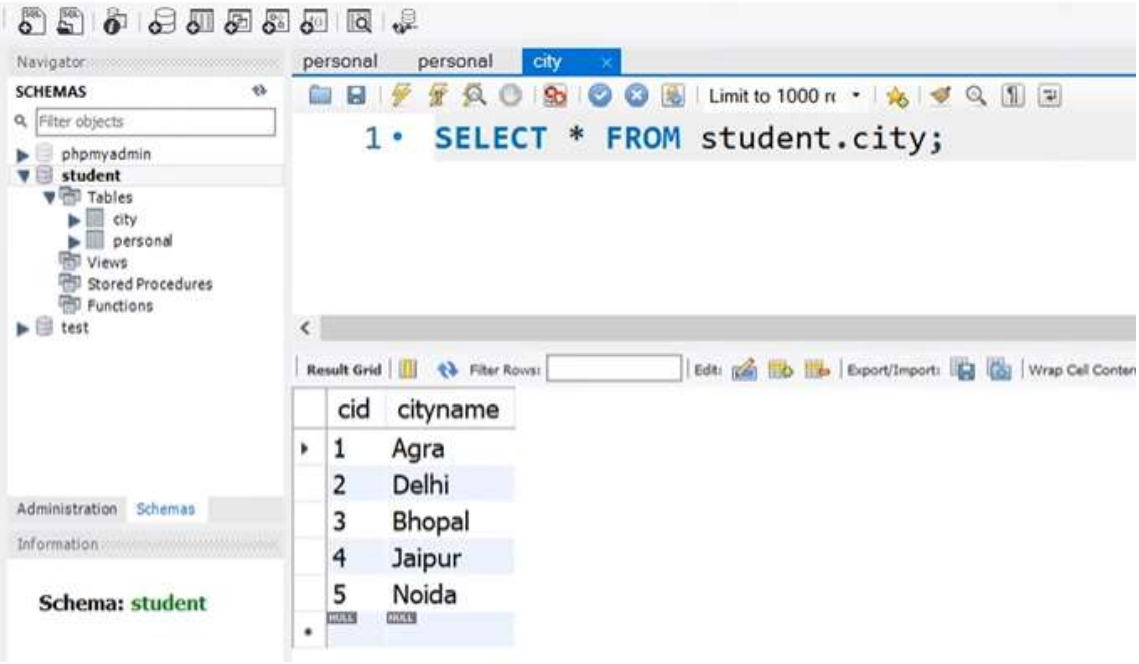
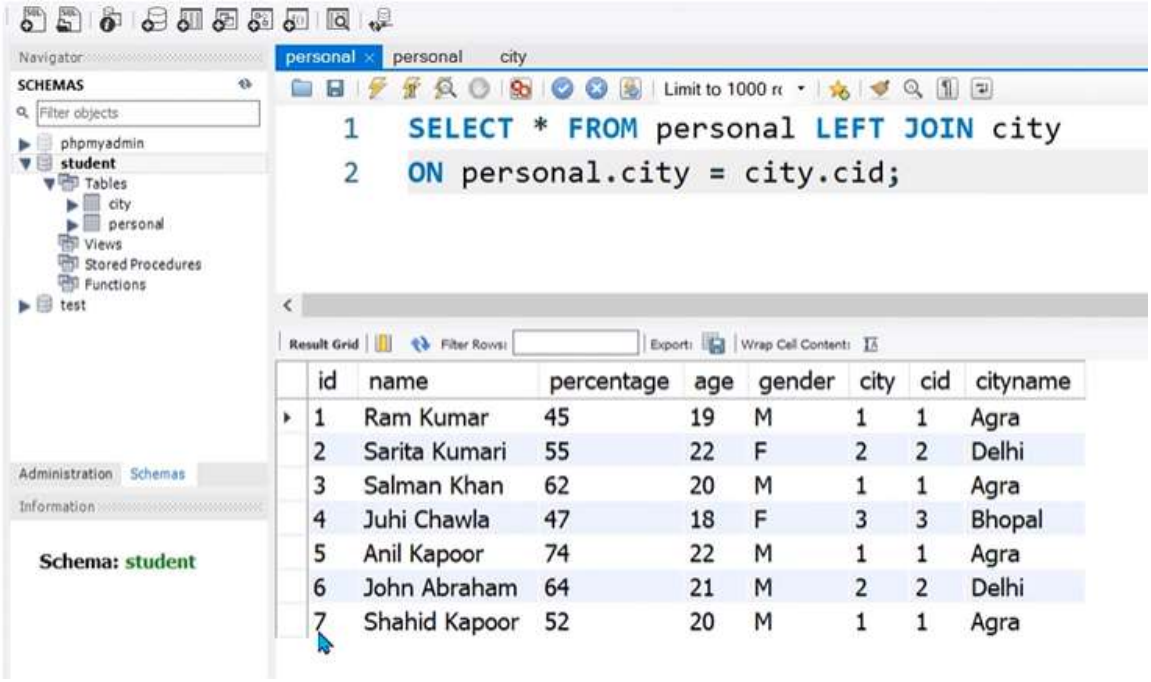
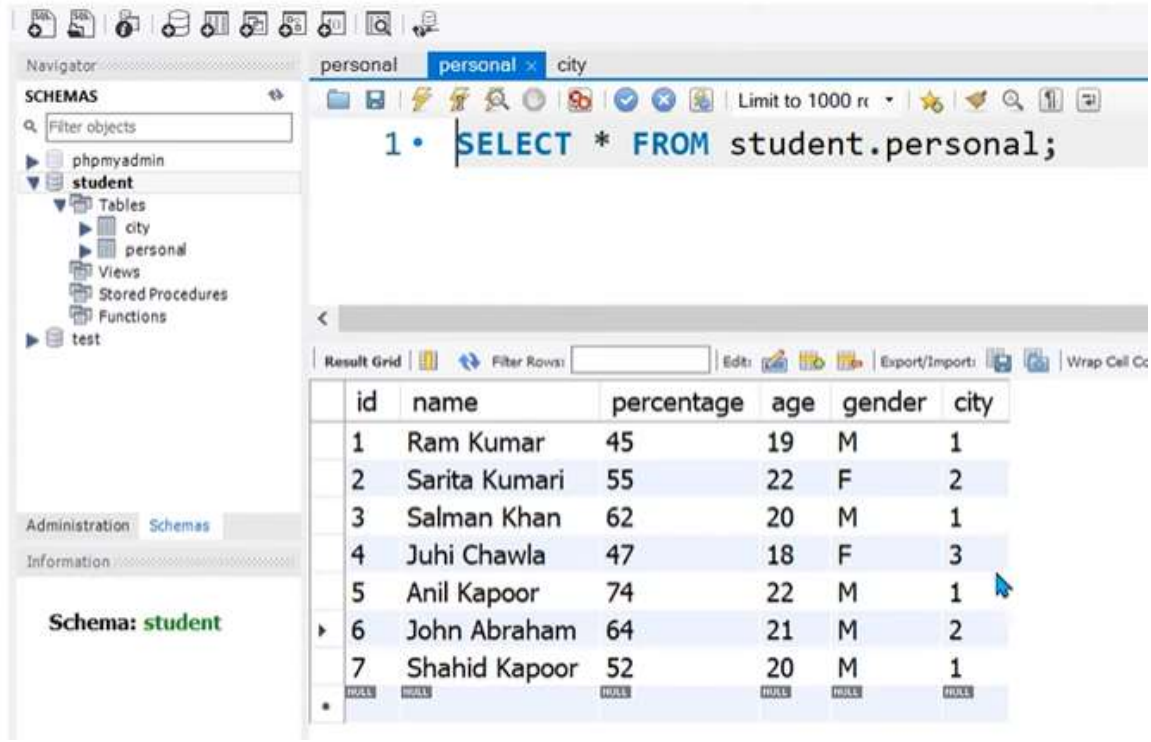


Table-2 (City)



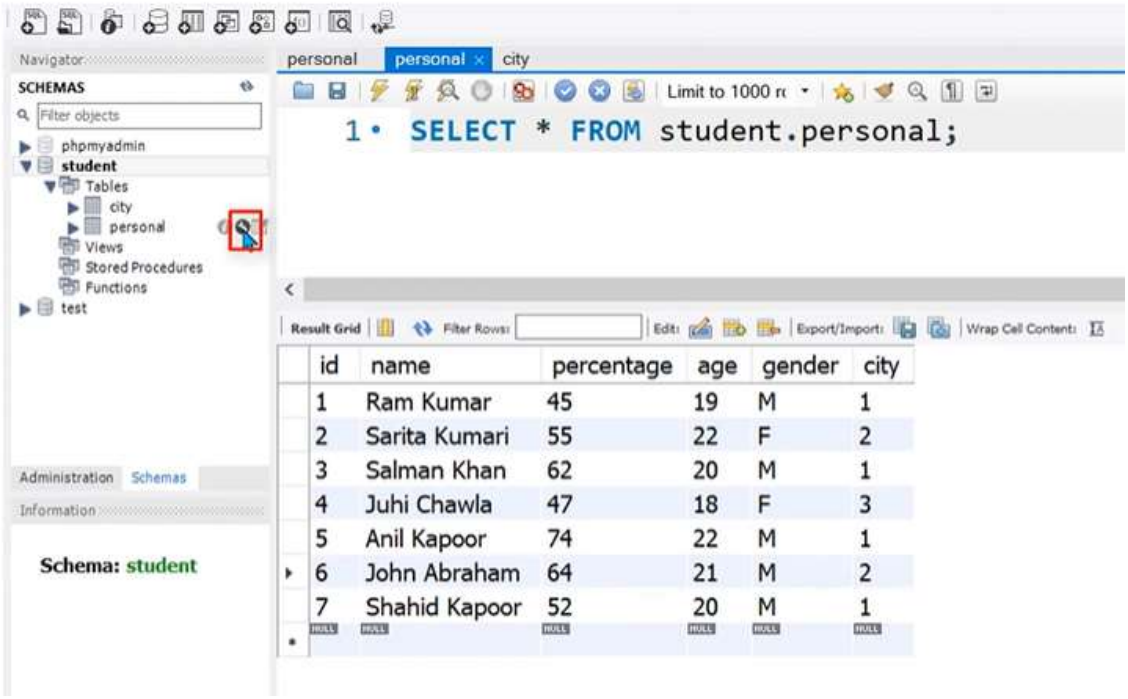


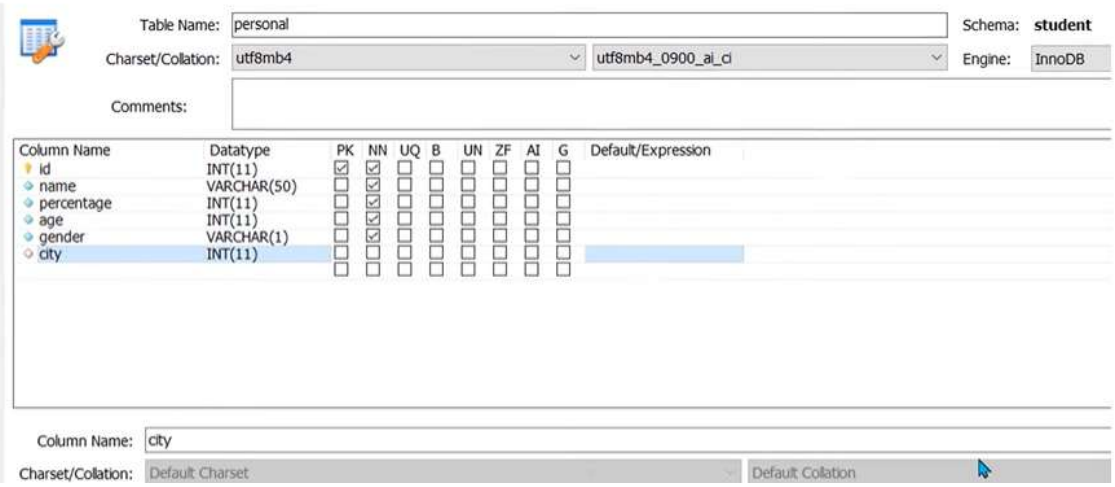
id	name	percentage	age	gender	city	cid	cityname
1	Ram Kumar	45	19	M	1	1	Agra
2	Sarita Kumari	55	22	F	2	2	Delhi
3	Salman Khan	62	20	M	1	1	Agra
4	Juhi Chawla	47	18	F	3	3	Bhopal
5	Anil Kapoor	74	22	M	1	1	Agra
6	John Abraham	64	21	M	2	2	Delhi
7	Shahid Kapoor	52	20	M	1	1	Agra

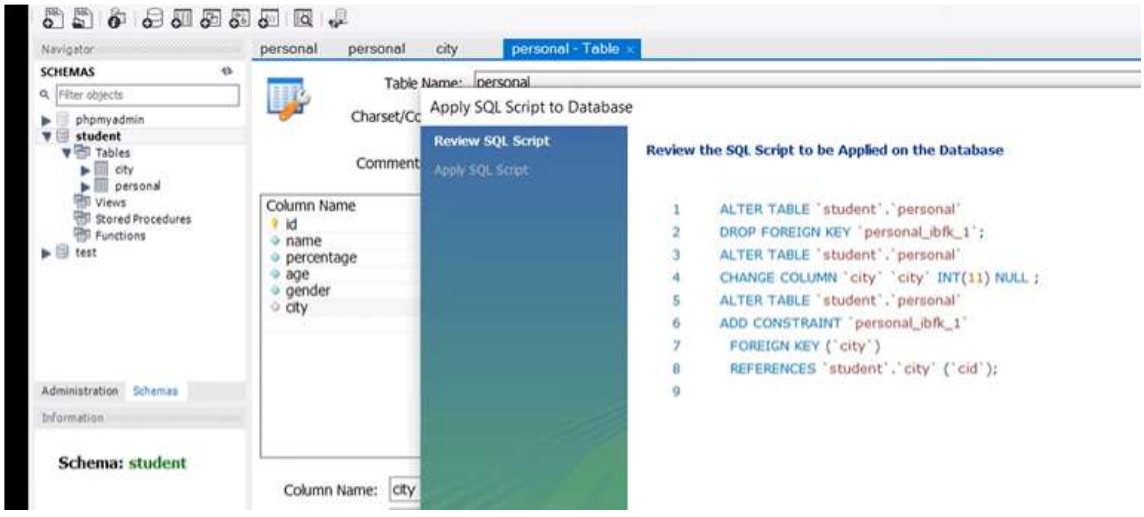


id	name	percentage	age	gender	city
1	Ram Kumar	45	19	M	1
2	Sarita Kumari	55	22	F	2
3	Salman Khan	62	20	M	1
4	Juhi Chawla	47	18	F	3
5	Anil Kapoor	74	22	M	1
6	John Abraham	64	21	M	2
7	Shahid Kapoor	52	20	M	1
NULL	NULL	NULL	NULL	NULL	NULL

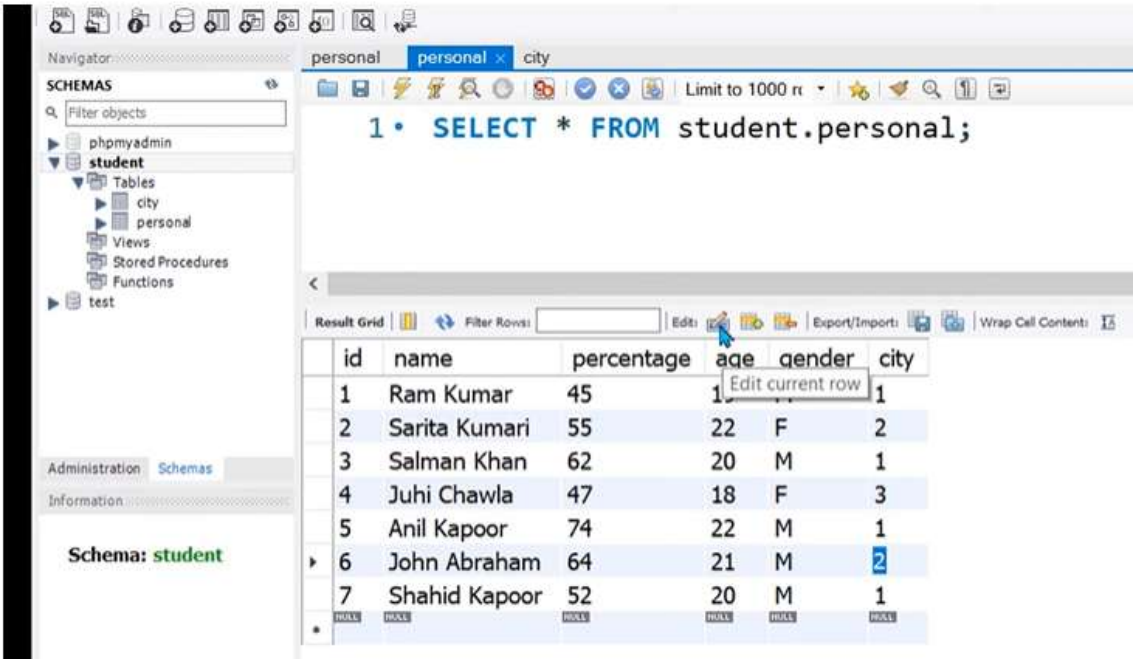
changing the inbuilt setting for not null constraint without command, because we want to apply left join command as one null value in personal table







actually we want to change in city column for null value so for that through mysql tool we are deleting that value


Navigator
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city
personal
Views
Stored Procedures
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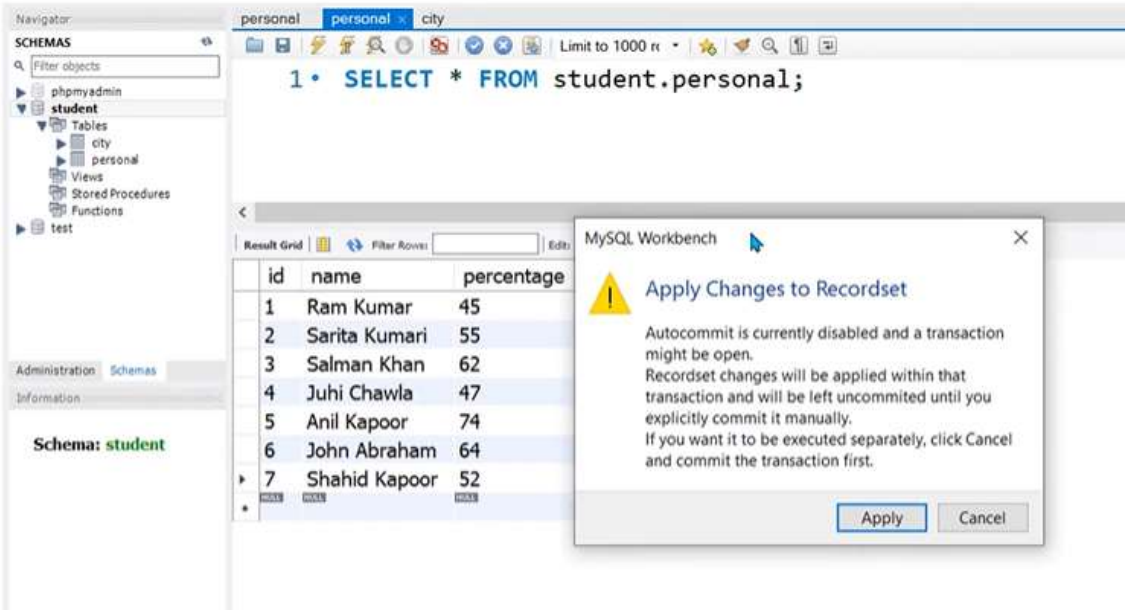
Information
Schema: student
personal
personal
city
Limit to 1000 r
1 • SELECT * FROM student.personal;
Result Grid
Filter Rows:
Edit:
Export/Import:
Wrap Cell Content:
Edit current row
id name percentage age gender city
1 Ram Kumar 45 1
2 Sarita Kumari 55 22 F 2
3 Salman Khan 62 20 M 1
4 Juhi Chawla 47 18 F 3
5 Anil Kapoor 74 22 M 1
6 John Abraham 64 21 M 2
7 Shahid Kapoor 52 20 M 1


Navigator
SCHEMAS
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student
Tables
city
personal
Views
Stored Procedures
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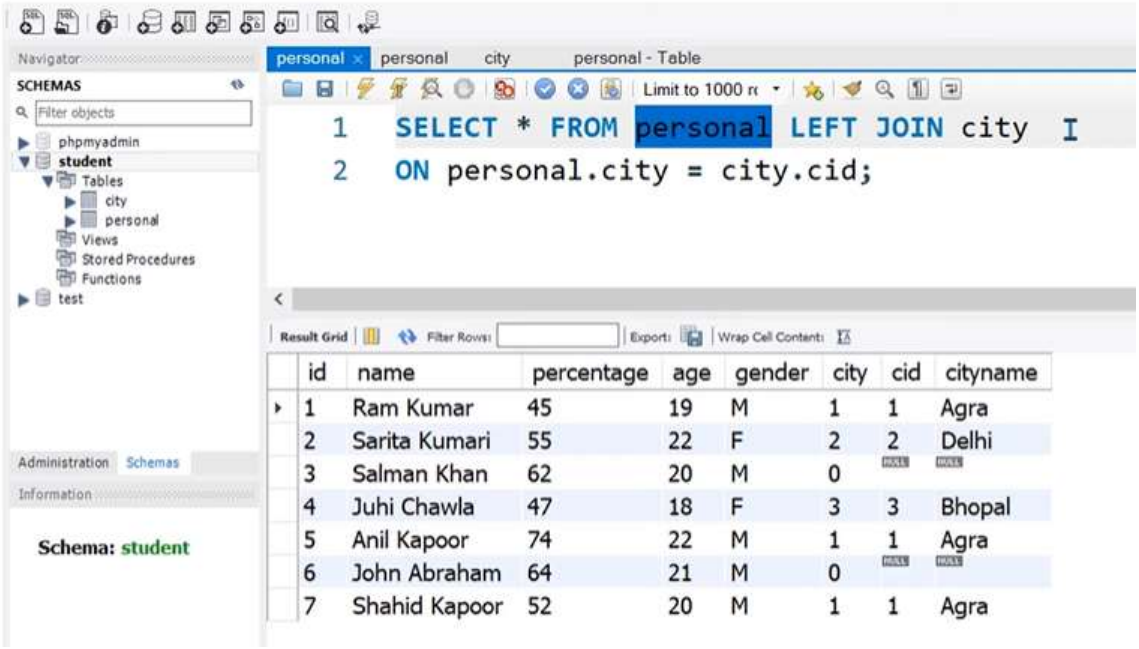
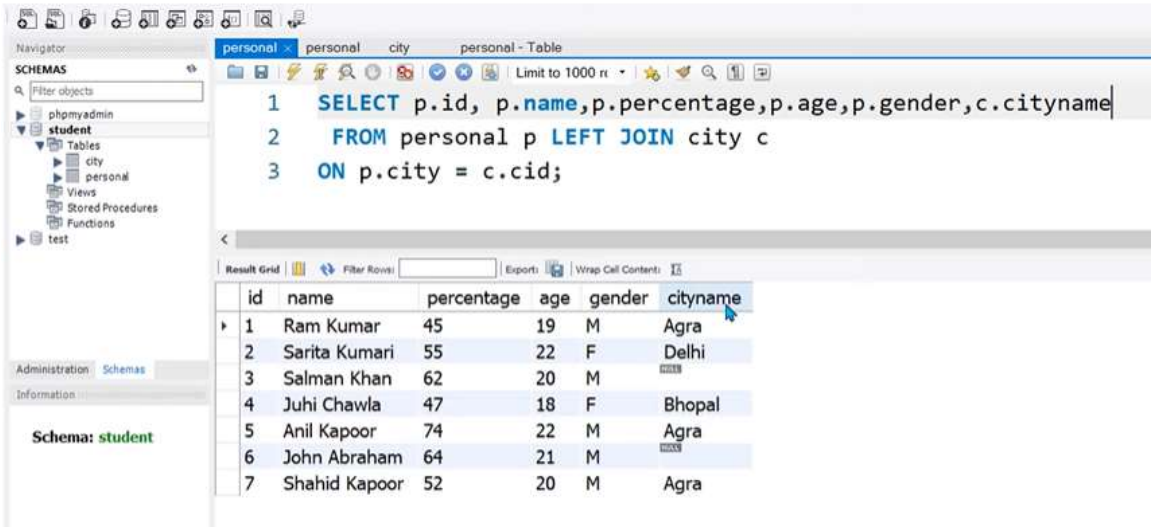
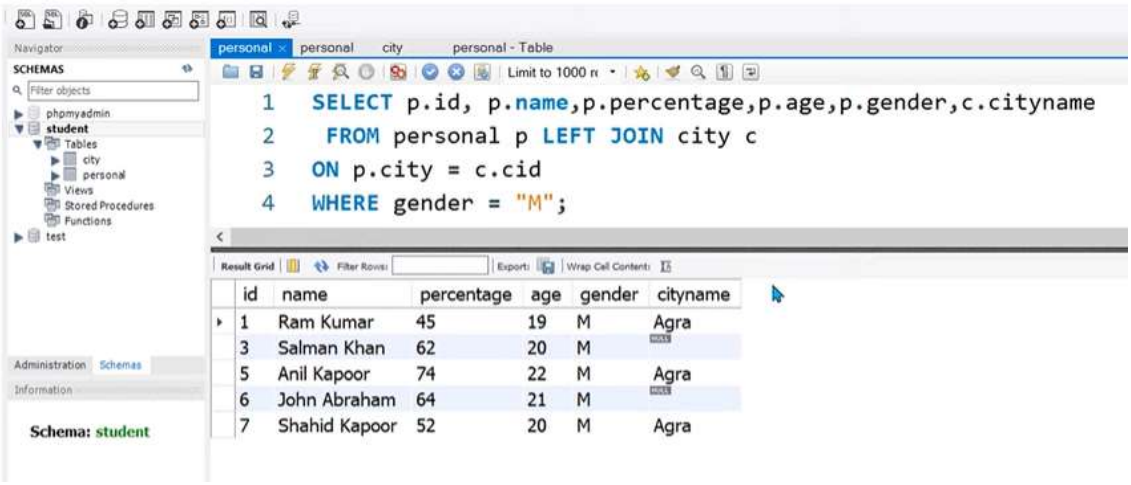
test
Administration
Schemas
Information
Schema: student
personal
personal
city
Limit to 1000 r
1 • SELECT * FROM student.personal;
Result Grid
Filter Rows:
Edit:
id name percentage
1 Ram Kumar 45
2 Sarita Kumari 55
3 Salman Khan 62
4 Juhi Chawla 47
5 Anil Kapoor 74
6 John Abraham 64
7 Shahid Kapoor 52
MySQL Workbench
Apply Changes to Recordset
Autocommit is currently disabled and a transaction might be open.
Recordset changes will be applied within that transaction and will be left uncommited until you explicitly commit it manually.
If you want it to be executed separately, click Cancel and commit the transaction first.
Apply
Cancel



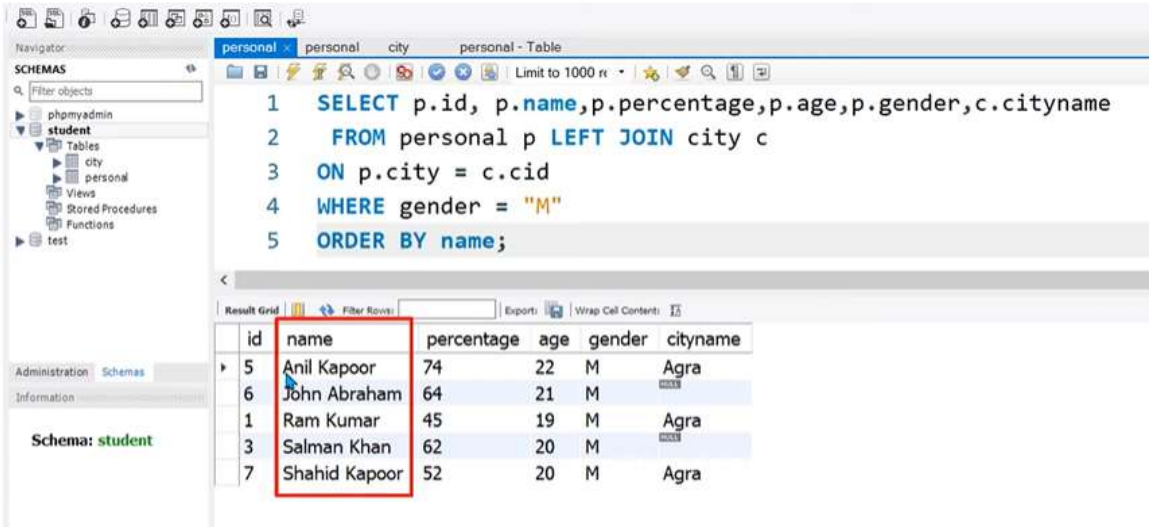
left join for specific columns



where condition for left join

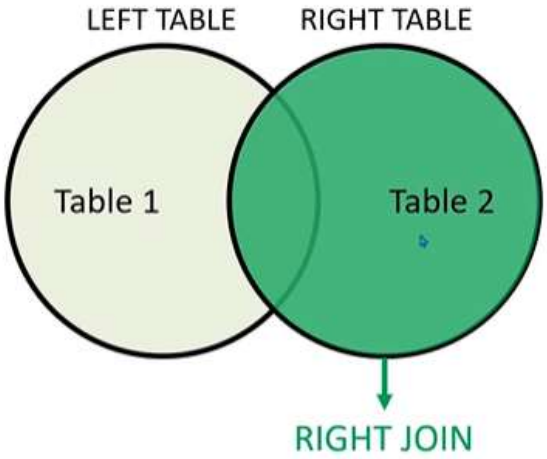


order by clause for left join



Right Join

What is RIGHT JOIN ?



The RIGHT JOIN returns all records from the right table (table2), and the matched records from the left table (table1).

JOIN Two Tables

RIGHT JOIN

Student Table

Id	Name	Age	City
1	Ram Kumar	19	1
2	Salman Khan	18	2
3	Meera Khan	19	
4	Sarita Kumari	21	3

City Table

Cid	City
1	Agra
2	Bhopal
3	Delhi
4	Noida

Match

FOREIGN KEY

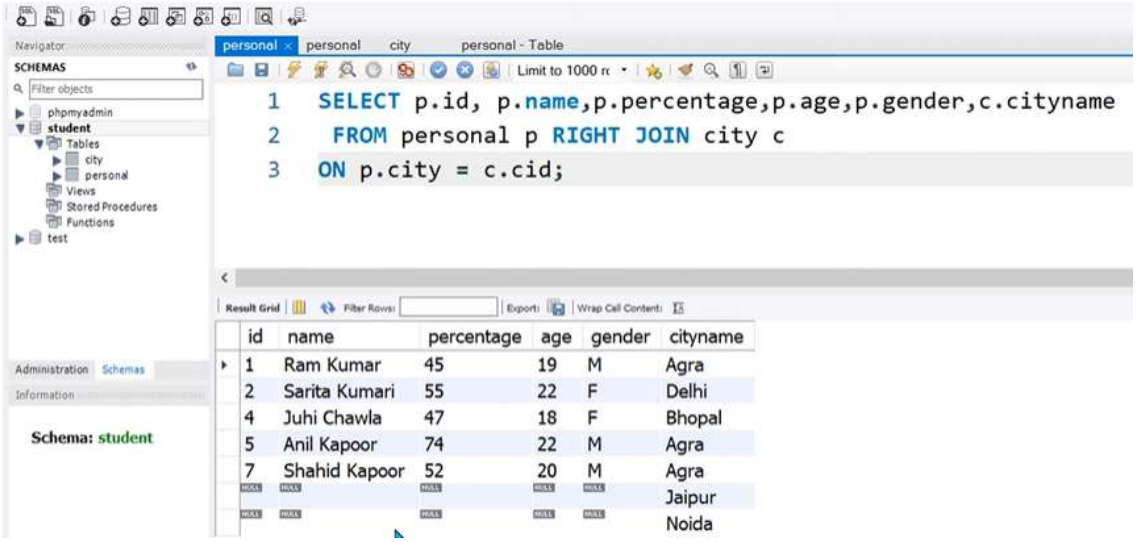
PRIMARY KEY

RIGHT JOIN Syntax

```
SELECT columns
FROM table1
RIGHT JOIN table2
ON table1.column_name = table2.column_name;
```

FOREIGN KEY — PRIMARY KEY

Practical



23. MySQL CROSS JOIN

Types of JOINS in MySQL

- INNER JOIN
- LEFT JOIN
- RIGHT JOIN
- CROSS JOIN

CROSS JOIN Two Tables

Student Table

Id	Name	Age
1	Ram Kumar	19
2	Salman Khan	18
3	Meera Khan	19
4	Sarita Kumari	21

City Table

Cid	City
1	Agra
2	Bhopal
3	Delhi

12 Combinations

CROSS JOIN Result

Id	Name	Age	Cid	City
1	Ram Kumar	19	1	Agra
2	Ram Kumar	19	2	Bhopal
3	Ram Kumar	19	3	Delhi
4	Salman Khan	18	1	Agra
5	Salman Khan	18	2	Bhopal
6	Salman Khan	18	3	Delhi
7	Meera Khan	19	1	Agra
8	Meera Khan	19	2	Bhopal
9	Meera Khan	19	3	Delhi
10	Sarita Kumari	21	1	Agra
11	Sarita Kumari	21	2	Bhopal
12	Sarita Kumari	21	3	Delhi

CROSS JOIN Syntax

```
SELECT columns
FROM table1
CROSS JOIN table2;
```

Practical

Table 1

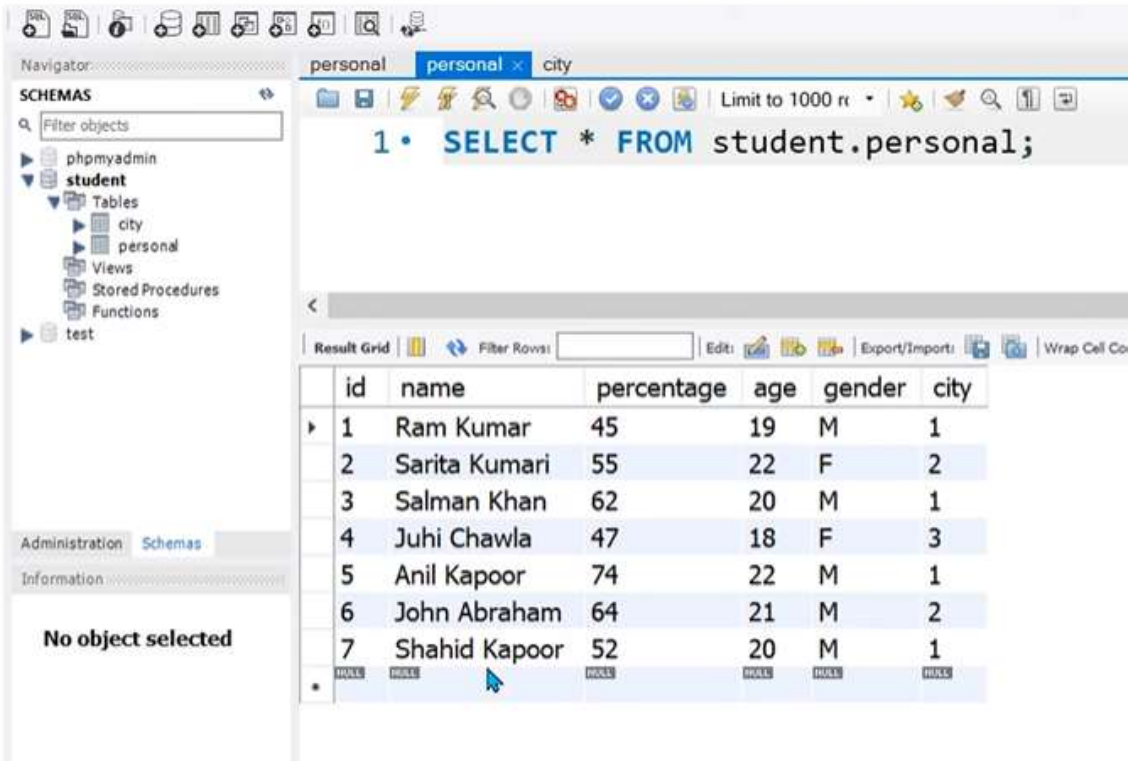
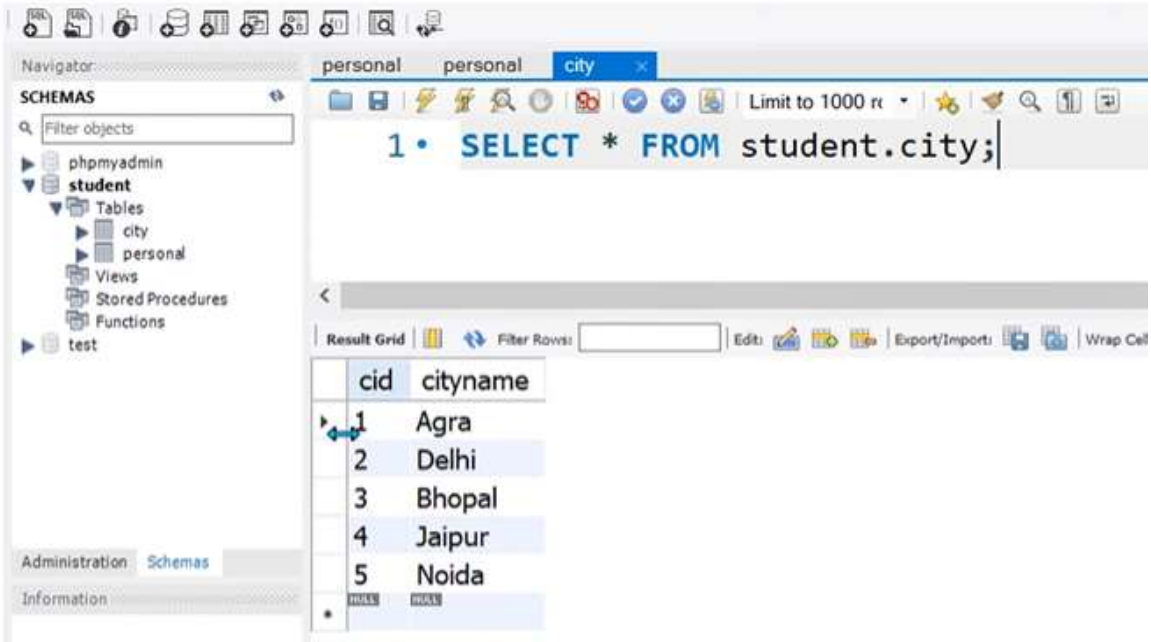
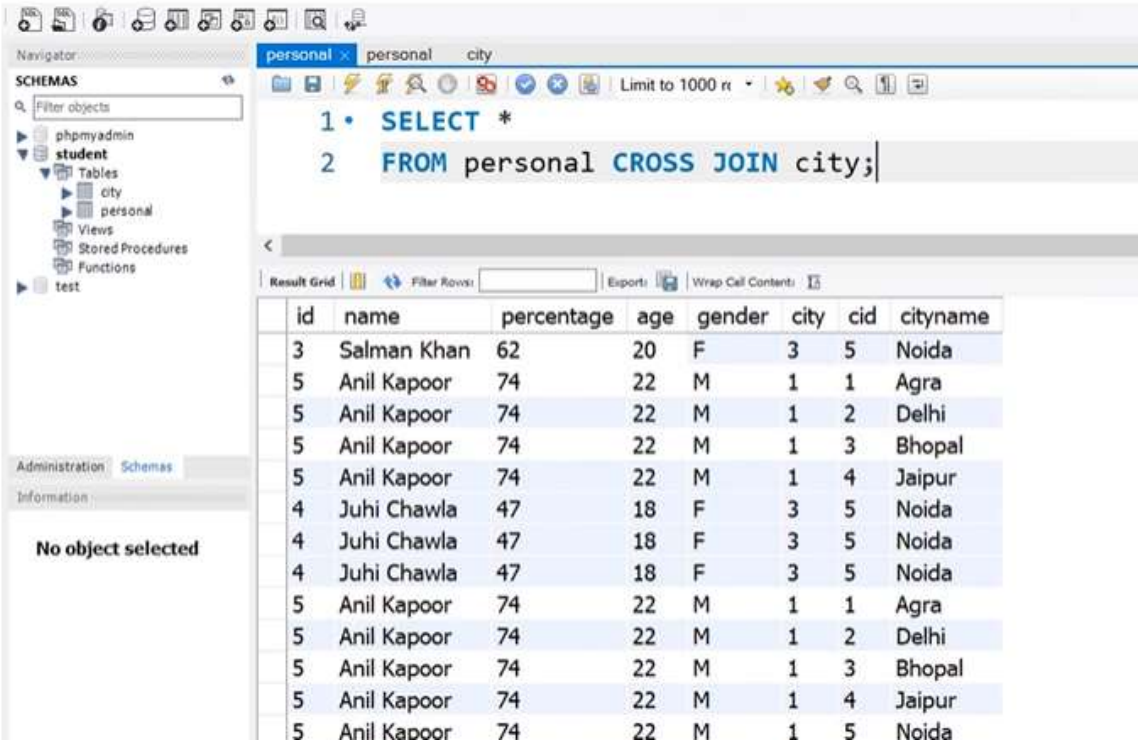


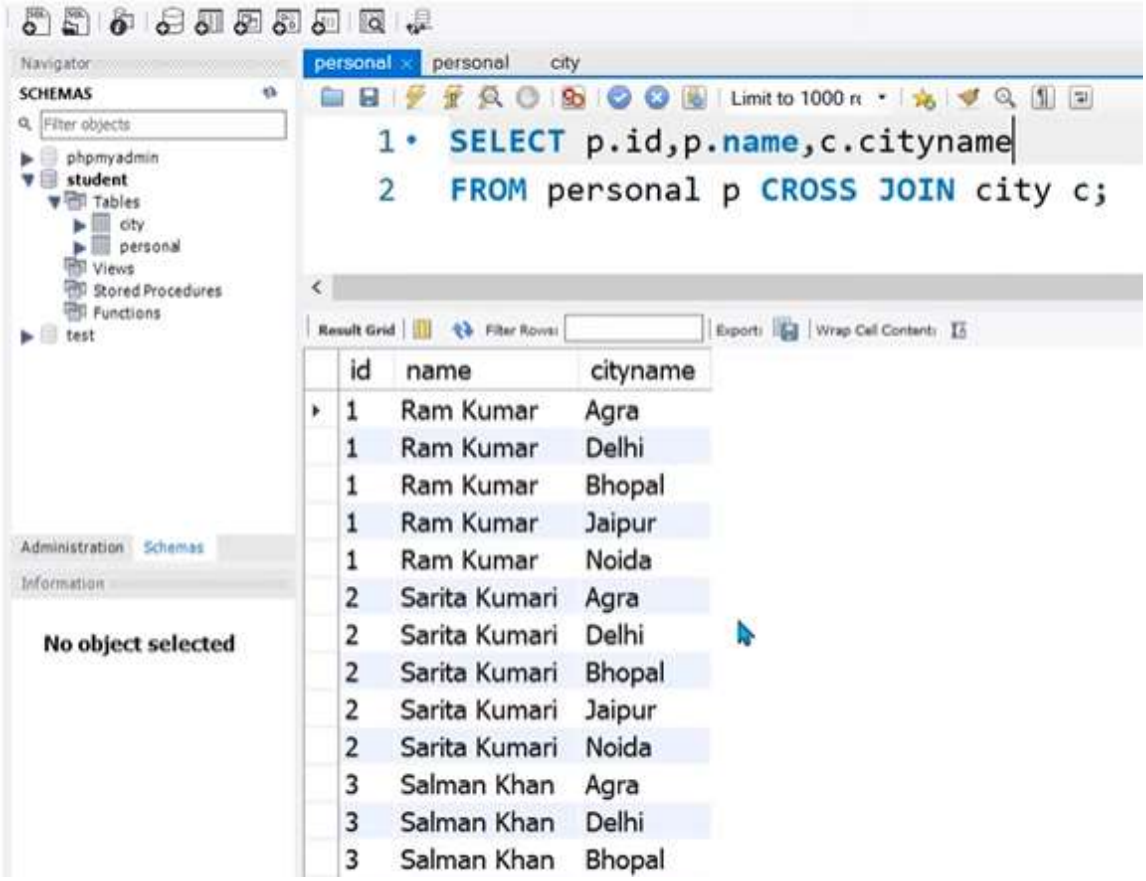
Table 2



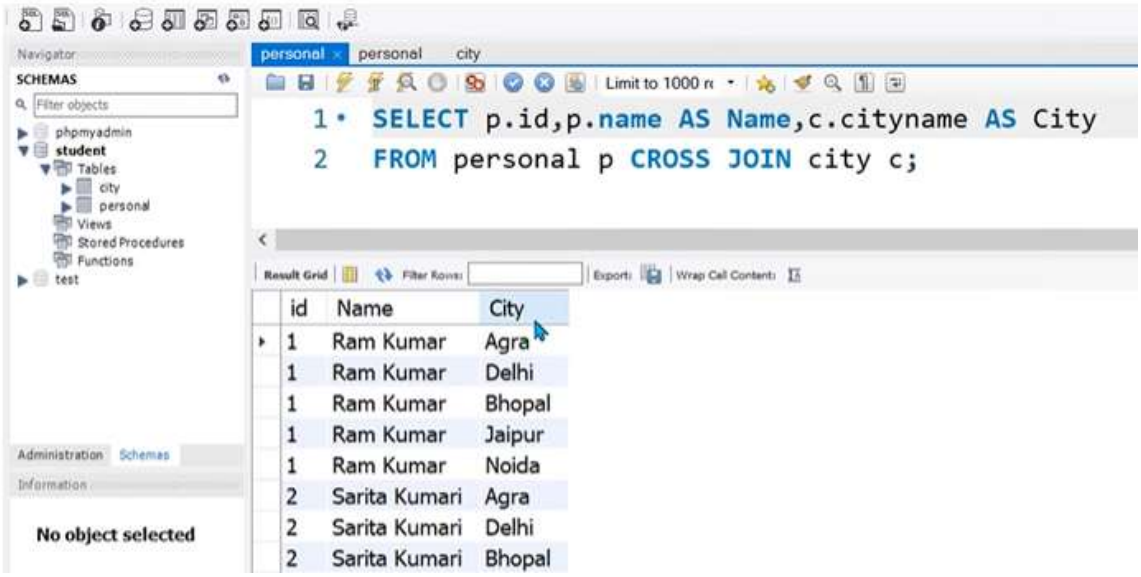
Total 35 combinations



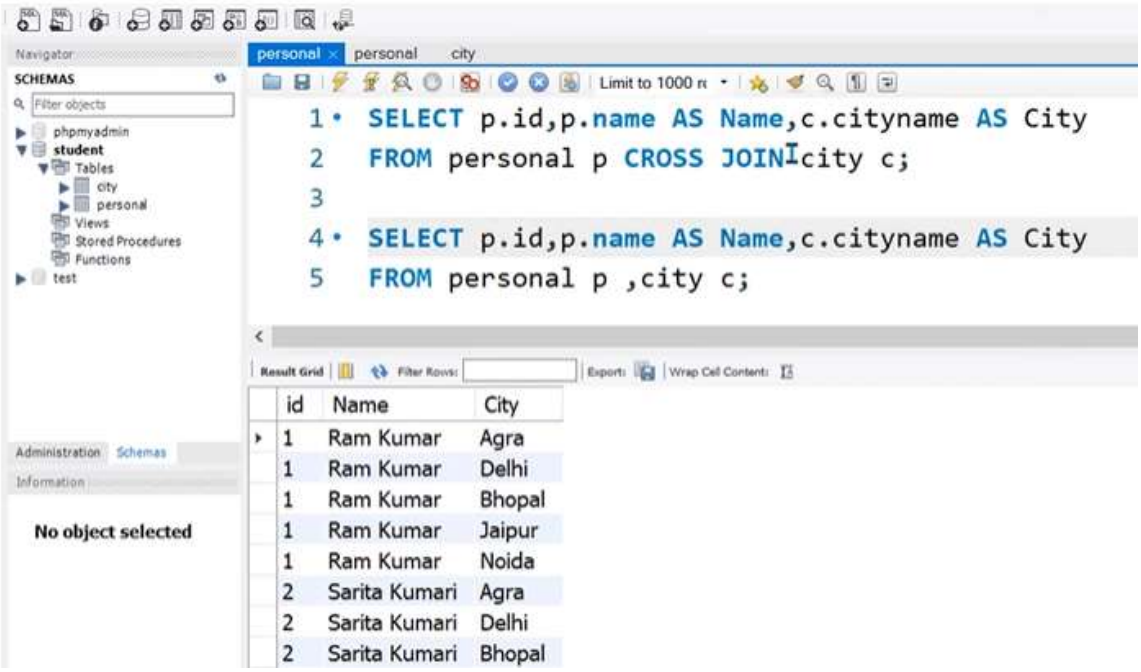
Using specific columns



changing column names

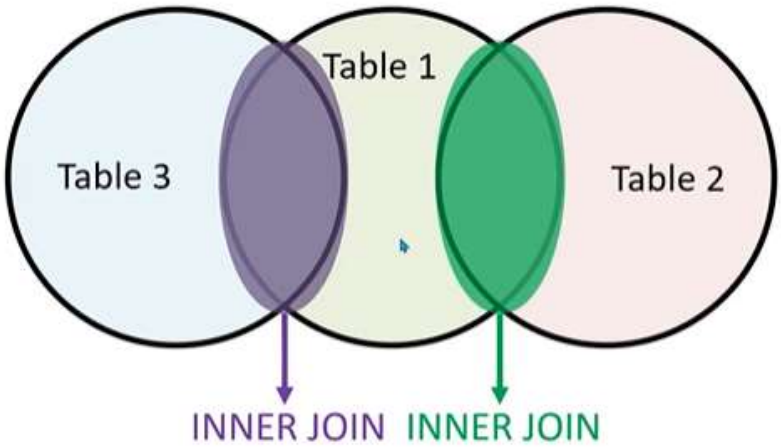


same result with another method



24. MySQL JOIN Multiple Tables

How to JOIN Multiple Tables ?



