

NAME –JAYANT JHUNJA

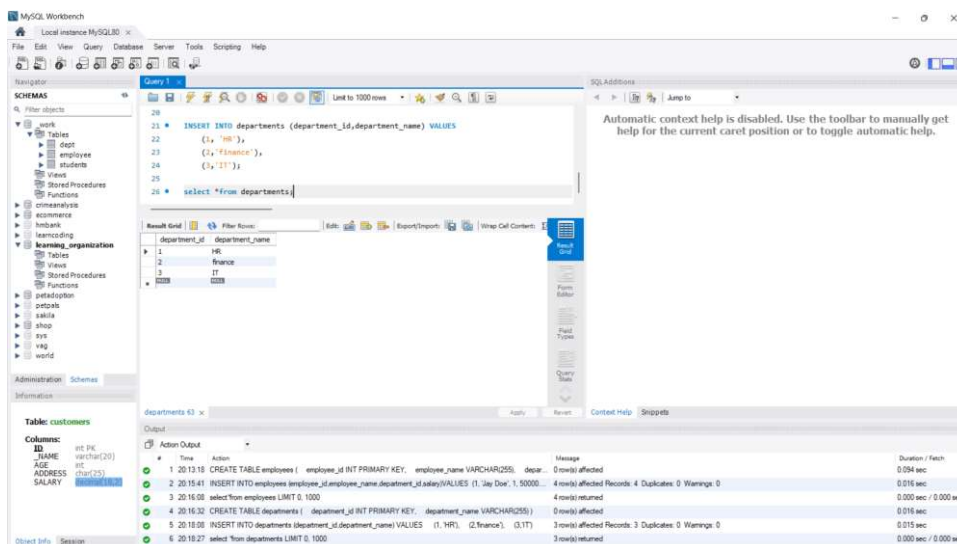
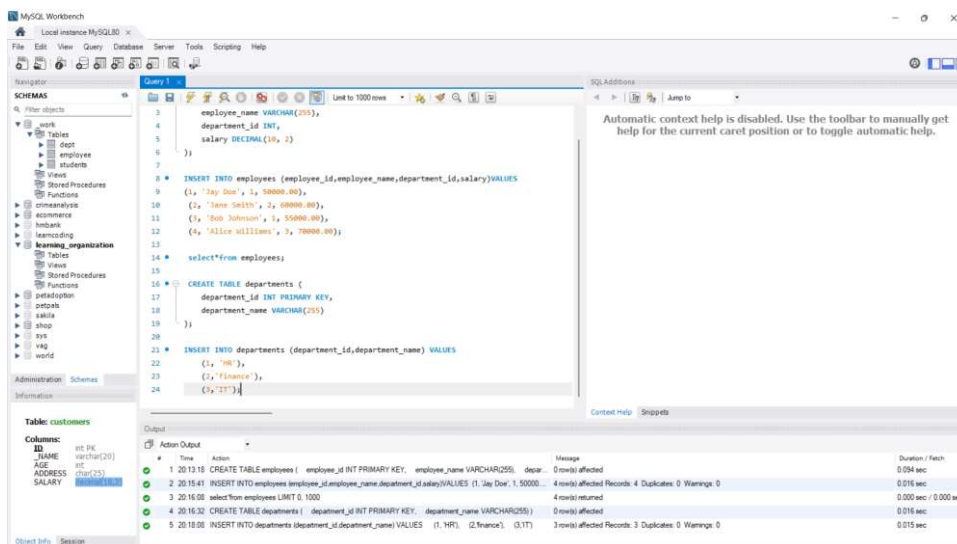
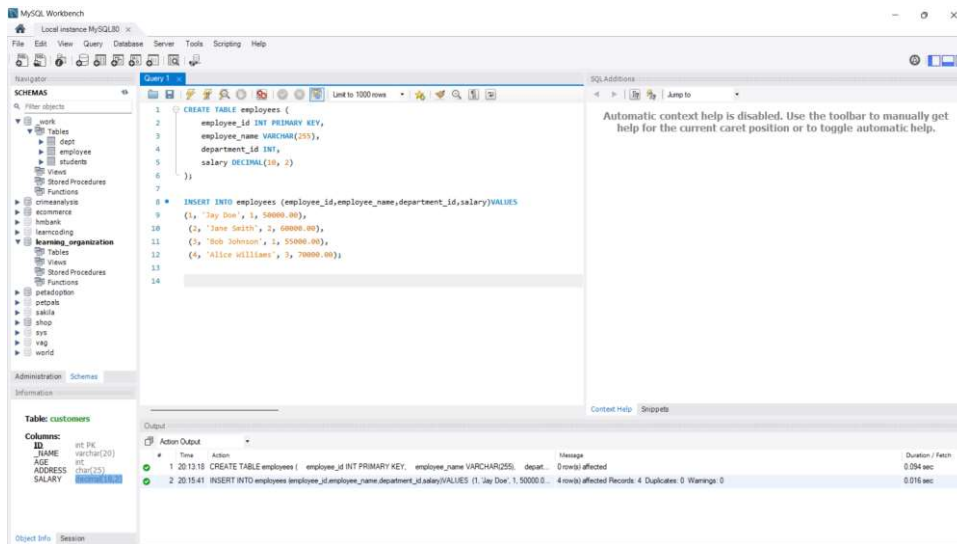
SQL HANDS ON --