JOIN Three Tables

Student Table

Id	Name	Age	Courses	City
1	Ram Kumar	19	1	1
2	Salman Khan	18	3	2
3	Meera Khan	19	1	1
4	Sarita Kumari	21	2	3

City Table

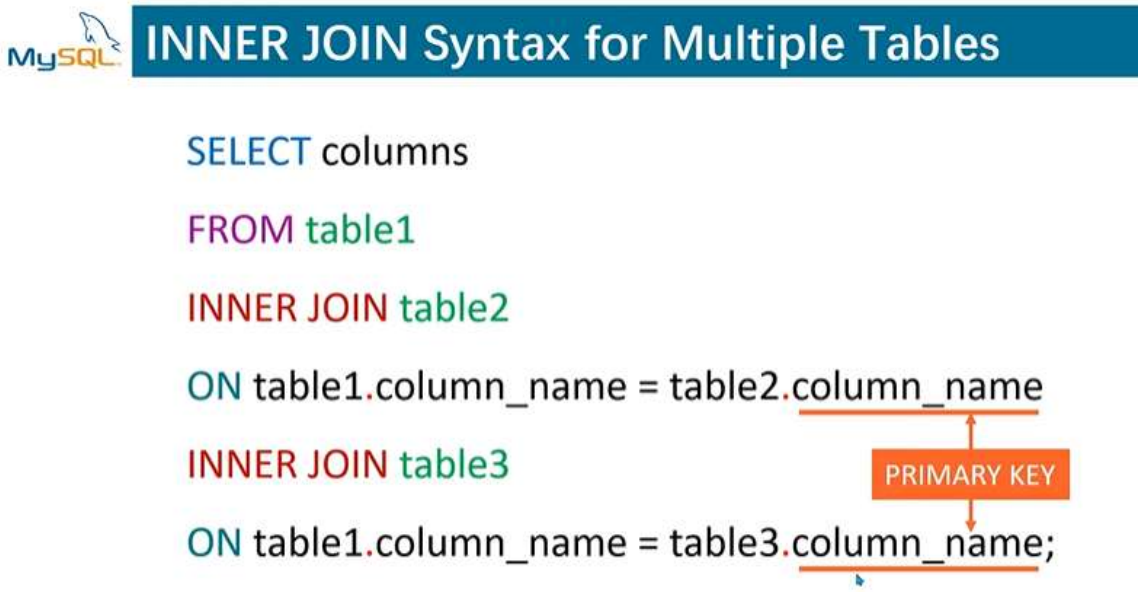
Cid	City
1	Agra
2	Bhopal
3	Delhi
4	Noida

Courses Table

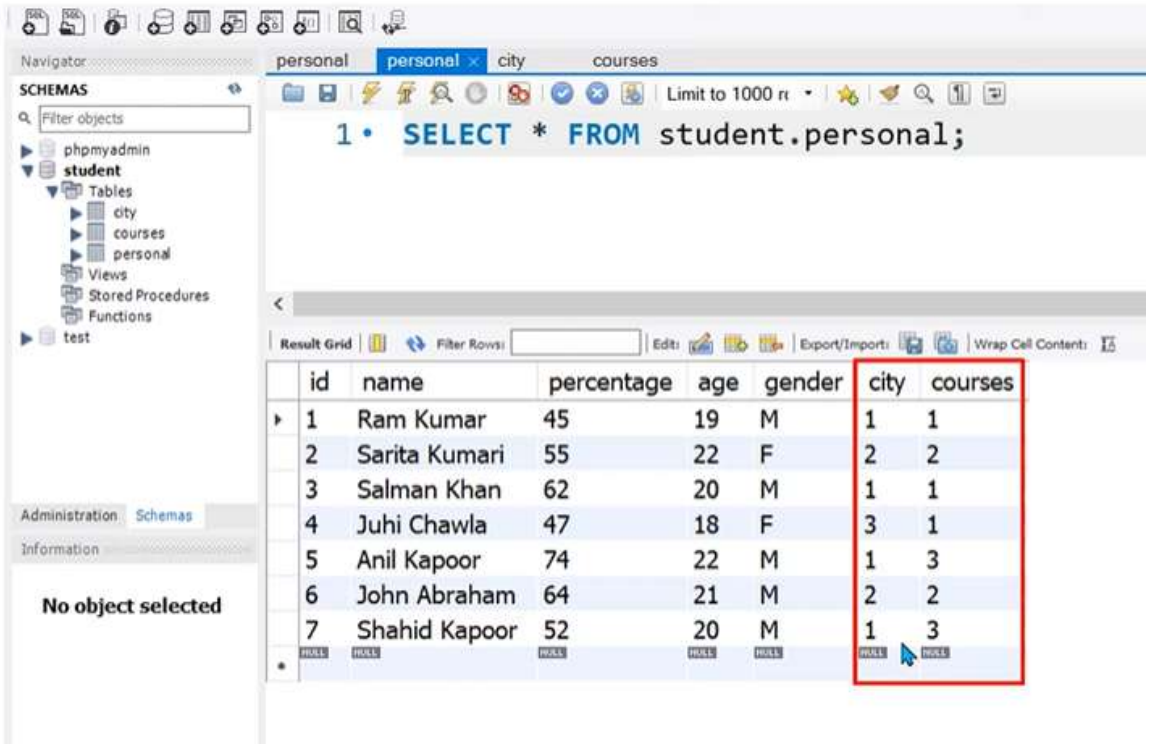
Crid	Course
1	Btech
2	BCA
3	BBA

JOIN

JOIN


INNER JOIN Syntax for Multiple Tables
SELECT columns
FROM table1
INNER JOIN table2
ON table1.column_name = table2.column_name
INNER JOIN table3
ON table1.column_name = table3.column_name;
PRIMARY KEY

Practical


Navigator
SCHEMAS
Filter objects
phpmyadmin
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personal
Views
Stored Procedures
Functions
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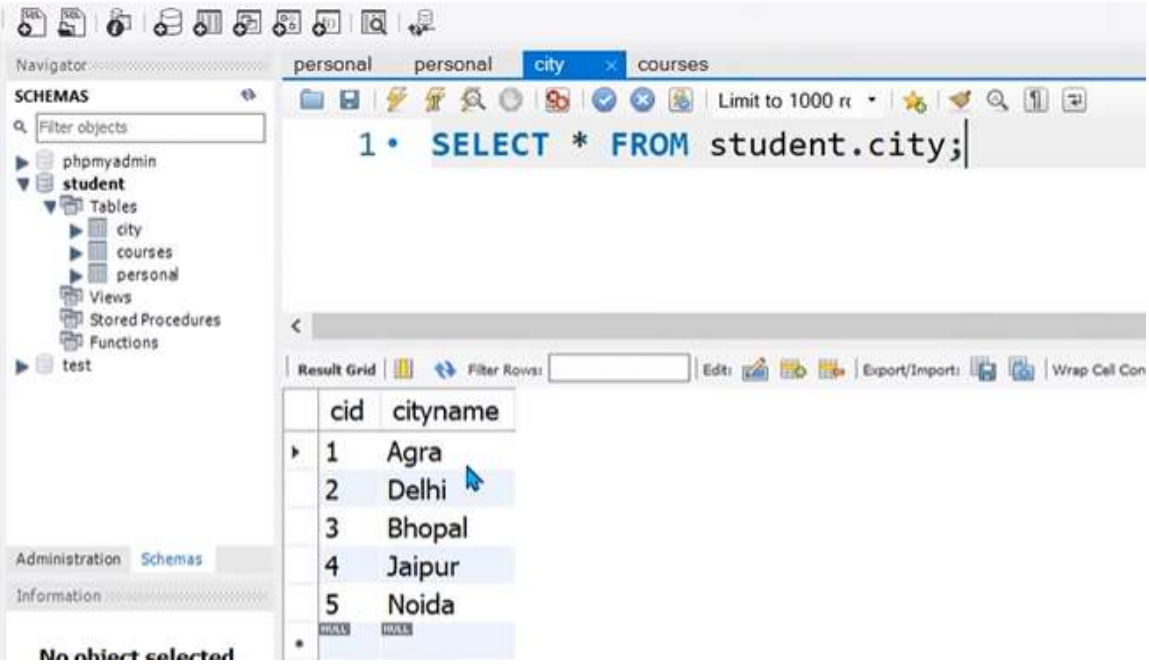
Administration
Schemas
Information
No object selected
personal
personal
city
courses
Limit to 1000 r
1 • SELECT * FROM student.personal;
Result Grid
Filter Rows:
Edit:
Export/Import:
Wrap Cell Content:
id name percentage age gender city courses
1 Ram Kumar 45 19 M 1 1
2 Sarita Kumari 55 22 F 2 2
3 Salman Khan 62 20 M 1 1
4 Juhi Chawla 47 18 F 3 1
5 Anil Kapoor 74 22 M 1 3
6 John Abraham 64 21 M 2 2
7 Shahid Kapoor 52 20 M 1 3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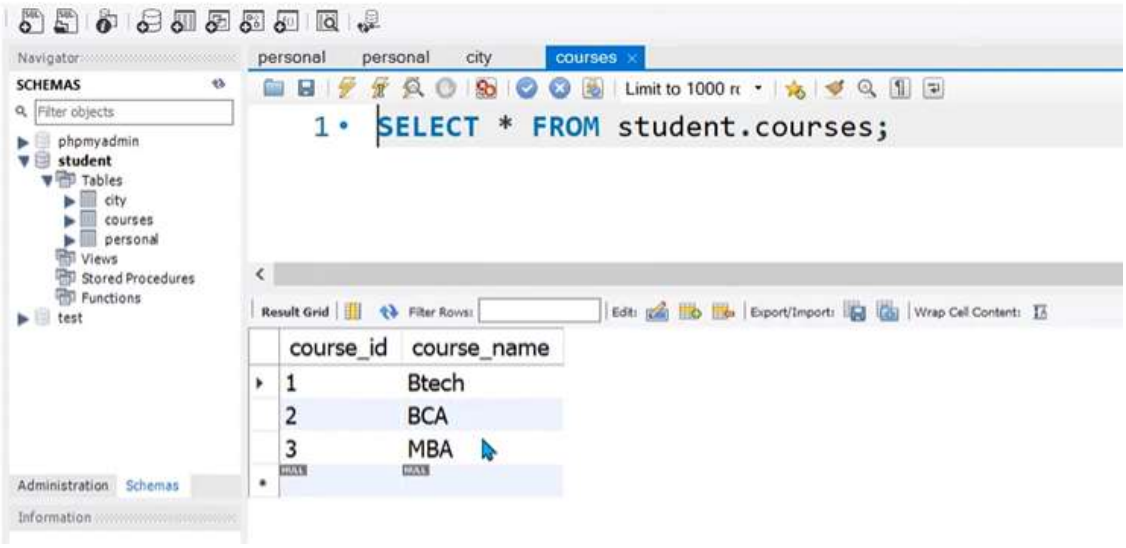
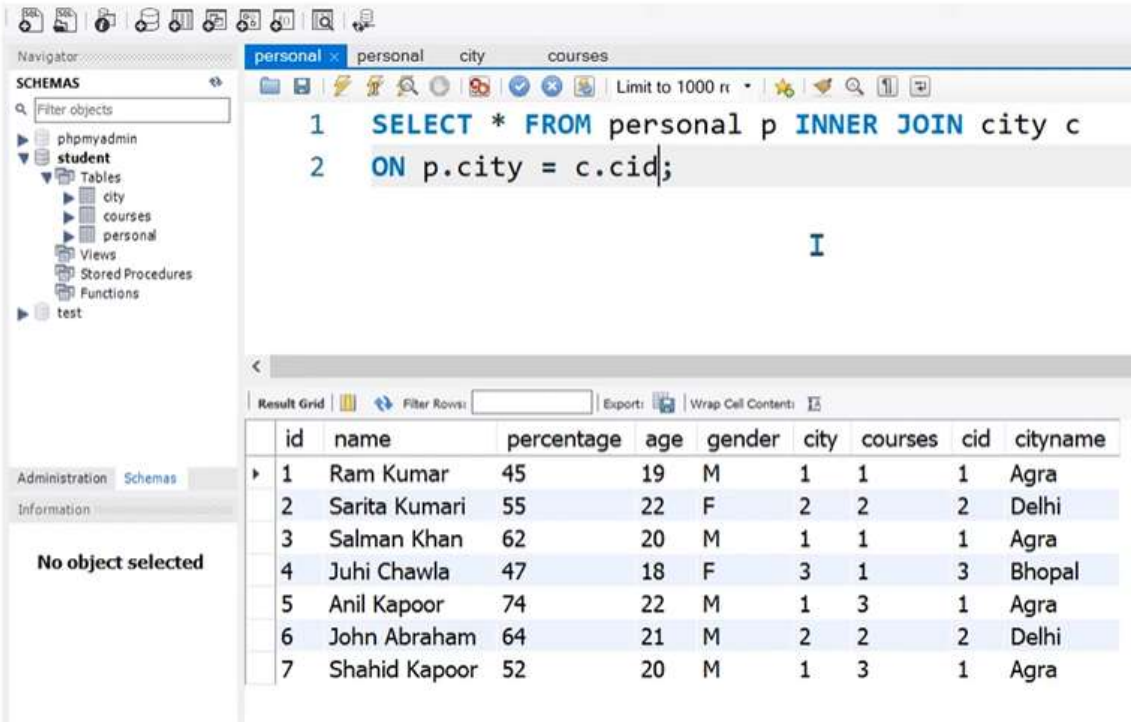
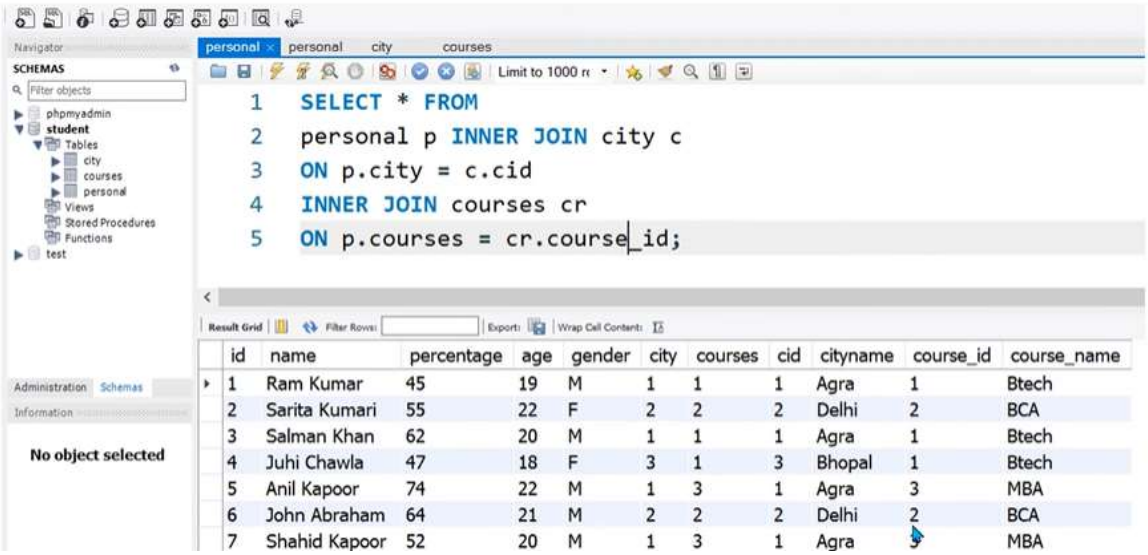
student
Tables
city
courses
personal
Views
Stored Procedures
Functions
test
Administration
Schemas
Information
personal
personal
city
courses
Limit to 1000 r
1 • SELECT * FROM student.city;
Result Grid
Filter Rows:
Edit:
Export/Import:
cid cityname
1 Agra
2 Delhi
3 Bhopal
4 Jaipur
5 Noida



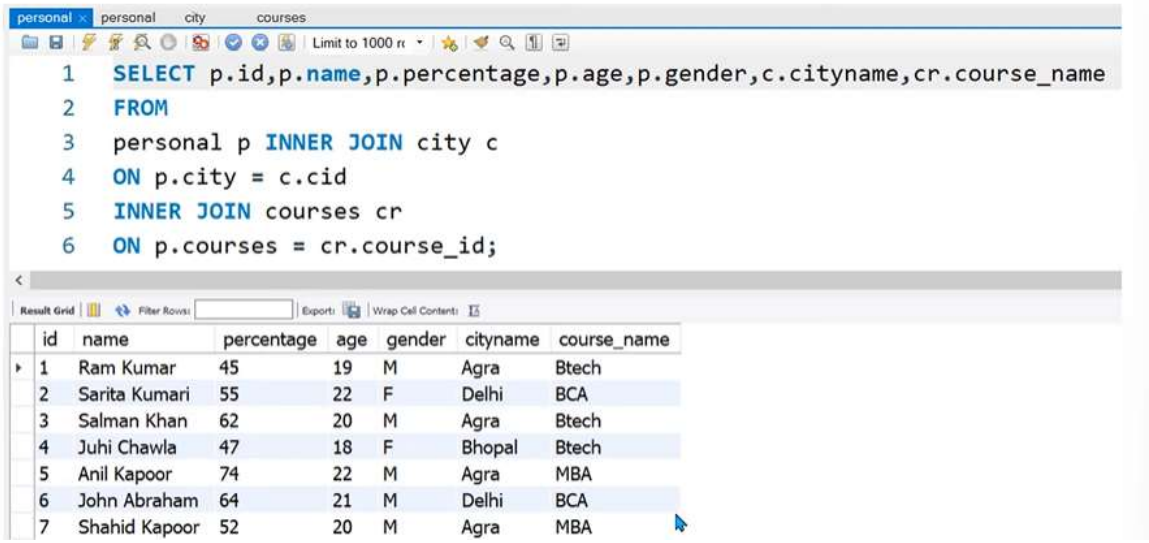
joining first two tables



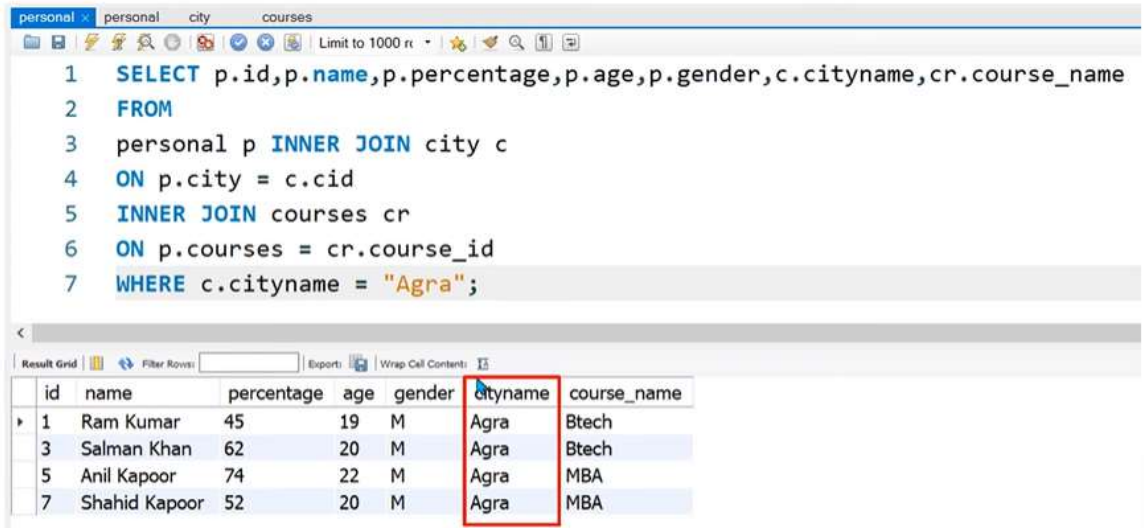
joining first and third table along with previous result



want to see specific columns



by using where condition



25. MySQL GROUP BY & HAVING Clause

GROUP BY Clause

Student Table

Id	Name	Age	City
1	Ram Kumar	19	1
2	Salman Khan	18	2
3	Meera Khan	19	1
4	Sarita Kumari	21	3

City Table

Cid	City
1	Agra
2	Bhopal
3	Delhi
4	Noida

City	Total Stud
Agra	2
Bhopal	1
Delhi	1

GROUP BY

The GROUP BY clause is used in conjunction with the

SELECT statement and Aggregate functions

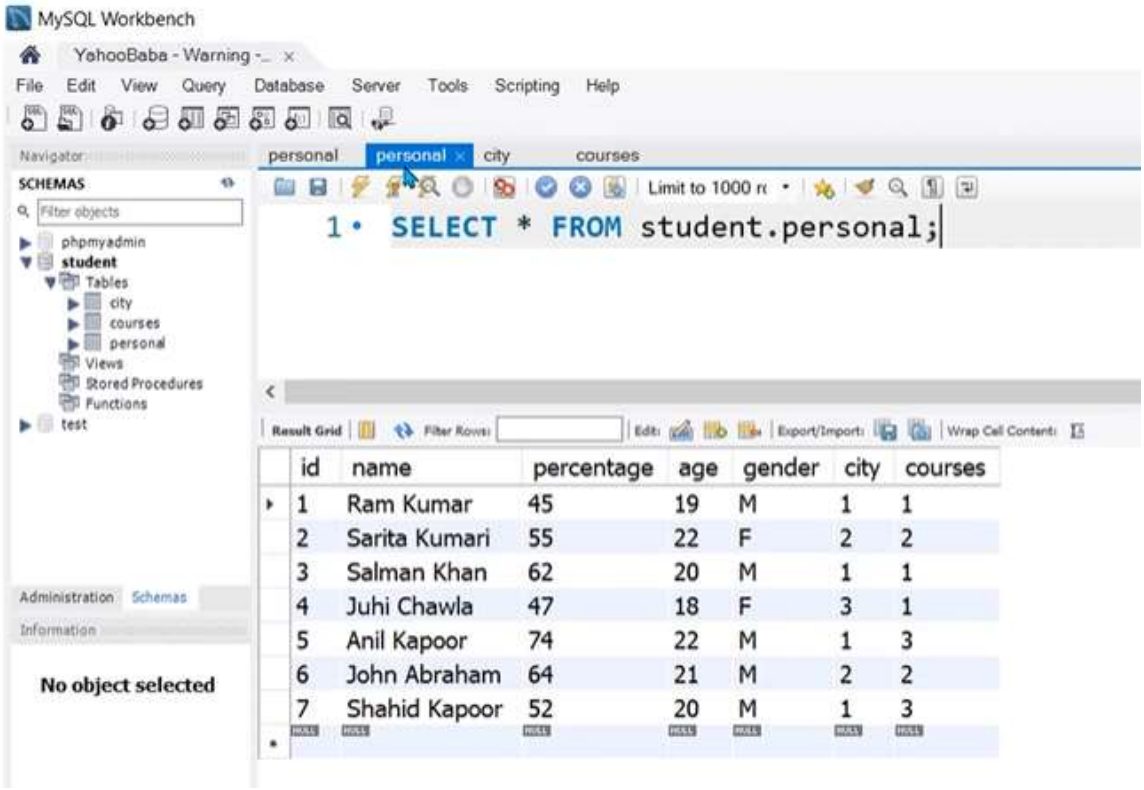
to group rows together by common column values.

SELECT with GROUP BY Syntax

```
SELECT columns
FROM table_name
WHERE condition
GROUP BY column_name(s);
```


```
SELECT columns
FROM table1 INNER JOIN table2
ON table1.column_name = table2.column_name
WHERE condition
GROUP BY column_name(s);
```

Practical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city
courses
personal
Views
Stored Procedures
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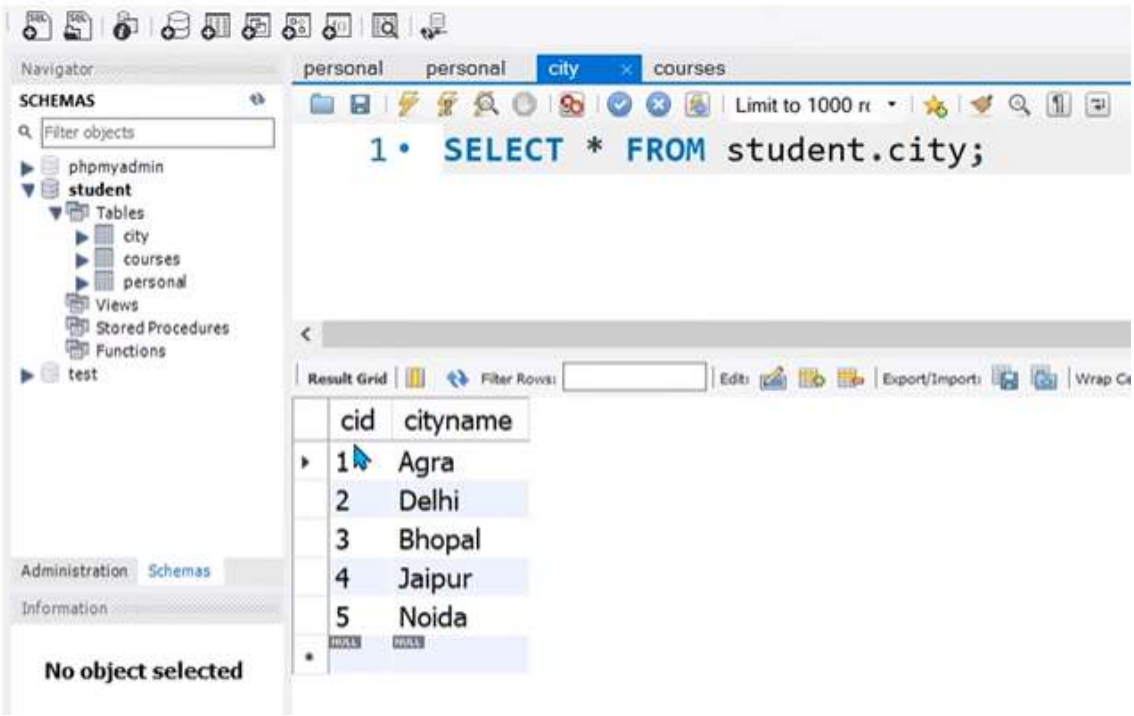
personal personal city courses
Limit to 1000 r
1 • SELECT * FROM student.personal;
Result Grid Filter Rows: Edit: Export/Import: Wrap Cell Content:
id name percentage age gender city courses
1 Ram Kumar 45 19 M 1 1
2 Sarita Kumari 55 22 F 2 2
3 Salman Khan 62 20 M 1 1
4 Juhi Chawla 47 18 F 3 1
5 Anil Kapoor 74 22 M 1 3
6 John Abraham 64 21 M 2 2
7 Shahid Kapoor 52 20 M 1 3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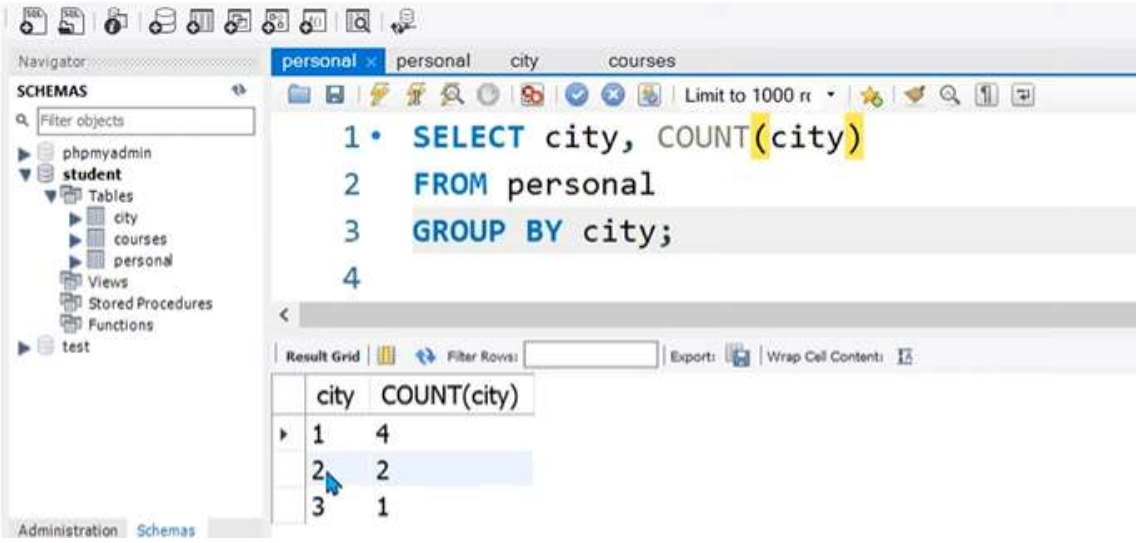
Tables
city
courses
personal
Views
Stored Procedures
Functions
test
Administration Schemas
Information
No object selected
personal personal city courses
Limit to 1000 r
1 • SELECT * FROM student.city;
Result Grid Filter Rows: Edit: Export/Import:
cid cityname
1 Agra
2 Delhi
3 Bhopal
4 Jaipur
5 Noida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courses
personal
Views
Stored Procedures
Functions
test
Administration
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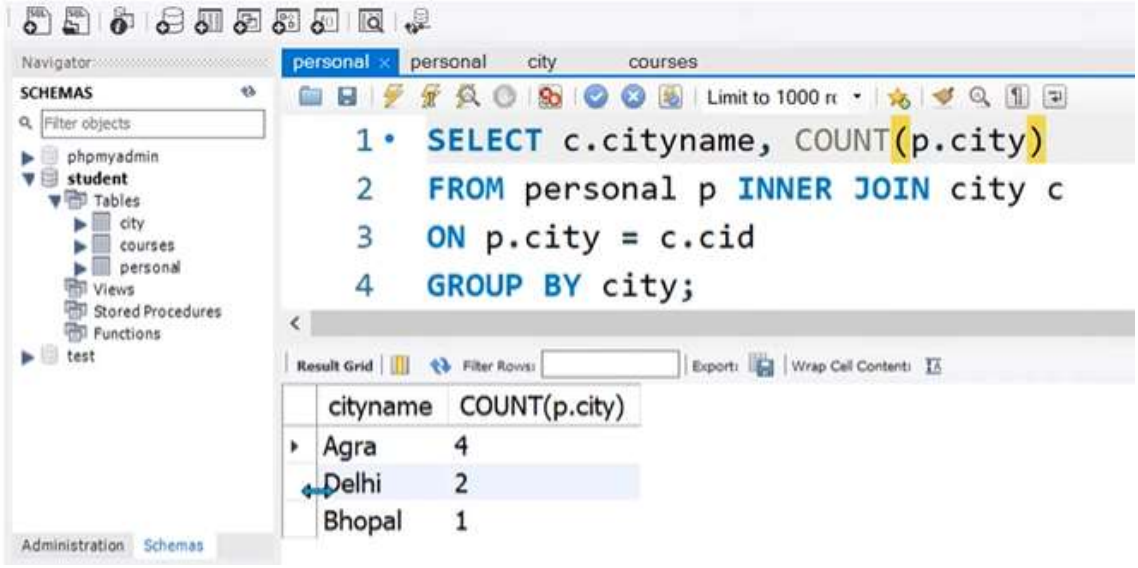
personal
personal
city
courses
Limit to 1000 r
1 • SELECT city, COUNT(city)
2 FROM personal
3 GROUP BY city;
4
Result Grid
Filter Rows:
Export:
Wrap Cell Content:
city
COUNT(city)
1
4
2
2
3
1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Filter objects
phpmyadmin
student
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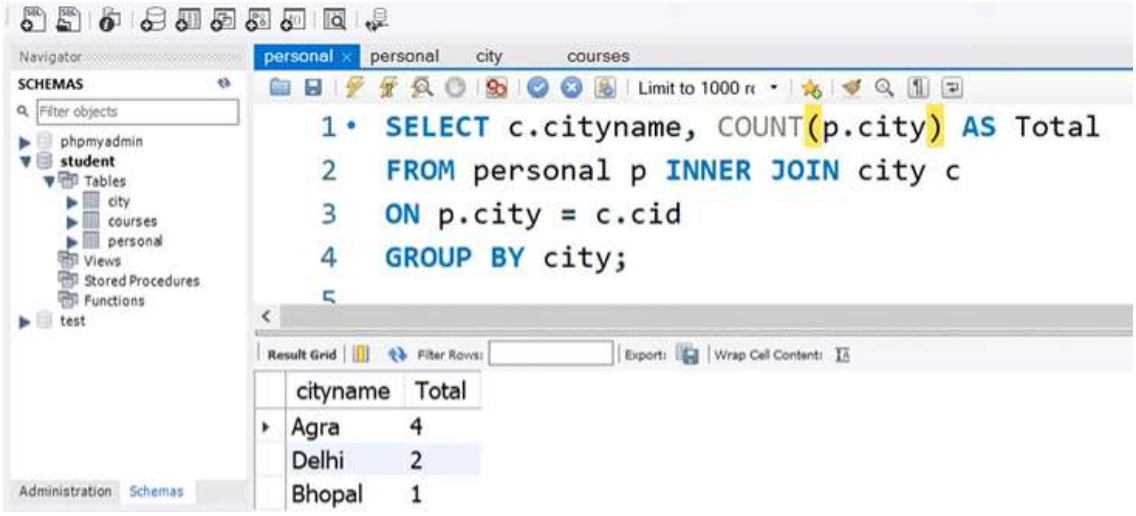
city
courses
personal
Views
Stored Procedures
Functions
test
Administration
Schemas
personal
personal
city
courses
Limit to 1000 r
1 • SELECT c.cityname, COUNT(p.city)
2 FROM personal p INNER JOIN city c
3 ON p.city = c.cid
4 GROUP BY city;
Result Grid
Filter Rows:
Export:
Wrap Cell Content:
cityname
COUNT(p.city)
Agra
4
Delhi
2
Bhopal
1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phpmyadmin
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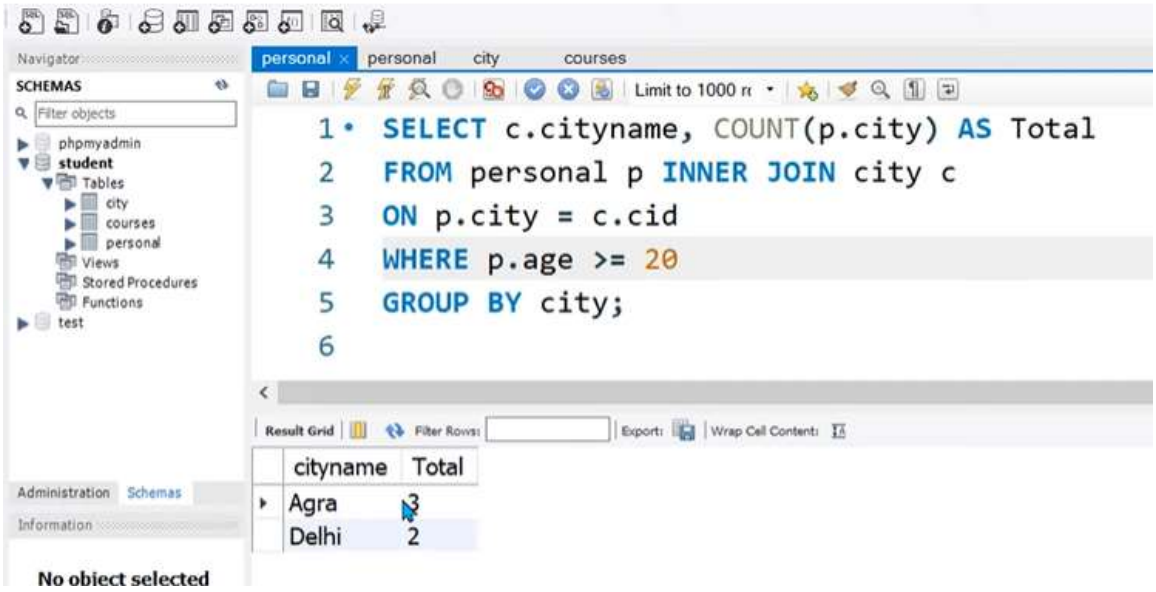
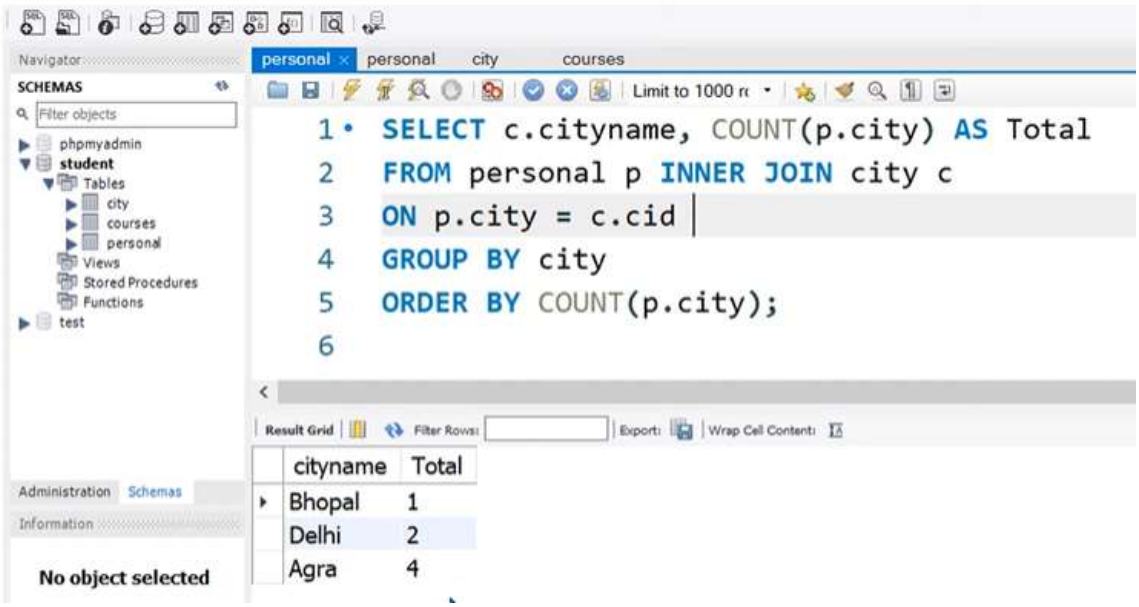
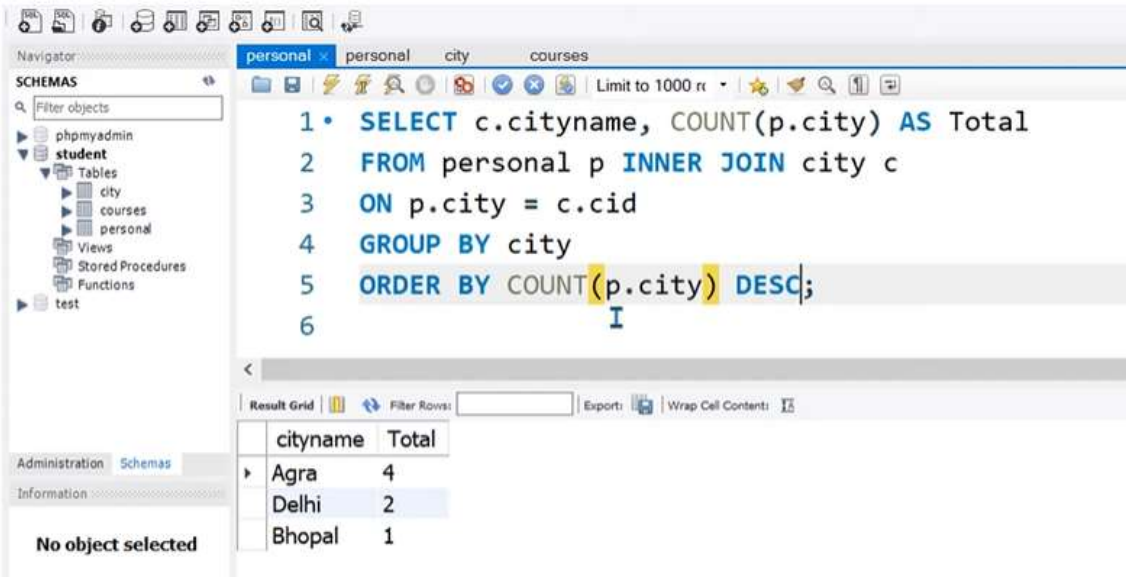
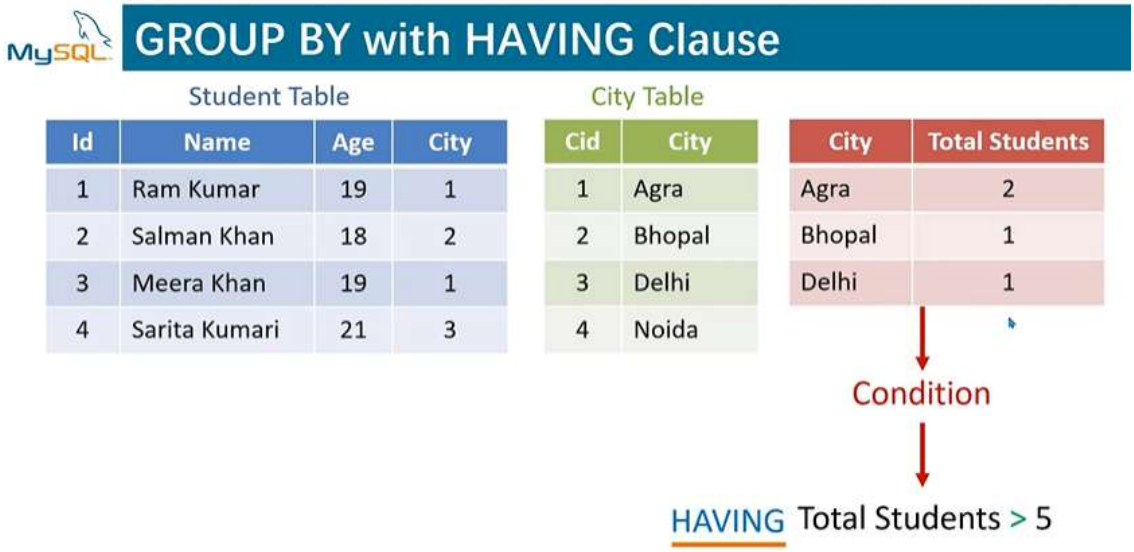
city
courses
personal
Views
Stored Procedures
Functions
test
Administration
Schemas
personal
personal
city
courses
Limit to 1000 r
1 • SELECT c.cityname, COUNT(p.city) AS Total
2 FROM personal p INNER JOIN city c
3 ON p.city = c.cid
4 GROUP BY city;
5
Result Grid
Filter Rows:
Export:
Wrap Cell Content:
cityname
Total
Agra
4
Delhi
2
Bhopal
1

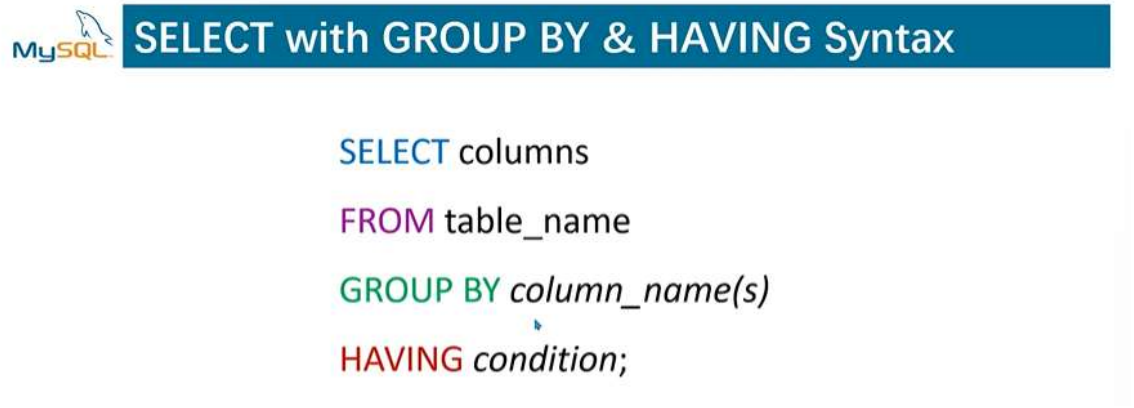




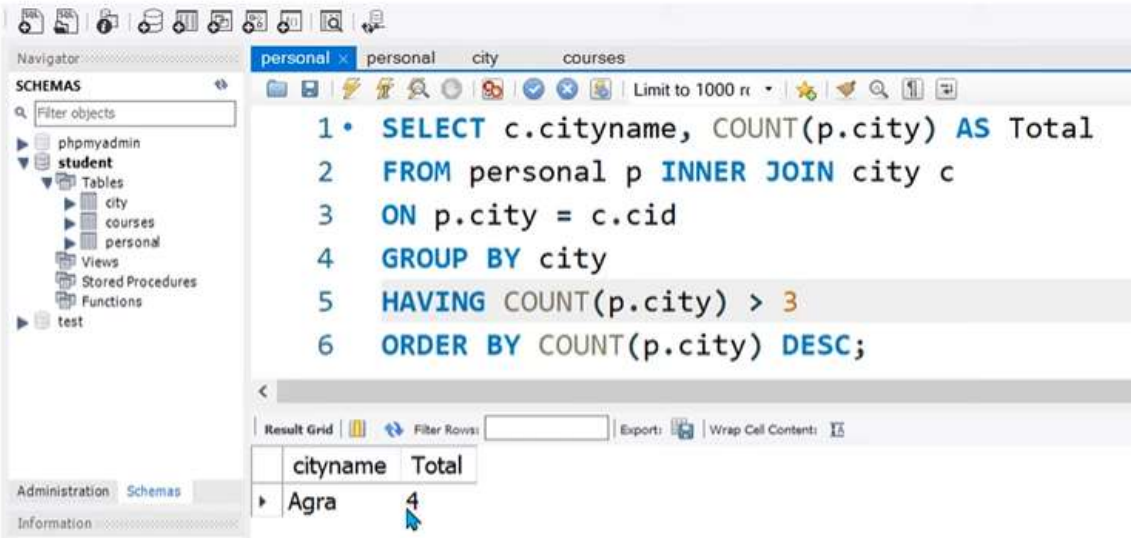


Group by with having clause





Practical



26. MySQL SubQuery/Nested Query with EXISTS & NOT EXISTS

What is SubQuery or Nested Query ?