JOINS AND SUBQUERY

*Joins--

Joins in a relational database are operations that combine rows from two or more tables based on a related column between them. The purpose of joining tables is to retrieve data from multiple tables in a single result set, enabling you to work with related information in a more meaningful way.

There are several types of joins, each Serving different type of purpose-



*INNER JOIN-

MySQL Workbench

Local instance MySQL80

File Edit View Query Database Server Tools Scripting Help

Navigator

SCHMAS

Filter objects

Tables

dept

employees

students

views

Stored Procedures

Functions

crimanalysis

economics

humbank

learning_organization

petadoption

petals

sakila

shop

sys

vag

world

Administration Schemas

Table: customers

Columns:

id int PK

name varchar(20)

age int

address varchar(75)

salary decimal(10,2)

Object Info Session

Query 1

```

26 select * from departments;
27 --INNER JOIN -- INNER JOIN will returns the rows where there is a match in
28 both the values.*/
29 SELECT employees.employee_id, employees.employee_name, employees.salary,
30 departments.department_name
31 FROM employees
32 INNER JOIN departments ON employees.department_id = departments.department_id;

```

Result Grid

employee_id	employee_name	salary	department_name
1	Jay Doe	8000.00	HR
2	Jane Smith	6000.00	Finance
3	Bob Johnson	5500.00	HR
4	Alice Williams	7000.00	IT

Output

Action Output

View	Action	Message	Duration / Fetch
20:15:41	INSERT INTO employees (employee_id, employee_name, department_id, salary) VALUES (1, 'Jay Doe', 1, 5000);	4 rows affected Records: 4 Duplicates: 0 Warnings: 0	0.016 sec / 0.000 sec
20:16:08	select from employees LIMIT 0, 1000	4 rows returned	0.000 sec / 0.000 sec
20:16:32	CREATE TABLE departments (department_id INT PRIMARY KEY, department_name VARCHAR(255))	0 rows affected	0.016 sec
20:18:08	INSERT INTO departments (department_id, department_name) VALUES (1, 'HR'), (2, 'Finance'), (3, 'IT');	3 rows affected Records: 3 Duplicates: 0 Warnings: 0	0.015 sec
20:18:27	select from departments LIMIT 0, 1000	3 rows returned	0.000 sec / 0.000 sec
20:22:38	SELECT employees.employee_id, employees.employee_name, employees.salary, departments.department_name	4 rows returned	0.000 sec / 0.000 sec

Automatic context help is disabled. Use the toolbar to manually get help for the current caret position or to toggle automatic help.

*LEFT JOIN-

MySQL Workbench

Local instance MySQL80

File Edit View Query Database Server Tools Scripting Help

Navigator

SCHMAS

Filter objects

Tables

dept

employees

students

views

Stored Procedures

Functions

crimanalysis

economics

humbank

learning_organization

petadoption

petals

sakila

shop

sys

vag

world

Administration Schemas

Table: employees

Columns:

employee_id int PK

employee_name varchar(25)

department_id int

salary decimal(10,2)

Object Info Session

Query 1

```

33 --LEFT JOIN--This returns all rows from the left table,
34 and the matched rows from the right table. If there is no match,
35 NULL values are returned for columns from the right table.*/
36 SELECT employees.employee_id, employees.employee_name, employees.salary,
37 departments.department_name
38 FROM employees
39 LEFT JOIN departments ON employees.department_id = departments.department_id;

```

Result Grid

employee_id	employee_name	salary	department_name
1	Jay Doe	8000.00	HR
2	Jane Smith	6000.00	Finance
3	Bob Johnson	5500.00	HR
4	Alice Williams	7000.00	IT

Output

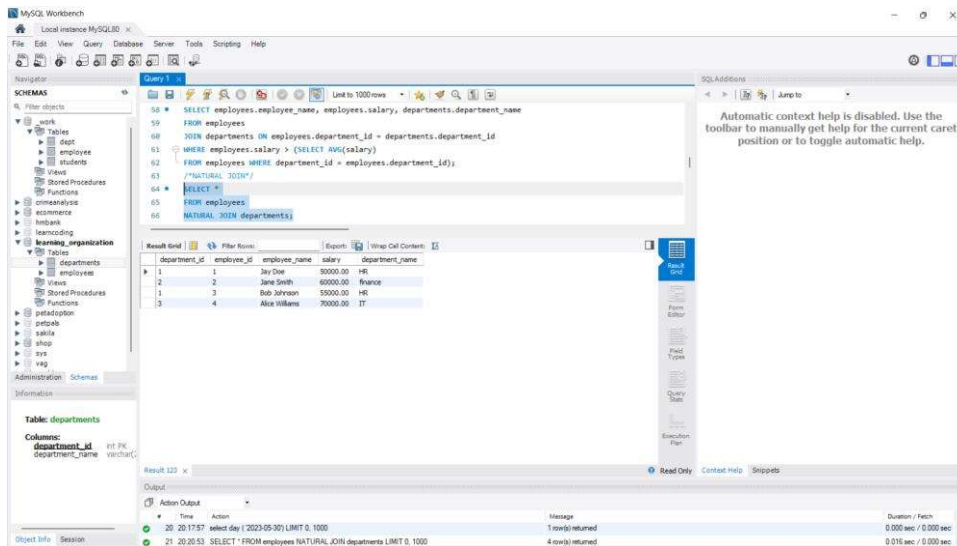
Action Output

View	Action	Message	Duration / Fetch
20:16:08	select from employees LIMIT 0, 1000	4 rows returned	0.000 sec / 0.000 sec
20:16:32	CREATE TABLE departments (department_id INT PRIMARY KEY, department_name VARCHAR(255))	0 rows affected	0.016 sec
20:18:08	INSERT INTO departments (department_id, department_name) VALUES (1, 'HR'), (2, 'Finance'), (3, 'IT');	3 rows affected Records: 3 Duplicates: 0 Warnings: 0	0.015 sec
20:18:27	select from departments LIMIT 0, 1000	3 rows returned	0.000 sec / 0.000 sec
20:22:38	SELECT employees.employee_id, employees.employee_name, employees.salary, departments.department_name	4 rows returned	0.000 sec / 0.000 sec
20:27:12	SELECT employees.employee_id, employees.employee_name, employees.salary, departments.department_name	4 rows returned	0.000 sec / 0.000 sec

Automatic context help is disabled. Use the toolbar to manually get help for the current caret position or to toggle automatic help.