Student Table

Id	Name	Age	Courses
1	Ram Kumar	19	1
2	Salman Khan	18	3
3	Meera Khan	19	1
4	Sarita Kumari	21	2

Courses Table

Cid	Course
1	Btech
2	BCA
3	BBA

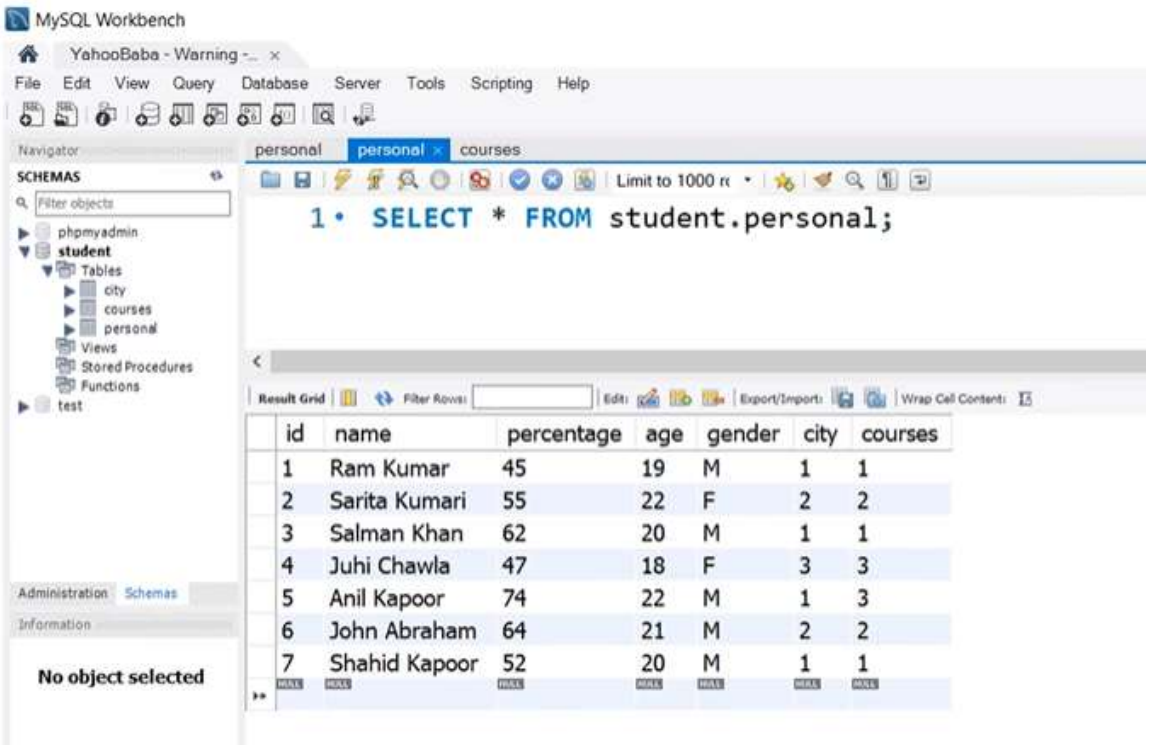
Name
Ram Kumar
Meera Khan

SELECT with SubQuery Syntax

```
SELECT columns
FROM table1
WHERE
column = (SELECT columns FROM table2 WHERE condition);
```

INSERT UPDATE DELETE SELECT

Practical


MySQL Workbench
YahooBaba - Warning -...
File Edit View Query Database Server Tools Scripting Help
Navigator
SCHEMAS
Filter objects
phpmyadmin
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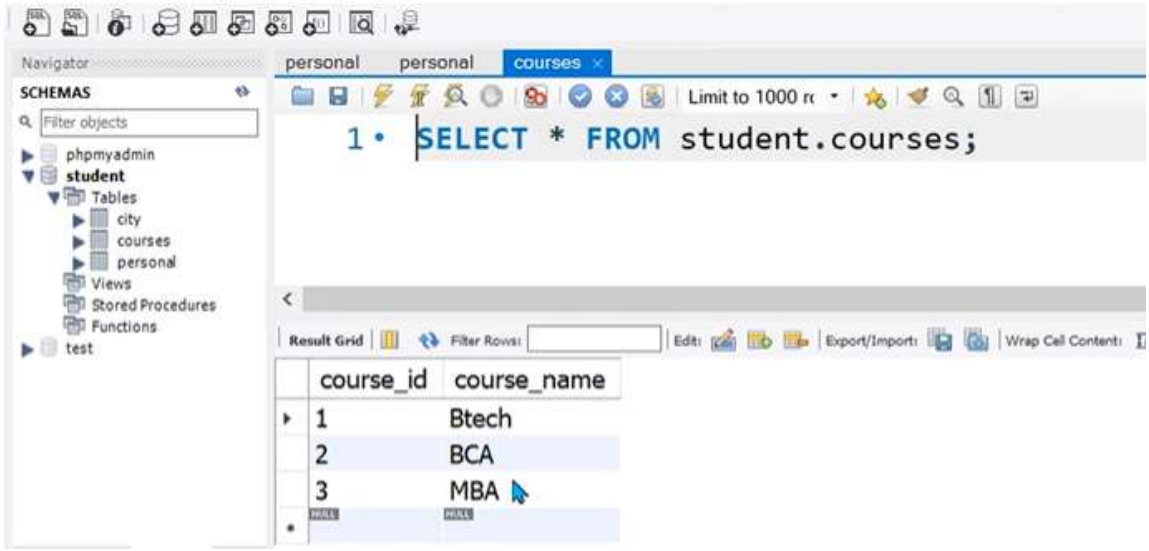
Tables
city
courses
personal
Views
Stored Procedures
Functions
test
Administration Schemas
Information
No object selected
personal personal courses
Limit to 1000 r
1 • SELECT * FROM student.personal;
Result Grid Filter Rows: Edit: Export/Import: Wrap Cell Content:
id name percentage age gender city courses
1 Ram Kumar 45 19 M 1 1
2 Sarita Kumari 55 22 F 2 2
3 Salman Khan 62 20 M 1 1
4 Juhi Chawla 47 18 F 3 3
5 Anil Kapoor 74 22 M 1 3
6 John Abraham 64 21 M 2 2
7 Shahid Kapoor 52 20 M 1 1


Navigator
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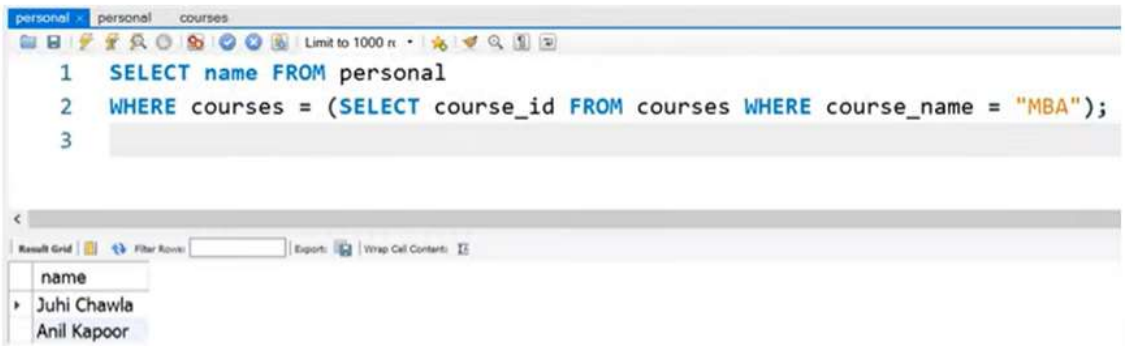
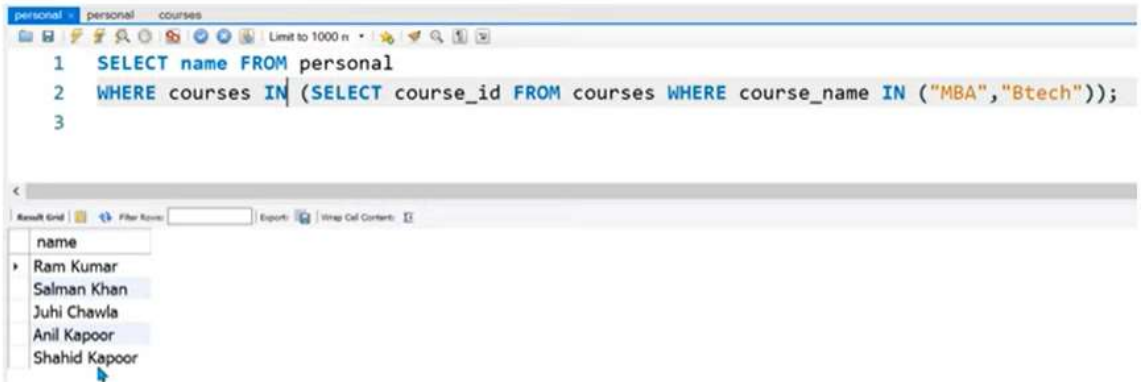
Filter objects
phpmyadmin
student
Tables
city
courses
personal
Views
Stored Procedures
Functions
test
personal personal courses
Limit to 1000 r
1 • SELECT * FROM student.courses;
Result Grid Filter Rows: Edit: Export/Import: Wrap Cell Content:
course_id course_name
1 Btech
2 BCA
3 MBA


personal personal courses
Limit to 1000 r
1 SELECT name FROM personal
2 WHERE courses = (SELECT course_id FROM courses WHERE course_name = "MBA");
3
Result Grid Filter Rows: Export: Wrap Cell Content:
name
Juhi Chawla
Anil Kapoor



SELECT with EXISTS Syntax

```
SELECT columns
FROM table1
WHERE
EXISTS (SELECT columns FROM table2 WHERE condition);
```

If any Single Record Exists
Then
Parent command show results

SELECT with NOT EXISTS Syntax

```
SELECT columns
FROM table1
WHERE
NOT EXISTS (SELECT columns FROM table2 WHERE condition);
```

If not any Single Record Exists
Then
Parent command show results

personal | personal | courses

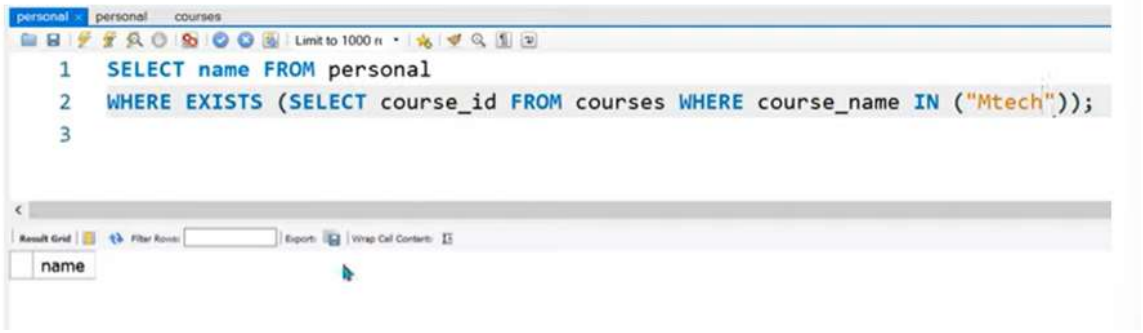
```
1  SELECT name FROM personal
2  WHERE EXISTS (SELECT course_id FROM courses WHERE course_name IN ("MBA"));
3
```

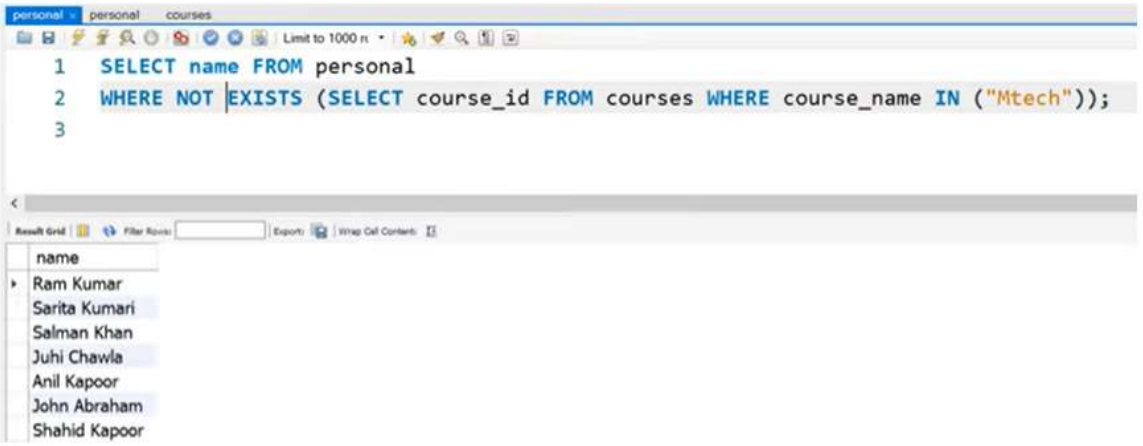
name
Ram Kumar
Sarita Kumari
Salman Khan
Juhi Chawla
Anil Kapoor
John Abraham
Shahid Kapoor

personal | personal | courses

```
1 • SELECT * FROM student.courses;
```

course_id	course_name
1	Btech
2	BCA
3	MBA





27. MySQL UNION & UNION ALL

What is UNION & UNION ALL?

Student Table

Id	Name	City
1	Ram Kumar	Agra
2	Salman Khan	Delhi
3	Anil Kapoor	Bhopal

Lecturer Table

Id	Name	City
1	Salim Khan	Agra
2	Ram Kumar	Delhi
3	Sarita	Agra

UNION ALL

Name	City
Ram Kumar	Agra
Salman Khan	Delhi
Meera Khan	Bhopal
Salim Khan	Agra
Ram Kumar	Delhi
Sarita	Agra

What is UNION & UNION ALL?

Student Table

Id	Name	City
1	Ram Kumar	Agra
2	Salman Khan	Delhi
3	Anil Kapoor	Bhopal

Lecturer Table

Id	Name	City
1	Salim Khan	Agra
2	Ram Kumar	Delhi
3	Sarita	Agra

UNION ALL

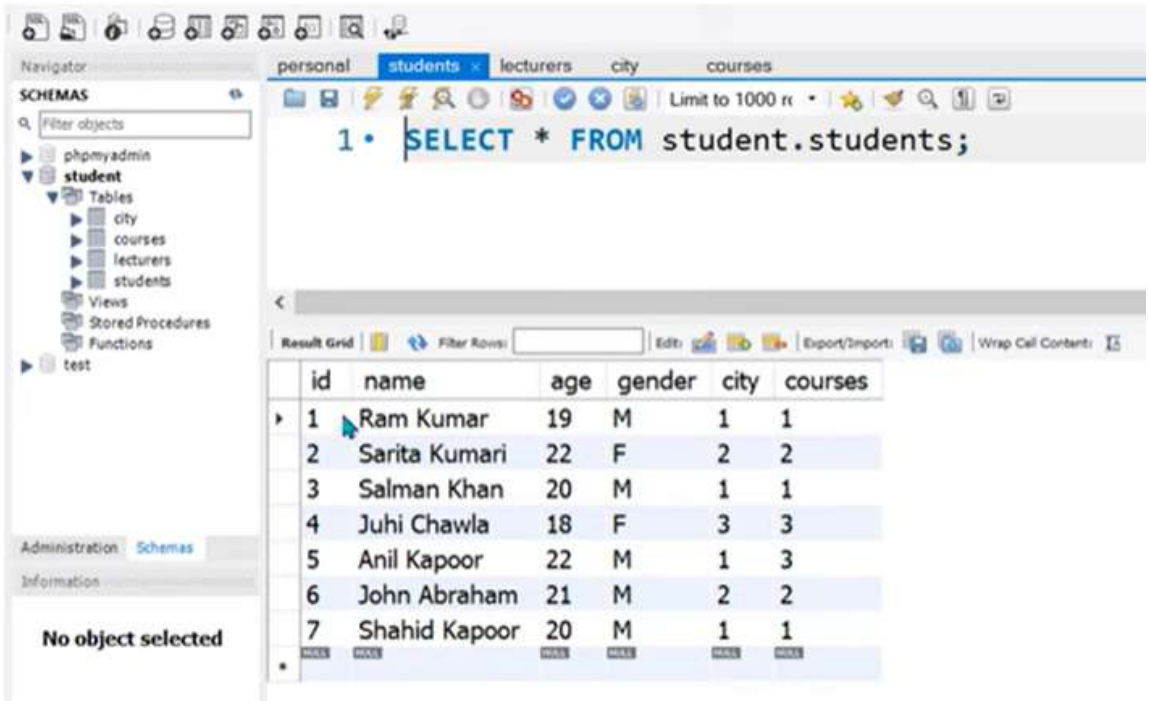
Name	City
Ram Kumar	Agra
Salman Khan	Delhi
Meera Khan	Bhopal
Salim Khan	Agra
Ram Kumar	Delhi
Sarita	Agra

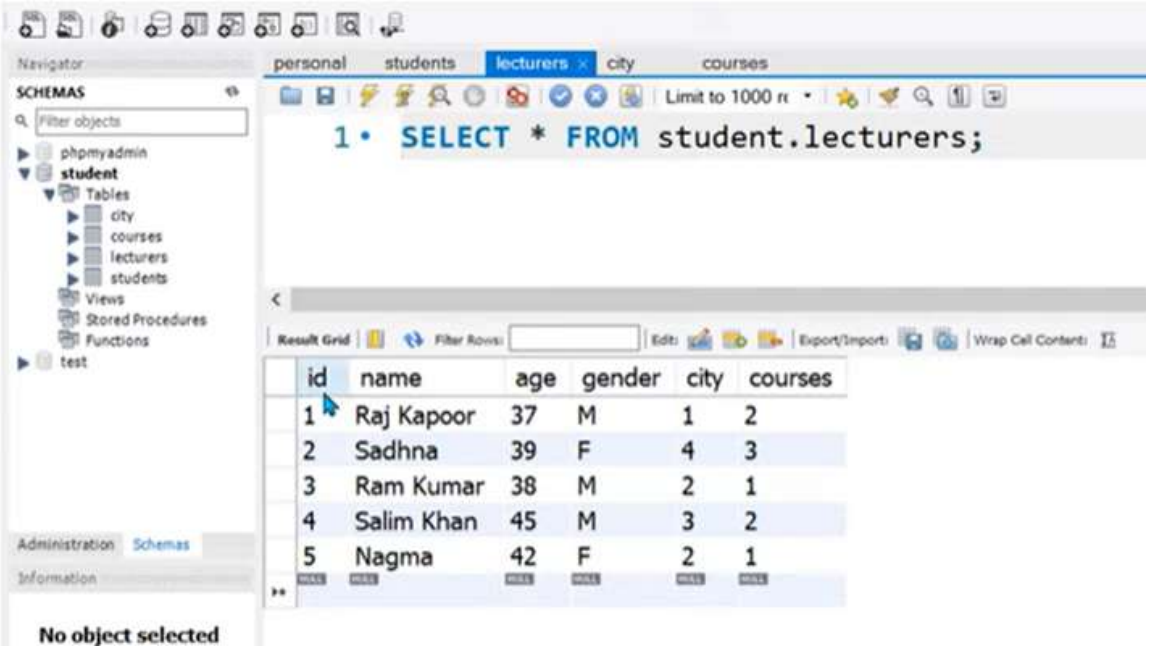
UNION ✗

UNION & UNION ALL Syntax

```
SELECT column1, column2 FROM table1
UNION / UNION ALL
SELECT column1, column2 FROM table2;
```

- Each SELECT statement within UNION must have the same number of columns
- The columns must also have similar data types
- The columns in each SELECT statement must also be in the same order


Navigator
SCHEMAS
Filter objects
phpmyadmin
student
Tables
city
courses
lecturers
students
Views
Stored Procedures
Functions
test
Administration
Schemas
Information
No object selected
personal
students
lecturers
city
courses
Limit to 1000 r
1 • SELECT * FROM student.students;
Result Grid
Filter Rows:
Edit:
Export/Import:
Wrap Cell Content:
id name age gender city courses
1 Ram Kumar 19 M 1 1
2 Sarita Kumari 22 F 2 2
3 Salman Khan 20 M 1 1
4 Juhi Chawla 18 F 3 3
5 Anil Kapoor 22 M 1 3
6 John Abraham 21 M 2 2
7 Shahid Kapoor 20 M 1 1


Navigator
SCHEMAS
Filter objects
phpmyadmin
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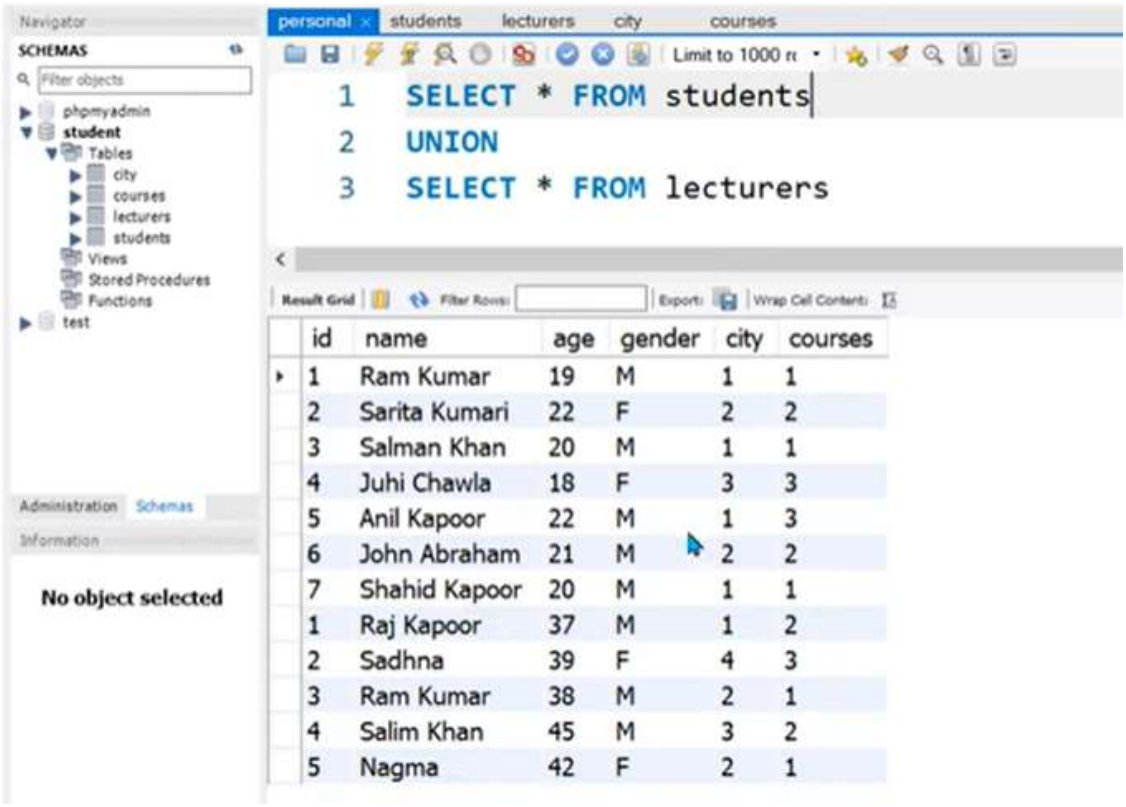
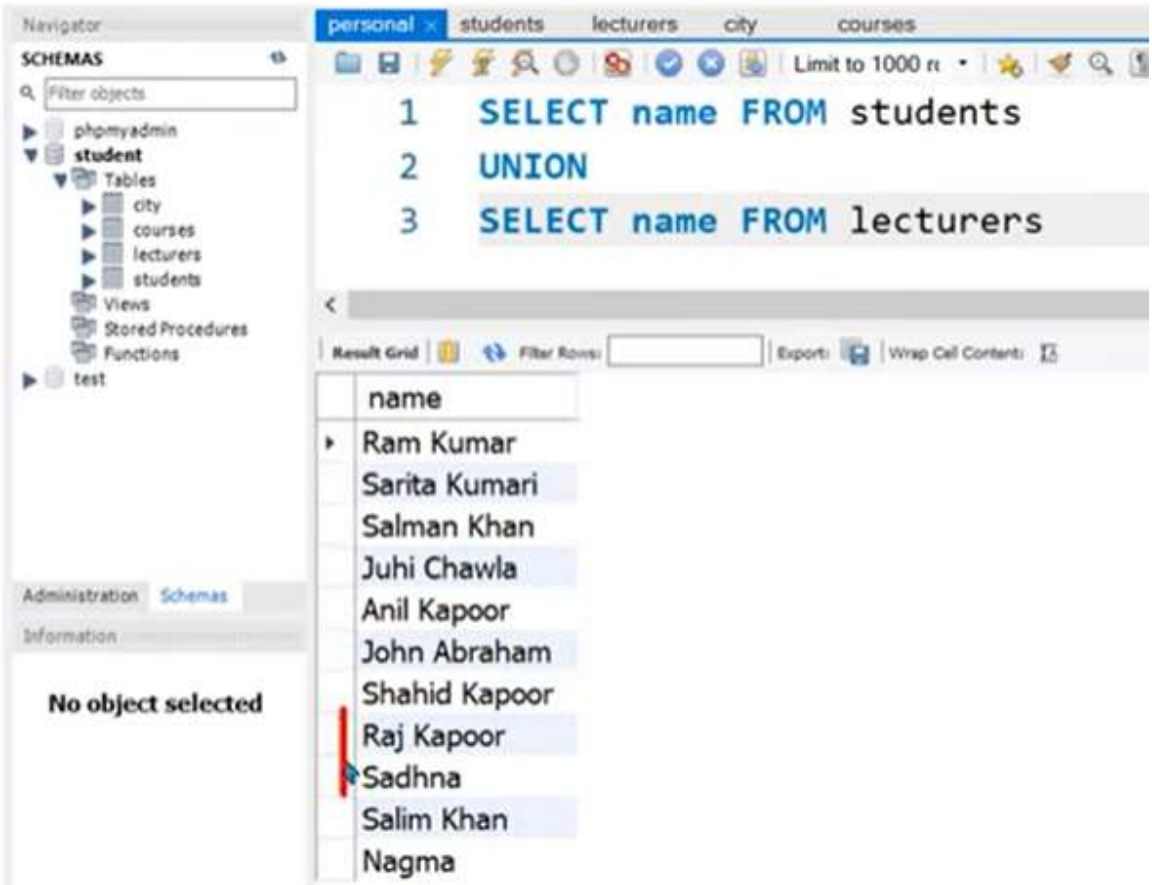
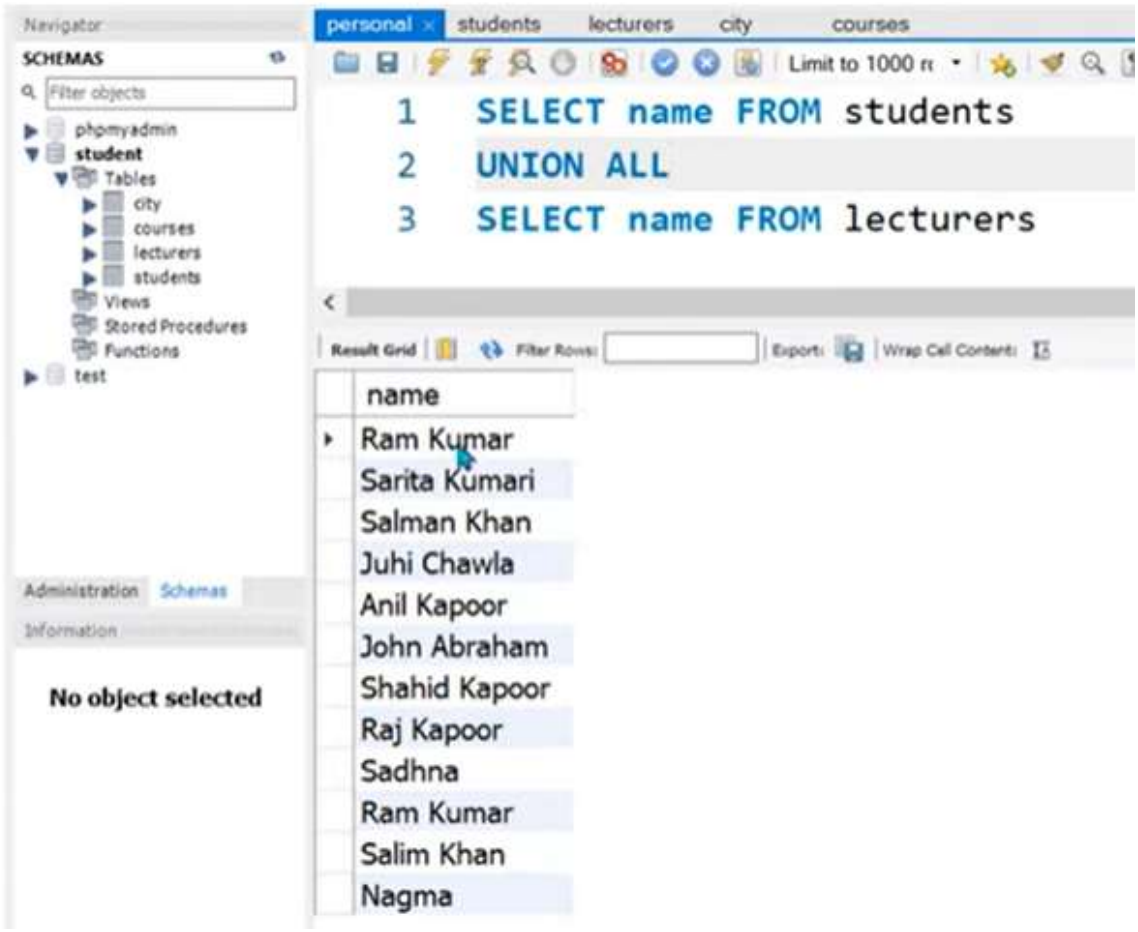
Tables
city
courses
lecturers
students
Views
Stored Procedures
Functions
test
Administration
Schemas
Information
No object selected
personal
students
lecturers
city
courses
Limit to 1000 r
1 • SELECT * FROM student.lecturers;
Result Grid
Filter Rows:
Edit:
Export/Import:
Wrap Cell Content:
id name age gender city courses
1 Raj Kapoor 37 M 1 2
2 Sadhna 39 F 4 3
3 Ram Kumar 38 M 2 1
4 Salim Khan 45 M 3 2
5 Nagma 42 F 2 1


Navigator
SCHEMAS
Filter objects
phpmyadmin
student
Tables
city
courses
lecturers
students
Views
Stored Procedures
Functions
test
Administration
Schemas
Information
No object selected
personal
students
lecturers
city
courses
Limit to 1000 r
1 SELECT * FROM students
2 UNION
3 SELECT * FROM lecturers
Result Grid
Filter Rows:
Export:
Wrap Cell Content:
id name age gender city courses
1 Ram Kumar 19 M 1 1
2 Sarita Kumari 22 F 2 2
3 Salman Khan 20 M 1 1
4 Juhi Chawla 18 F 3 3
5 Anil Kapoor 22 M 1 3
6 John Abraham 21 M 2 2
7 Shahid Kapoor 20 M 1 1
1 Raj Kapoor 37 M 1 2
2 Sadhna 39 F 4 3
3 Ram Kumar 38 M 2 1
4 Salim Khan 45 M 3 2
5 Nagma 42 F 2 1


Navigator
SCHEMAS
Filter objects
phpmyadmin
student
Tables
city
courses
lecturers
students
Views
Stored Procedures
Functions
test
Administration
Schemas
Information
No object selected
personal
students
lecturers
city
courses
Limit to 1000 r
1 SELECT name FROM students
2 UNION
3 SELECT name FROM lecturers
Result Grid
Filter Rows:
Export:
Wrap Cell Content:
name
Ram Kumar
Sarita Kumari
Salman Khan
Juhi Chawla
Anil Kapoor
John Abraham
Shahid Kapoor
Raj Kapoor
Sadhna
Salim Khan
Nagma


Navigator
SCHEMAS
Filter objects
phpmyadmin
student
Tables
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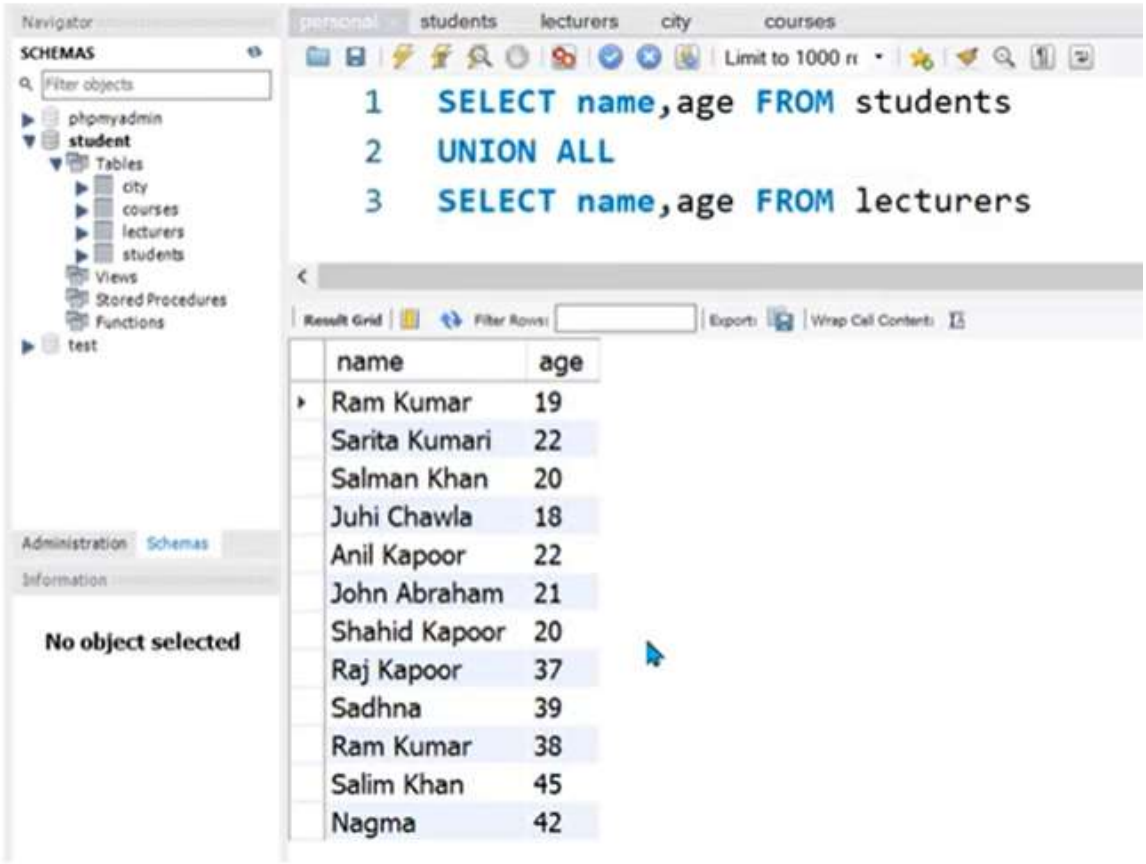
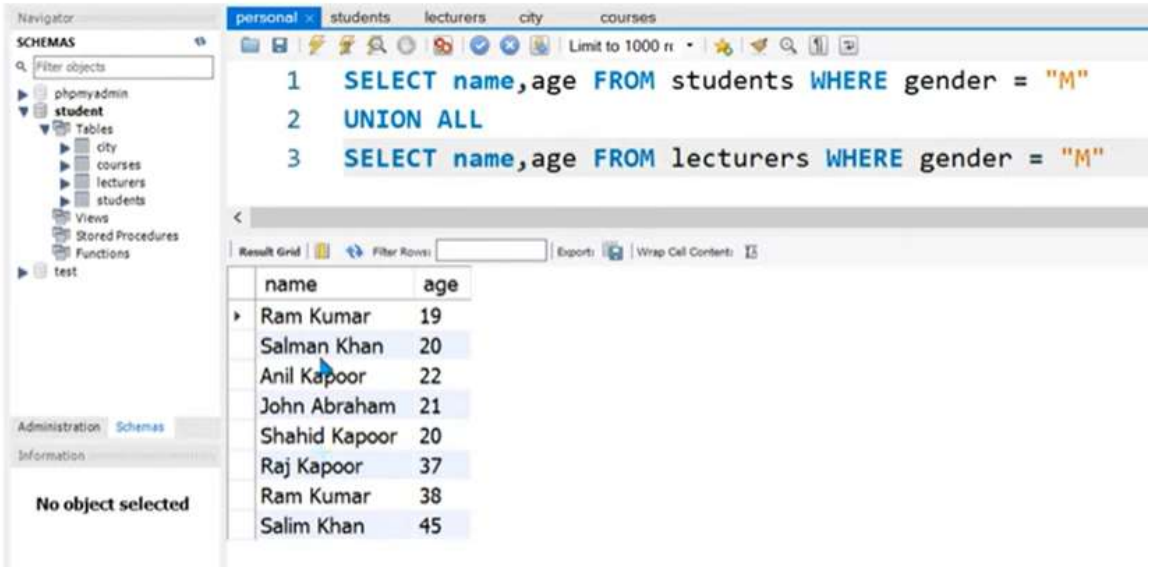
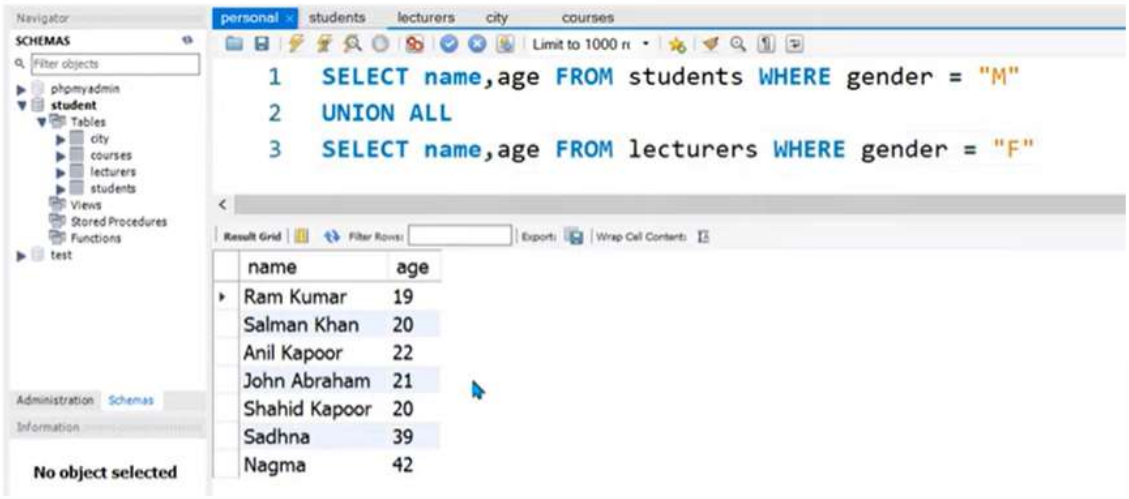
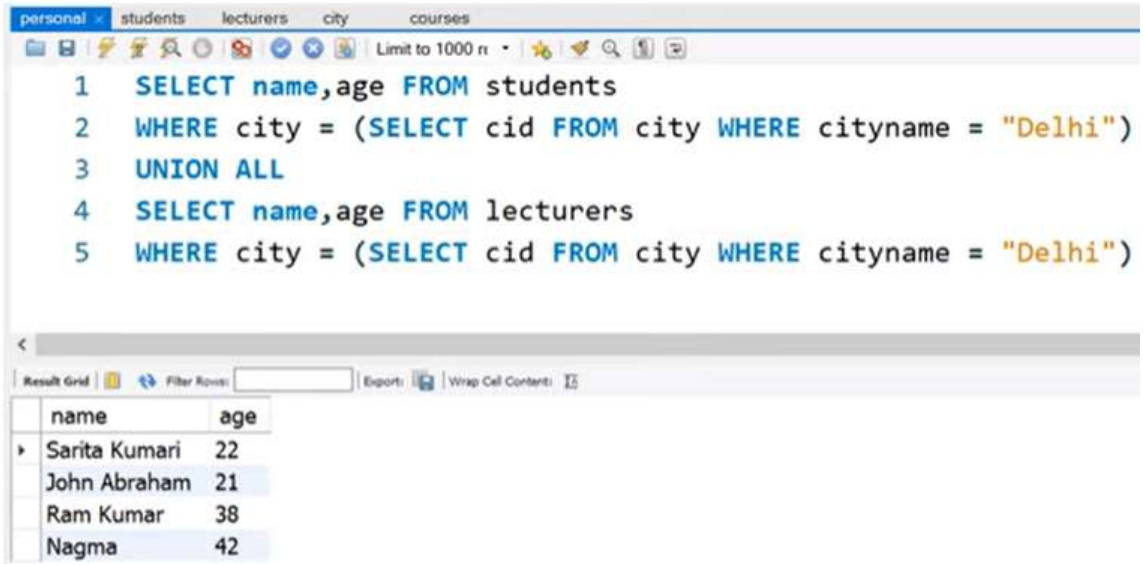
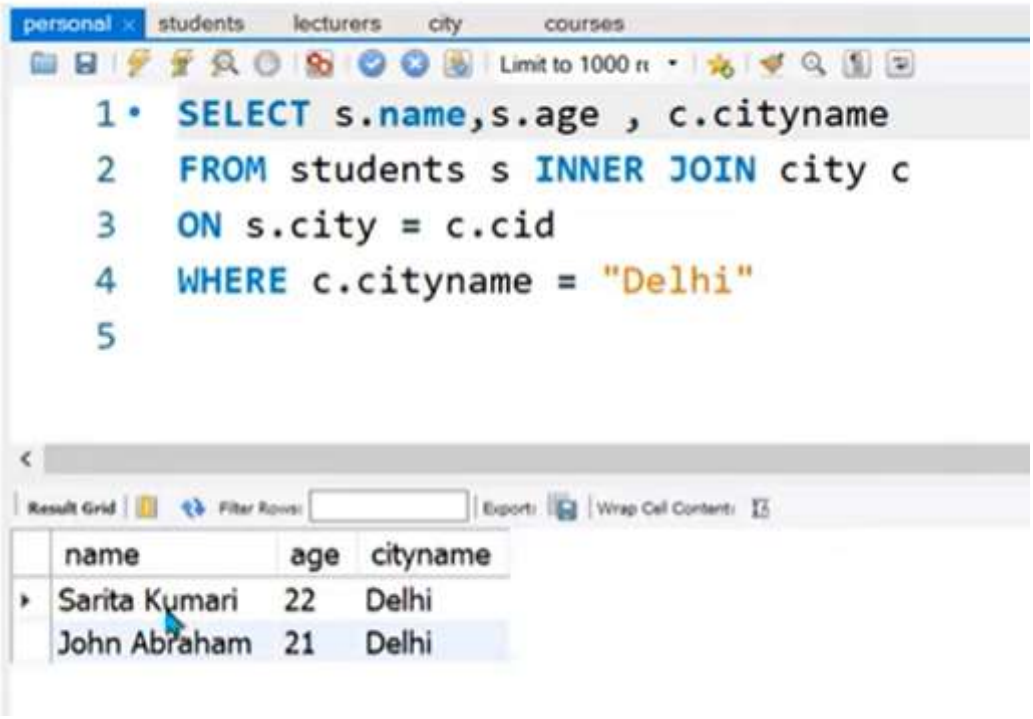
lecturers
students
Views
Stored Procedures
Functions
test
Administration
Schemas
Information
No object selected
personal
students
lecturers
city
courses
Limit to 1000 r
1 SELECT name FROM students
2 UNION ALL
3 SELECT name FROM lecturers
Result Grid
Filter Rows:
Export:
Wrap Cell Content:
name
Ram Kumar
Sarita Kumari
Salman Khan
Juhi Chawla
Anil Kapoor
John Abraham
Shahid Kapoor
Raj Kapoor
Sadhna
Ram Kumar
Salim Khan
Nagma

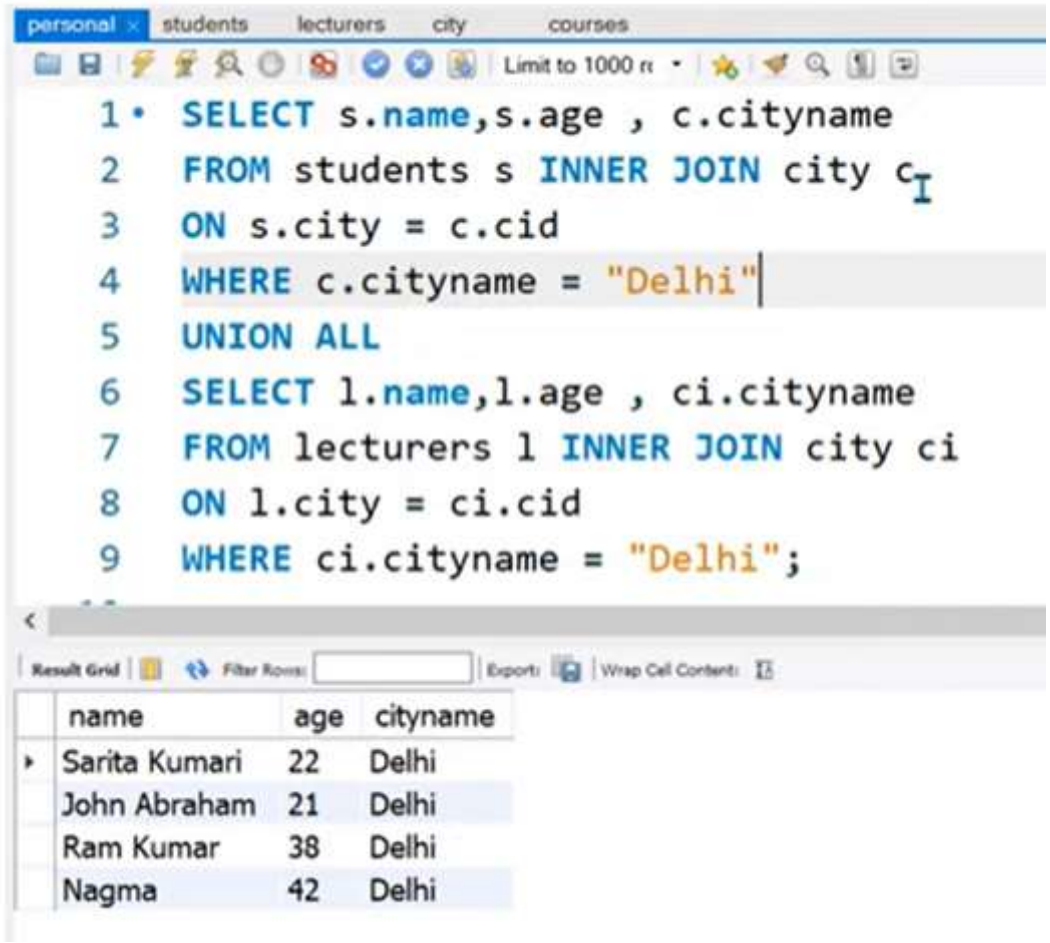

Navigator
SCHEMAS
Filter objects
phpmyadmin
student
Tables
city
courses
lecturers
students
Views
Stored Procedures
Functions
test
Administration
Schemas
Information
No object selected
personal
students
lecturers
city
courses
Limit to 1000 r
1 SELECT name,age FROM students
2 UNION ALL
3 SELECT name,age FROM lecturers
Result Grid
Filter Rows:
Export:
Wrap Cell Content:
name age
Ram Kumar 19
Sarita Kumari 22
Salman Khan 20
Juhi Chawla 18
Anil Kapoor 22
John Abraham 21
Shahid Kapoor 20
Raj Kapoor 37
Sadhna 39
Ram Kumar 38
Salim Khan 45
Nagma 42


personal
students
lecturers
city
courses
SELECT name,age FROM students WHERE gender = "M"
UNION ALL
SELECT name,age FROM lecturers WHERE gender = "M"
name age
Ram Kumar 19
Salman Khan 20
Anil Kapoor 22
John Abraham 21
Shahid Kapoor 20
Raj Kapoor 37
Ram Kumar 38
Salim Khan 45
No object selected


personal
students
lecturers
city
courses
SELECT name,age FROM students WHERE gender = "M"
UNION ALL
SELECT name,age FROM lecturers WHERE gender = "F"
name age
Ram Kumar 19
Salman Khan 20
Anil Kapoor 22
John Abraham 21
Shahid Kapoor 20
Sadhna 39
Nagma 42
No object selected


personal
students
lecturers
city
courses
SELECT name,age FROM students
WHERE city = (SELECT cid FROM city WHERE cityname = "Delhi")
UNION ALL
SELECT name,age FROM lecturers
WHERE city = (SELECT cid FROM city WHERE cityname = "Delhi")
name age
Sarita Kumari 22
John Abraham 21
Ram Kumar 38
Nagma 42





28. MySQL IF & CASE Statement

What is IF Clause ?

Student Table

Id	Name	Percentage
1	Ram Kumar	57
2	Salman Khan	28
3	Meera Khan	81
4	Sarita Kumari	45

City Table

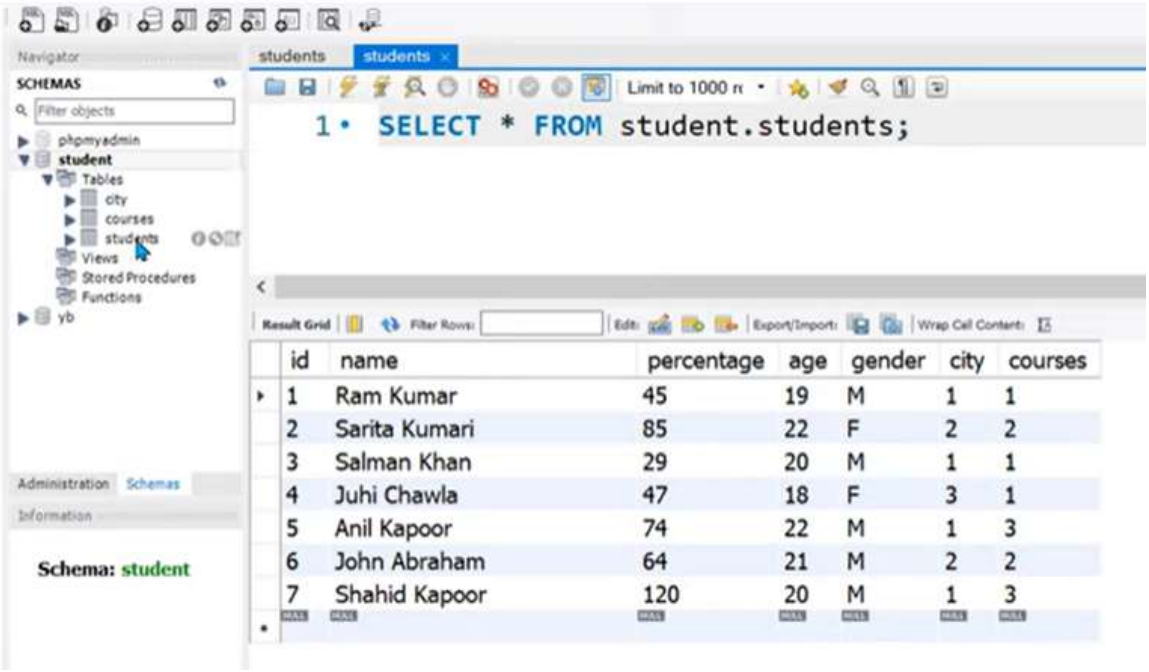
Id	Name	Percentage	Result
1	Ram Kumar	57	PASS
2	Salman Khan	28	FAIL
3	Meera Khan	81	PASS
4	Sarita Kumari	45	PASS

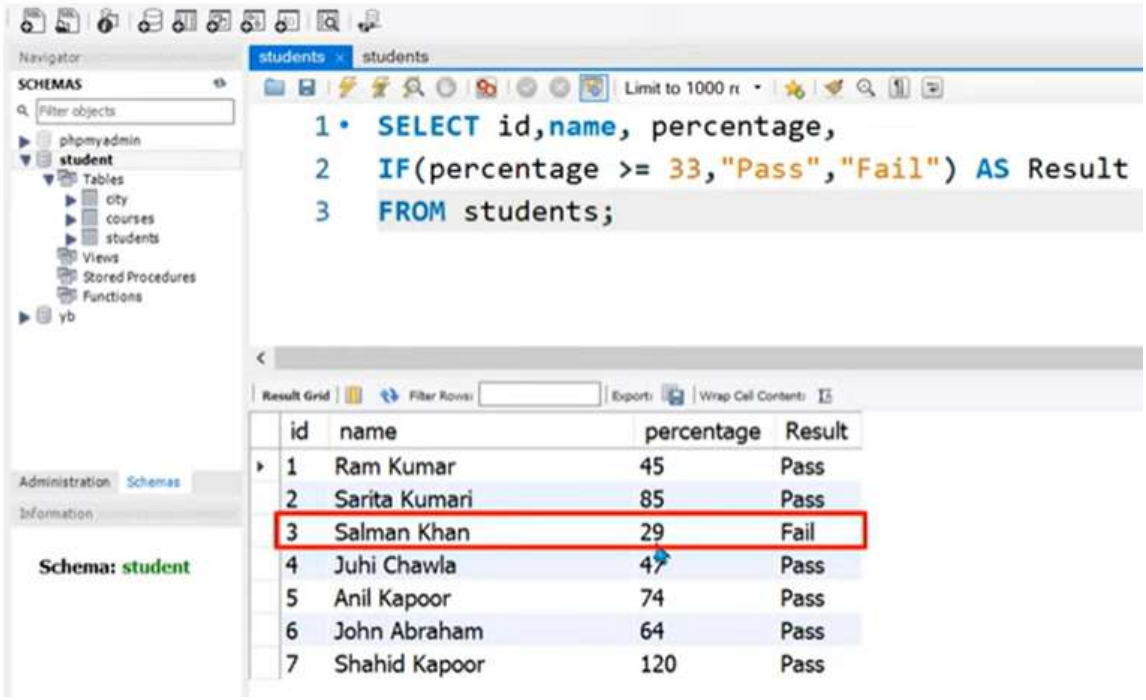
Percentage >= 33% → Pass

Percentage < 33% → Fail

SELECT with IF Clause Syntax

```
SELECT column1, column2,
IF (Condition, TRUE Result, FALSE Result ) AS alias_name
FROM table_name;
```





What is CASE Clause ?

Student Table

Id	Name	Percentage
1	Ram Kumar	57
2	Salman Khan	28
3	Meera Khan	81
4	Sarita Kumari	45

City Table

Id	Name	Percentage	Grade
1	Ram Kumar	57	IInd Division
2	Salman Khan	28	FAIL
3	Meera Khan	81	Merit
4	Sarita Kumari	43	IIIrd Division

Percentage >= 80 AND Percentage <= 100 → Merit

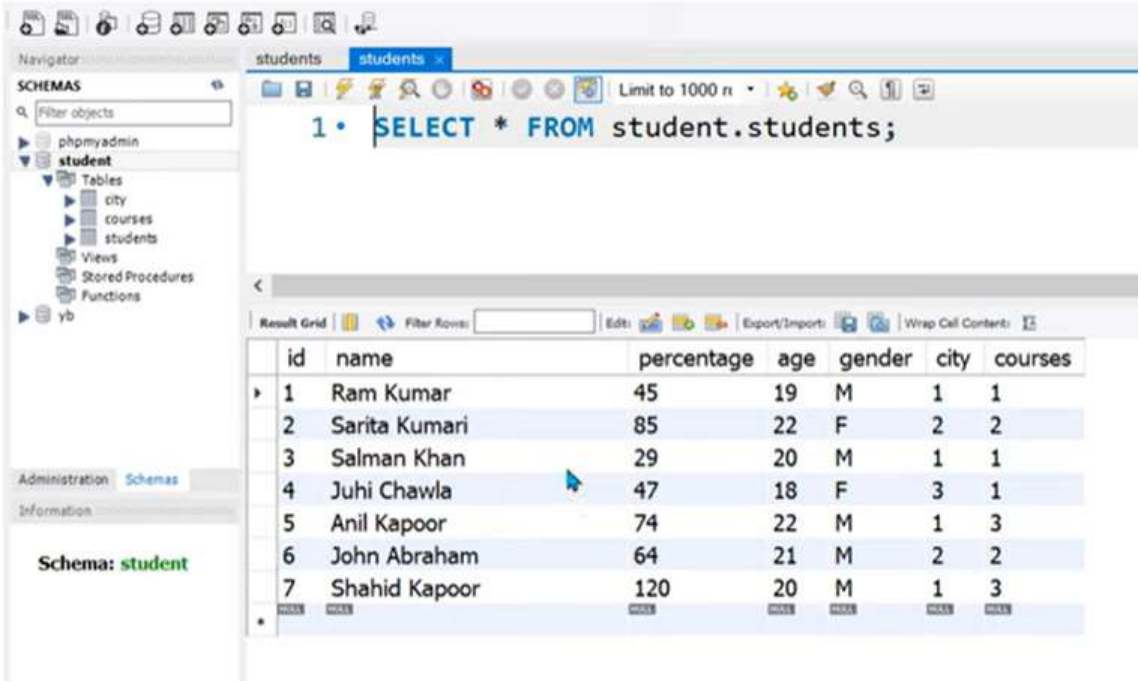
Percentage >= 60 AND Percentage < 80 → Ist Division

Percentage >= 45 AND Percentage < 60 → IInd Division

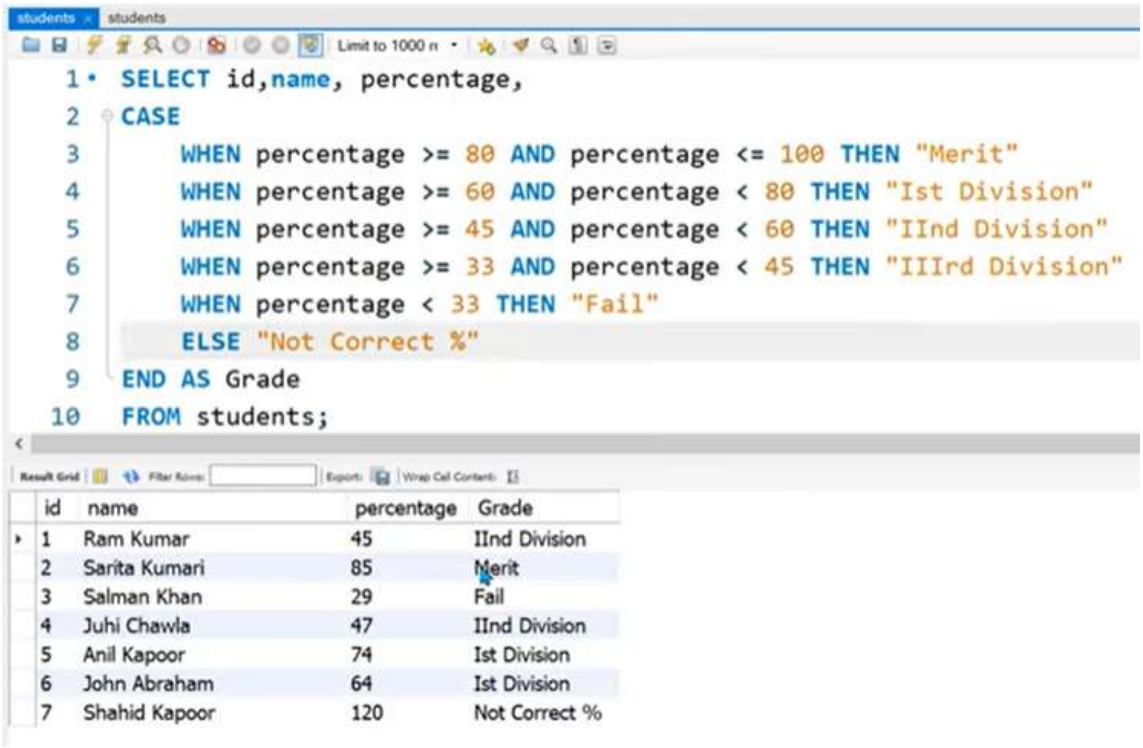
Percentage >= 33 AND Percentage < 45 → IIIrd Division

SELECT with CASE Clause Syntax

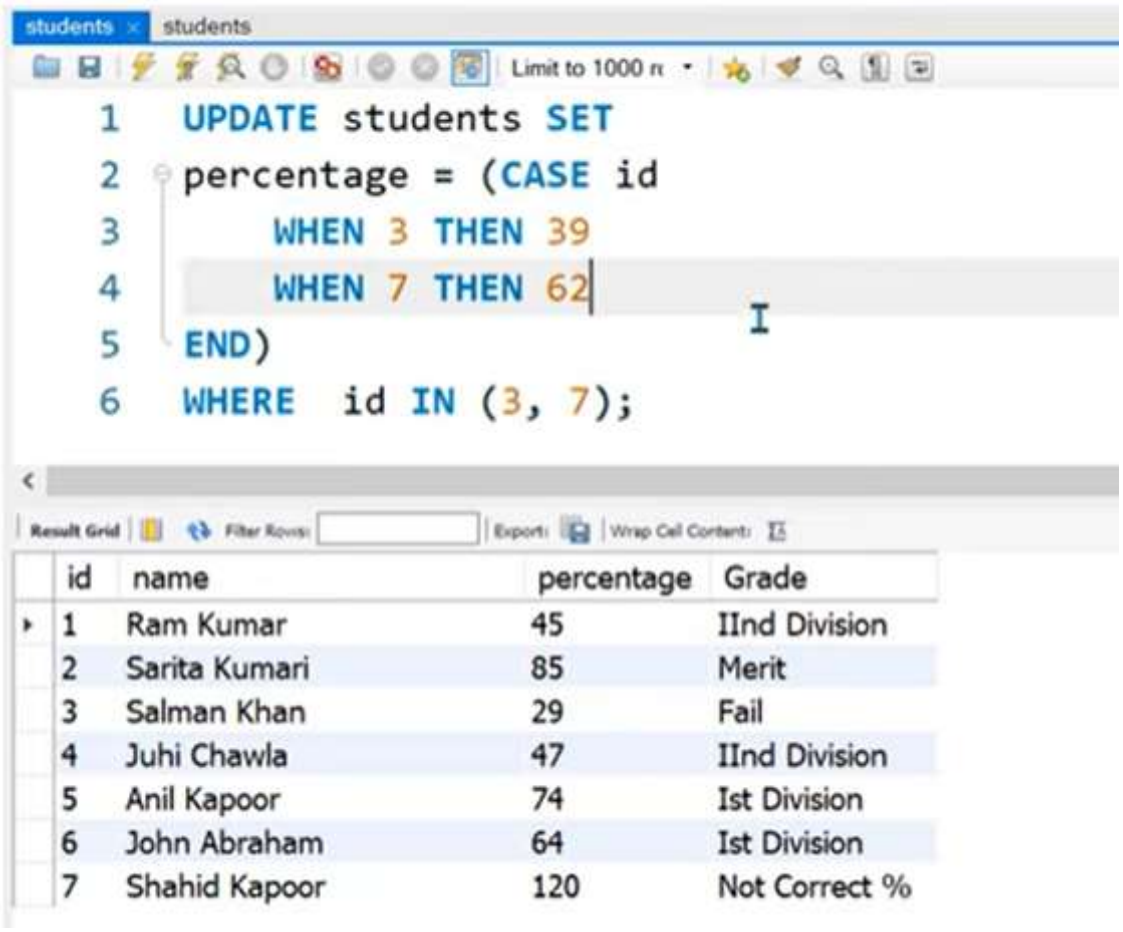
```
SELECT column1, column2,
CASE
    WHEN Condition1 THEN result1
    WHEN Condition2 THEN result2
    WHEN Condition3 THEN result3
    ELSE result alias_name
END AS alias_name
FROM table_name;
```



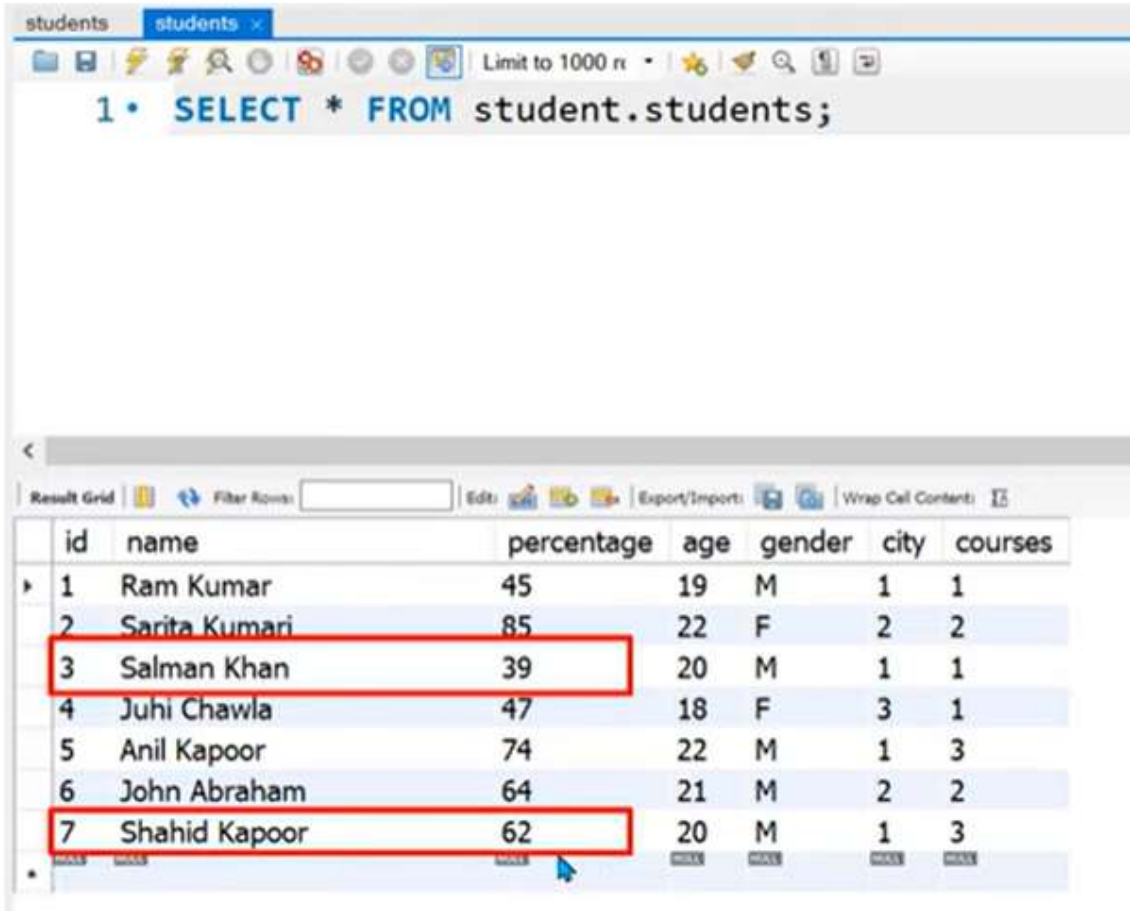
id	name	percentage	age	gender	city	courses
1	Ram Kumar	45	19	M	1	1
2	Sarita Kumari	85	22	F	2	2
3	Salman Khan	29	20	M	1	1
4	Juhi Chawla	47	18	F	3	1
5	Anil Kapoor	74	22	M	1	3
6	John Abraham	64	21	M	2	2
7	Shahid Kapoor	120	20	M	1	3



case with update

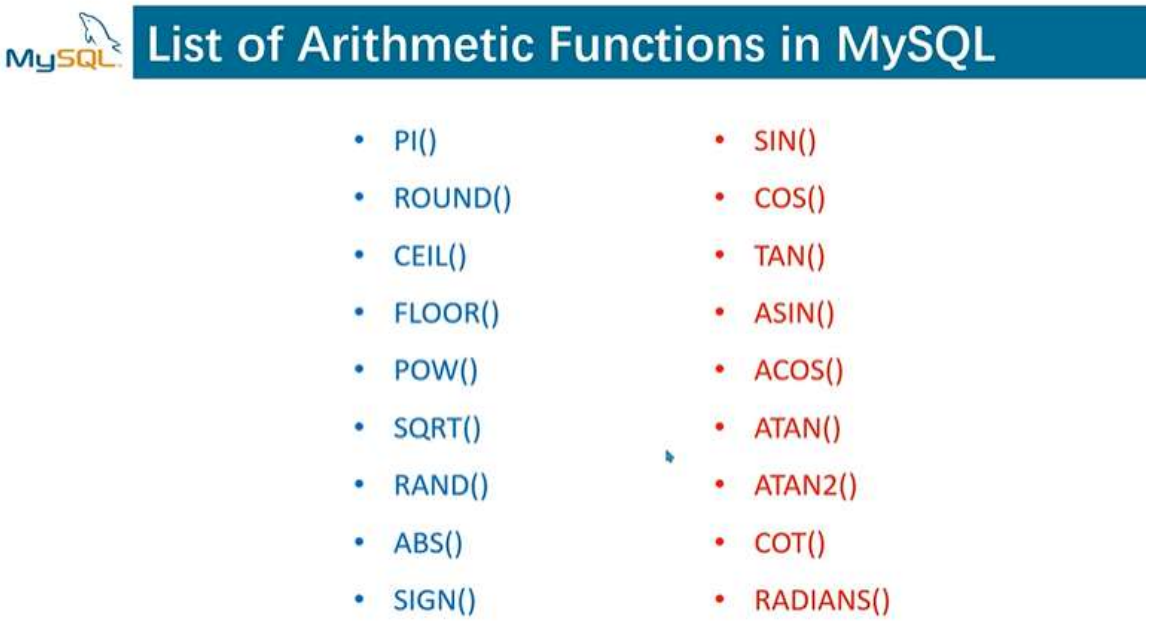


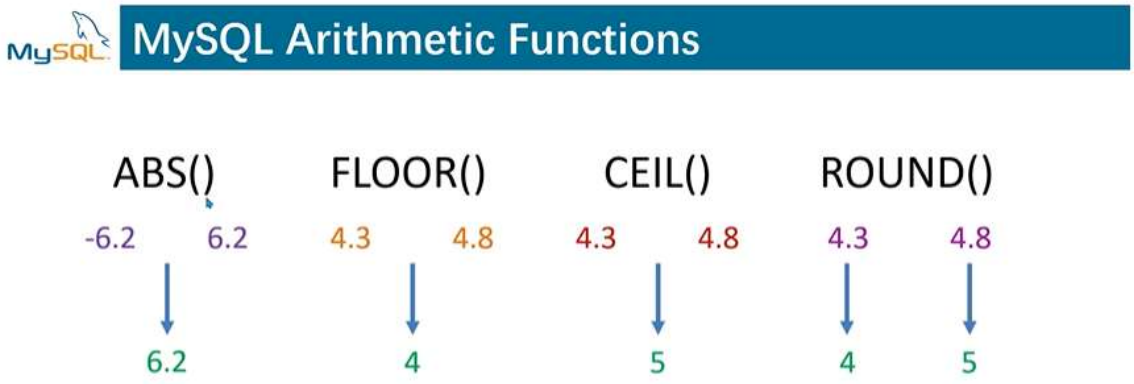
id	name	percentage	Grade
1	Ram Kumar	45	IInd Division
2	Sarita Kumari	85	Merit
3	Salman Khan	29	Fail
4	Juhi Chawla	47	IInd Division
5	Anil Kapoor	74	Ist Division
6	John Abraham	64	Ist Division
7	Shahid Kapoor	120	Not Correct %

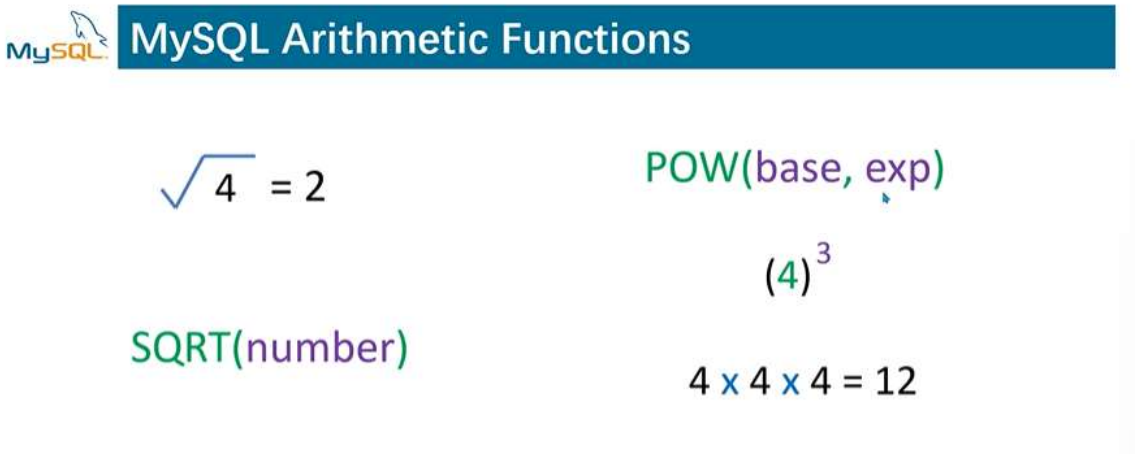


id	name	percentage	age	gender	city	courses
1	Ram Kumar	45	19	M	1	1
2	Sarita Kumari	85	22	F	2	2
3	Salman Khan	39	20	M	1	1
4	Juhi Chawla	47	18	F	3	1
5	Anil Kapoor	74	22	M	1	3
6	John Abraham	64	21	M	2	2
7	Shahid Kapoor	62	20	M	1	3

29. MySQL Arithmetic Functions







MySQL Arithmetic Functions

SIGN(number)

(no. > 0) → 1

(no. = 0) → 0

(no. < 0) → -1

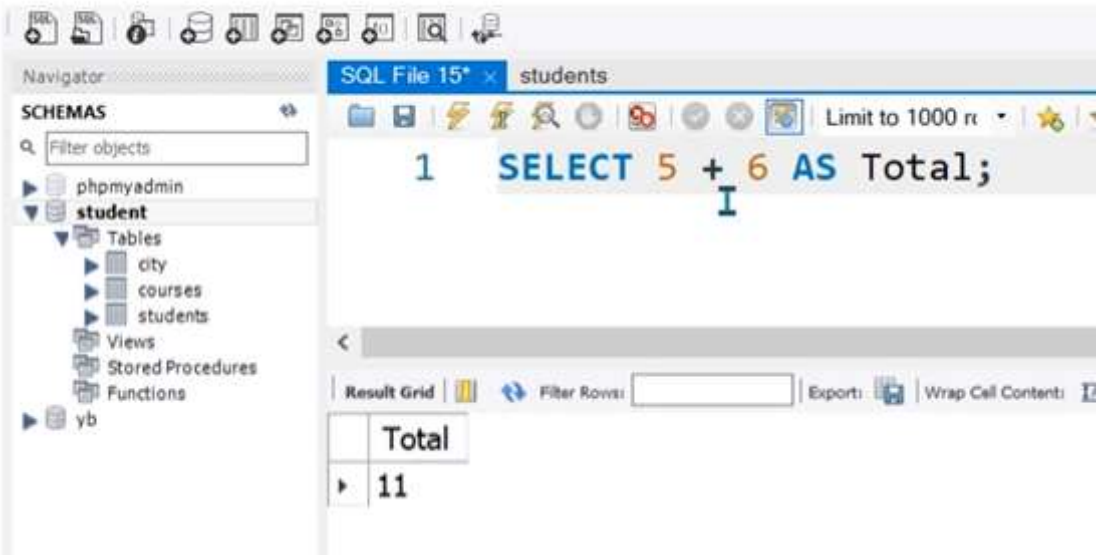
MySQL Arithmetic Functions

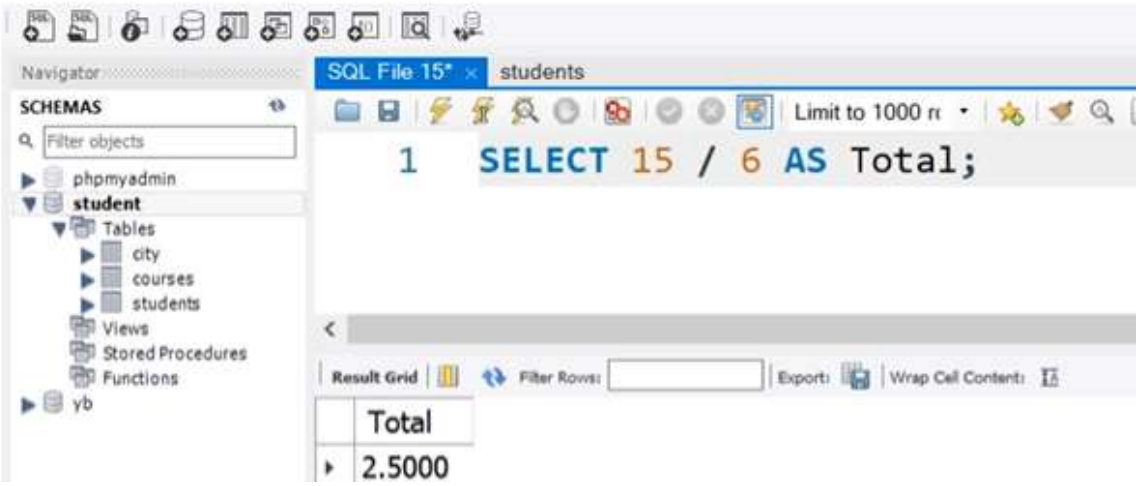
RAND()

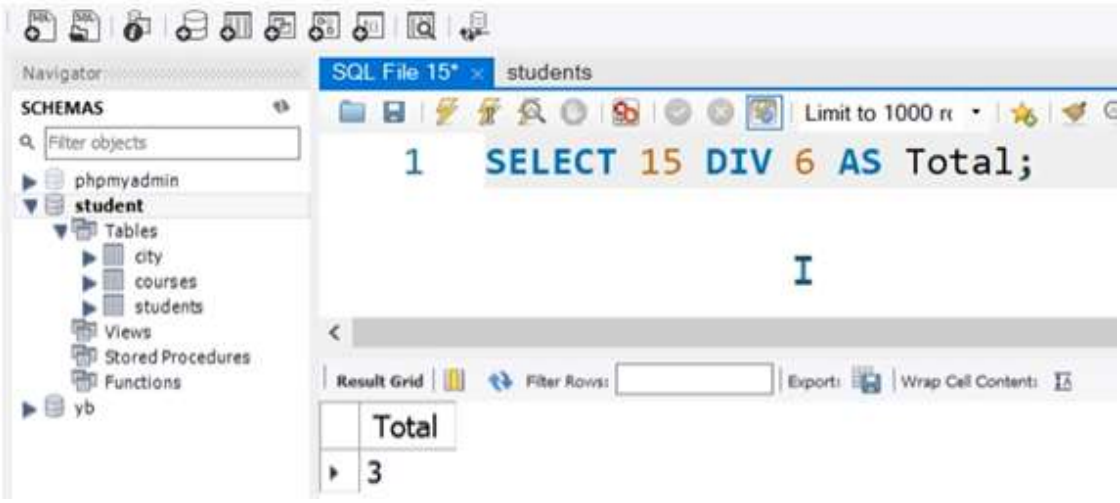
Random Number

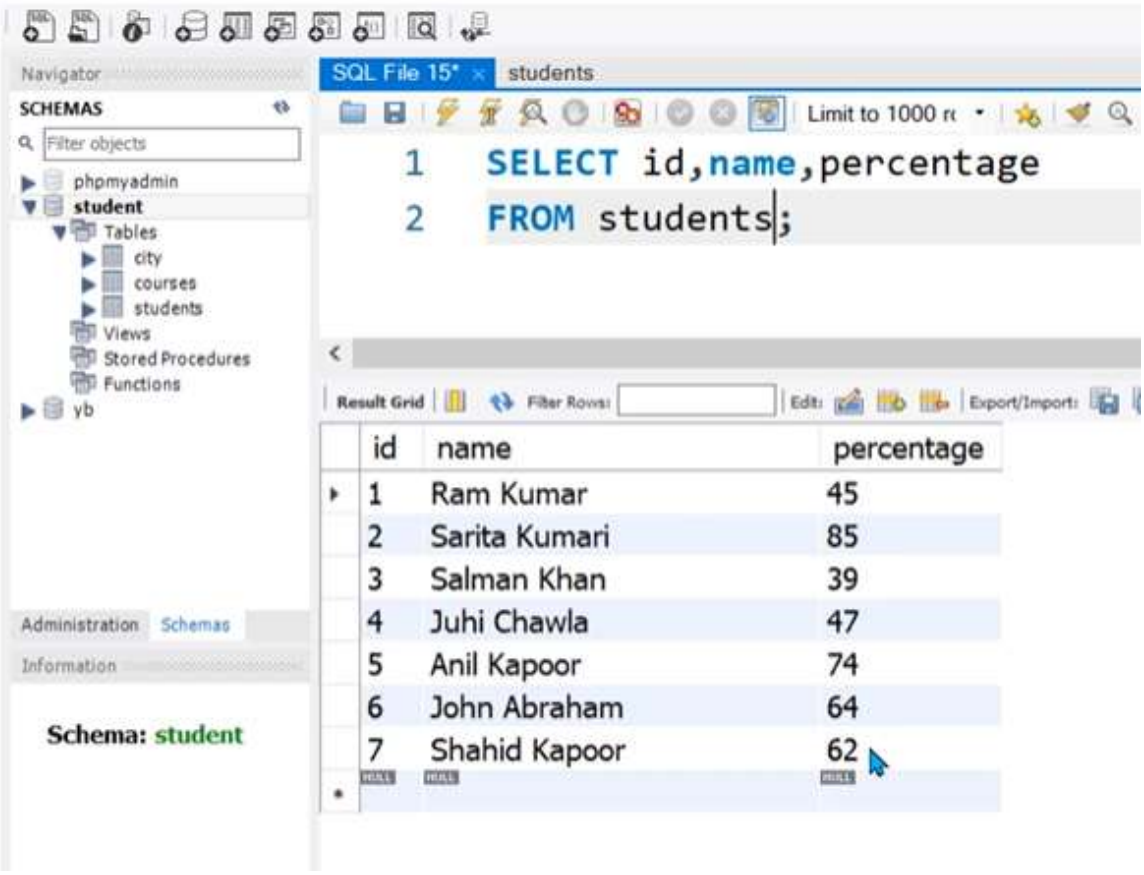
Between 0 and 1

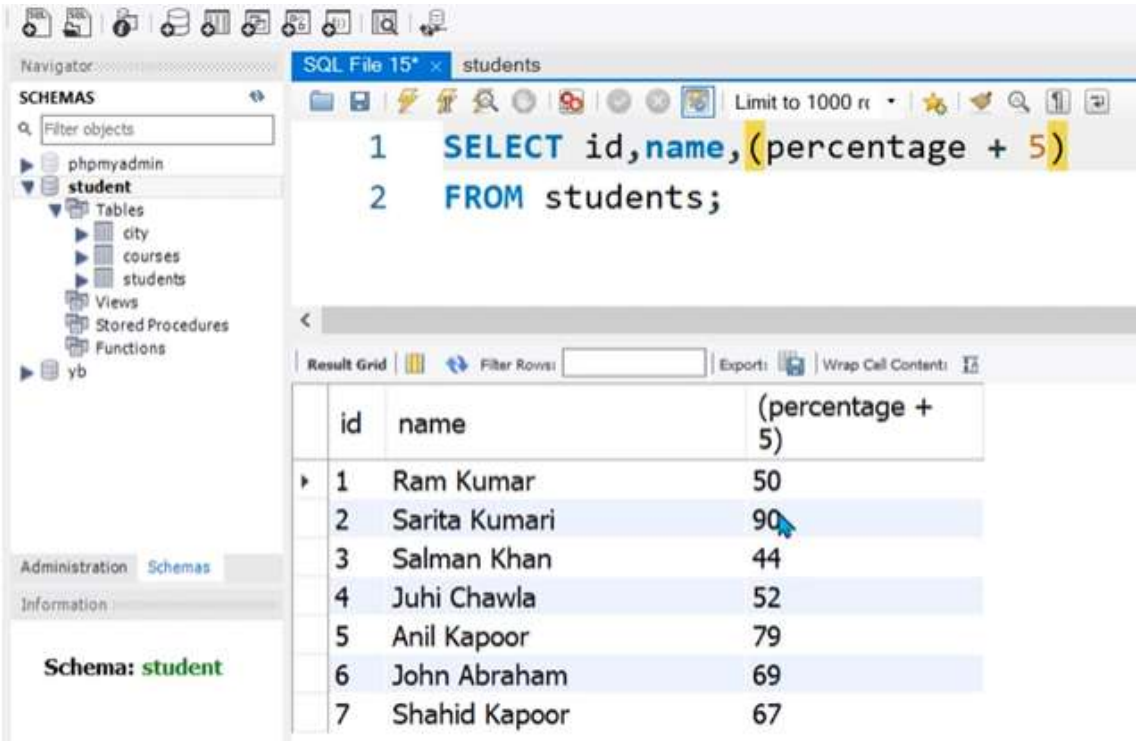
Practical

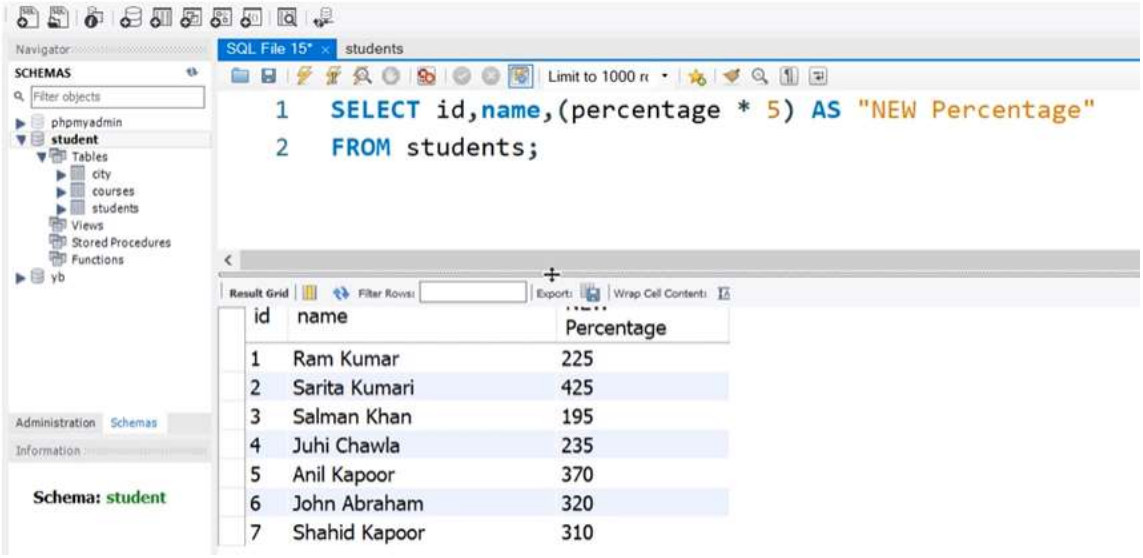



Navigator
SCHEMAS
Filter objects
phpmyadmin
student
Tables
city
courses
students
Views
Stored Procedures
Functions
yb
SQL File 15*
students
Limit to 1000 r
1 SELECT 15 / 6 AS Total;
Result Grid
Filter Rows:
Export:
Wrap Cell Content:
Total
2.5000


Navigator
SCHEMAS
Filter objects
phpmyadmin
student
Tables
city
courses
students
Views
Stored Procedures
Functions
yb
SQL File 15*
students
Limit to 1000 r
1 SELECT 15 DIV 6 AS Total;
Result Grid
Filter Rows:
Export:
Wrap Cell Content:
Total
3


Navigator
SCHEMAS
Filter objects
phpmyadmin
student
Tables
city
courses
students
Views
Stored Procedures
Functions
yb
Administration
Schemas
Information
Schema: student
SQL File 15*
students
Limit to 1000 r
1 SELECT id,name,percentage
2 FROM students;
Result Grid
Filter Rows:
Edit:
Export/Import:
id
name
percentage
1 Ram Kumar 45
2 Sarita Kumari 85
3 Salman Khan 39
4 Juhi Chawla 47
5 Anil Kapoor 74
6 John Abraham 64
7 Shahid Kapoor 62


Navigator
SCHEMAS
Filter objects
phpmyadmin
student
Tables
city
courses
students
Views
Stored Procedures
Functions
yb
Administration
Schemas
Information
Schema: student
SQL File 15*
students
Limit to 1000 r
1 SELECT id,name,(percentage + 5)
2 FROM students;
Result Grid
Filter Rows:
Export:
Wrap Cell Content:
id
name
(percentage + 5)
1 Ram Kumar 50
2 Sarita Kumari 90
3 Salman Khan 44
4 Juhi Chawla 52
5 Anil Kapoor 79
6 John Abraham 69
7 Shahid Kapoor 67


Navigator
SCHEMAS
Filter objects
phpmyadmin
student
Tables
city
courses
students
Views
Stored Procedures
Functions
yb
Administration
Schemas
Information
Schema: student
SQL File 15*
students
Limit to 1000 r
1 SELECT id,name,(percentage * 5) AS "NEW Percentage"
2 FROM students;
Result Grid
Filter Rows:
Export:
Wrap Cell Content:
id
name
Percentage
1 Ram Kumar 225
2 Sarita Kumari 425
3 Salman Khan 195
4 Juhi Chawla 235
5 Anil Kapoor 370
6 John Abraham 320
7 Shahid Kapoor 310


4 • SELECT PI();
Result Grid
Filter Rows:
Export:
PI()
3.141593


4 • SELECT ROUND(4.51);
Result Grid
Filter Rows:
Export:
Wrap Cell Content:
ROUND(4.51)
5


4 • SELECT ROUND(1234.987,2);
Result Grid
Filter Rows:
Export:
Wrap Cell Content:
ROUND(1234.987,2)
1234.99


4 • SELECT CEIL(4.56);
Result Grid
Filter Rows:
Export:
CEIL(4.56)
5

```
4 • SELECT FLOOR(4.40);
```


```
4 • SELECT POW(2,2);
```

$2 \times 2 = 4$

```
4 • SELECT POW(2,3);
```

$2 \times 2 \times 2 = 8$

```
4 • SELECT SQRT(5);
```

```
4 • SELECT ROUND(SQRT(5));
```

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

ROUND(SQRT(5))
2

```
4 • SELECT RAND() * 100;
```

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

RAND() * 100
59.51049081935593

```
4 • SELECT ROUND(RAND() * 100);
```

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

ROUND(RAND() * 100)
38

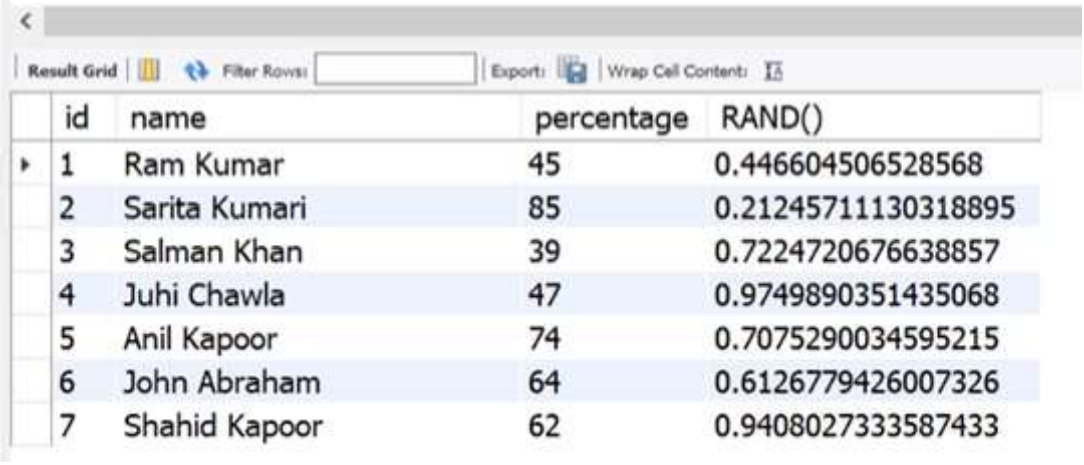
value between 7 to 12

```
4 • SELECT FLOOR(7 + (RAND() * 6));
```

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

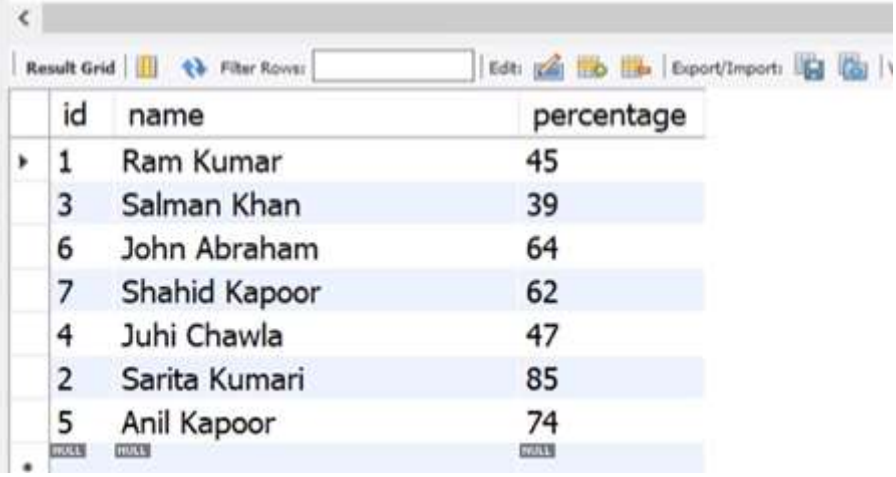
FLOOR(7 + (RAND() * 6))
12

```sql
SELECT id,name,percentage, RAND()
FROM students;

SELECT FLOOR(1 + (RAND() * 5));
```



id	name	percentage	RAND()
1	Ram Kumar	45	0.446604506528568
2	Sarita Kumari	85	0.21245711130318895
3	Salman Khan	39	0.7224720676638857
4	Juhi Chawla	47	0.9749890351435068
5	Anil Kapoor	74	0.7075290034595215
6	John Abraham	64	0.6126779426007326
7	Shahid Kapoor	62	0.9408027333587433

```sql
SELECT id,name,percentage
FROM students ORDER BY RAND();

SELECT FLOOR(1 + (RAND() * 5));
```



id	name	percentage
1	Ram Kumar	45
3	Salman Khan	39
6	John Abraham	64
7	Shahid Kapoor	62
4	Juhi Chawla	47
2	Sarita Kumari	85
5	Anil Kapoor	74
NULL	NULL	NULL

```
4 • SELECT ABS(-56);
```

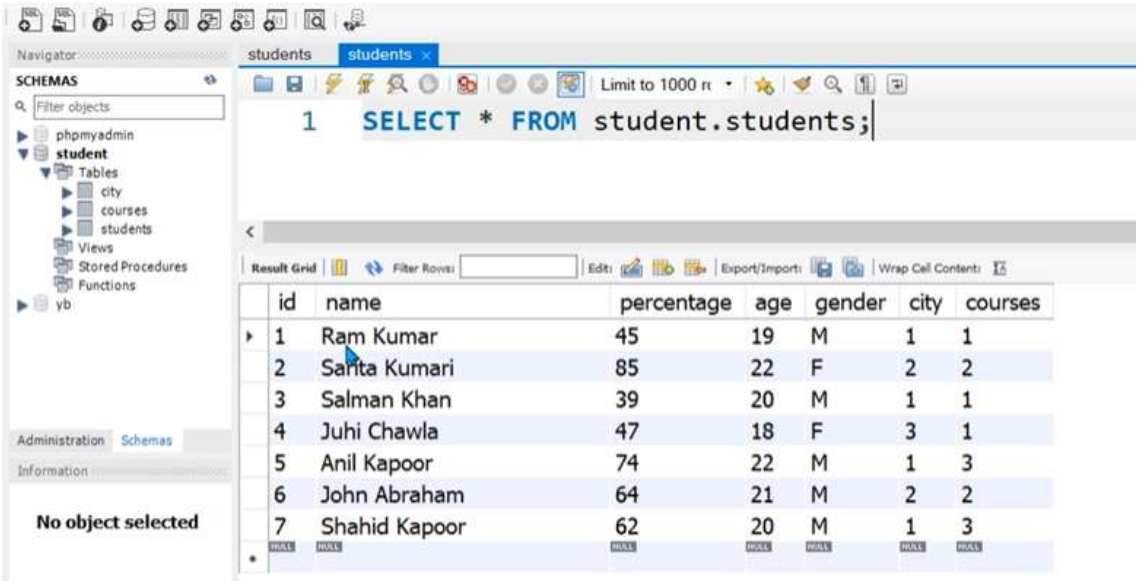

```
4 • SELECT SIGN(-25);
```


```
4 • SELECT SIGN(-3.25);
```

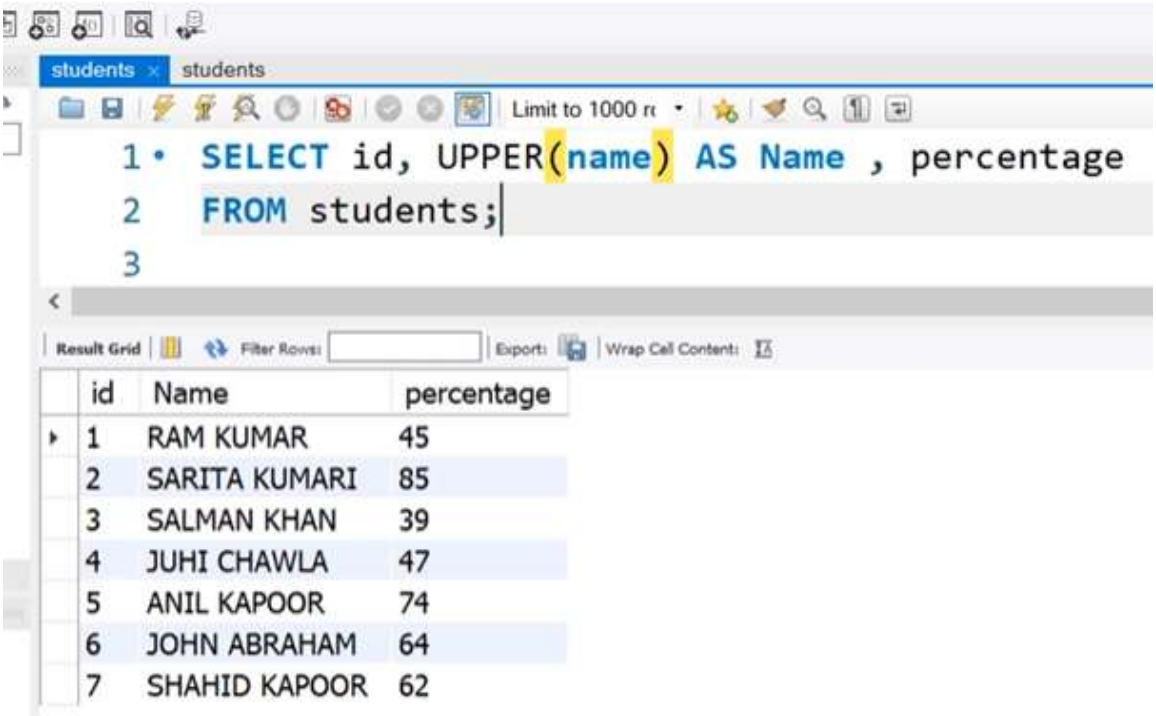
30. MySQL String Functions-Part1

List of String Functions in MySQL

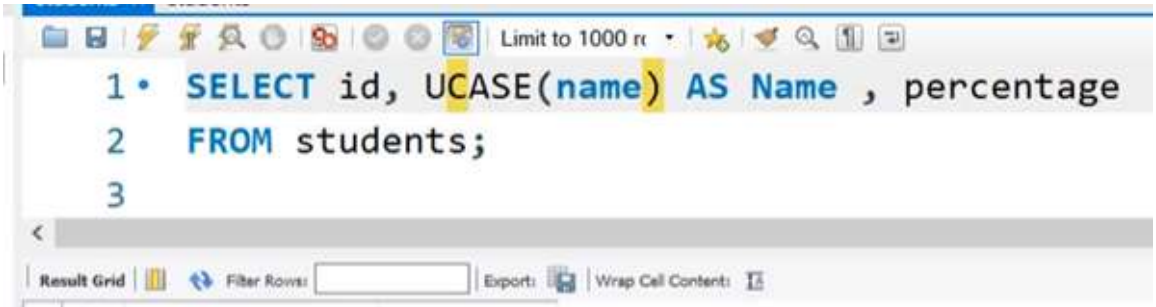
- UPPER() / UCASE()
- LOWER() / LCASE()
- LENGTH()
- CHAR_LENGTH()
- CONCAT()
- CONCAT_WS()
- LTRIM()
- RTRIM()
- TRIM()
- POSITION()
- LOCATE()
- INSTR()
- SUBSTRING() / SUBSTR()
- MID()
- SUBSTRING_INDEX()
- LEFT()
- RIGHT()
- LPAD()
- RPAD()
- SPACE()
- REVERSE()
- REPEAT()
- REPLACE()
- STRCMP()
- FIELD()
- FIND_IN_SET(
- FORMAT()
- HEX(str)



Practical



id	Name	percentage
1	RAM KUMAR	45
2	SARITA KUMARI	85
3	SALMAN KHAN	39
4	JUHI CHAWLA	47
5	ANIL KAPOOR	74
6	JOHN ABRAHAM	64
7	SHAHID KAPOOR	62



id	Name	percentage
1	RAM KUMAR	45
2	SARITA KUMARI	85
3	SALMAN KHAN	39
4	JUHI CHAWLA	47
5	ANIL KAPOOR	74
6	JOHN ABRAHAM	64
7	SHAHID KAPOOR	62

```
1 • SELECT id, LOWER(name) AS Name , percentage
2   FROM students;
3
```

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

id	Name	percentage
1	ram kumar	45
2	sarita kumari	85
3	salman khan	39
4	juhi chawla	47
5	anil kapoor	74
6	john abraham	64
7	shahid kapoor	62

```
1 • SELECT id, LCASE(name) AS Name , percentage
2   FROM students;
3
```

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

id	Name	percentage
1	ram kumar	45
2	sarita kumari	85
3	salman khan	39
4	juhi chawla	47
5	anil kapoor	74
6	john abraham	64
7	shahid kapoor	62

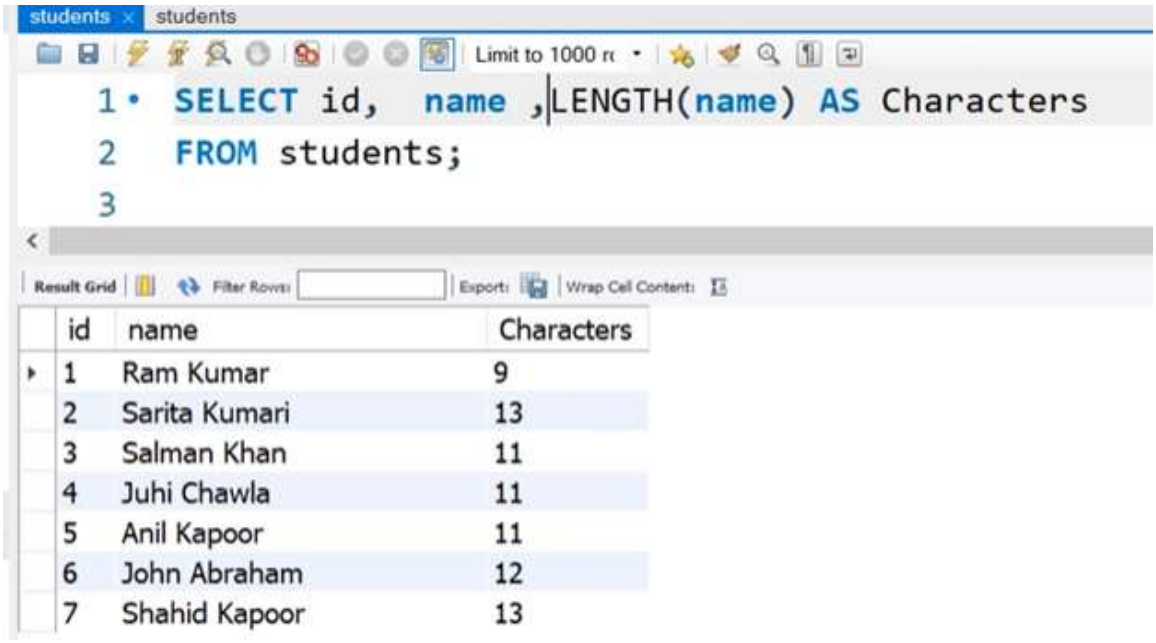
students | students

Limit to 1000 r

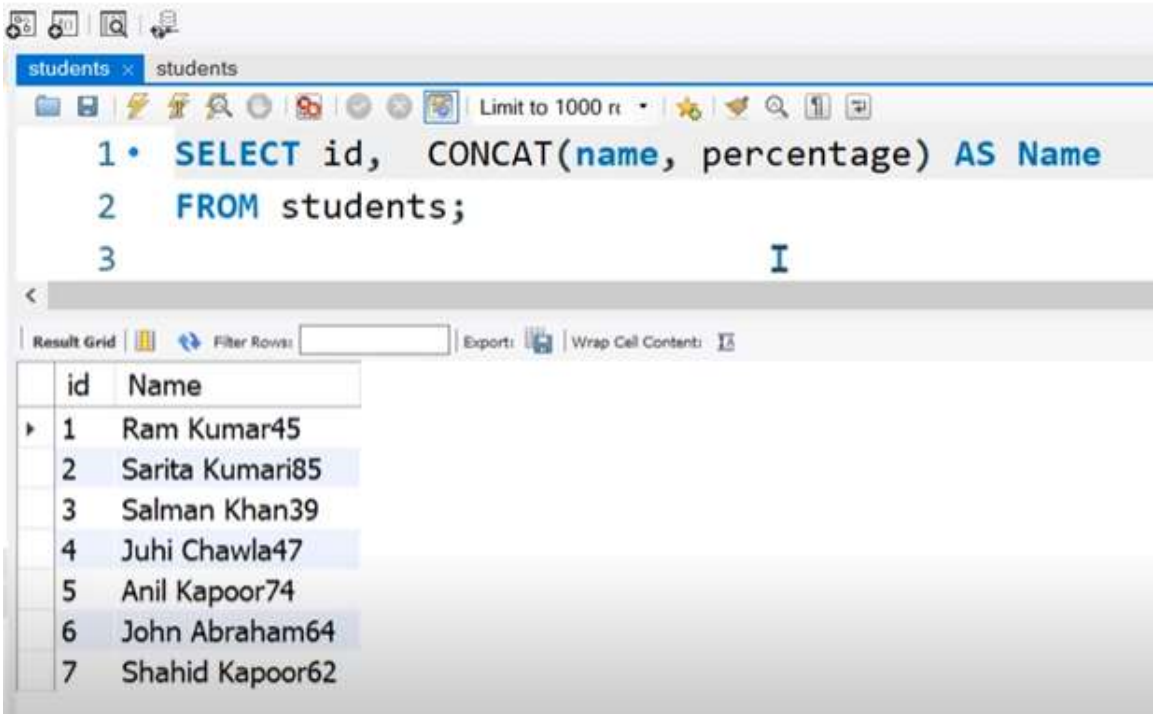
```
1 • SELECT id,  name ,CHARACTER_LENGTH(name) AS Characters
2   FROM students;
3
```