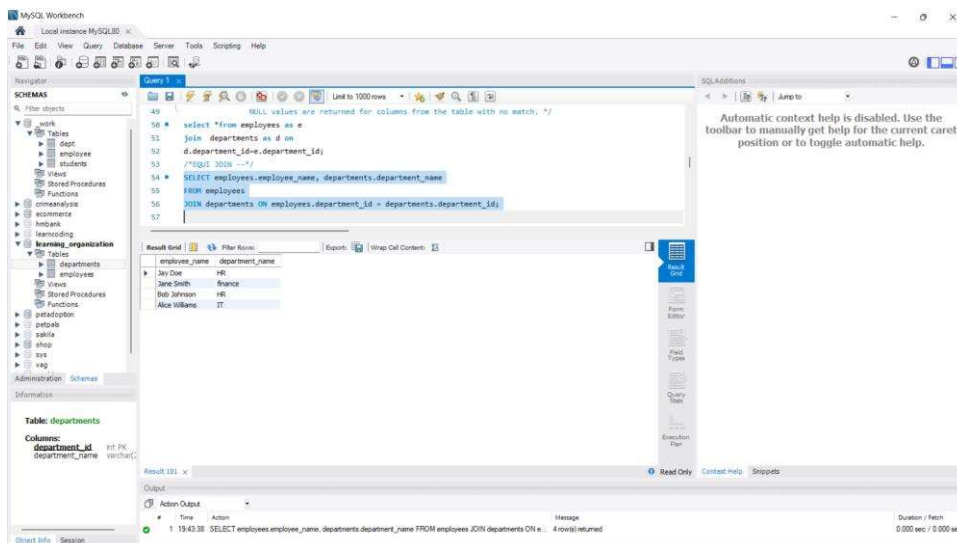
*RIGHT JOIN-





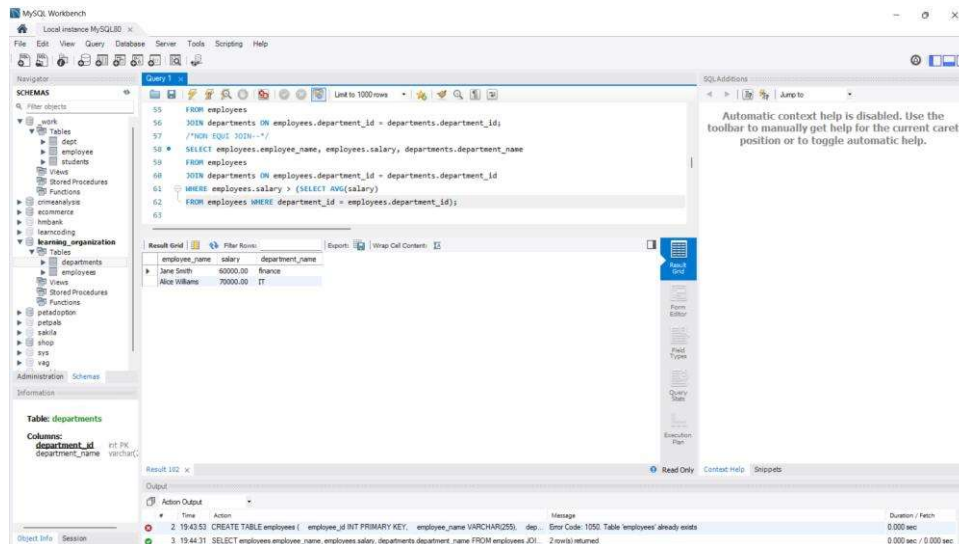
*EQUI JOIN -

Equi join is a type of join where the condition for joining two tables is based on equality between the values in the specified columns.



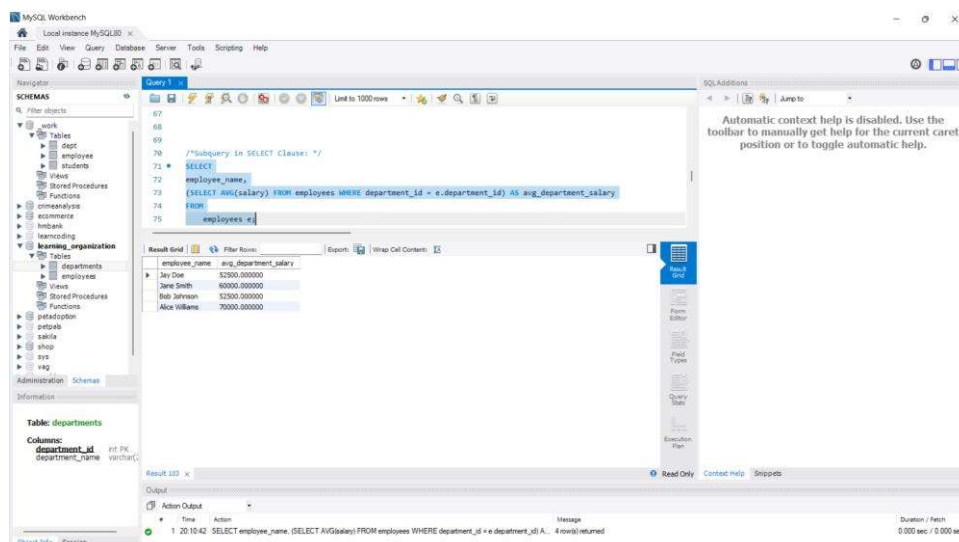
*NON EQUI JOIN-

Non-Equi join, involves joining tables based on conditions other than equality



SQL Correlated Subquery-

SQL Correlated Subqueries are used to select data from a table referenced in the outer query. The subquery is known as a correlated because the subquery is related to the outer query.



MySQL Workbench

Local instance MySQL80

File Edit View Query Database Server Tools Scripting Help

Navigator

SCHEMAS

work

- dept
- employee
- students
- views
- Stored Procedures
- Functions
- crimanalysis
- economics
- humbank
- learncoding
- learning_organization
- petadoption
- petals
- sakila
- shop
- sys
- vag

Table: departments

Columns:

department_id int PK

department_name varchar

Query 1

```

/*Subquery in WHERE Clause: */
81 SELECT employee_name
82 FROM employees
83 WHERE salary > (SELECT AVG(salary) FROM employees WHERE department_id = 1);
84

```

Result Grid

employee_name
Jane Smith
Bob Johnson
Alice Williams

employees 124 x

Output

Action Output

Time	Action	Message	Duration / Fetch
1 20.10.42	SELECT employee_name (SELECT AVG(salary) FROM employees WHERE department_id = 1) AS total_employees	4 rows returned	0.000 sec / 0.000 sec
2 20.11.22	SELECT employee_name FROM employees WHERE salary > (SELECT AVG(salary) FROM employees WHERE department_id = 1)	3 rows returned	0.000 sec / 0.000 sec

Object Info Session

SQLAdditions

Automatic context help is disabled. Use the toolbar to manually get help for the current caret position or to toggle automatic help.

MySQL Workbench

Local instance MySQL80

File Edit View Query Database Server Tools Scripting Help

Navigator

SCHEMAS

work

- dept
- employee
- students
- views
- Stored Procedures
- Functions
- crimanalysis
- economics
- humbank
- learncoding
- learning_organization
- petadoption
- petals
- sakila
- shop
- sys
- vag

Table: departments

Columns:

department_id int PK

department_name varchar

Query 1

```

81 SELECT employee_name
82 FROM employees
83 WHERE salary > (SELECT AVG(salary) FROM employees WHERE department_id = 1);
84 SELECT
85 d.department_name,
86 (SELECT COUNT(*) FROM employees WHERE department_id = d.department_id) AS total_employees
87 FROM
88 departments d;
89 /* Subquery with EXISTS and not exists: */

```

Result Grid

department_name	total_employees
HR	2
Finance	1
IT	1

employees 124 x

Output

Action Output

Time	Action	Message	Duration / Fetch
2 20.11.22	SELECT employee_name FROM employees WHERE salary > (SELECT AVG(salary) FROM employees WHERE department_id = 1)	3 rows returned	0.000 sec / 0.000 sec
3 20.11.39	SELECT d.department_name, (SELECT COUNT(*) FROM employees WHERE department_id = d.department_id) AS total_employees	3 rows returned	0.000 sec / 0.000 sec

Object Info Session

SQLAdditions

Automatic context help is disabled. Use the toolbar to manually get help for the current caret position or to toggle automatic help.

MySQL Workbench

Local instance MySQL80

File Edit View Query Database Server Tools Scripting Help

Navigator

SCHEMAS

work

- dept
- employee
- students
- views
- Stored Procedures
- Functions
- crimanalysis
- economics
- humbank
- learncoding
- learning_organization
- petadoption
- petals
- sakila
- shop
- sys
- vag

Table: departments

Columns:

department_id int PK

department_name varchar

Query 1

```

80 departments d;
81 /* Subquery with EXISTS and not exists: */
82 SELECT employee_name
83 FROM employees
84 WHERE EXISTS (SELECT * FROM departments
85 WHERE department_id = employees.department_id AND department_name > 'HR');
86

```

Result Grid

employee_name
Jay Doe
Bob Johnson

employees 126 x

Output

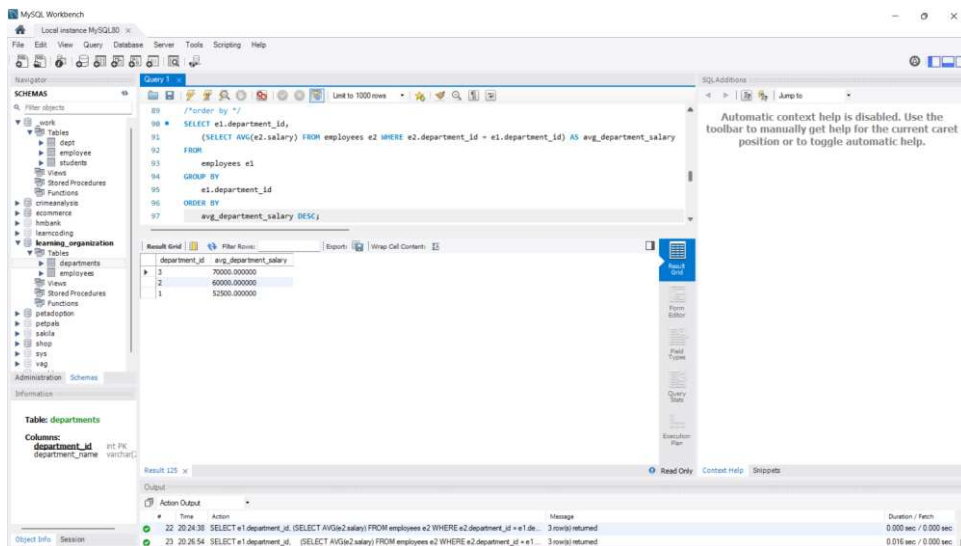