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

id	name	Characters
1	Ram Kumar	9
2	Sarita Kumari	13
3	Salman Khan	11
4	Juhi Chawla	11
5	Anil Kapoor	11
6	John Abraham	12
7	Shahid Kapoor	13



id	name	Characters
1	Ram Kumar	9
2	Sarita Kumari	13
3	Salman Khan	11
4	Juhi Chawla	11
5	Anil Kapoor	11
6	John Abraham	12
7	Shahid Kapoor	13



id	Name
1	Ram Kumar45
2	Sarita Kumari85
3	Salman Khan39
4	Juhi Chawla47
5	Anil Kapoor74
6	John Abraham64
7	Shahid Kapoor62

students | students

```
1 • SELECT id,  CONCAT(name, " ",percentage) AS Name
2   FROM students;
3
```

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

id	Name
1	Ram Kumar 45
2	Sarita Kumari 85
3	Salman Khan 39
4	Juhi Chawla 47
5	Anil Kapoor 74
6	John Abraham 64
7	Shahid Kapoor 62

```
4 • SELECT CONCAT("Yahoo", "Baba", "Youtube","Channel") AS Name;
```

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

Name
YahooBabaYoutubeChannel

```
4 • SELECT CONCAT_WS(" - ", "Baba", "Youtube","Channel") AS Name;
```

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

Name
Baba - Youtube - Channel

```
4 • SELECT LTRIM("    Yahoo Baba    ") AS Name;
```

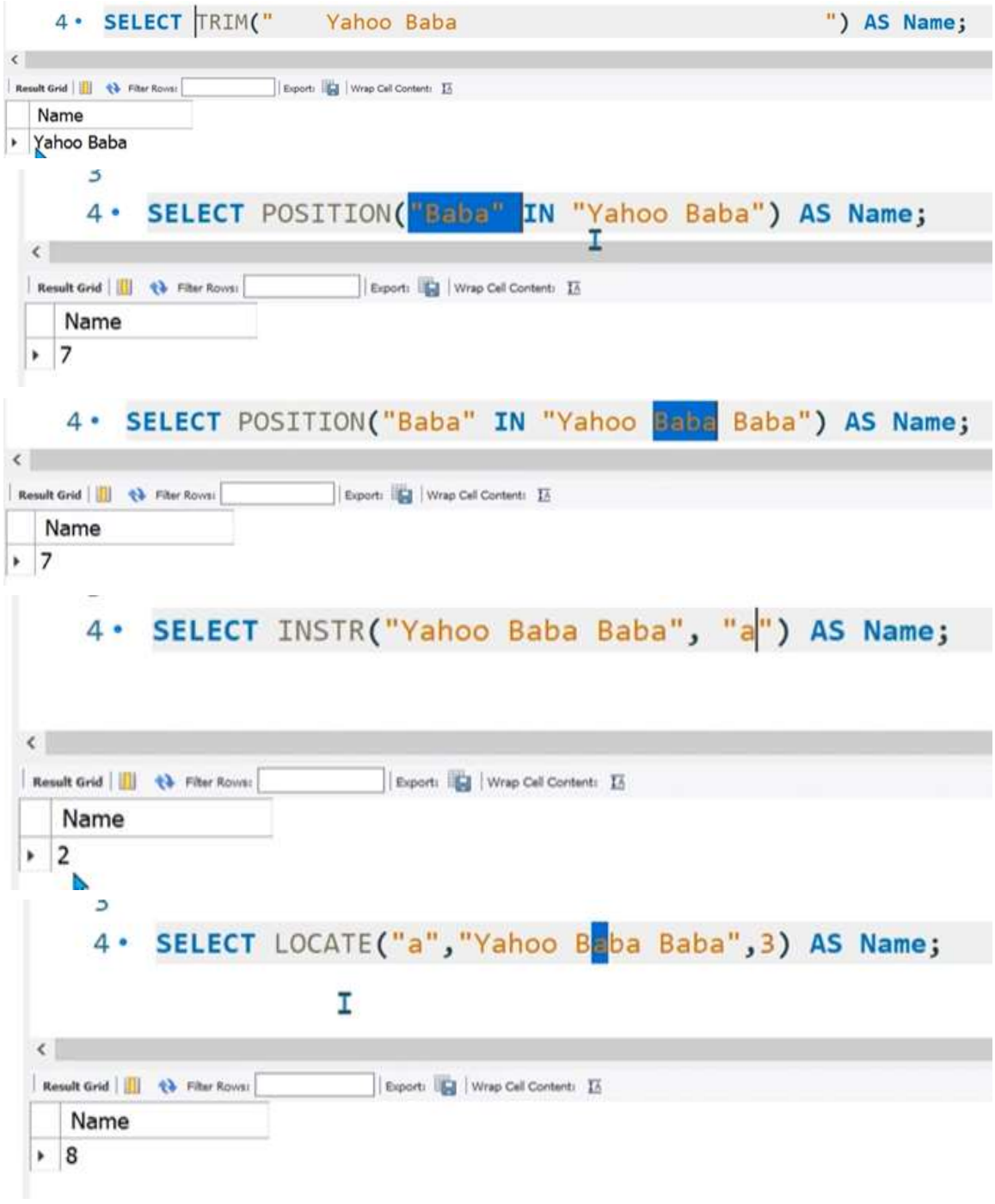
Result Grid | Filter Rows: | Export: | Wrap Cell Content:

Name
Yahoo Baba

```
4 • SELECT RTRIM("    Yahoo Baba                    ") AS Name;
```

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

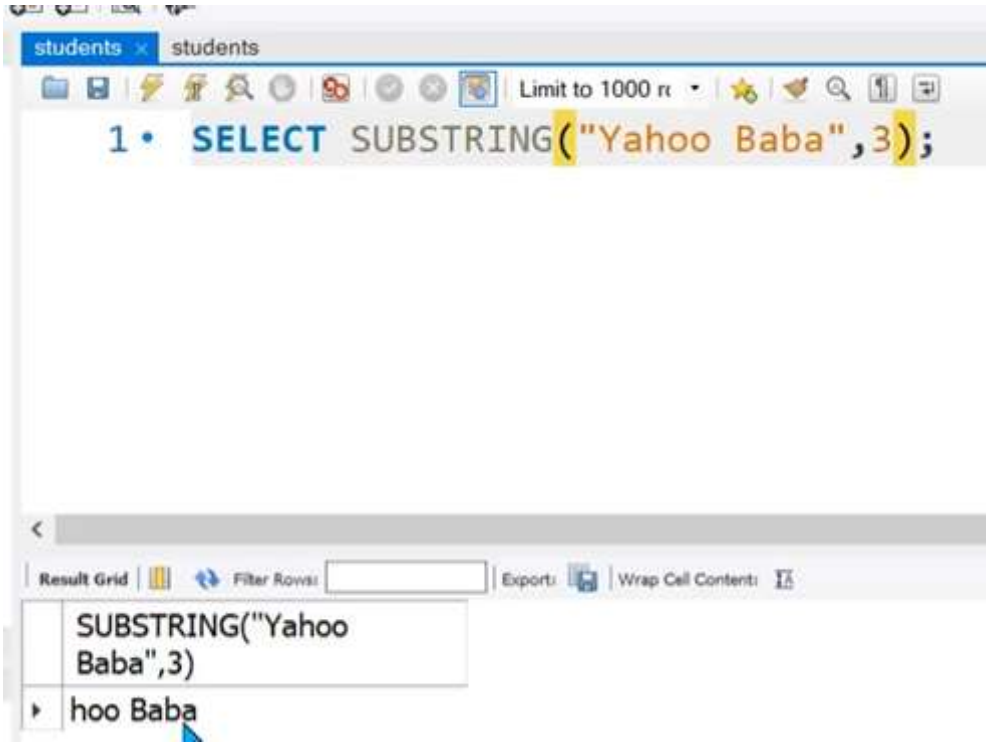
Name
Yahoo Baba

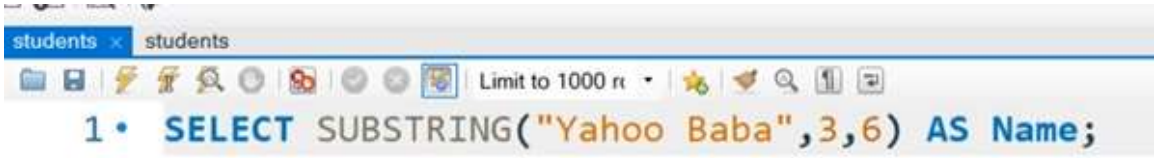


31. MySQL String Functions - Part 2

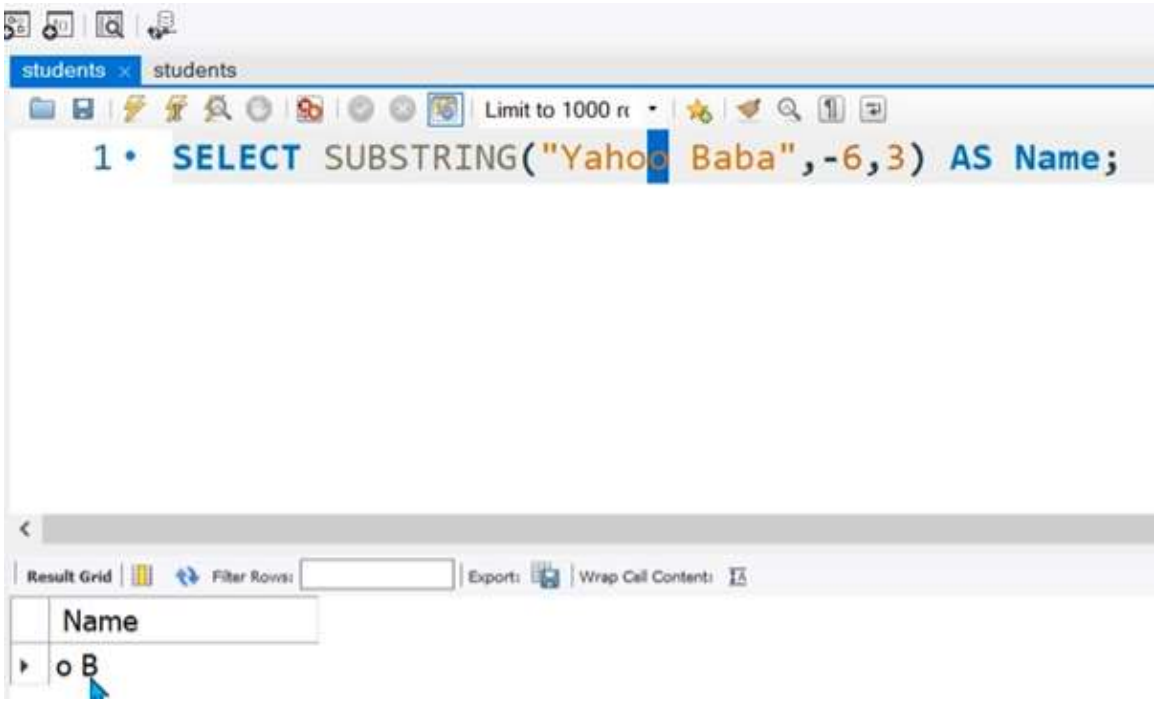
List of String Functions in MySQL

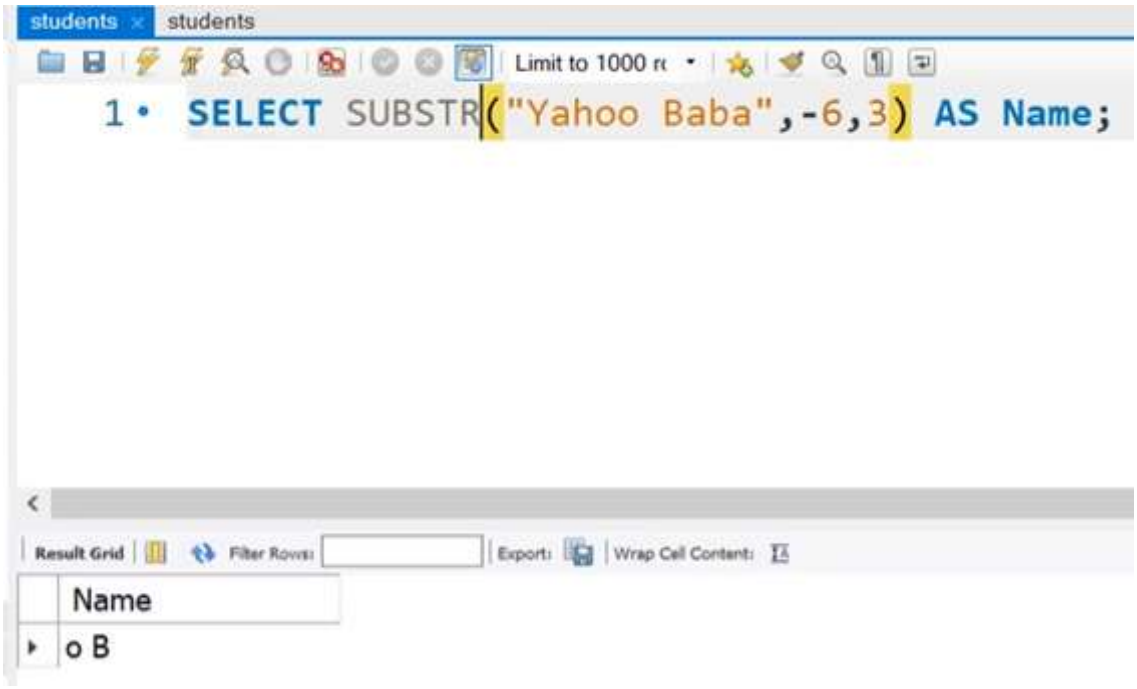
- UPPER() / UCASE()
- LOWER() / LCASE()
- LENGTH()
- CHAR_LENGTH()
- CONCAT()
- CONCAT_WS()
- LTRIM()
- RTRIM()
- TRIM()
- POSITION()
- LOCATE()
- INSTR()
- SUBSTRING() / SUBSTR()
- MID()
- SUBSTRING_INDEX()
- LEFT()
- RIGHT()
- LPAD()
- RPAD()
- SPACE()
- REVERSE()
- REPEAT()
- REPLACE()
- STRCMP()
- FIELD()
- FIND_IN_SET(
- FORMAT()
- HEX(str)

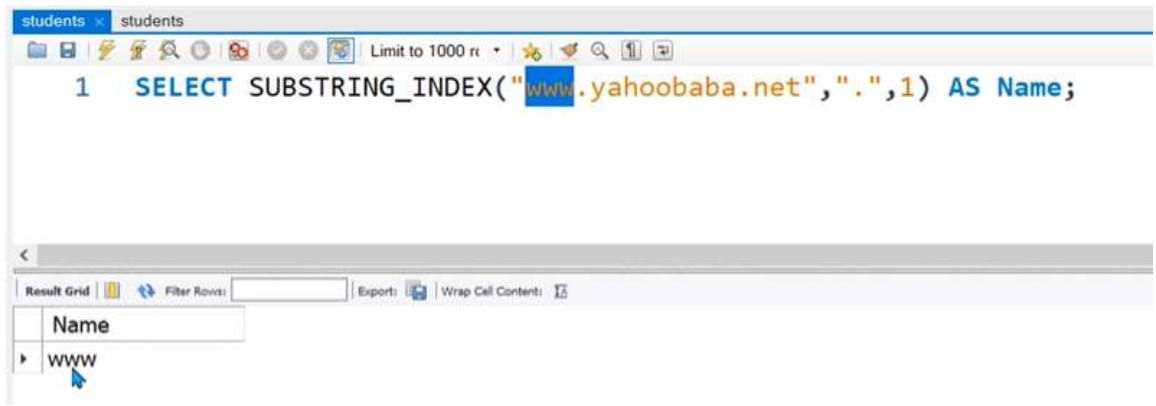



students
students
Limit to 1000 r
1 • SELECT SUBSTRING("Yahoo Baba",3,6) AS Name;


Result Grid
Filter Rows:
Export:
Wrap Cell Content:
Name
hoo Ba

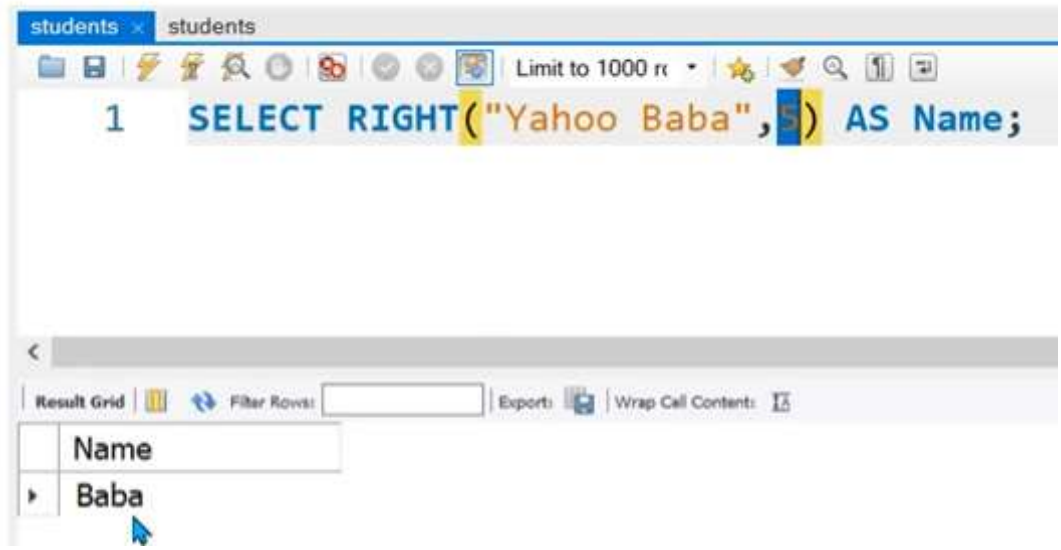

students
students
Limit to 1000 r
1 • SELECT SUBSTRING("Yahoo Baba",-6,3) AS Name;
Result Grid
Filter Rows:
Export:
Wrap Cell Content:
Name
o B

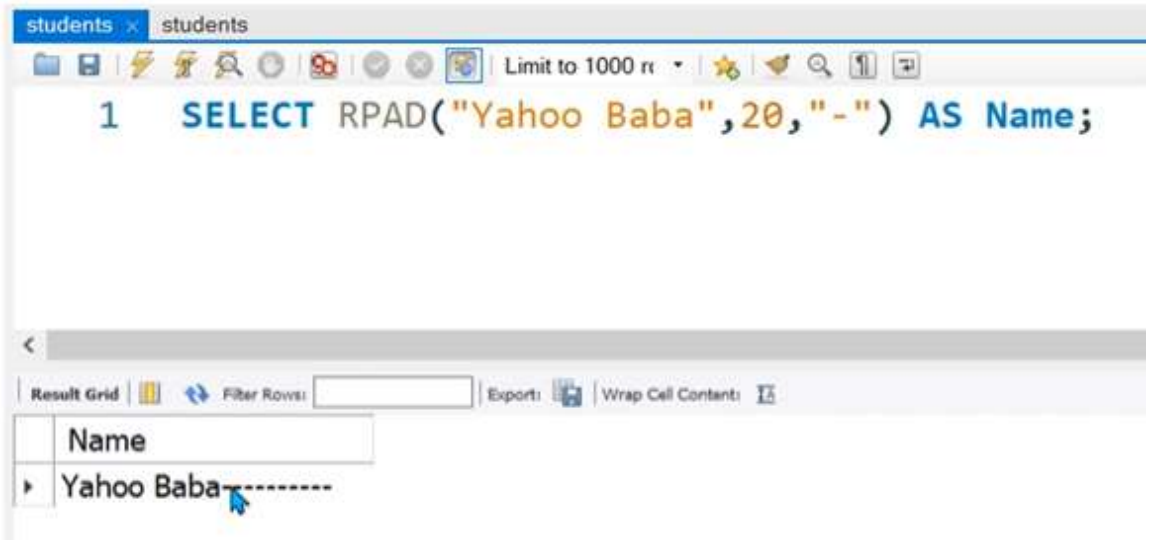

students
students
Limit to 1000 r
1 • SELECT SUBSTR("Yahoo Baba",-6,3) AS Name;
Result Grid
Filter Rows:
Export:
Wrap Cell Content:
Name
o B

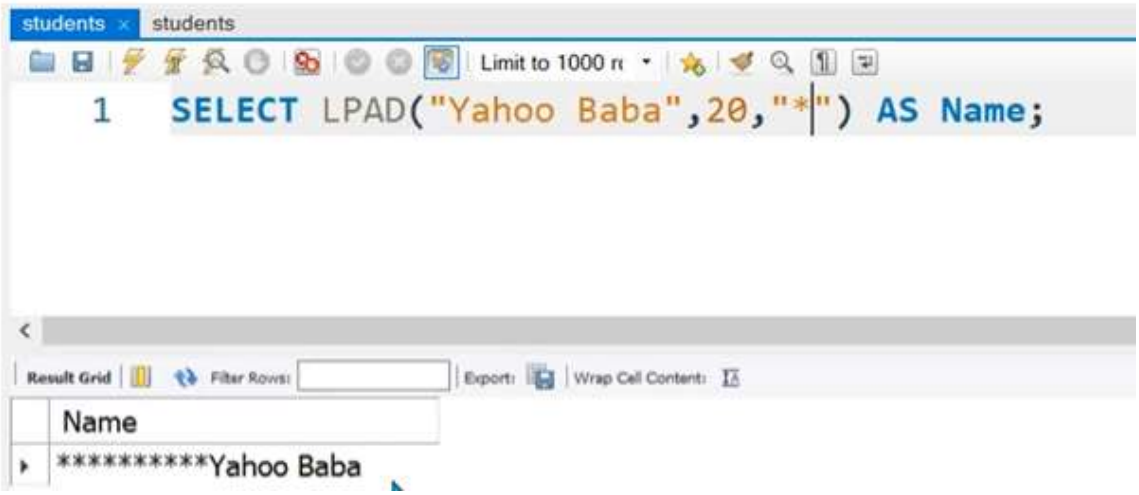

students
students
Limit to 1000 r
1 SELECT SUBSTRING_INDEX("www.yahoobaba.net",".",1) AS Name;
Result Grid
Filter Rows:
Export:
Wrap Cell Content:
Name
www

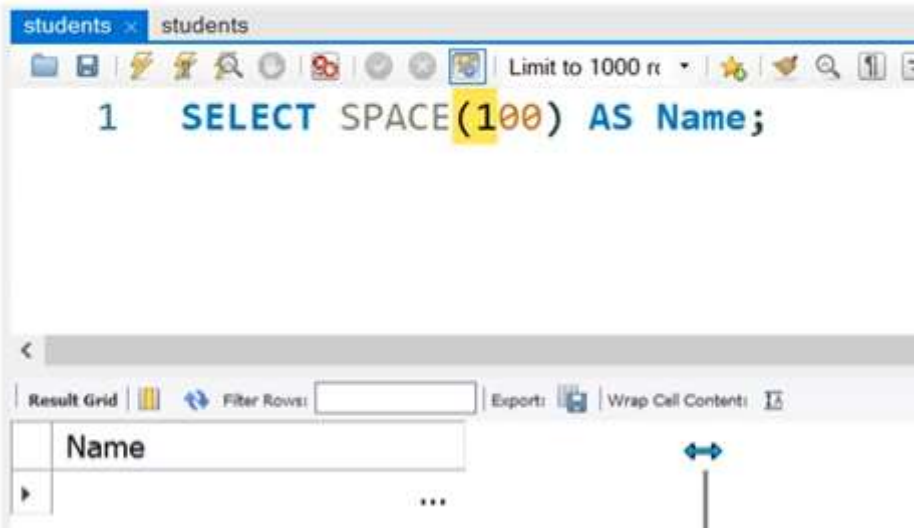

students
students
Limit to 1000 r
1 SELECT SUBSTRING_INDEX("www.yahoobaba.net","o",2) AS Name;
Result Grid
Filter Rows:
Export:
Wrap Cell Content:
Name
www.yaho


students
students
Limit to 1000 r
1 SELECT LEFT("Yahoo Baba",5) AS Name;
Result Grid
Filter Rows:
Export:
Wrap Cell Content:
Name
Yahoo

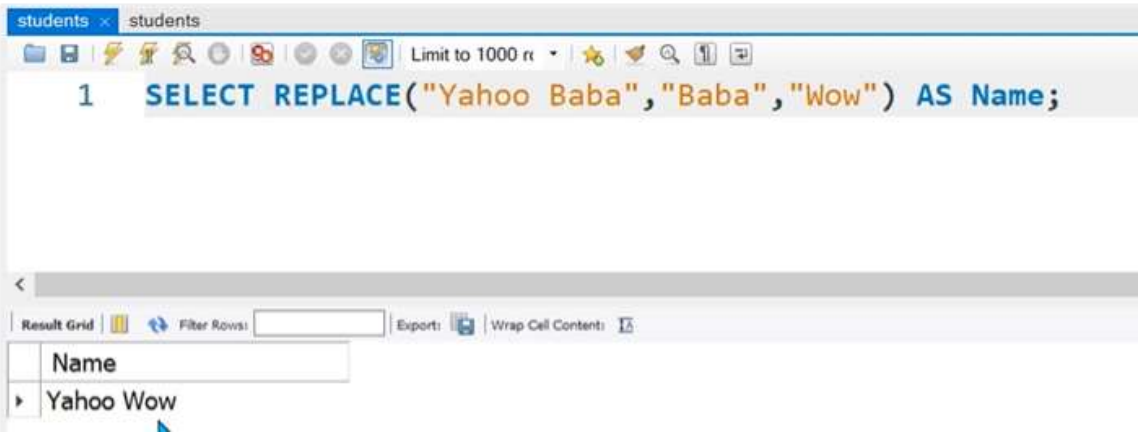

students
students
Limit to 1000 r
1 SELECT RIGHT("Yahoo Baba",5) AS Name;
Result Grid
Filter Rows:
Export:
Wrap Cell Content:
Name
Baba

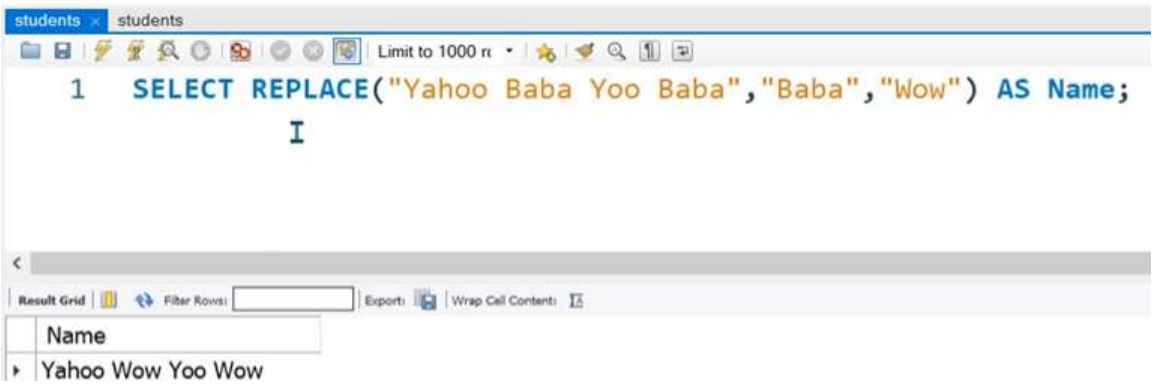

students
students
Limit to 1000 r
1 SELECT RPAD("Yahoo Baba",20,"-") AS Name;
Result Grid
Filter Rows:
Export:
Wrap Cell Content:
Name
Yahoo Baba---------

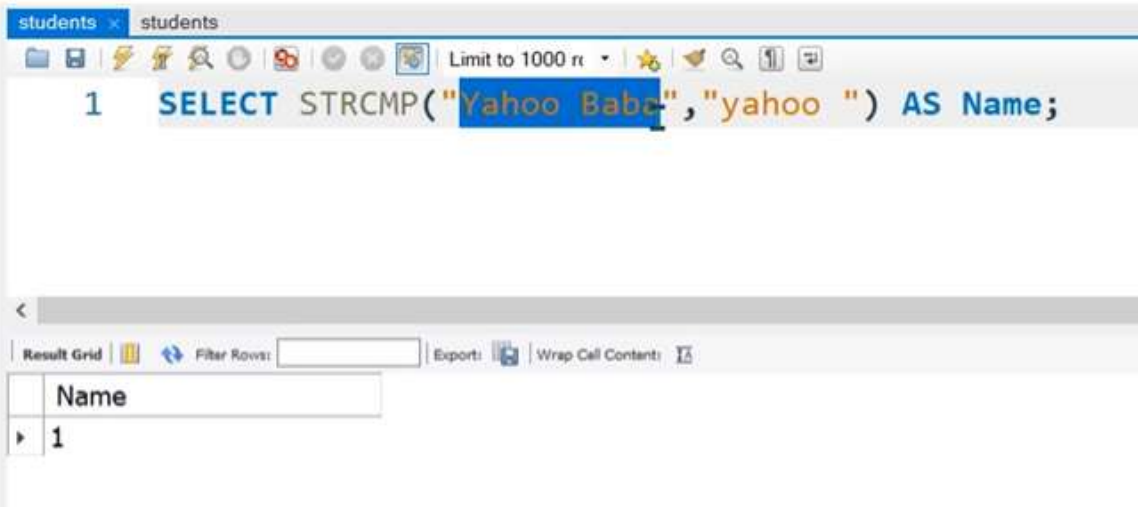

students
students
Limit to 1000 r
1 SELECT LPAD("Yahoo Baba",20,"*") AS Name;
Result Grid
Filter Rows:
Export:
Wrap Cell Content:
Name
**********Yahoo Baba


students
students
Limit to 1000 r
1 SELECT SPACE(100) AS Name;
Result Grid
Filter Rows:
Export:
Wrap Cell Content:
Name
...

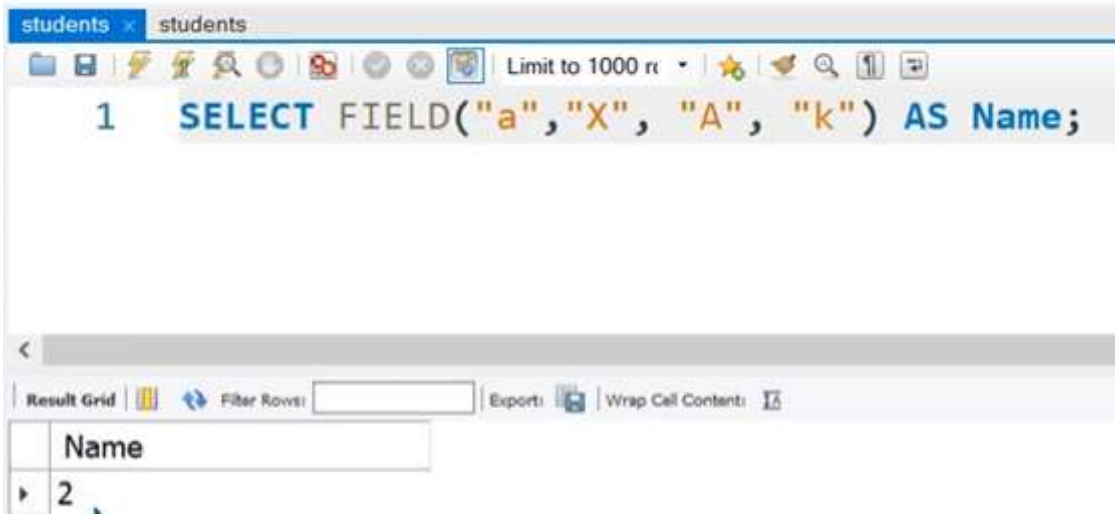

students
students
Limit to 1000 r
1 SELECT REVERSE("Yahoo Baba") AS Name;
Result Grid
Filter Rows:
Export:
Wrap Cell Content:
Name
abaB oohaY

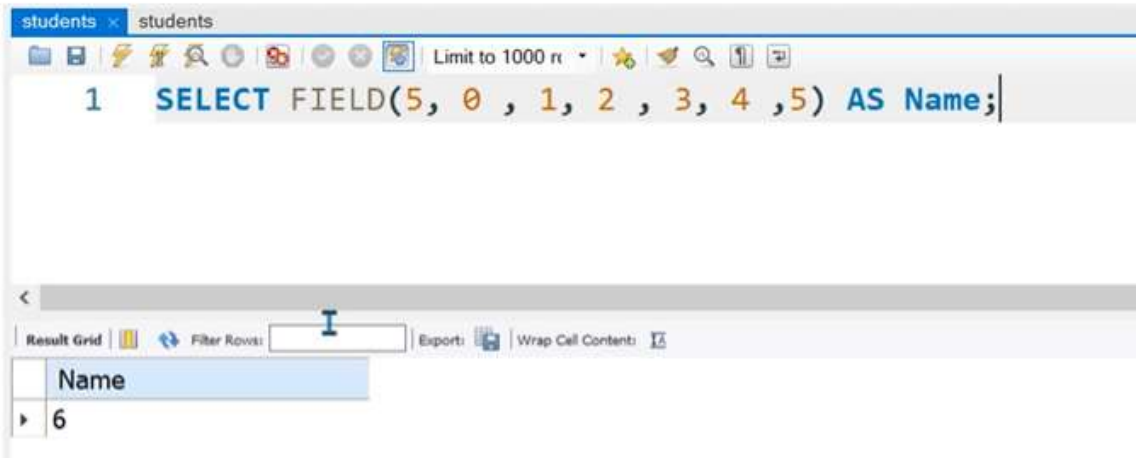

students
students
Limit to 1000 r
1 SELECT REPLACE("Yahoo Baba","Baba","Wow") AS Name;
Result Grid
Filter Rows:
Export:
Wrap Cell Content:
Name
Yahoo Wow

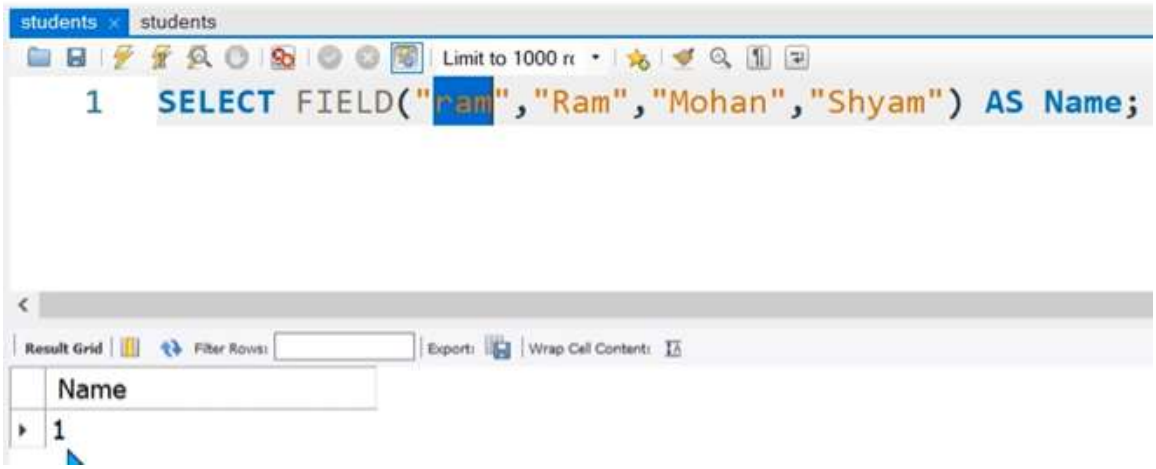

students
students
Limit to 1000 r
1 SELECT REPLACE("Yahoo Baba Yoo Baba","Baba","Wow") AS Name;
Result Grid
Filter Rows:
Export:
Wrap Cell Content:
Name
Yahoo Wow Yoo Wow


students
students
Limit to 1000 r
1 SELECT STRCMP("Yahoo Baba","yahoo ") AS Name;
Result Grid
Filter Rows:
Export:
Wrap Cell Content:
Name
1

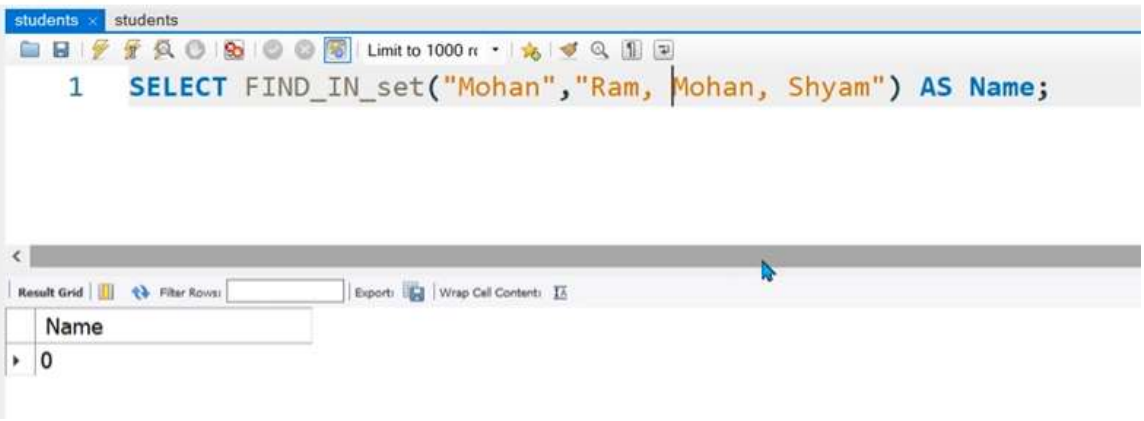

students
students
Limit to 1000 r
1 SELECT STRCMP("Yahoo ","yahoo baba") AS Name;
Result Grid
Filter Rows:
Export:
Wrap Cell Content:
Name
-1

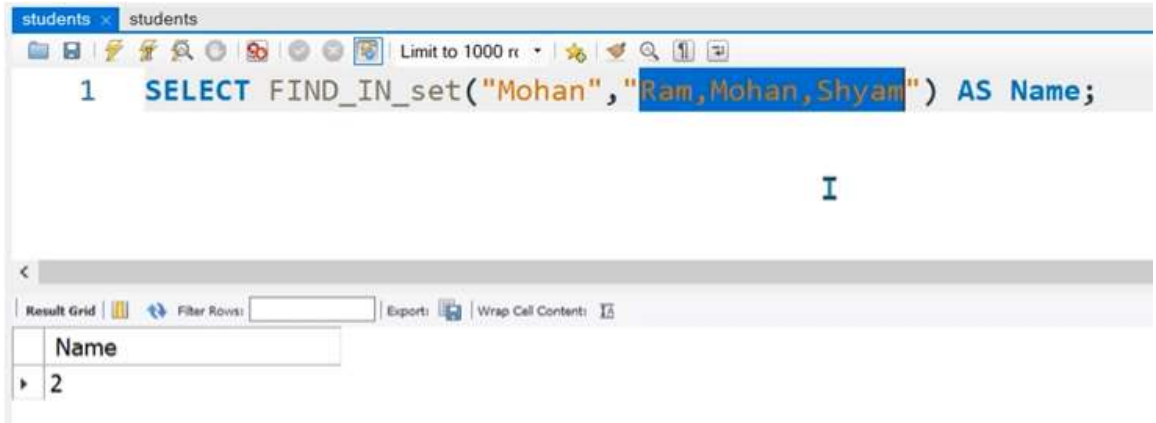

students
students
Limit to 1000 r
1 SELECT FIELD("a","X", "A", "k") AS Name;
Result Grid
Filter Rows:
Export:
Wrap Cell Content:
Name
2

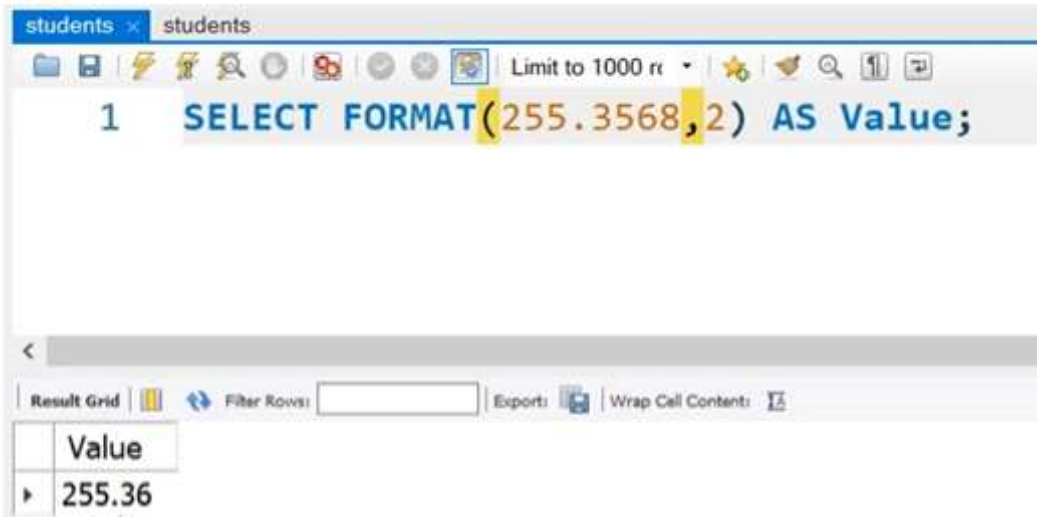

students
students
Limit to 1000 r
1 SELECT FIELD(5, 0 , 1, 2 , 3, 4 ,5) AS Name;
Result Grid
Filter Rows:
Export:
Wrap Cell Content:
Name
6

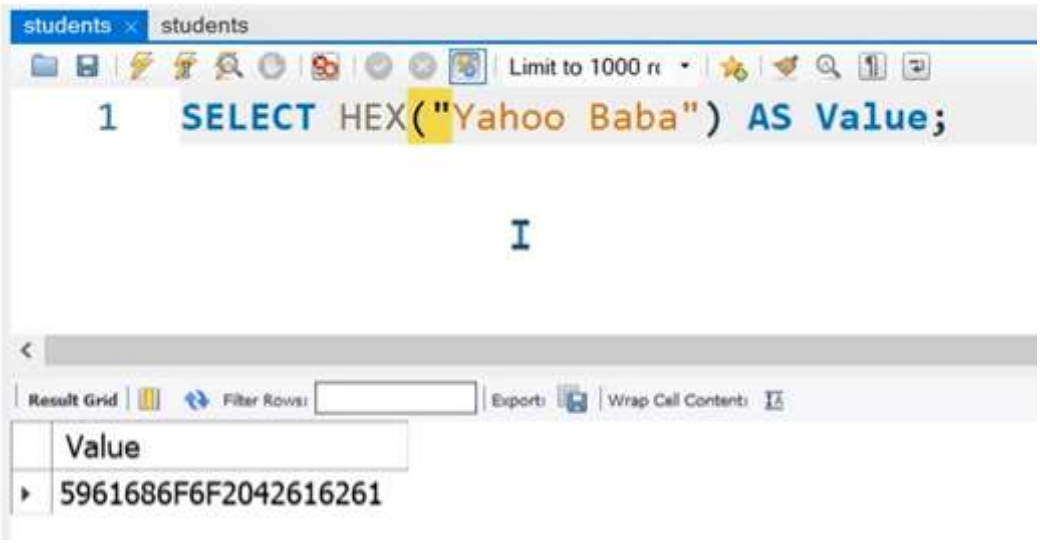

students
students
Limit to 1000 r
1 SELECT FIELD("ram","Ram","Mohan","Shyam") AS Name;
Result Grid
Filter Rows:
Export:
Wrap Cell Content:
Name
1


students
students
Limit to 1000 r
1 SELECT FIND_IN_set("ram","Ram,Mohan,Shyam") AS Name;
Result Grid
Filter Rows:
Export:
Wrap Cell Content:
Name
1


students
students
Limit to 1000 r
1 SELECT FIND_IN_set("Mohan","Ram, Mohan, Shyam") AS Name;
Result Grid
Filter Rows:
Export:
Wrap Cell Content:
Name
0


students
students
Limit to 1000 r
1 SELECT FIND_IN_set("Mohan","Ram,Mohan,Shyam") AS Name;
Result Grid
Filter Rows:
Export:
Wrap Cell Content:
Name
2

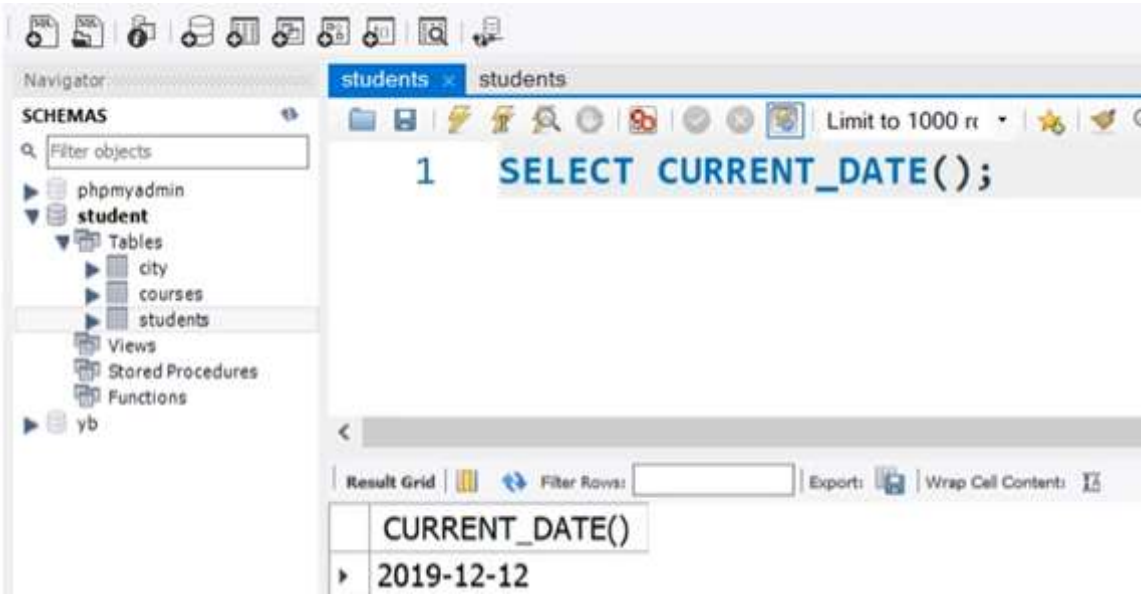


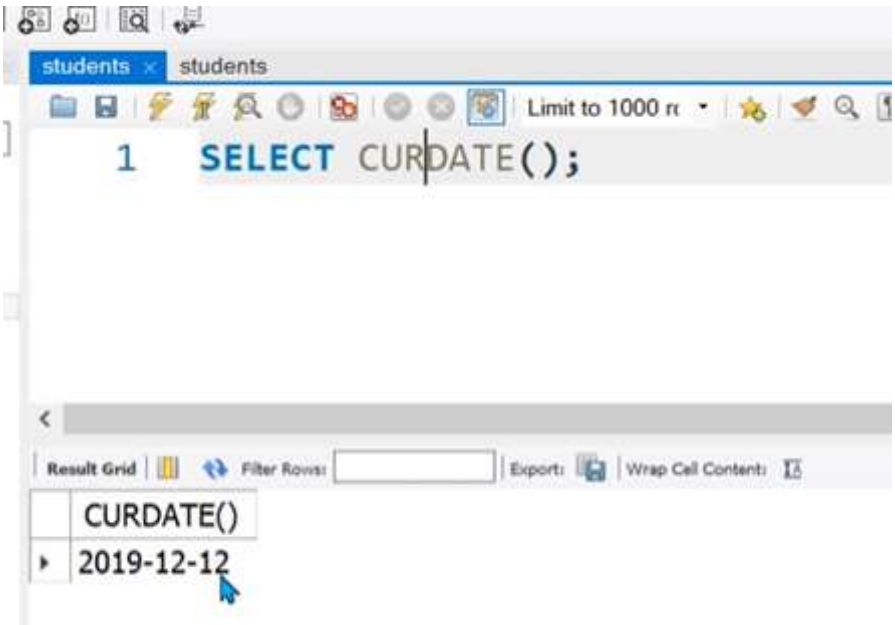


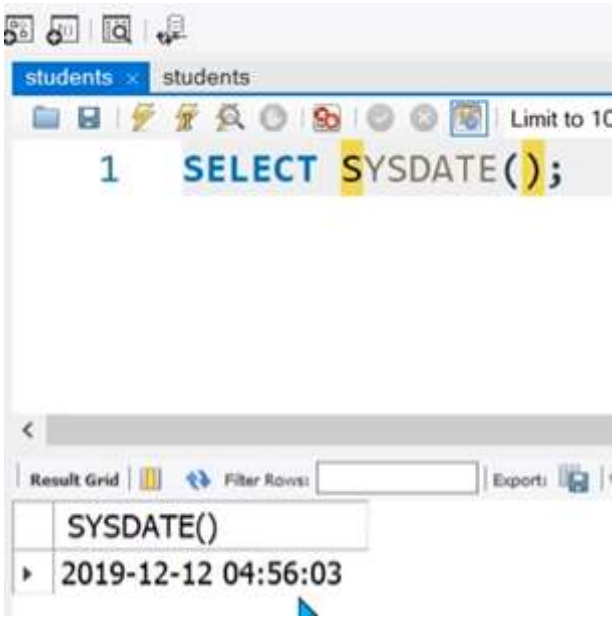
32. MySQL Date Functions - Part 1

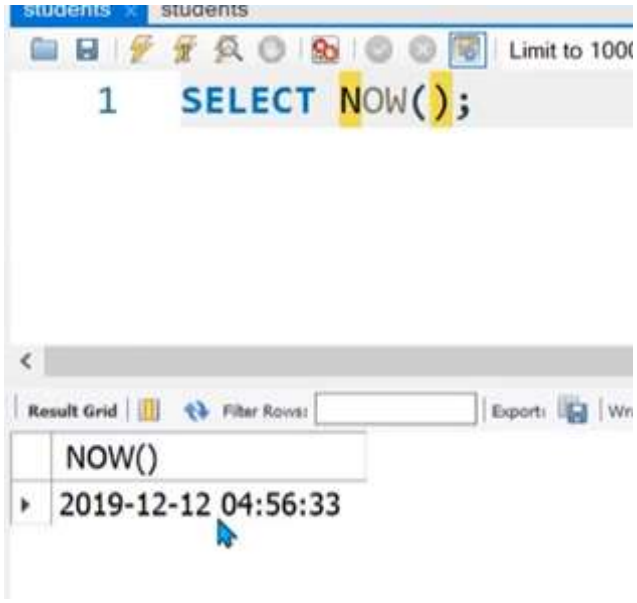
List of Date Functions in MySQL

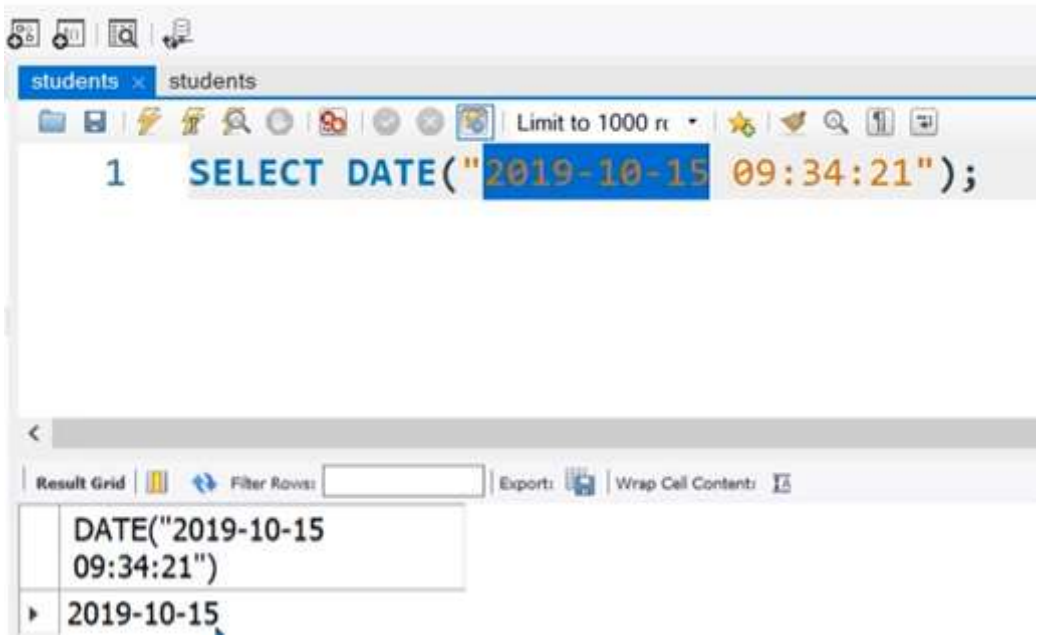
- CURDATE
- CURRENT_DATE
- SYSDATE
- NOW
- LAST_DAY
- DAY
- DAYNAME
- DAYOFMONTH
- DAYOFWEEK
- DAYOFYEAR
- WEEK
- WEEKDAY
- WEEKOFYEAR
- YEAR
- YEARWEEK
- EXTRACT
- DATE_ADD
- ADDDATE
- MAKEDATE
- DATE_SUB
- SUBDATE
- DATEDIFF
- TO_DAYS
- FROM_DAYS
- PERIOD_ADD
- PERIOD_DIFF
- DATE_FORMAT
- STR_TO_DATE





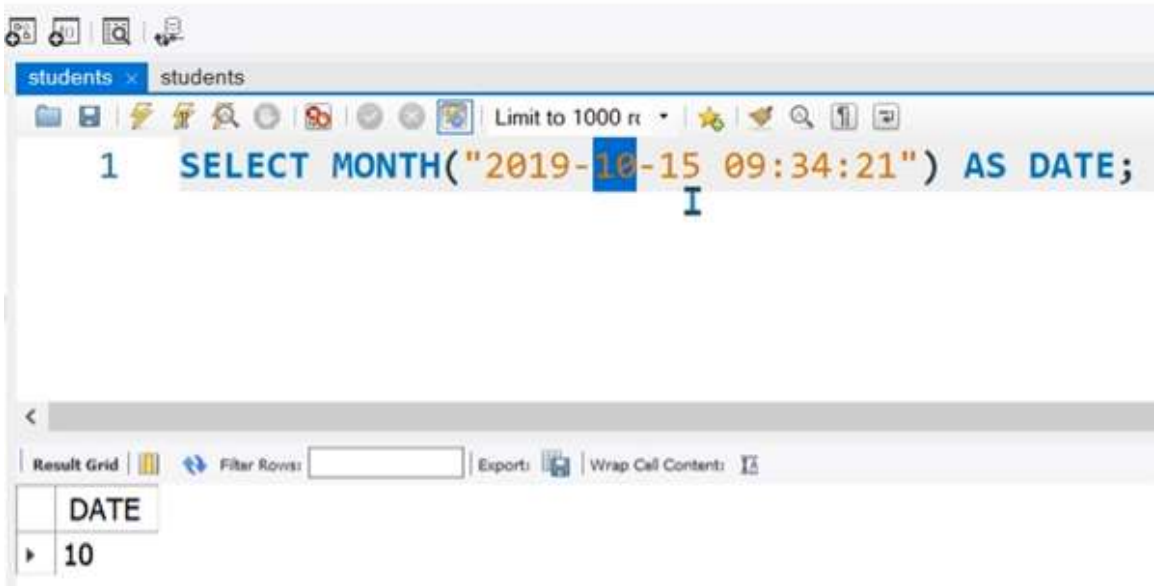

students
students
Limit to 1
1 SELECT SYSDATE();
Result Grid
Filter Rows:
Export:
SYSDATE()
2019-12-12 04:56:03

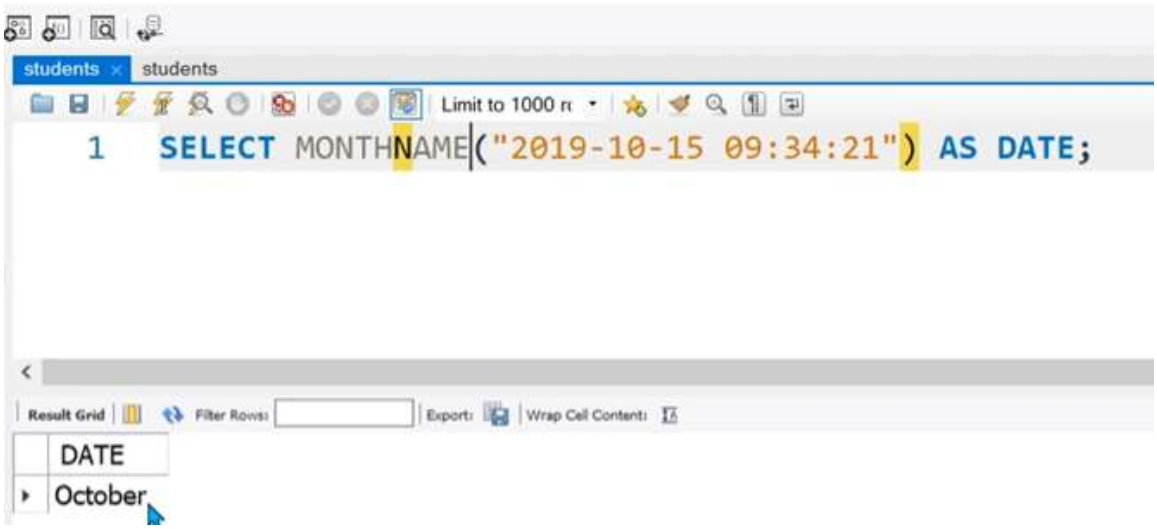

Limit to 100
1 SELECT NOW();
Result Grid
Filter Rows:
Export:
NOW()
2019-12-12 04:56:33

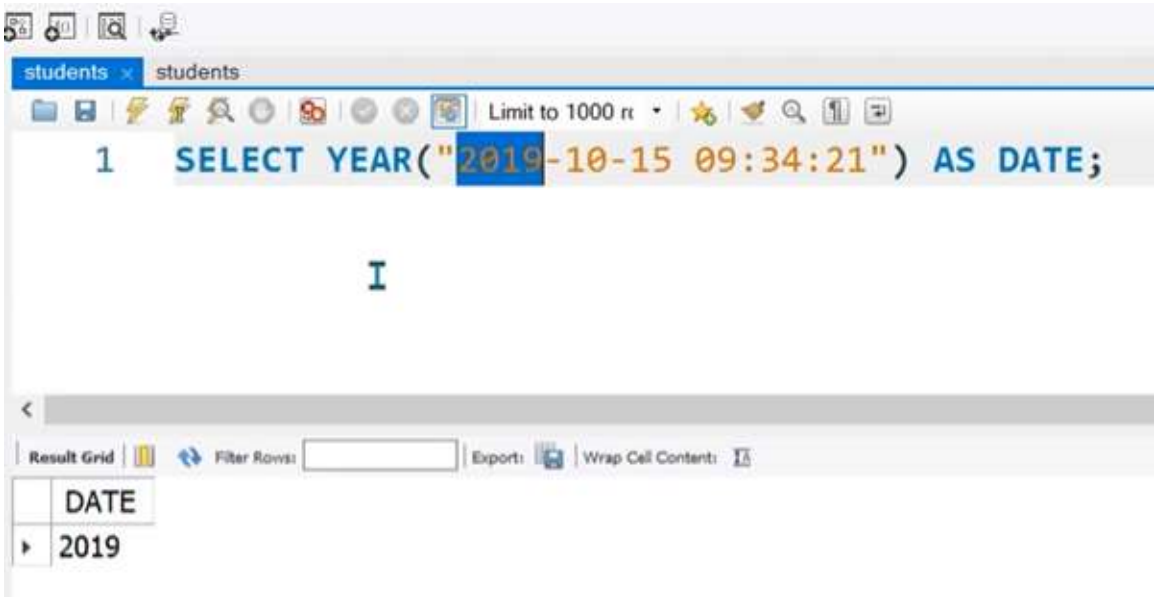

students
students
Limit to 1000
1 SELECT DATE("2019-10-15 09:34:21");
Result Grid
Filter Rows:
Export:
Wrap Cell Content:
DATE("2019-10-15 09:34:21")
2019-10-15

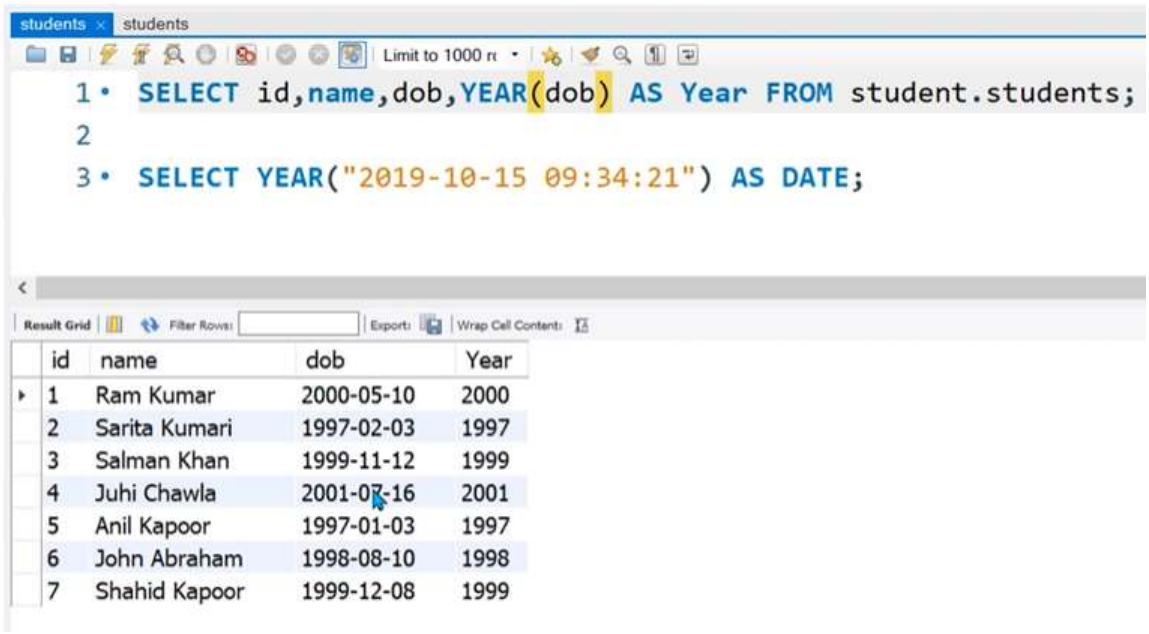

students
students
Limit to 1000 r
1 SELECT DATE("2019-10-15 09:34:21") AS DATE;

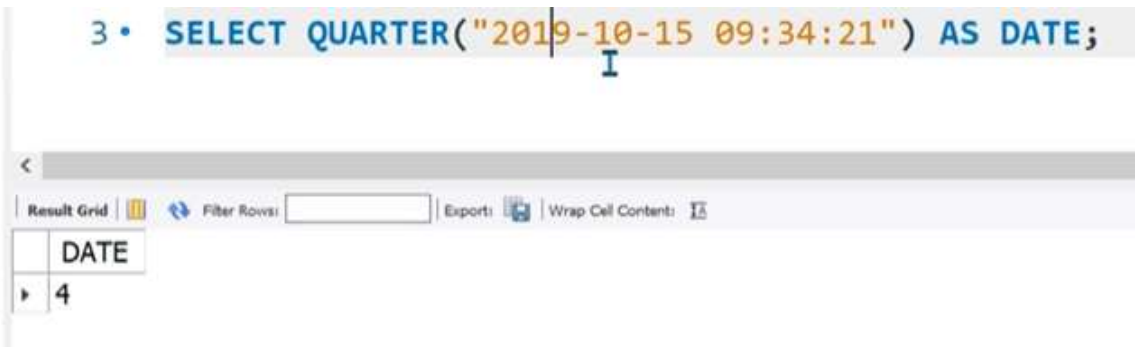

Result Grid
Filter Rows:
Export:
Wrap Cell Content:
DATE
2019-10-15


students
students
Limit to 1000 r
1 SELECT MONTH("2019-10-15 09:34:21") AS DATE;
Result Grid
Filter Rows:
Export:
Wrap Cell Content:
DATE
10


students
students
Limit to 1000 r
1 SELECT MONTHNAME("2019-10-15 09:34:21") AS DATE;
Result Grid
Filter Rows:
Export:
Wrap Cell Content:
DATE
October


students
students
Limit to 1000 r
1 SELECT YEAR("2019-10-15 09:34:21") AS DATE;
Result Grid
Filter Rows:
Export:
Wrap Cell Content:
DATE
2019


students
students
Limit to 1000 r
1 • SELECT id,name,dob,YEAR(dob) AS Year FROM student.students;
2
3 • SELECT YEAR("2019-10-15 09:34:21") AS DATE;
Result Grid
Filter Rows:
Export:
Wrap Cell Content:
id name dob Year
1 Ram Kumar 2000-05-10 2000
2 Sarita Kumari 1997-02-03 1997
3 Salman Khan 1999-11-12 1999
4 Juhi Chawla 2001-07-16 2001
5 Anil Kapoor 1997-01-03 1997
6 John Abraham 1998-08-10 1998
7 Shahid Kapoor 1999-12-08 1999


3 • SELECT QUARTER("2019-10-15 09:34:21") AS DATE;
Result Grid
Filter Rows:
Export:
Wrap Cell Content:
DATE
4

```
3 • SELECT DAYNAME("2019-03-15 09:34:21") AS DATE;
```

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

DATE
Friday

```
3 • SELECT DAYOFWEEK("2019-03-15 09:34:21") AS DATE;
```

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

DATE
6

```
3 • SELECT DAYOFYEAR("2019-06-15 09:34:21") AS DATE;
```

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

DATE
166

```
3 • SELECT WEEK("2019-03-15 09:34:21") AS DATE;
```

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

DATE
10

```
3 • SELECT WEEKDAY("2019-03-15 09:34:21") AS DATE;
```

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

DATE
4

```
3 • SELECT YEARWEEK("2019-06-15 09:34:21") AS DATE;
```

DATE
201923

```
3 • SELECT LAST_DAY("2019-06-15 09:34:21") AS DATE;
```

DATE
2019-06-30

```
3 • SELECT EXTRACT(MONTH FROM "2019-02-15 09:34:21") AS DATE;
```

DATE
2

List of Parameters with Extract Function

- MICROSECOND
- SECOND
- MINUTE
- HOUR
- DAY
- WEEK
- MONTH
- QUARTER
- YEAR
- SECOND_MICROSECOND
- MINUTE_MICROSECOND
- MINUTE_SECOND
- HOUR_MICROSECOND
- HOUR_SECOND
- HOUR_MINUTE
- DAY_MICROSECOND
- DAY_SECOND
- DAY_MINUTE
- DAY_HOUR
- YEAR_MONTH

```
3 • SELECT EXTRACT(MINUTE FROM "2019-02-15 09:34:21") AS DATE;
```

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

DATE
34

```
3 • SELECT EXTRACT(HOUR_MINUTE FROM "2019-02-15 09:34:21") AS DATE;
```

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

DATE
934

33. MySQL Date Functions - Part 2

List of Date Functions in MySQL

- CURDATE
- CURRENT_DATE
- SYSDATE
- NOW
- LAST_DAY
- DAY
- DAYNAME
- DAYOFMONTH
- DAYOFWEEK
- DAYOFYEAR
- WEEK
- WEEKDAY
- WEEKOFYEAR
- YEAR
- YEARWEEK
- EXTRACT
- DATE_ADD
- ADDDATE
- MAKEDATE
- DATE_SUB
- SUBDATE
- DATEDIFF
- TO_DAYS
- FROM_DAYS
- PERIOD_ADD
- PERIOD_DIFF
- DATE_FORMAT
- STR_TO_DATE

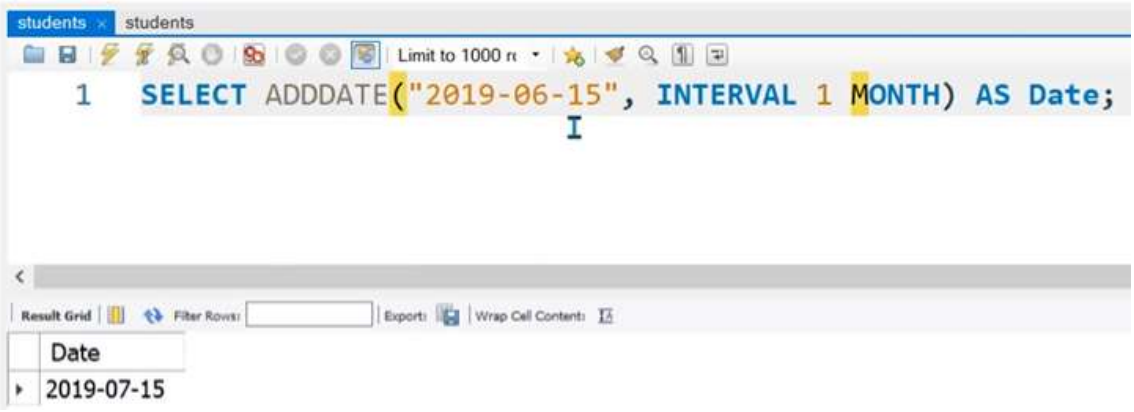
students | students

Limit to 1000 r

```
1 SELECT ADDDATE("2019-06-15", INTERVAL 10 DAY) AS Date;
```

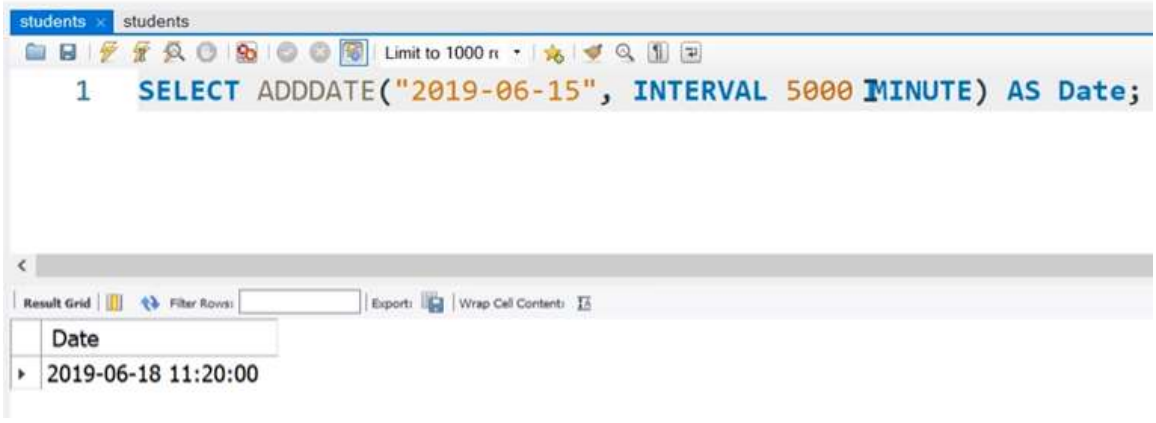
Result Grid | Filter Rows: | Export: | Wrap Cell Content:

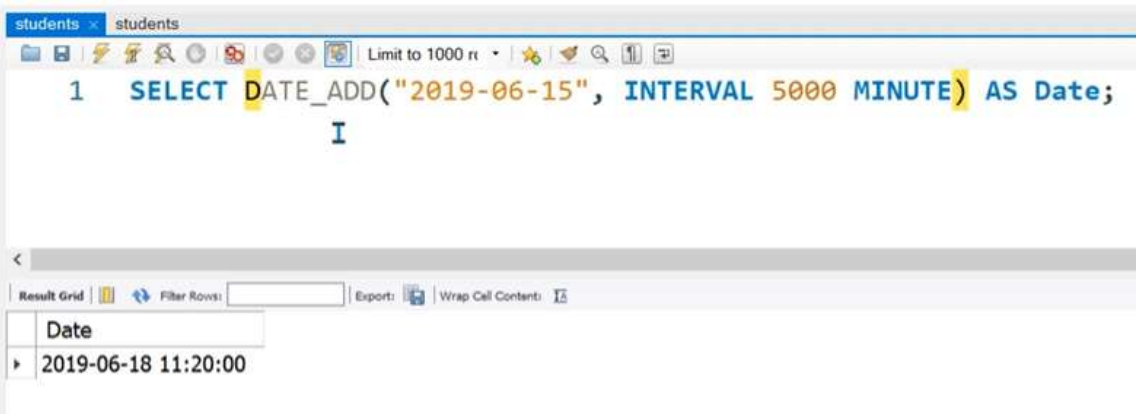
Date
2019-06-25



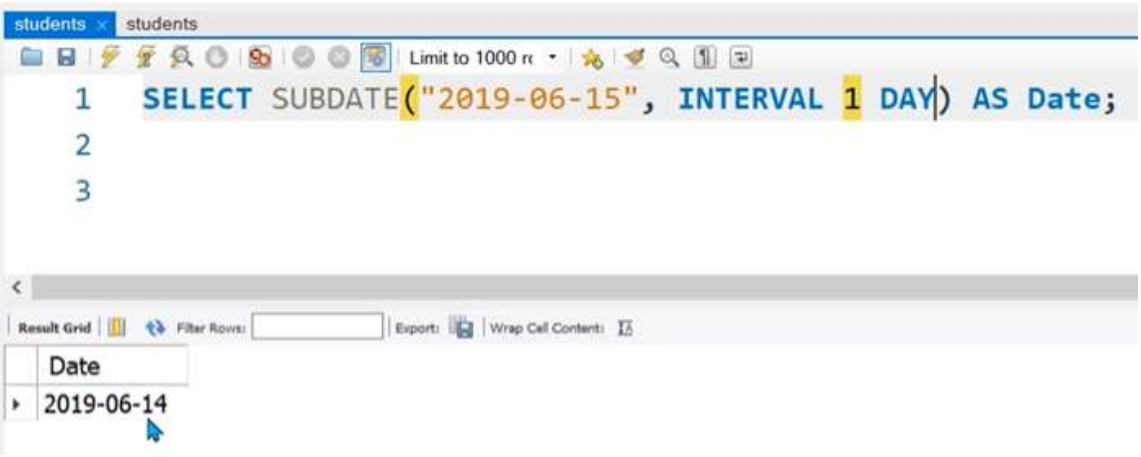
List of addunits

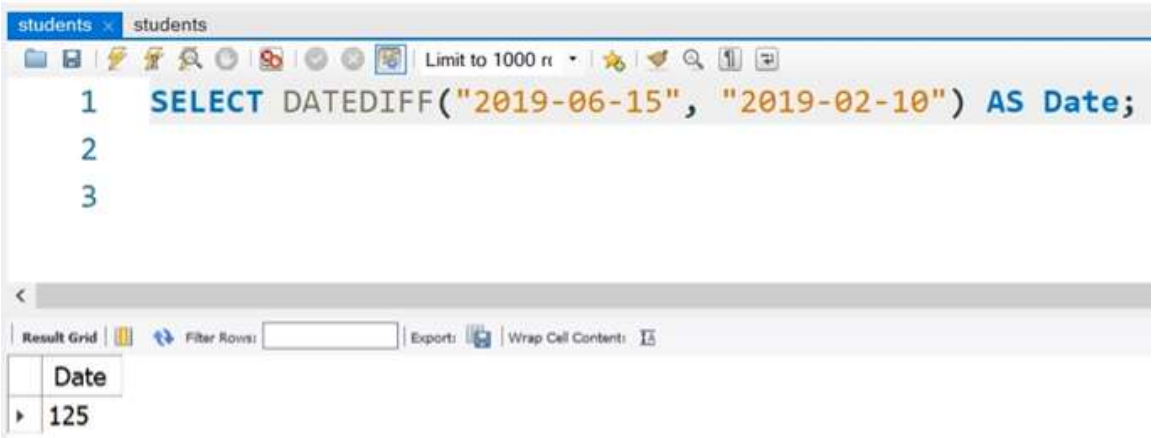
- MICROSECOND
- SECOND
- MINUTE
- HOUR
- DAY
- WEEK
- MONTH
- QUARTER
- YEAR
- SECOND_MICROSECOND
- MINUTE_MICROSECOND
- MINUTE_SECOND
- HOUR_MICROSECOND
- HOUR_SECOND
- HOUR_MINUTE
- DAY_MICROSECOND
- DAY_SECOND
- DAY_MINUTE
- DAY_HOUR
- YEAR_MONTH

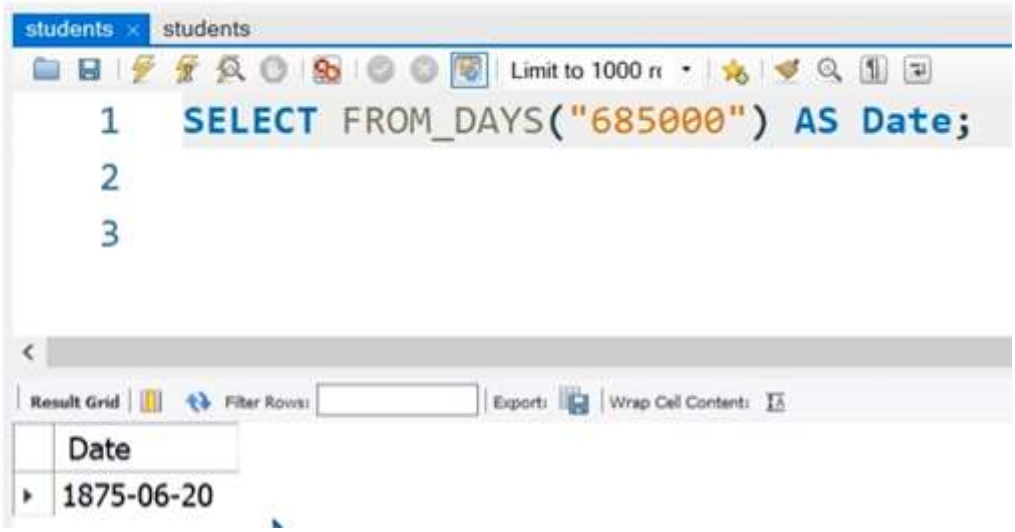


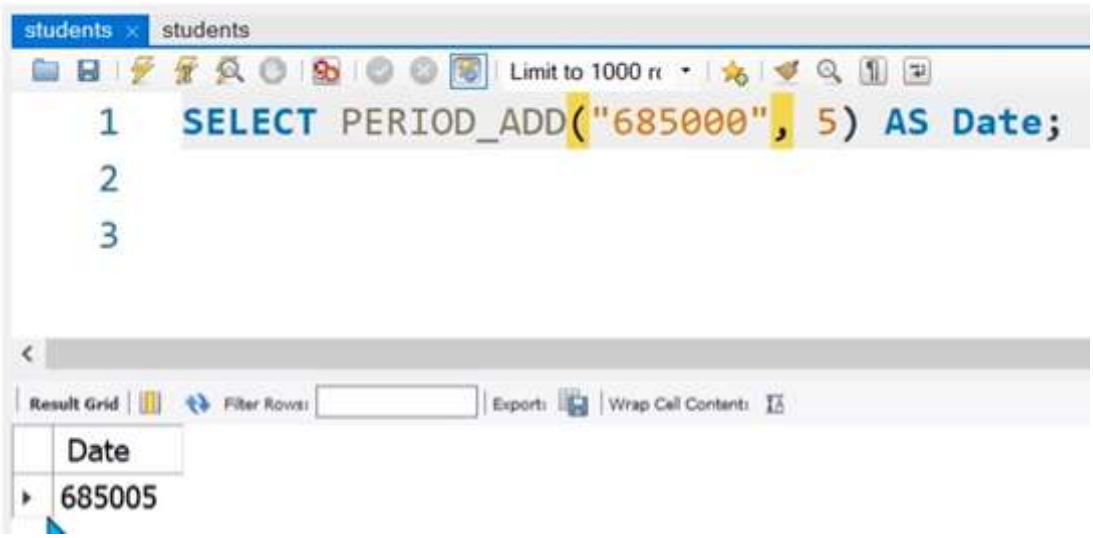

students
students
Limit to 1000 r
1 SELECT DATE_ADD("2019-06-15", INTERVAL 5000 MINUTE) AS Date;
Result Grid
Filter Rows:
Export:
Wrap Cell Content:
Date
2019-06-18 11:20:00

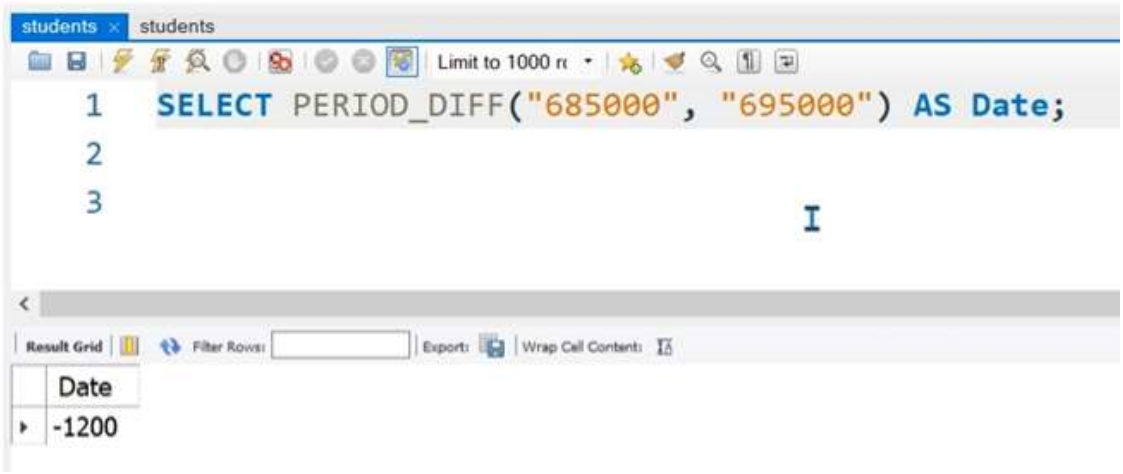

3 • SELECT MAKEDATE(2016, 3);
Result Grid
Filter Rows:
Export:
Wrap Cell Content:
MAKEDATE(2016, 3)
2016-01-03

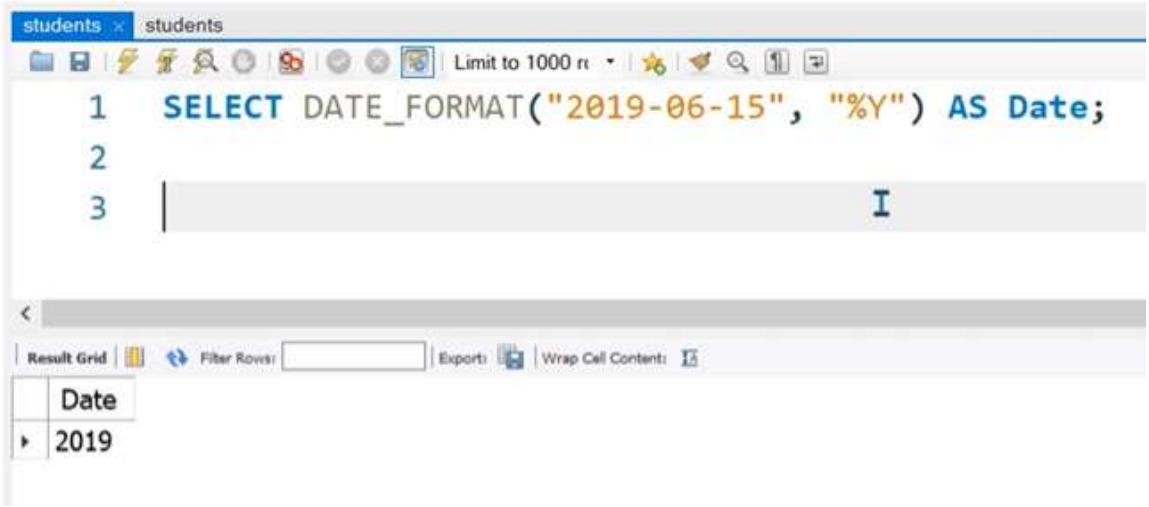

students
students
Limit to 1000 r
1 SELECT SUBDATE("2019-06-15", INTERVAL 1 DAY) AS Date;
2
3
Result Grid
Filter Rows:
Export:
Wrap Cell Content:
Date
2019-06-14


students
students
Limit to 1000 r
1 SELECT DATEDIFF("2019-06-15", "2019-02-10") AS Date;
2
3
Result Grid
Filter Rows:
Export:
Wrap Cell Content:
Date
125


students
students
Limit to 1000 r
1 SELECT FROM_DAYS("685000") AS Date;
2
3
Result Grid
Filter Rows:
Export:
Wrap Cell Content:
Date
1875-06-20


students
students
Limit to 1000 r
1 SELECT PERIOD_ADD("685000", 5) AS Date;
2
3
Result Grid
Filter Rows:
Export:
Wrap Cell Content:
Date
685005


students
students
Limit to 1000 r
1 SELECT PERIOD_DIFF("685000", "695000") AS Date;
2
3
Result Grid
Filter Rows:
Export:
Wrap Cell Content:
Date
-1200



List of Date Format

25/03/2020

Date Format

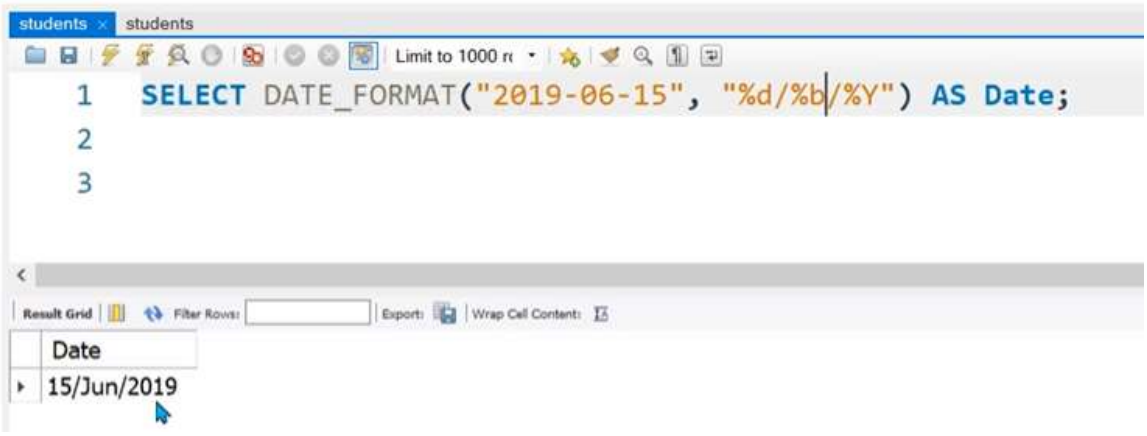
Day	Month	Year	Week
%d (01 to 31)	%M (January)	%Y (2019)	%a (Mon)
%e (0 to 31)	%b (Jan to Dec)	%y (19)	%W (Monday)
%D (st, nd, rd or th)	%m (00 to 12)		%w (0 to 6)
%j (001 to 366)	%c (0 to 12)		

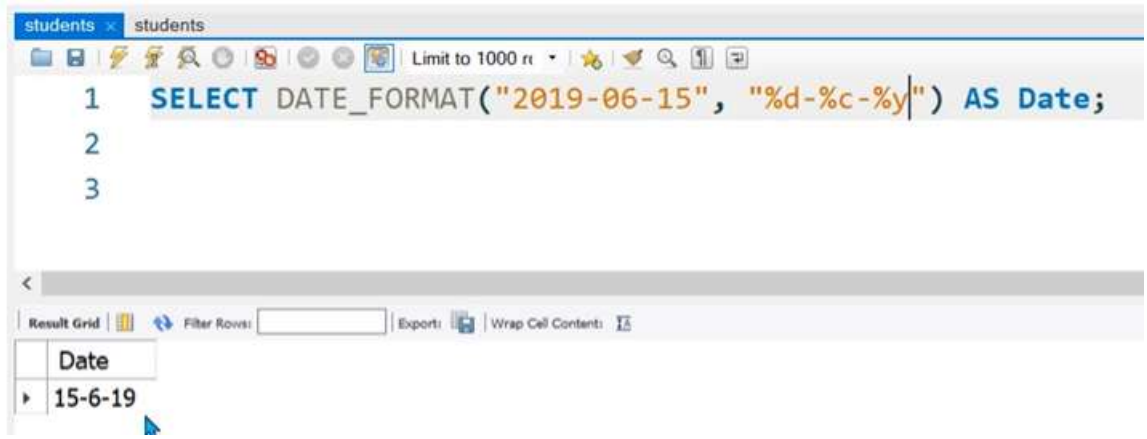
List of Time Format

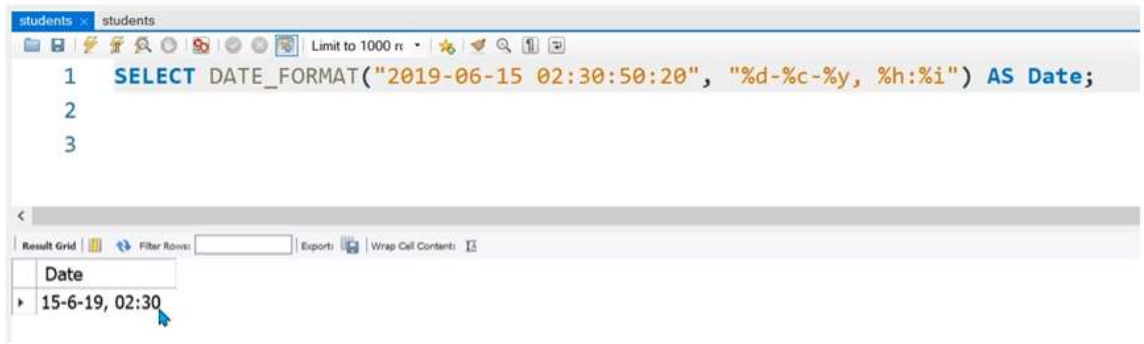
02:30:27:00 PM

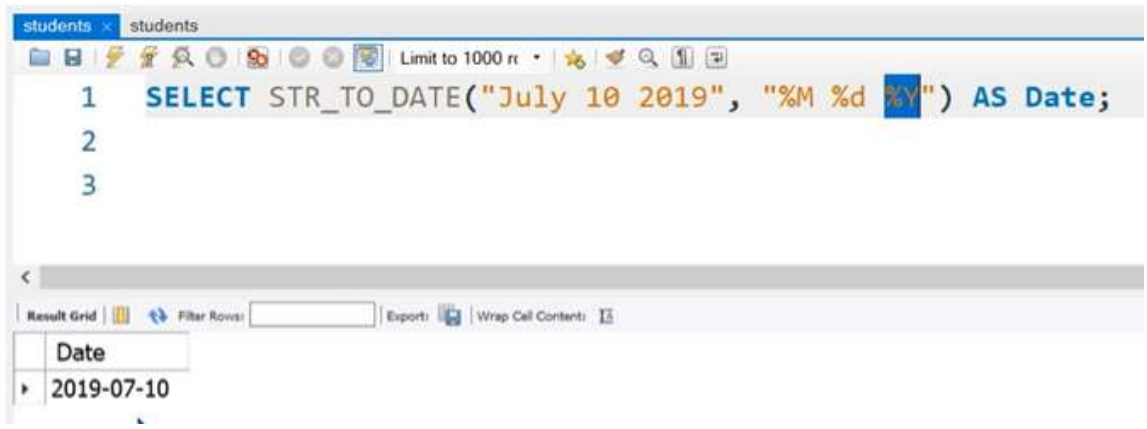
Time Format

Hour	Minutes	Seconds	Microseconds
%h (01 to 12)	%i (00 to 59)	%s (00 to 59)	%f (000000 to 999999)
%H (00 to 23)		Meridiem	
%g (1 to 12)		%p (AM or PM)	
%G (0 to 23)			





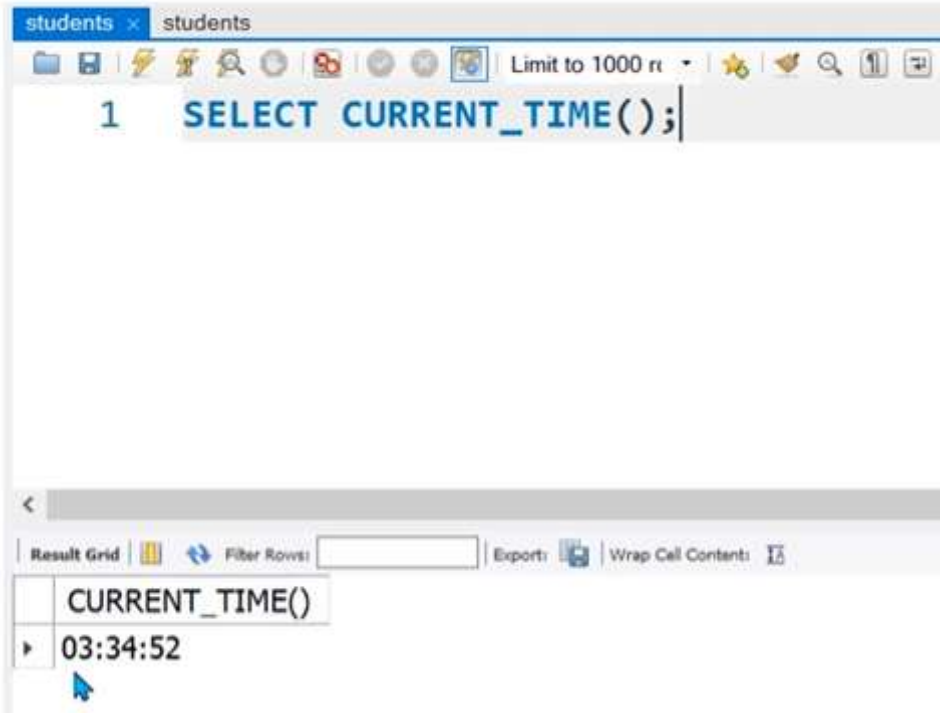


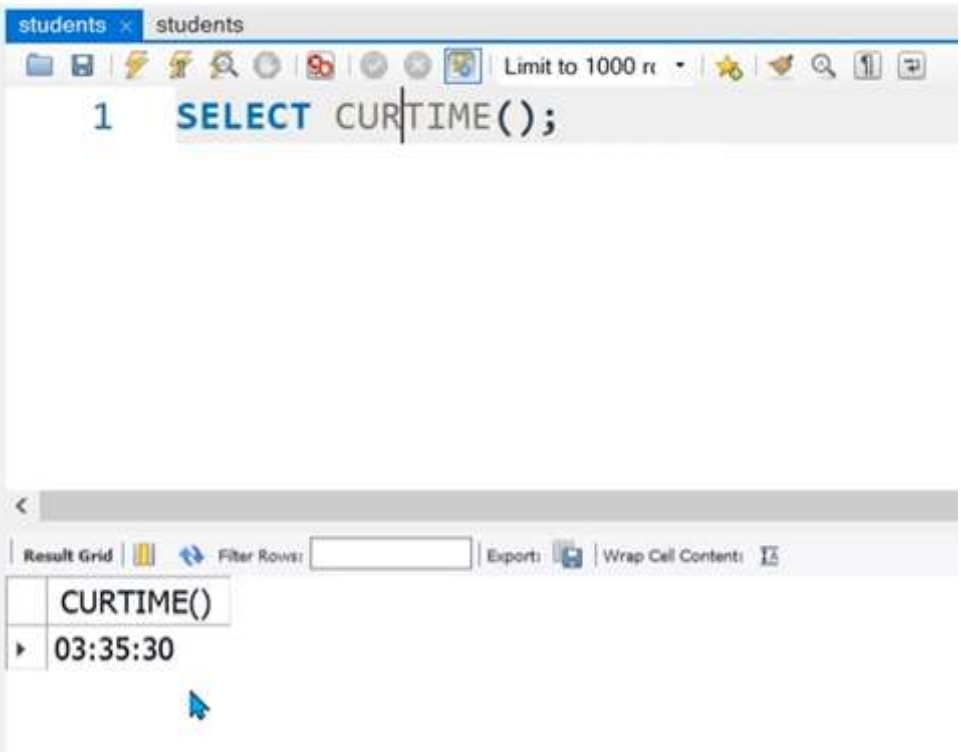


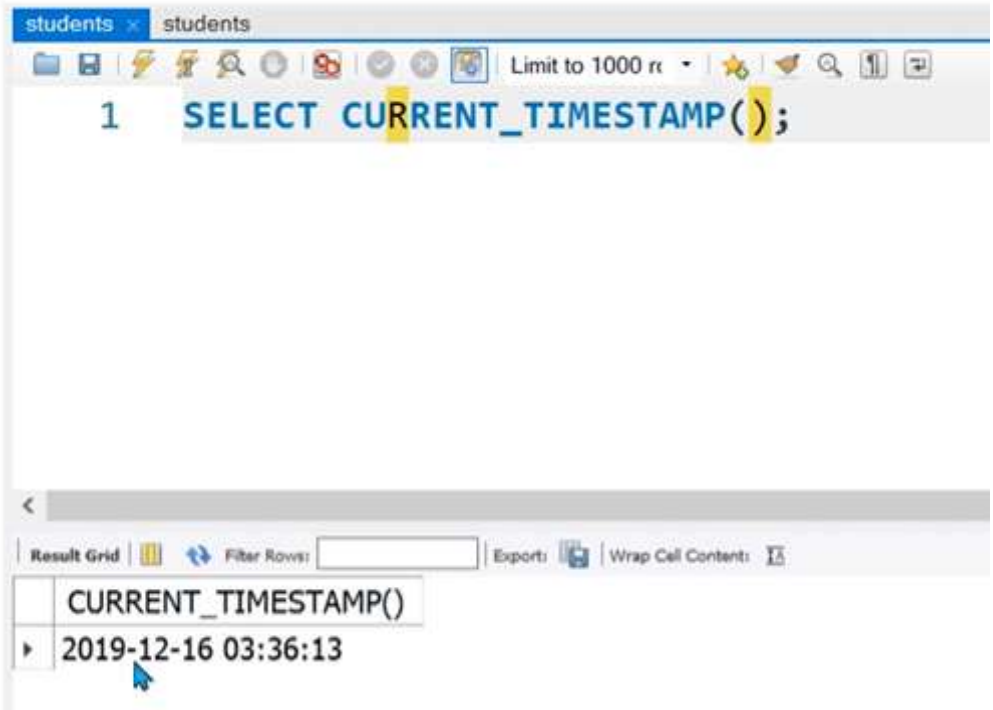
34. MySQL Time Functions

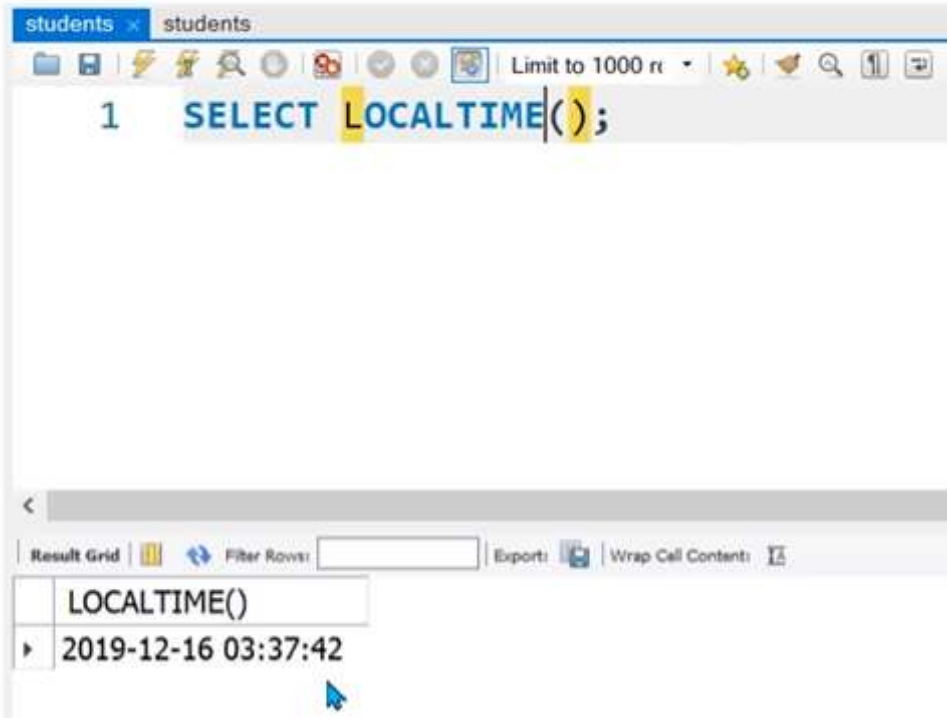
List of Time Functions in MySQL

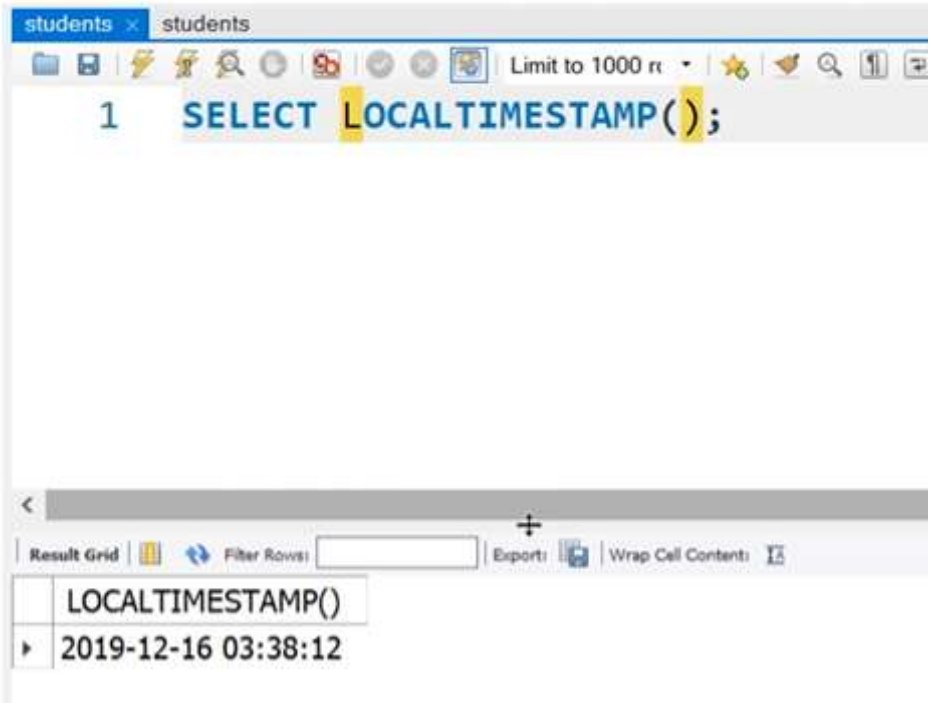
- CURTIME()
- CURRENT_TIMESTAMP
- LOCALTIME
- LOCALTIMESTAMP
- TIMESTAMP
- TIME
- TIMEDIFF
- HOUR
- MINUTE
- SECOND
- MICROSECOND
- ADDTIME
- SUBTIME
- MAKETIME
- TIME_FORMAT
- SEC_TO_TIME
- TIME_TO_SEC

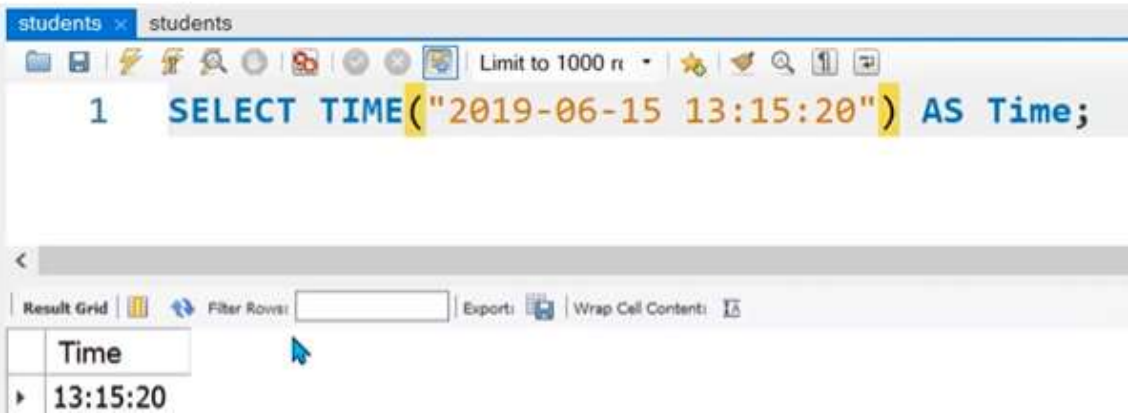


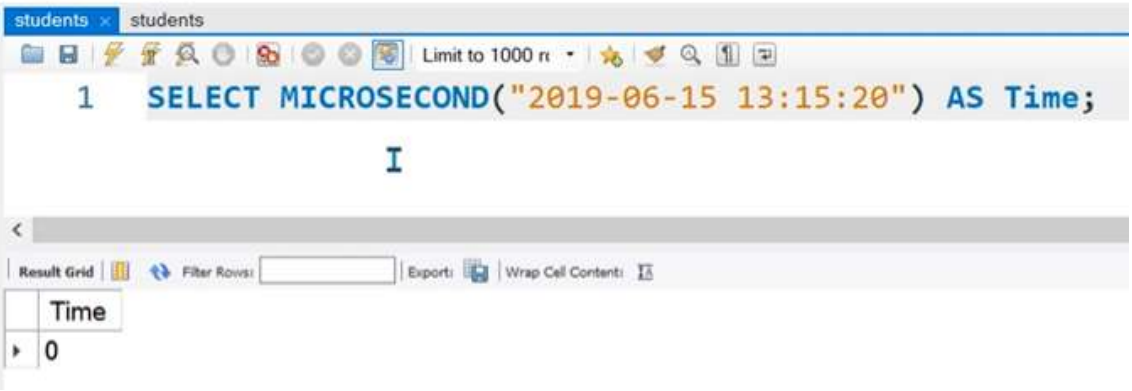

students
students
Limit to 1000 r
1 SELECT CURTIME();
Result Grid
Filter Rows:
Export:
Wrap Cell Content:
CURTIME()
03:35:30


students
students
Limit to 1000 r
1 SELECT CURRENT_TIMESTAMP();
Result Grid
Filter Rows:
Export:
Wrap Cell Content:
CURRENT_TIMESTAMP()
2019-12-16 03:36:13

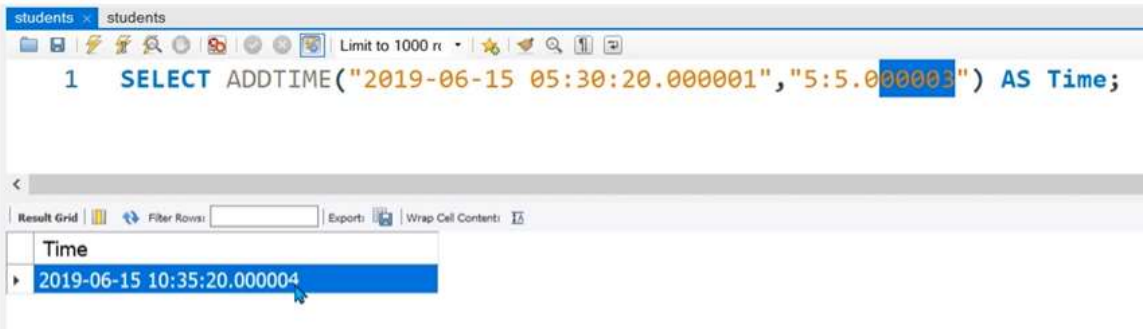

students
students
Limit to 1000 r
1 SELECT LOCALTIME();
Result Grid
Filter Rows:
Export:
Wrap Cell Content:
LOCALTIME()
2019-12-16 03:37:42

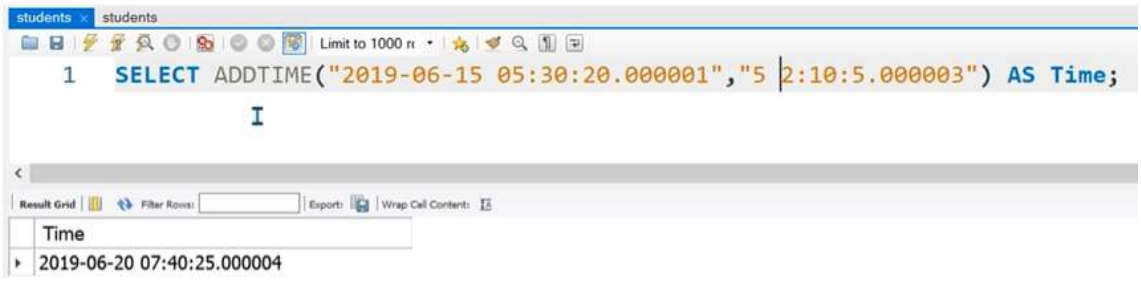

students
students
Limit to 1000 r
1 SELECT LOCALTIMESTAMP();
Result Grid
Filter Rows:
Export:
Wrap Cell Content:
LOCALTIMESTAMP()
2019-12-16 03:38:12

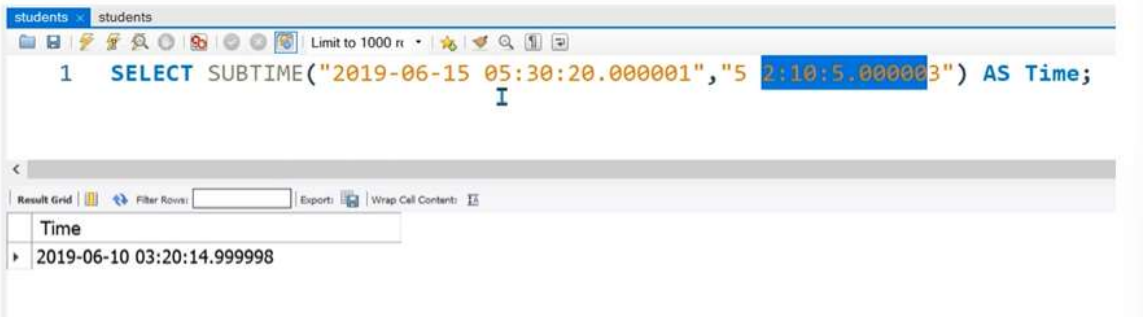

students
students
Limit to 1000 r
1 SELECT TIME("2019-06-15 13:15:20") AS Time;
Result Grid
Filter Rows:
Export:
Wrap Cell Content:
Time
13:15:20

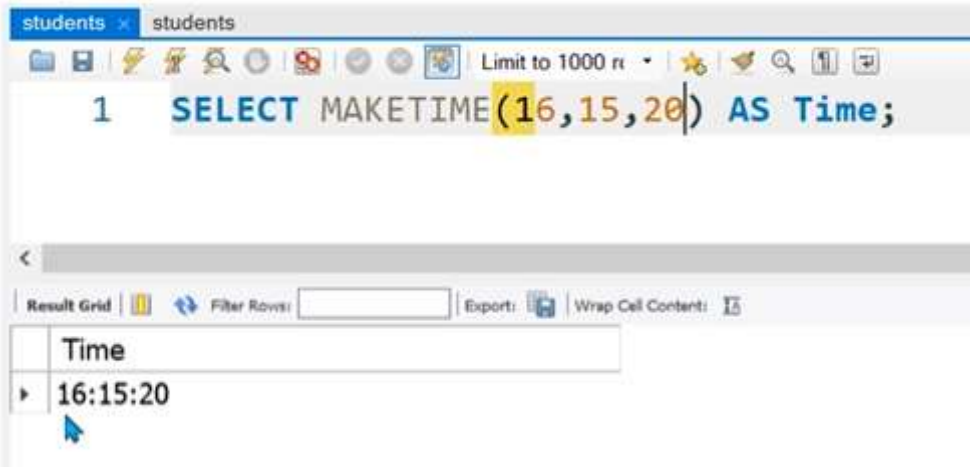

students
students
Limit to 1000 r
1 SELECT MICROSECOND("2019-06-15 13:15:20") AS Time;
Result Grid
Filter Rows:
Export:
Wrap Cell Content:
Time
0

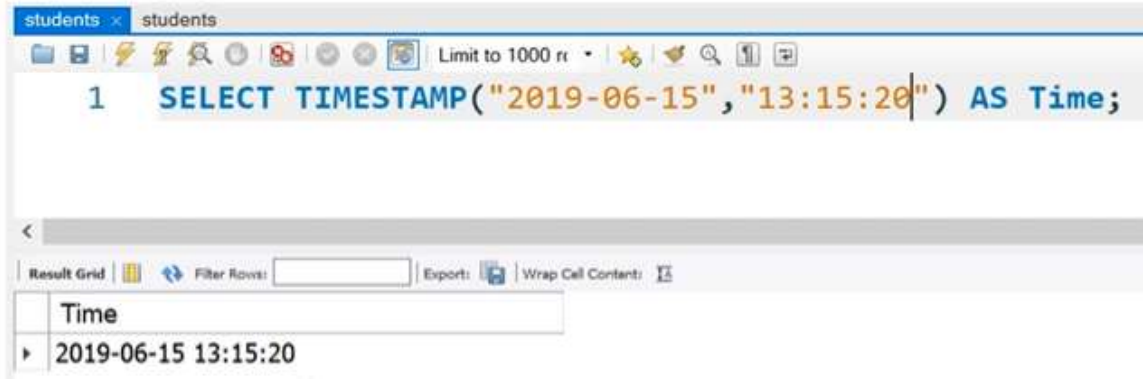

students
students
Limit to 1000 r
1 SELECT TIMEDIFF("18:10:11","13:15:20") AS Time;
Result Grid
Filter Rows:
Export:
Wrap Cell Content:
Time
04:54:51

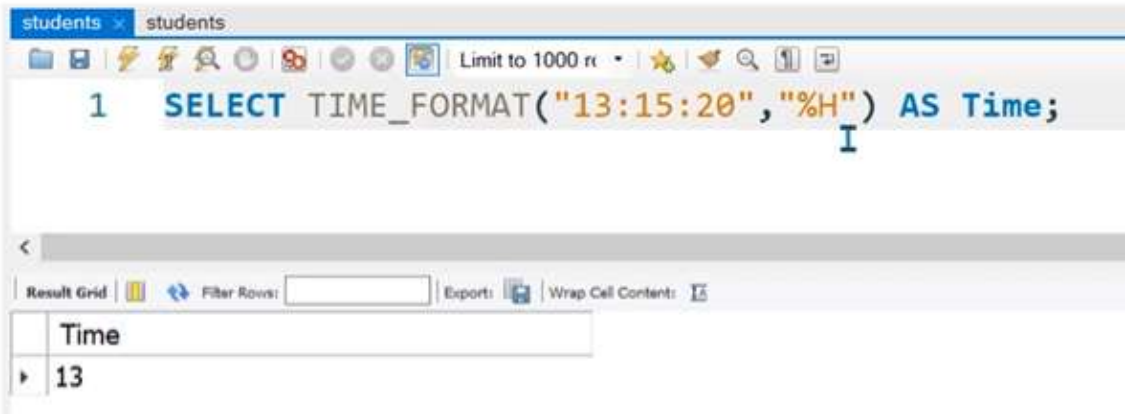

students
students
Limit to 1000 r
1 SELECT ADDTIME("2019-06-15 05:30:20.000001","5:5.000003") AS Time;
Result Grid
Filter Rows:
Export:
Wrap Cell Content:
Time
2019-06-15 10:35:20.000004


students
students
Limit to 1000 r
1 SELECT ADDTIME("2019-06-15 05:30:20.000001","5 2:10:5.000003") AS Time;
Result Grid
Filter Rows:
Export:
Wrap Cell Content:
Time
2019-06-20 07:40:25.000004

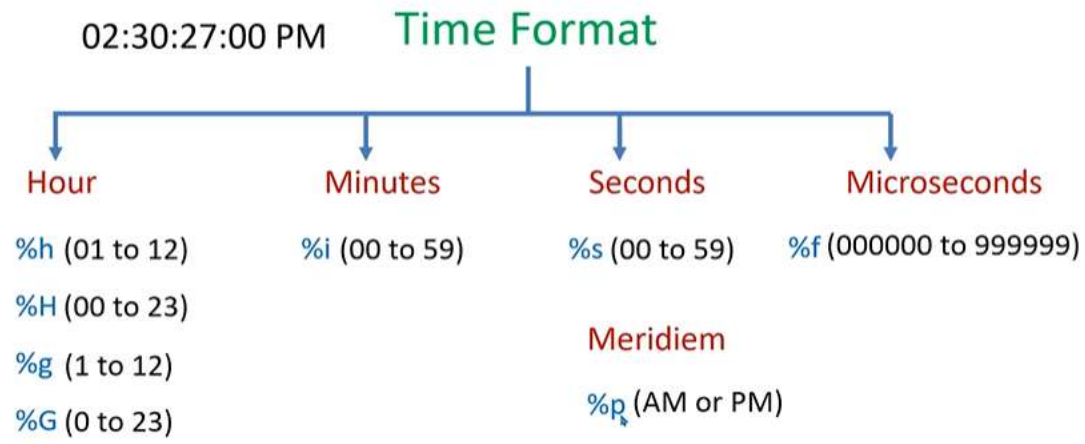

students
students
Limit to 1000 r
1 SELECT SUBTIME("2019-06-15 05:30:20.000001","5 2:10:5.000003") AS Time;
Result Grid
Filter Rows:
Export:
Wrap Cell Content:
Time
2019-06-10 03:20:14.999998

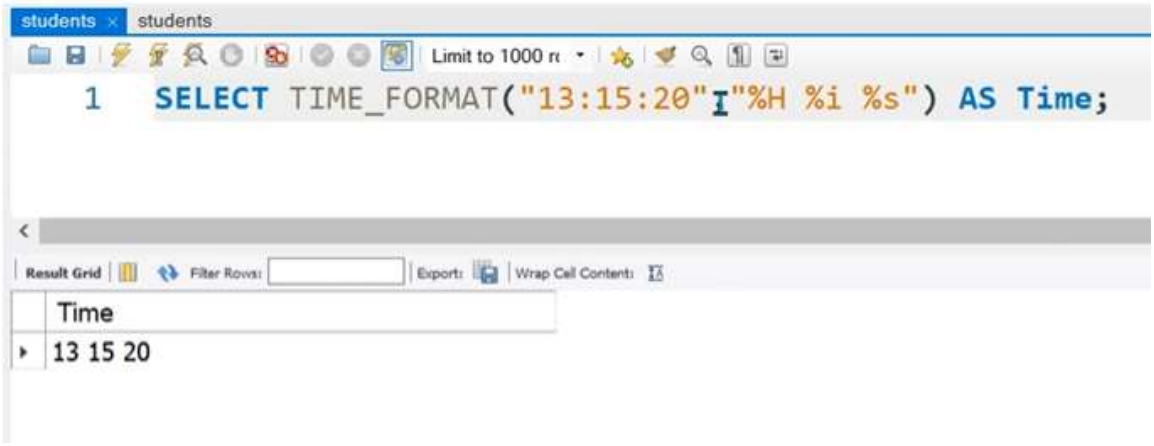

students
students
Limit to 1000 r
1 SELECT MAKETIME(16,15,20) AS Time;
Result Grid
Filter Rows:
Export:
Wrap Cell Content:
Time
16:15:20

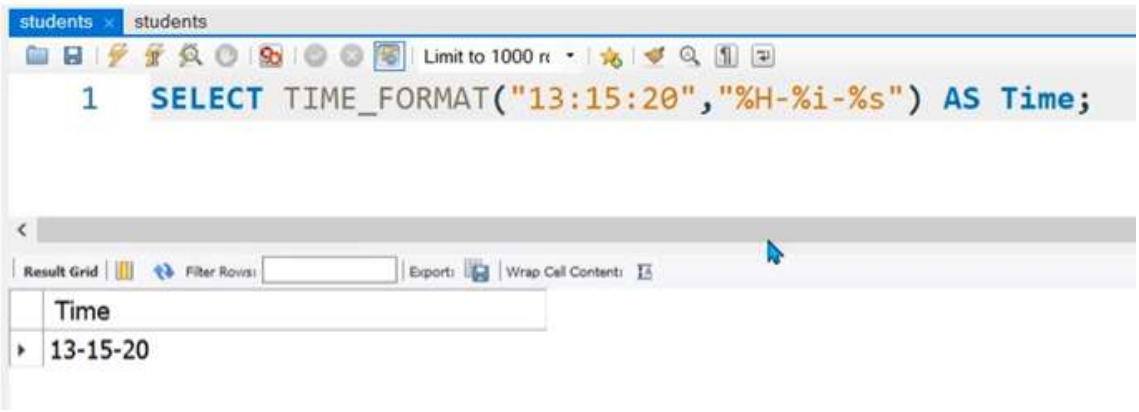

students
students
Limit to 1000 r
1 SELECT TIMESTAMP("2019-06-15","13:15:20") AS Time;
Result Grid
Filter Rows:
Export:
Wrap Cell Content:
Time
2019-06-15 13:15:20

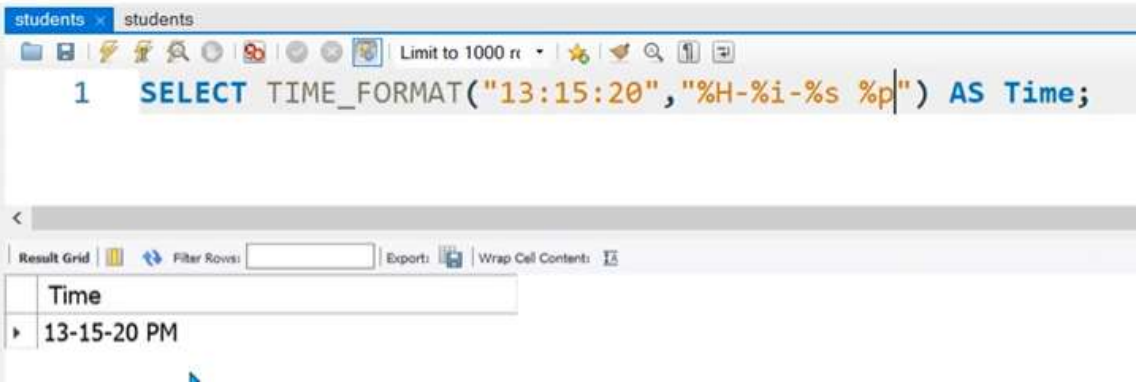


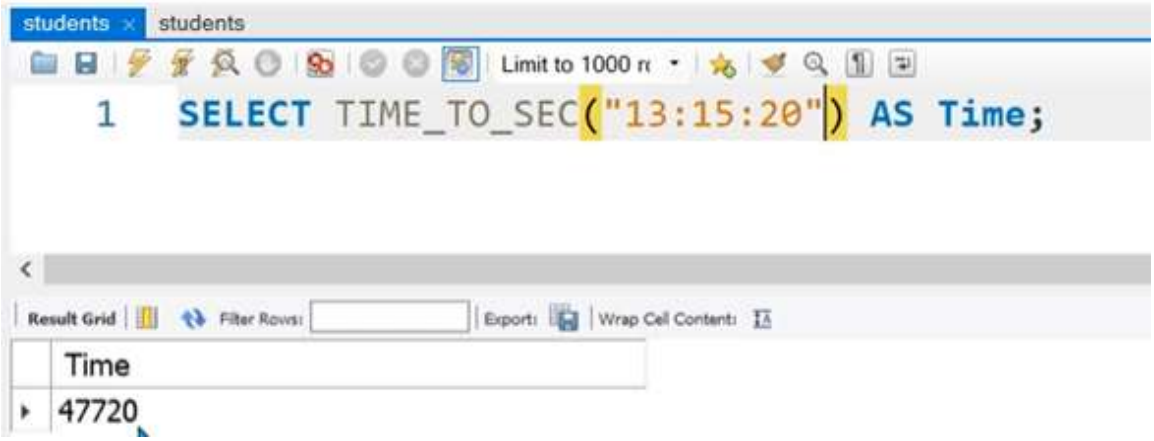
List of Time Format

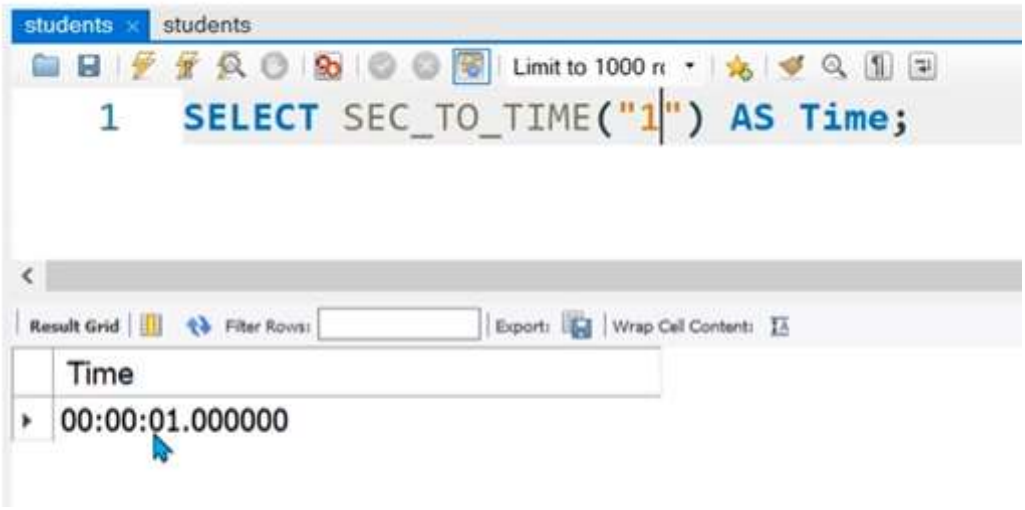


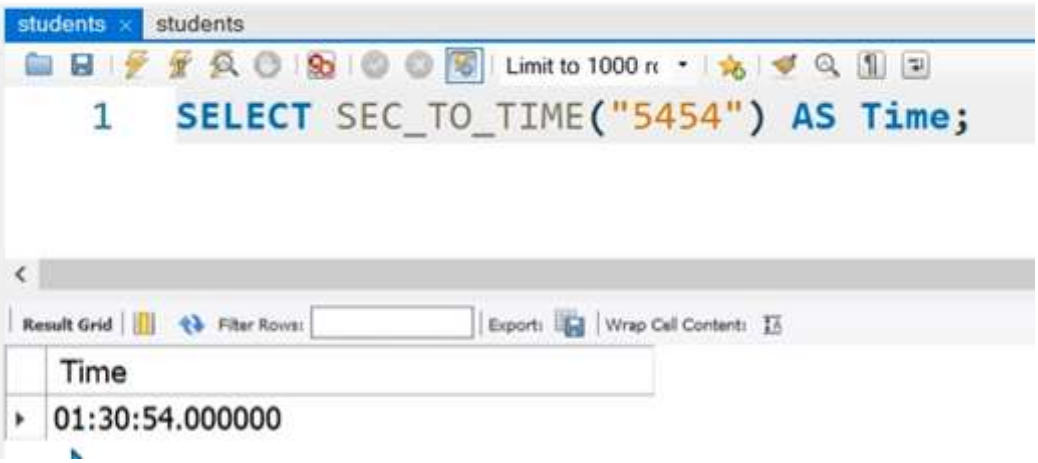



students
students
Limit to 1000 r
1 SELECT TIME_FORMAT("13:15:20","%H-%i-%s") AS Time;
Result Grid
Filter Rows:
Export:
Wrap Cell Content:
Time
13-15-20


students
students
Limit to 1000 r
1 SELECT TIME_FORMAT("13:15:20","%H-%i-%s %p") AS Time;
Result Grid
Filter Rows:
Export:
Wrap Cell Content:
Time
13-15-20 PM


students
students
Limit to 1000 r
1 SELECT TIME_TO_SEC("13:15:20") AS Time;
Result Grid
Filter Rows:
Export:
Wrap Cell Content:
Time
47720





35. MySQL ALTER

How to Modify Tables in Database ?

Student Table

Name	Age	DOB
Ram Kumar	19	1998-02-10
Salman Khan	17	1999-07-22
Meera Khan	19	1998-05-11
Sarita Kumari	21	1996-10-15
Anil Kapoor	20	1997-03-12

New Column

Gender
Male
Male
Female
Female
Male

VARCHAR → INT

Reorder

ALTER Command

Features of MySQL ALTER Command :

- Add Column in a table
- Changing Data Type of a Column
- Change Column Name
- Adding Constraints to a Column
- Changing Column Position
- Delete Column
- Renaming Tables

ALTER Syntax

Add Column

```
ALTER TABLE table_name
ADD column_name datatype;
```

Modify Column

```
ALTER TABLE table_name
MODIFY column_name datatype;
```

Delete Column

```
ALTER TABLE table_name
DROP COLUMN column_name datatype;
```

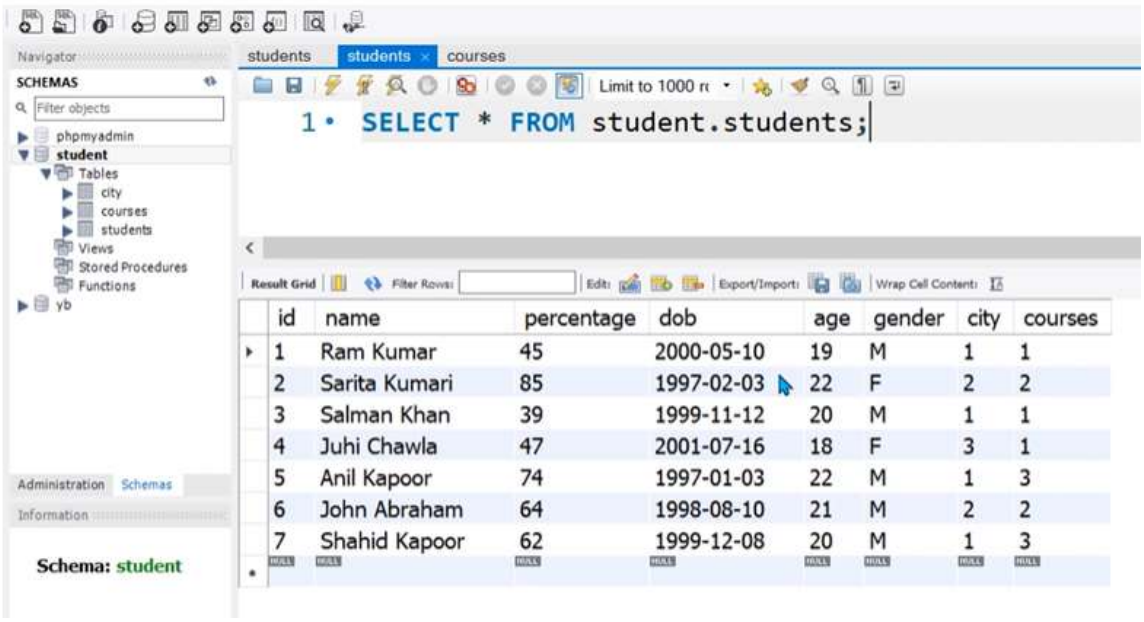
ALTER Syntax

Rename Column

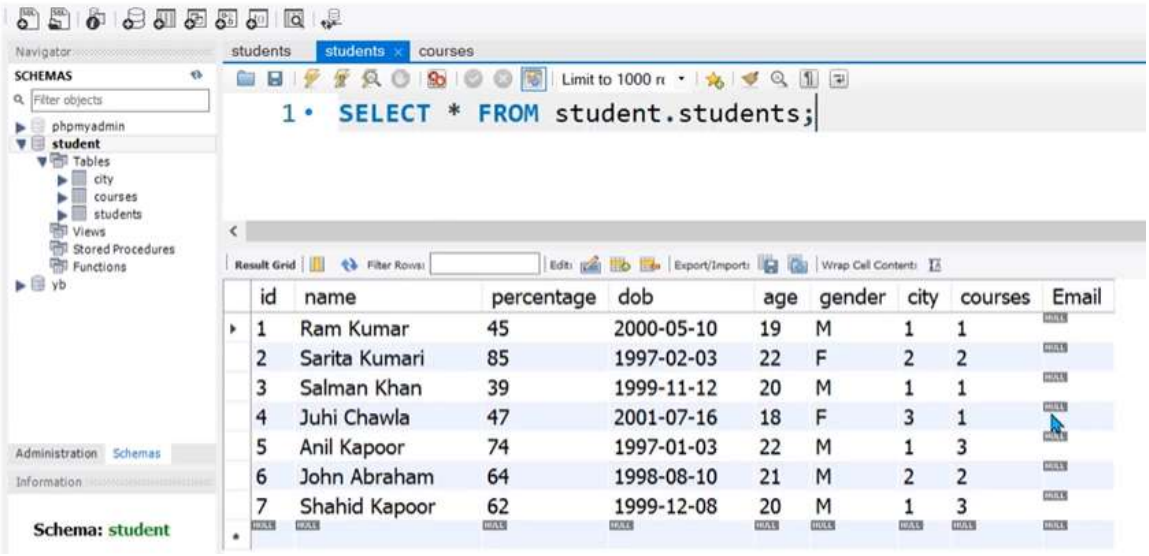
```
ALTER TABLE table_name
CHANGE column_name New_name datatype;
```

Rename Table

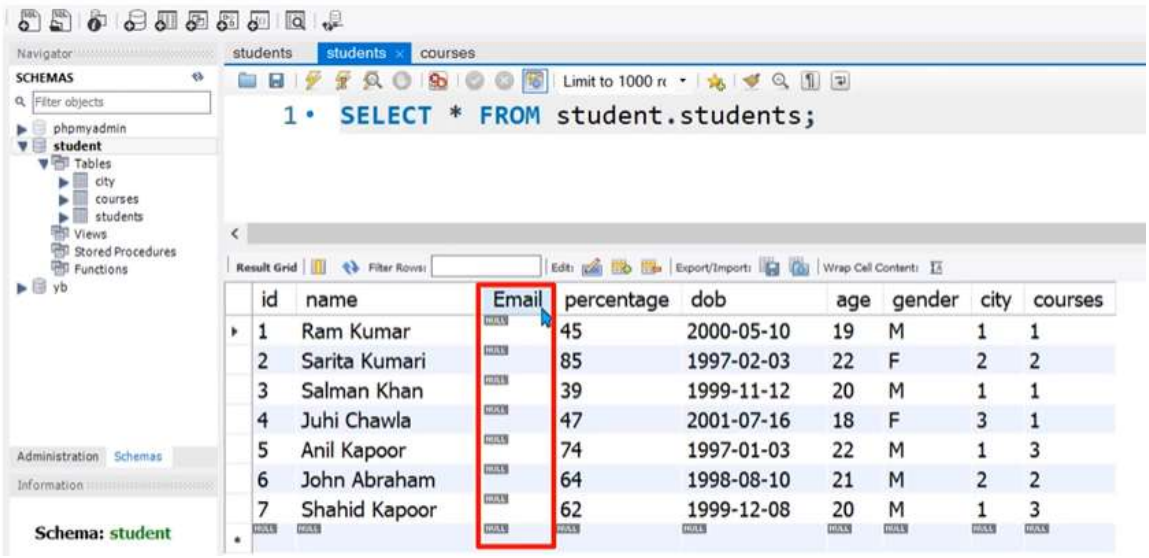
```
ALTER TABLE table_name
RENAME new_table_name;
```



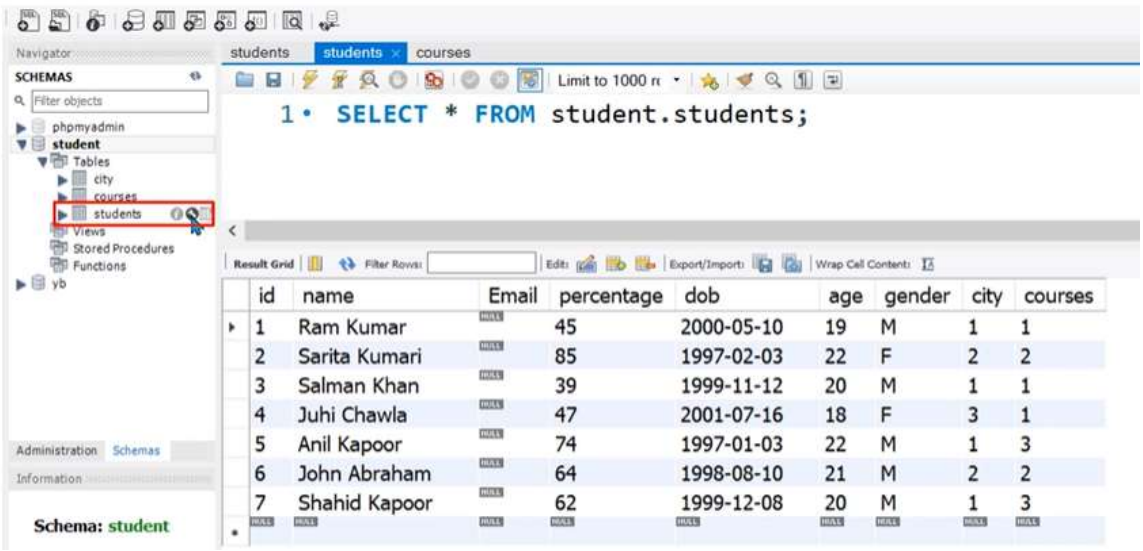
we are adding new column

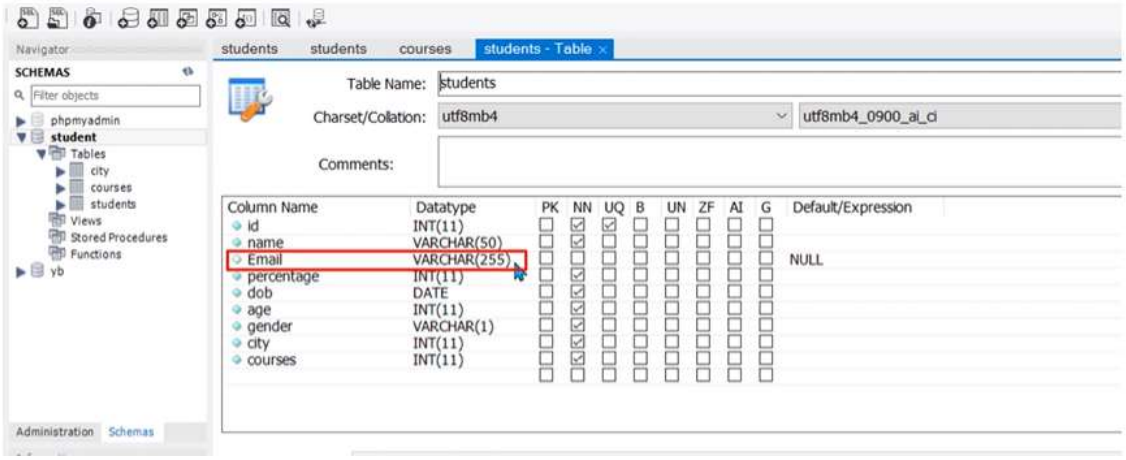


reordering of column

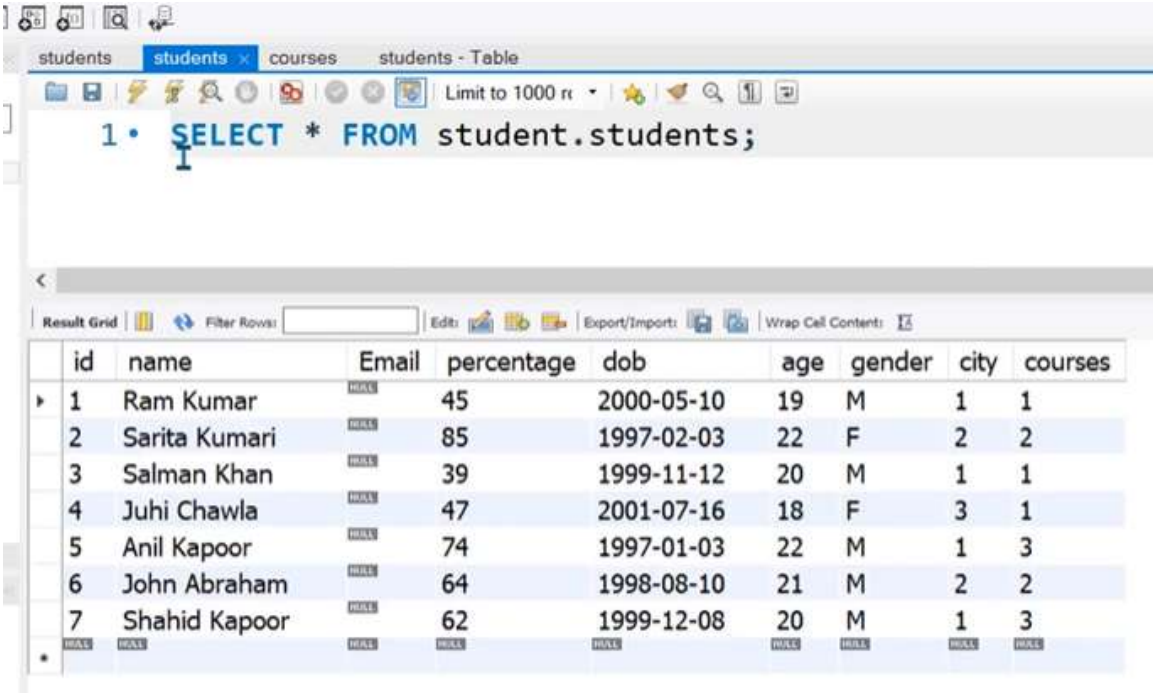


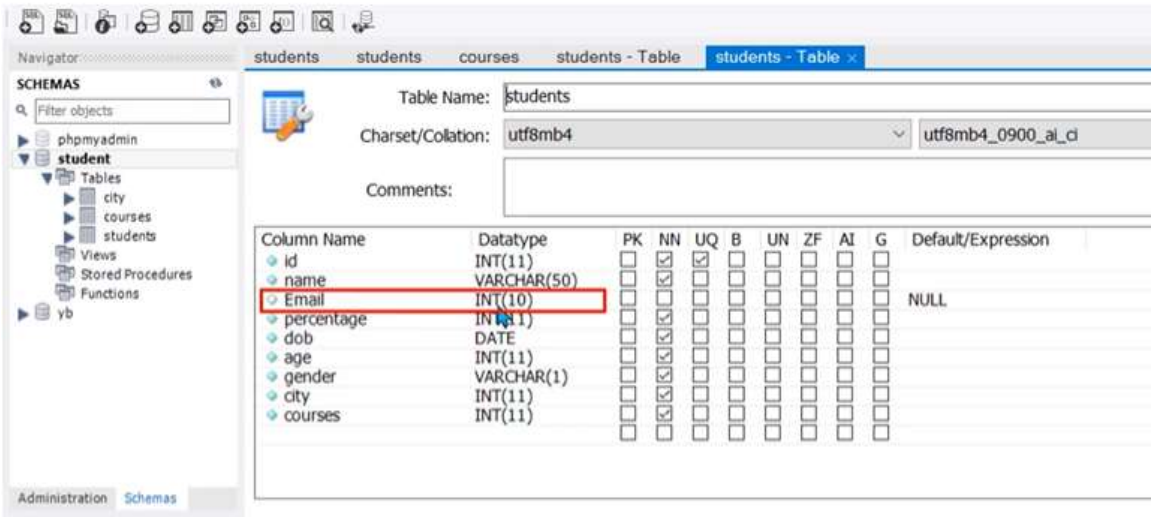
checking datatype



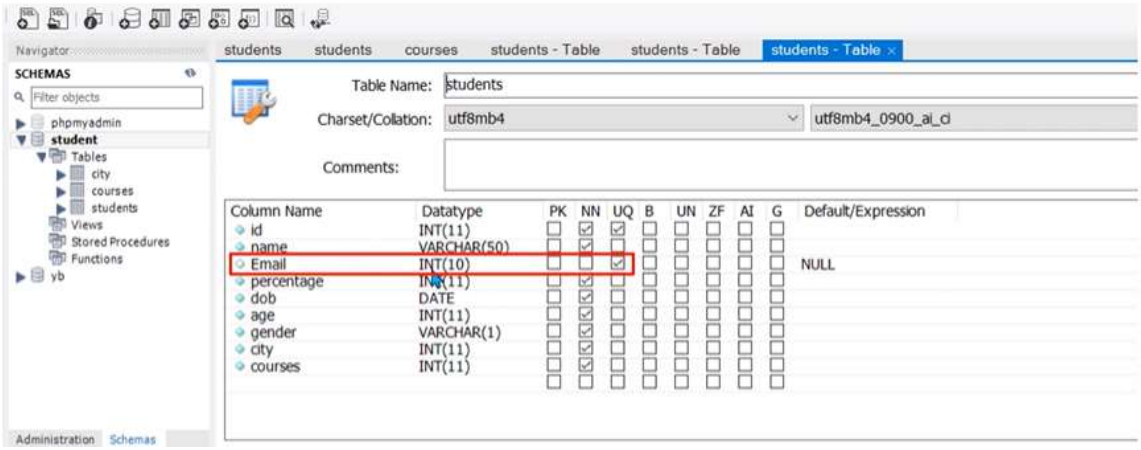


changing datatype

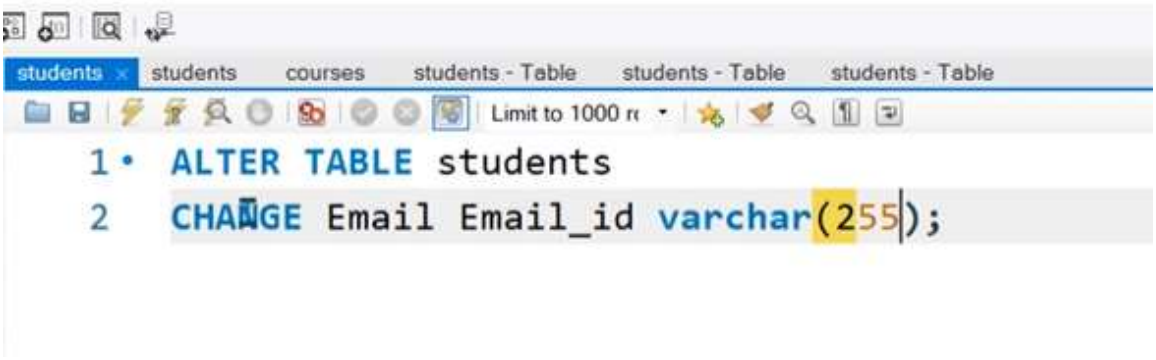


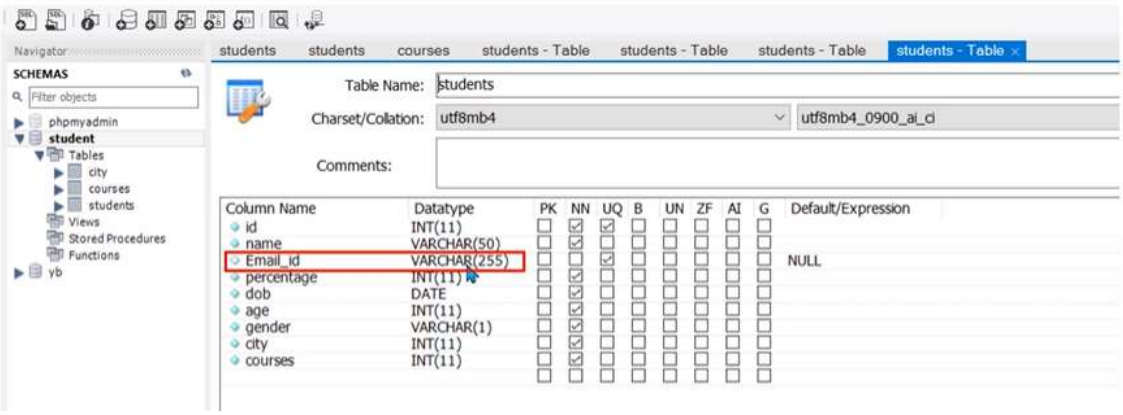


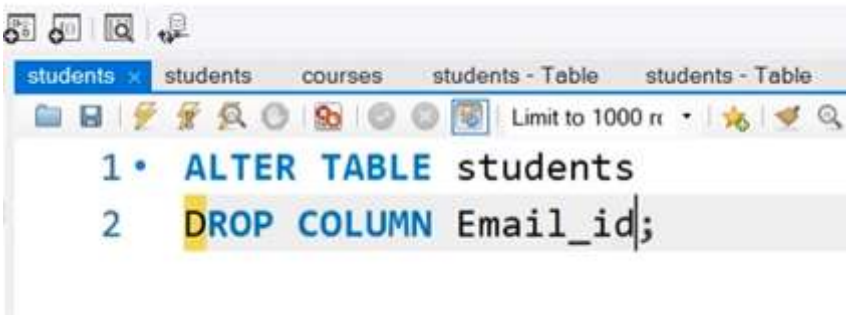
adding unique constant in email column



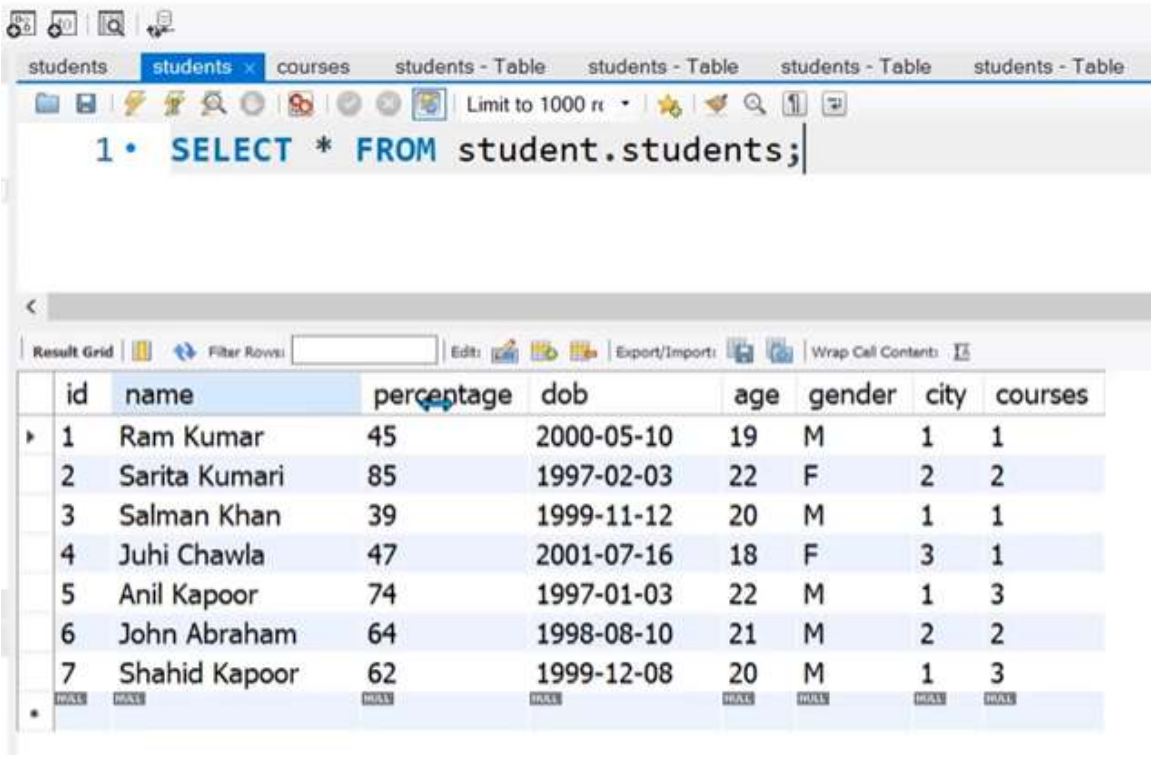
changing name of column





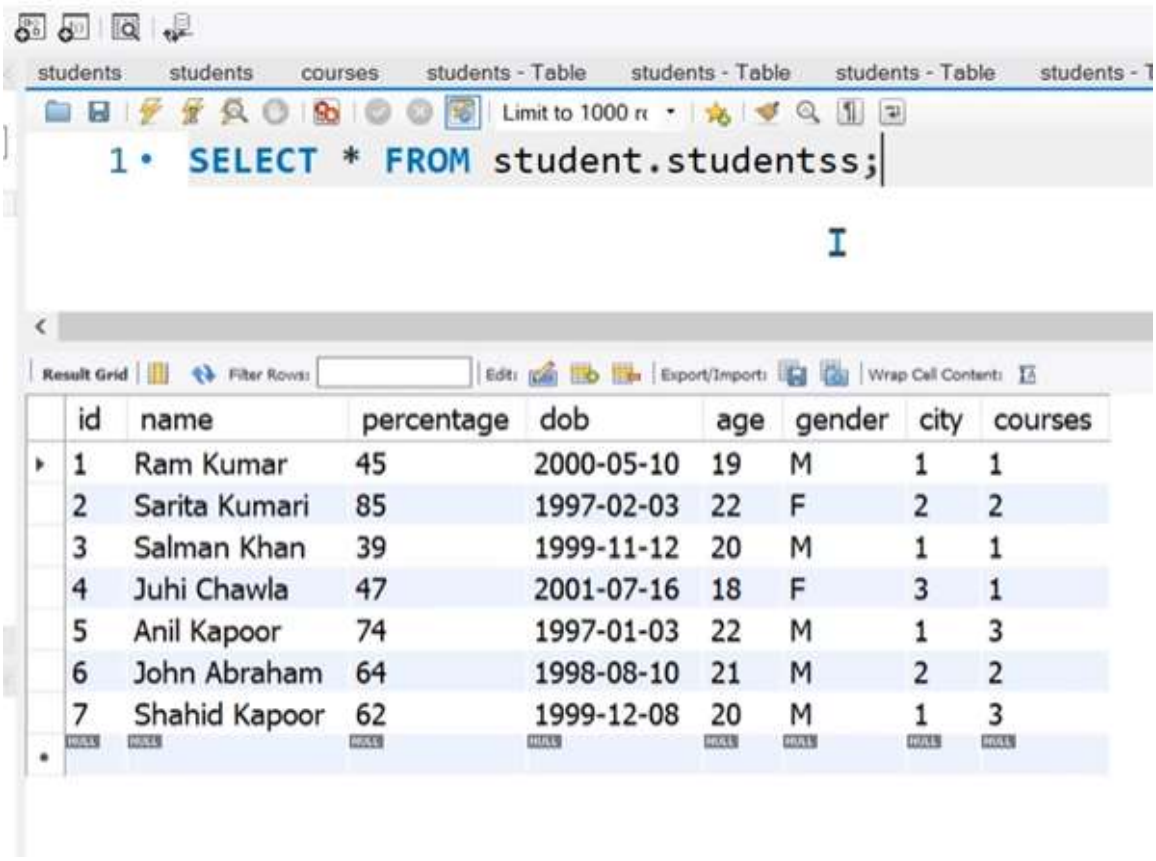


drop column



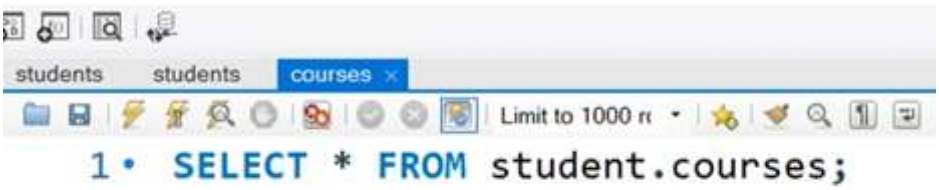
id	name	percentage	dob	age	gender	city	courses
1	Ram Kumar	45	2000-05-10	19	M	1	1
2	Sarita Kumari	85	1997-02-03	22	F	2	2
3	Salman Khan	39	1999-11-12	20	M	1	1
4	Juhi Chawla	47	2001-07-16	18	F	3	1
5	Anil Kapoor	74	1997-01-03	22	M	1	3
6	John Abraham	64	1998-08-10	21	M	2	2
7	Shahid Kapoor	62	1999-12-08	20	M	1	3

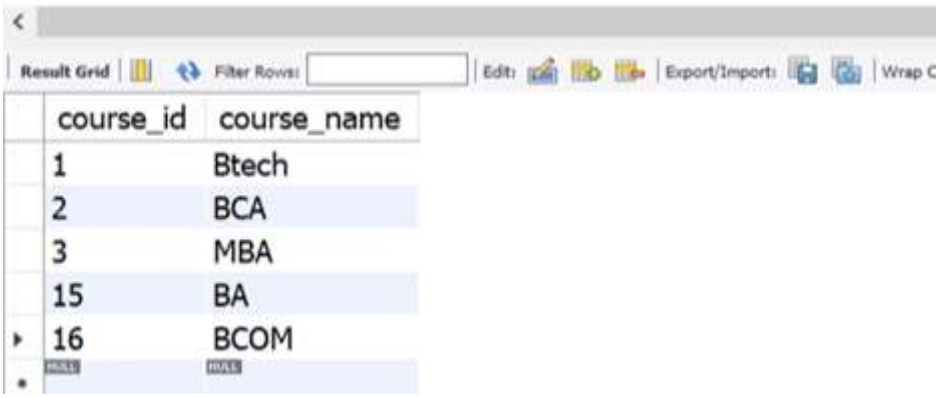
rename of column



id	name	percentage	dob	age	gender	city	courses
1	Ram Kumar	45	2000-05-10	19	M	1	1
2	Sarita Kumari	85	1997-02-03	22	F	2	2
3	Salman Khan	39	1999-11-12	20	M	1	1
4	Juhi Chawla	47	2001-07-16	18	F	3	1
5	Anil Kapoor	74	1997-01-03	22	M	1	3
6	John Abraham	64	1998-08-10	21	M	2	2
7	Shahid Kapoor	62	1999-12-08	20	M	1	3

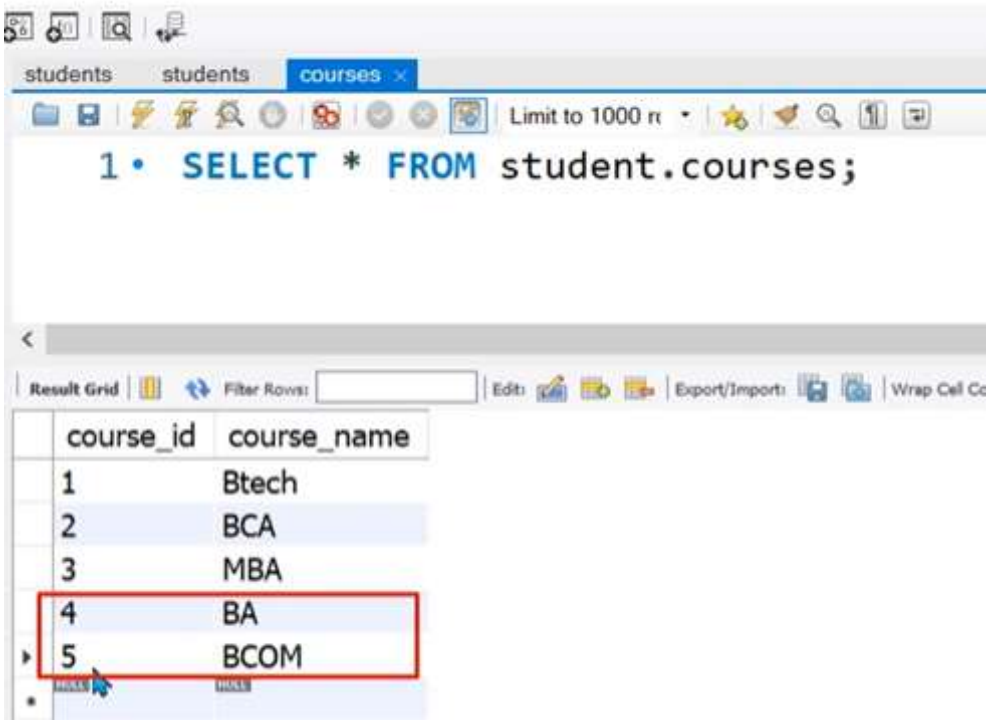
problem of autoincrement





course_id	course_name
1	Btech
2	BCA
3	MBA
15	BA
16	BCOM

solution through alter with autoincrement



36. MySQL DROP & TRUNCATE Table

MySQL DROP & Truncate

Student Table

Name	Age	Gender
Ram Kumar	19	Male
Salman Khan	22	Male
Meera Khan	21	Female
Sarita Kumari	18	Female
Anil Kapoor	22	Male

DROP Command

Student Table

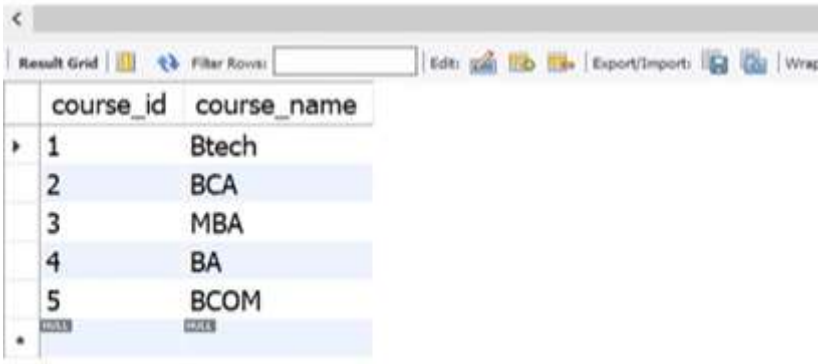
Name	Age	Gender

TRUNCATE Command

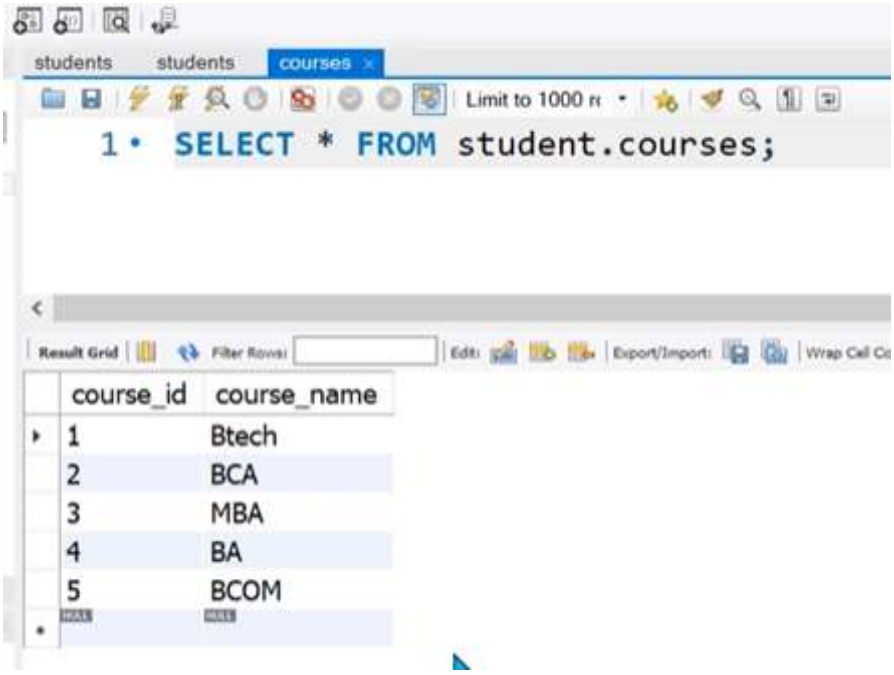
DROP & TRUNCATE Syntax

```
DROP TABLE table_name;
```

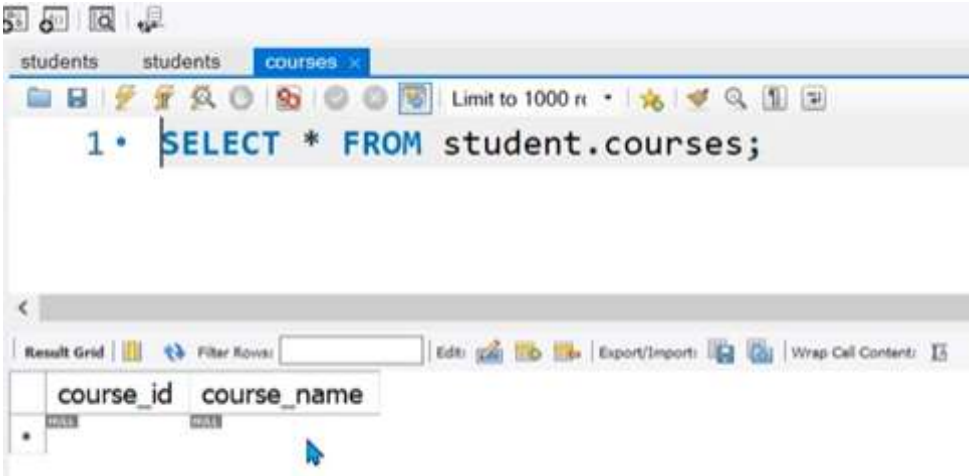
```
TRUNCATE TABLE table_name;
```



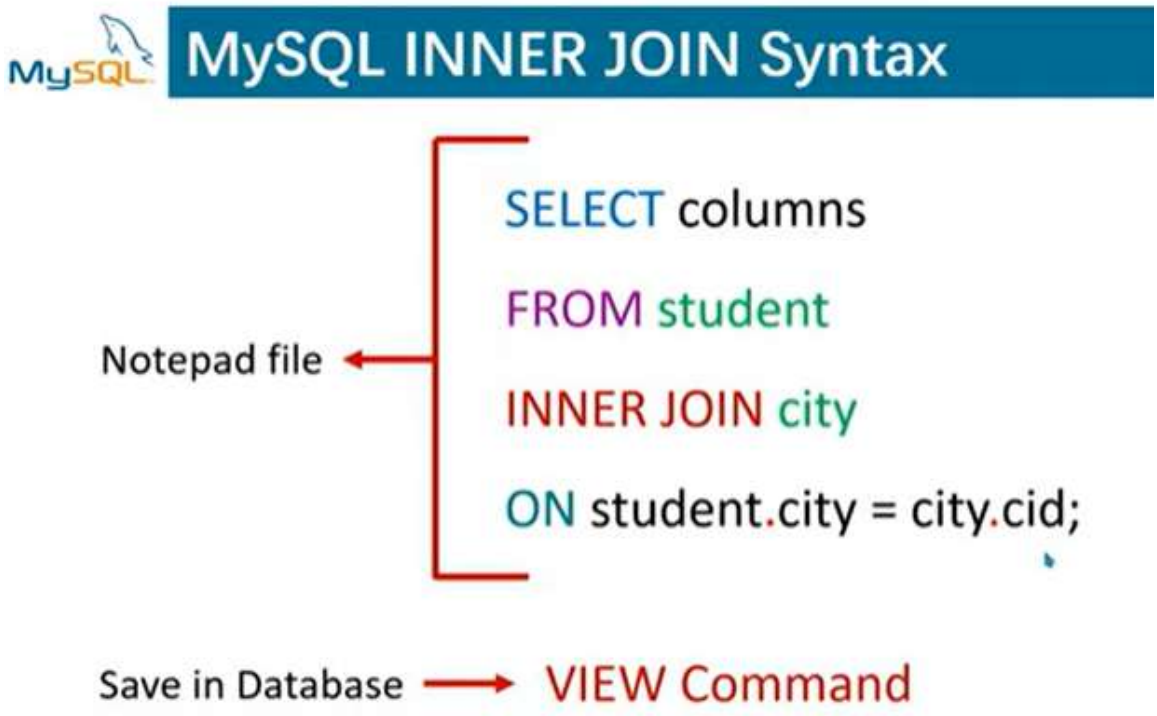
course_id	course_name
1	Btech
2	BCA
3	MBA
4	BA
5	BCOM

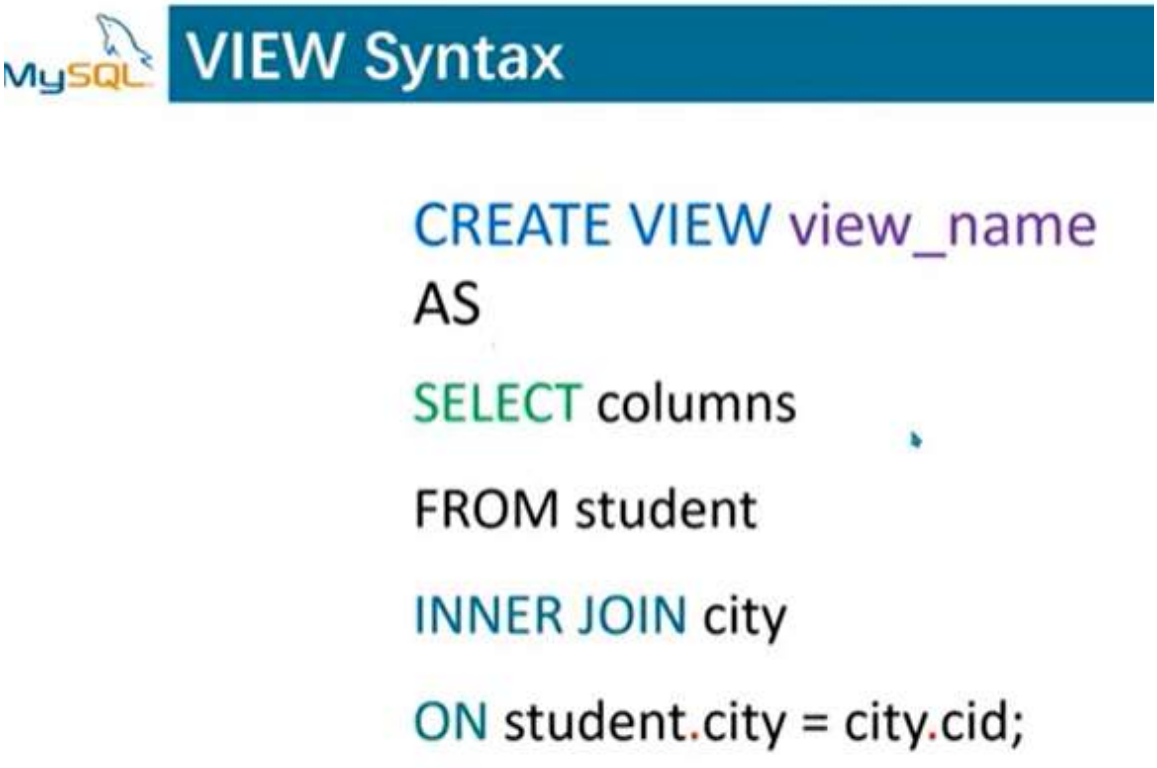

students
students
courses
Limit to 1000 r
1 • SELECT * FROM student.courses;
Result Grid
Filter Rows:
Edit:
Export/Import:
Wrap Cell Co
course_id
course_name
1
Btech
2
BCA
3
MBA
4
BA
5
BCOM

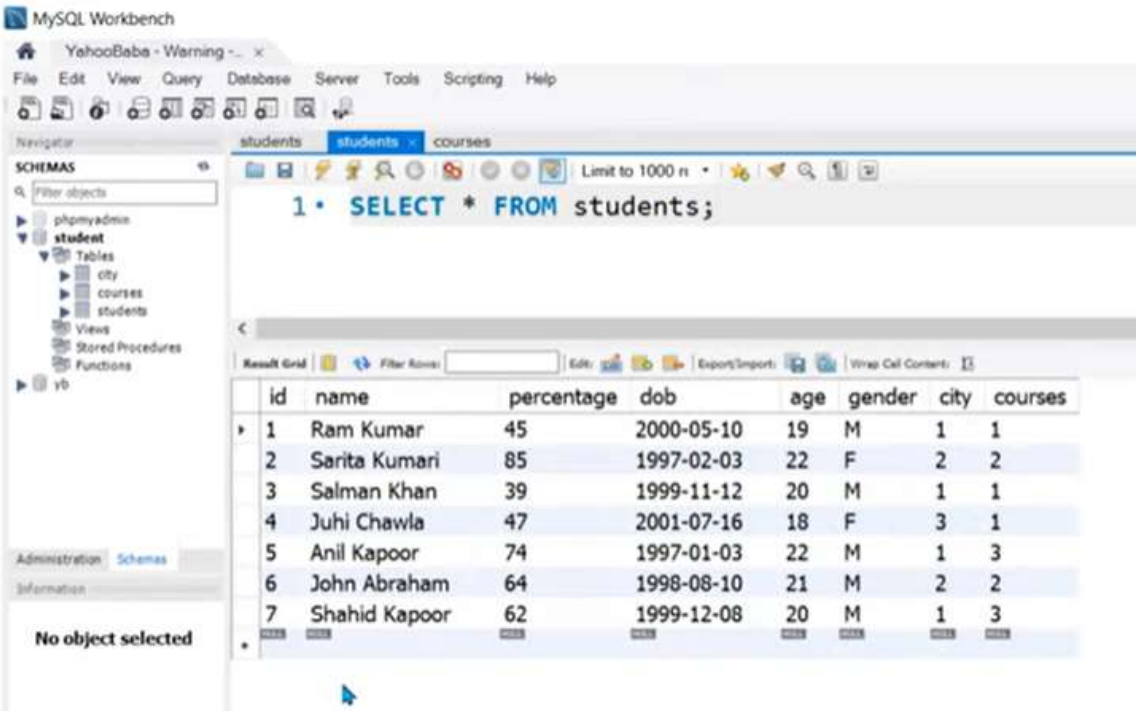

Server
Tools
Scripting
Help
students
courses
Limit to 1000 r
1 TRUNCATE TABLE courses;

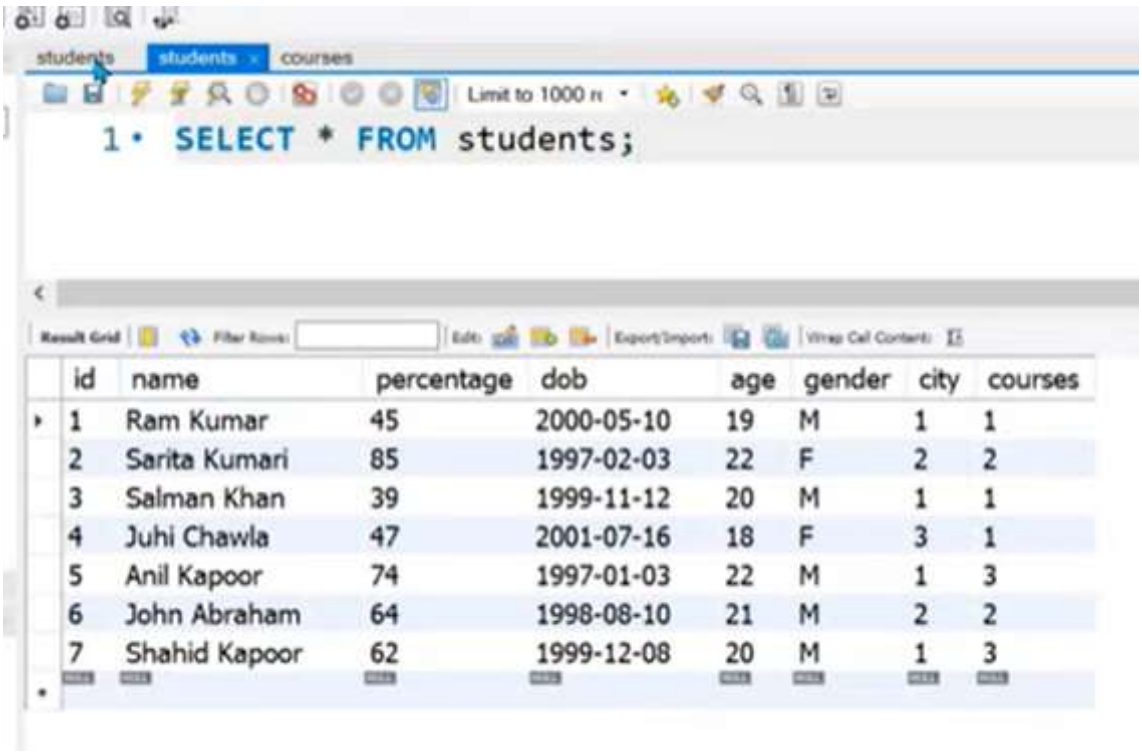

students
students
courses
Limit to 1000 r
1 • SELECT * FROM student.courses;
Result Grid
Filter Rows:
Edit:
Export/Import:
Wrap Cell Content:
course_id
course_name

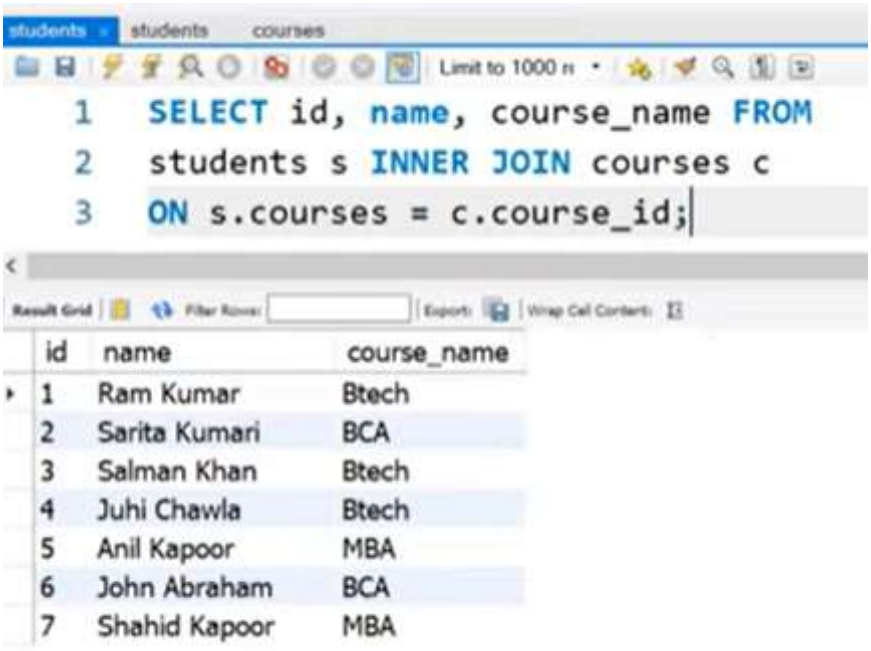
37. MySQL VIEW


MySQL INNER JOIN Syntax
SELECT columns
FROM student
Notepad file
INNER JOIN city
ON student.city = city.cid;
Save in Database
VIEW Command


VIEW Syntax
CREATE VIEW view_name
AS
SELECT columns
FROM student
INNER JOIN city
ON student.city = city.cid;

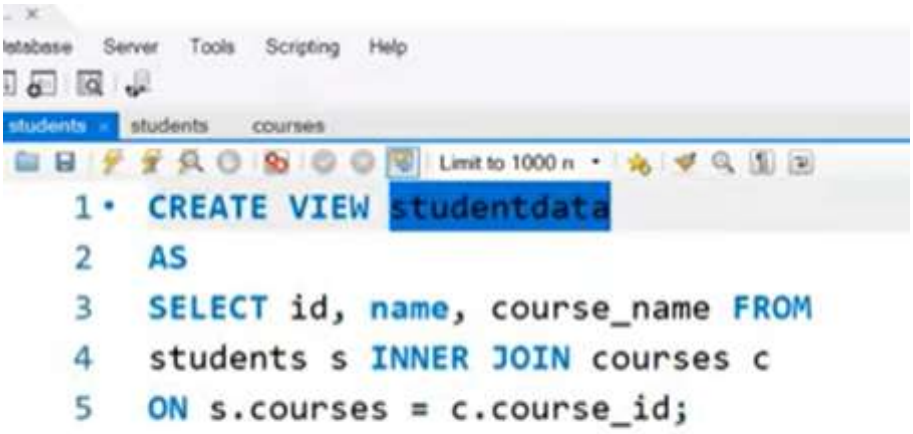

MySQL Workbench
YahooBaba - Warning -...
File Edit View Query Database Server Tools Scripting Help
Navigator
SCHEMAS
Filter objects
phpmyadmin
student
Tables
city
courses
students
Views
Stored Procedures
Functions
yb
Administration Schemas
Information
No object selected
students
students
courses
Limit to 1000 r
1 • SELECT * FROM students;
Result Grid
Filter Rows:
Edit:
Export/Import:
Wrap Cell Content:
id name percentage dob age gender city courses
1 Ram Kumar 45 2000-05-10 19 M 1 1
2 Sarita Kumari 85 1997-02-03 22 F 2 2
3 Salman Khan 39 1999-11-12 20 M 1 1
4 Juhi Chawla 47 2001-07-16 18 F 3 1
5 Anil Kapoor 74 1997-01-03 22 M 1 3
6 John Abraham 64 1998-08-10 21 M 2 2
7 Shahid Kapoor 62 1999-12-08 20 M 1 3

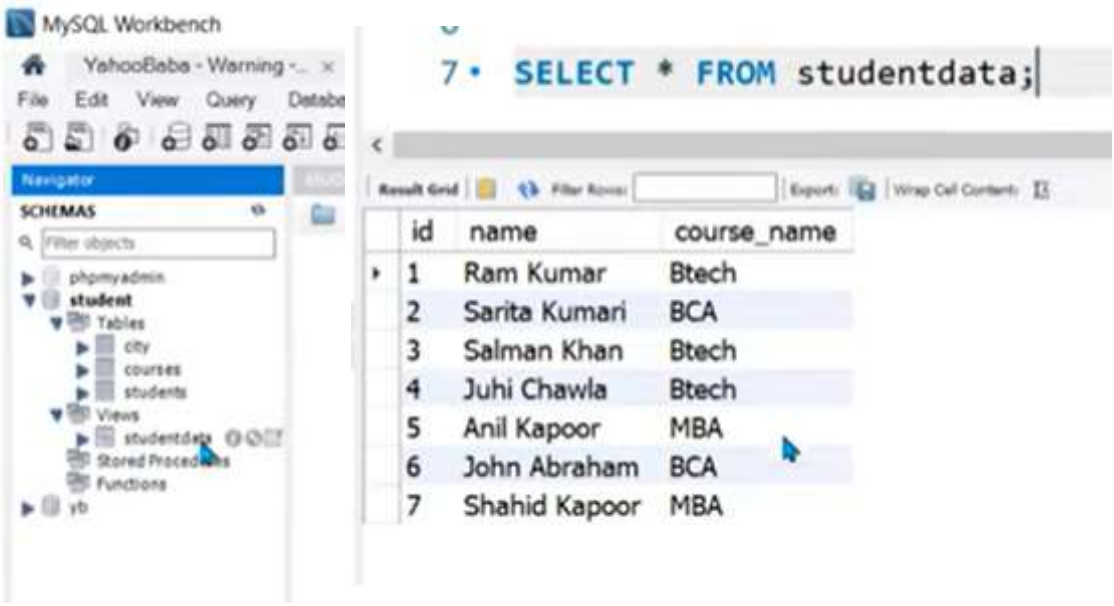

students
students
courses
Limit to 1000 r
1 • SELECT * FROM students;
Result Grid
Filter Rows:
Edit:
Export/Import:
Wrap Cell Content:
id name percentage dob age gender city courses
1 Ram Kumar 45 2000-05-10 19 M 1 1
2 Sarita Kumari 85 1997-02-03 22 F 2 2
3 Salman Khan 39 1999-11-12 20 M 1 1
4 Juhi Chawla 47 2001-07-16 18 F 3 1
5 Anil Kapoor 74 1997-01-03 22 M 1 3
6 John Abraham 64 1998-08-10 21 M 2 2
7 Shahid Kapoor 62 1999-12-08 20 M 1 3



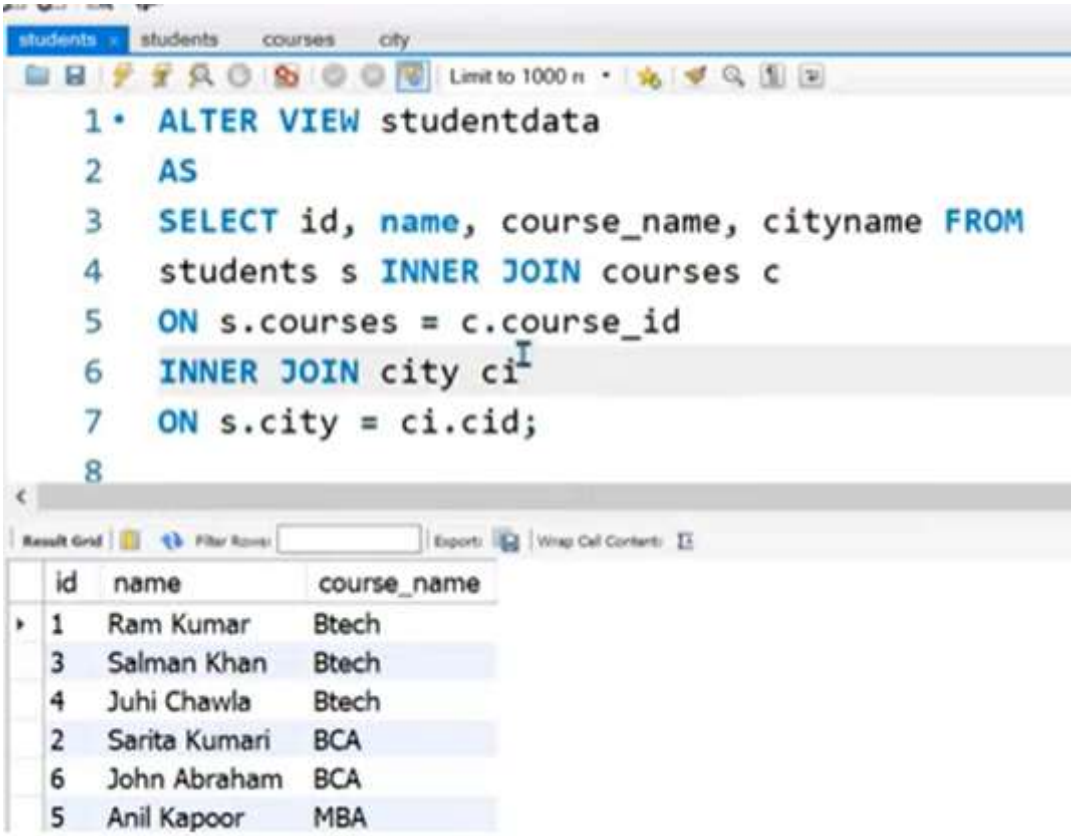
id	name	course_name
1	Ram Kumar	Btech
2	Sarita Kumari	BCA
3	Salman Khan	Btech
4	Juhi Chawla	Btech
5	Anil Kapoor	MBA
6	John Abraham	BCA
7	Shahid Kapoor	MBA

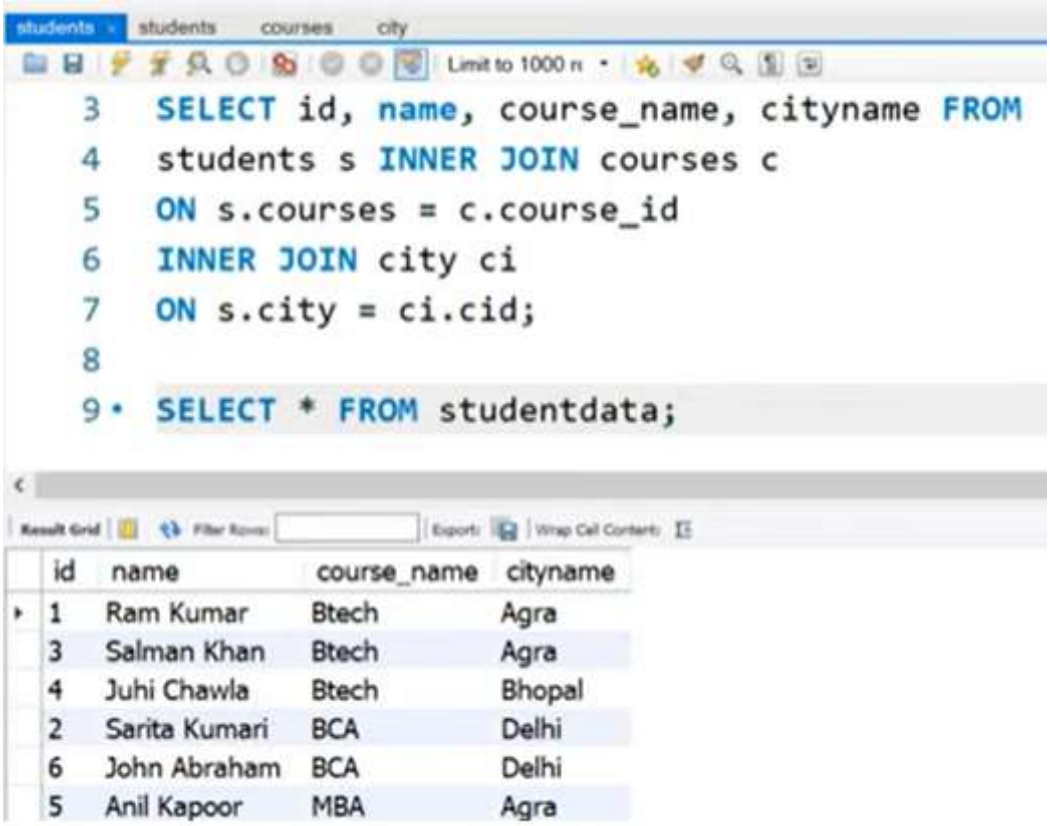
we dont want to write this query again and agaian so for that below query



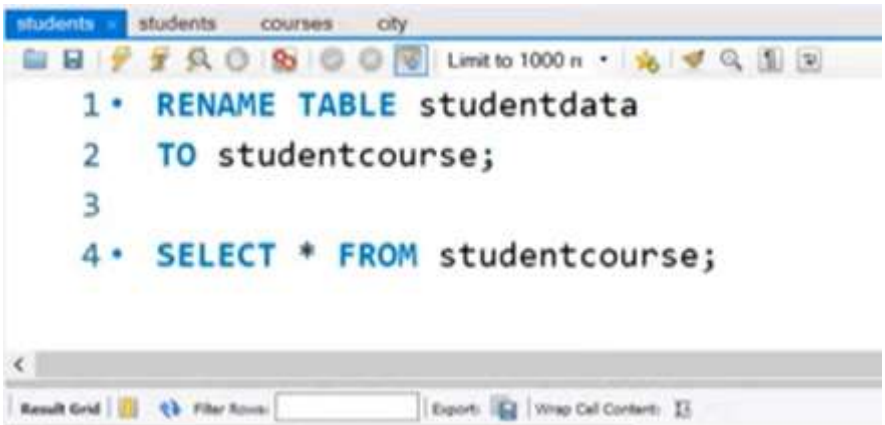


If we want to change view command



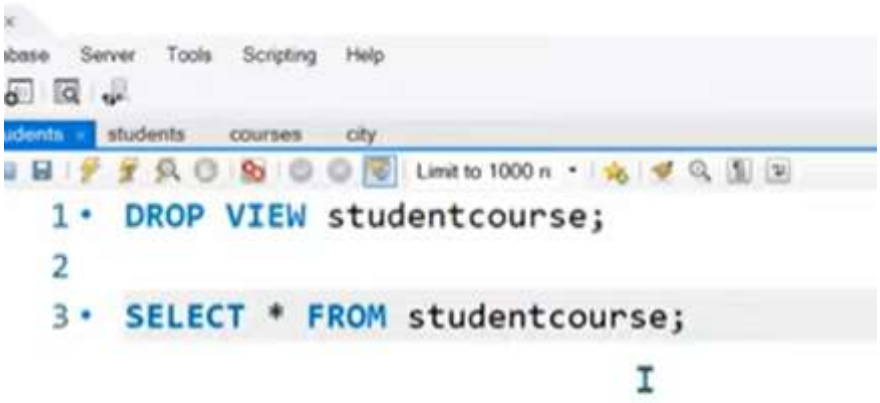


id	name	course_name	cityname
1	Ram Kumar	Btech	Agra
3	Salman Khan	Btech	Agra
4	Juhi Chawla	Btech	Bhopal
2	Sarita Kumari	BCA	Delhi
6	John Abraham	BCA	Delhi
5	Anil Kapoor	MBA	Agra



id	name	course_name	cityname
1	Ram Kumar	Btech	Agra
3	Salman Khan	Btech	Agra
4	Juhi Chawla	Btech	Bhopal
2	Sarita Kumari	BCA	Delhi
6	John Abraham	BCA	Delhi
5	Anil Kapoor	MBA	Agra
7	Shahid Kapoor	MBA	Agra

dropping view



command

Advantages :

- Simplify complex query.
- Provides Extra layer of Security.

Disadvantages :

- Performance Decreases.
- Depedency on Table.

38. MySQL INDEX

What is Index ?

INDEX PAGE

Ch. No.	Chapter	Page No.
1	ABC	3
2	XYZ	15
3	EFG	23
4	IJK	29
5	RST	37

Student Table

Name	Age	Gender
Ram Kumar	19	Male
Salman Khan	22	Male
Meera Khan	21	Female
Sarita Kumari	18	Female
Anil Kapoor	22	Male

INDEX Syntax

```
CREATE INDEX index_name
ON table_name(column1, column2, column3, .... );

DROP INDEX index_name
ON table_name;
```

Guidelines of Index :

- Automatically creates the indexes for PRIMARY KEY and UNIQUE columns.
- Index columns that you frequently use to retrieve the data.
- Index columns that are used for joins to improve join performance.
- Avoid columns that contain too many NULL values.
- Small tables do not require indexes.

SQL File 8 | students

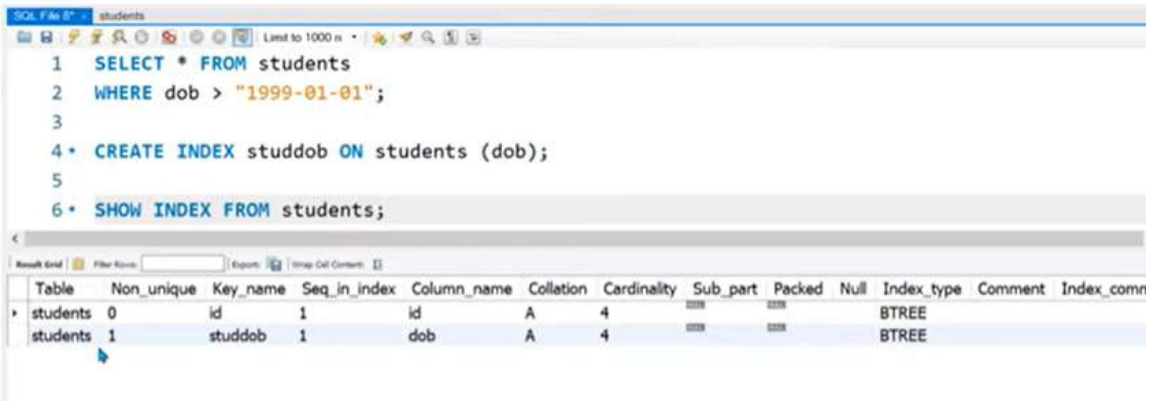
```
1 • SELECT * FROM students;
```

id	name	percentage	dob	age	gender	city	courses
1	Ram Kumar	45	2000-05-10	19	M	1	1
2	Sarita Kumari	85	1997-02-03	22	F	2	2
3	Salman Khan	39	1999-11-12	20	M	1	1
4	Juhi Chawla	47	2001-07-16	18	F	3	1
5	Anil Kapoor	74	1997-01-03	22	M	1	3
6	John Abraham	64	1998-08-10	21	M	2	2
7	Shahid Kapoor	62	1999-12-08	20	M	1	3

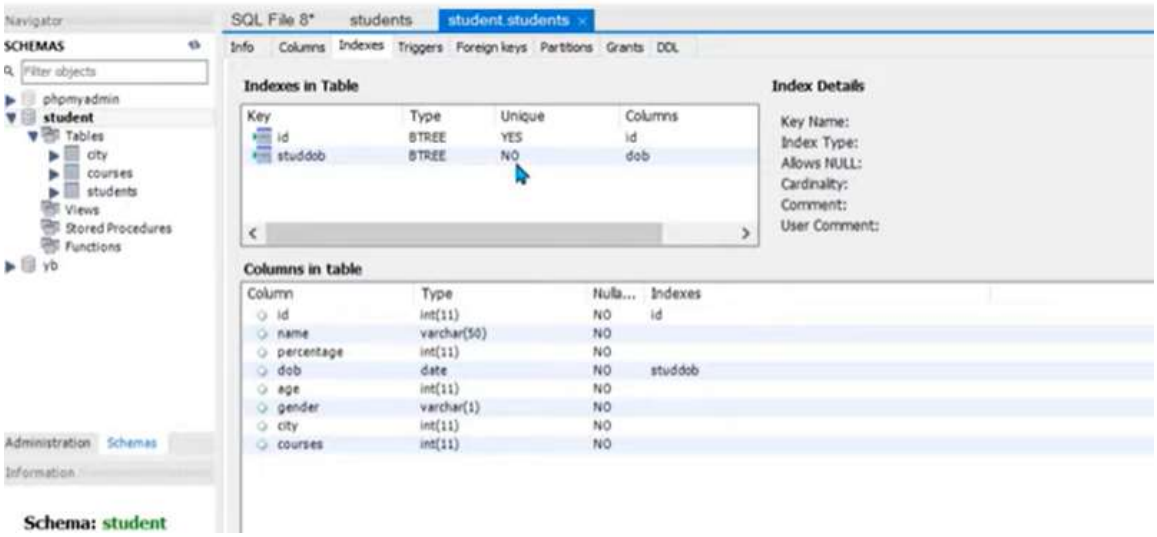
SQL File 8* | students

```
1  SELECT * FROM students
2  WHERE dob > "1999-01-01";
3
4 • CREATE INDEX studdob ON students (dob);
```

id	name	percentage	dob	age	gender	city	courses
1	Ram Kumar	45	2000-05-10	19	M	1	1
3	Salman Khan	39	1999-11-12	20	M	1	1
4	Juhi Chawla	47	2001-07-16	18	F	3	1
7	Shahid Kapoor	62	1999-12-08	20	M	1	3


SQL File 8*
students
1 SELECT * FROM students
2 WHERE dob > "1999-01-01";
3
4 • CREATE INDEX studdob ON students (dob);
5
6 • SHOW INDEX FROM students;
Table Non_unique Key_name Seq_in_index Column_name Collation Cardinality Sub_part Packed Null Index_type Comment Index_comm
students 0 id 1 id A 4 BTREE
students 1 studdob 1 dob A 4 BTREE


Navigator
SCHEMAS
Filter objects
phpmyadmin
student
Tables
city
courses
students
Views
Stored Procedures
Functions
yb
SQL File 8*


Navigator
SCHEMAS
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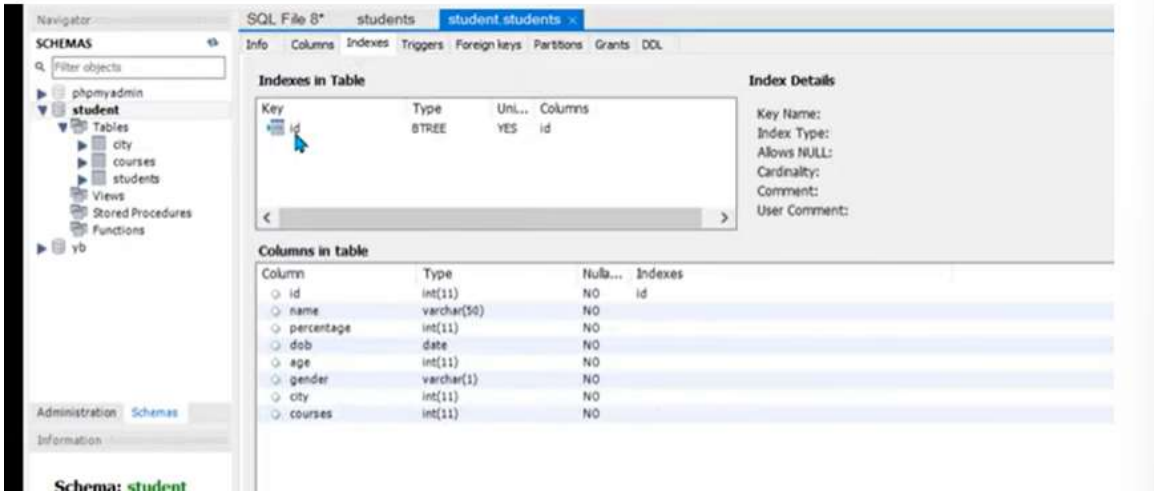
courses
students
Views
Stored Procedures
Functions
yb
Administration Schemas
Information
Schema: student
SQL File 8* students student.students
Info Columns Indexes Triggers Foreign keys Partitions Grants DDL
Indexes in Table
Key Type Unique Columns
id BTREE YES id
studdob BTREE NO dob
Index Details
Key Name:
Index Type:
Allows NULL:
Cardinality:
Comment:
User Comment:
Columns in table
Column Type Nulla... Indexes
id int(11) NO id
name varchar(50) NO
percentage int(11) NO
dob date NO studdob
age int(11) NO
gender varchar(1) NO
city int(11) NO
courses int(11) NO

```
5
6 • DROP INDEX studdob ON students;
```



In [ ]: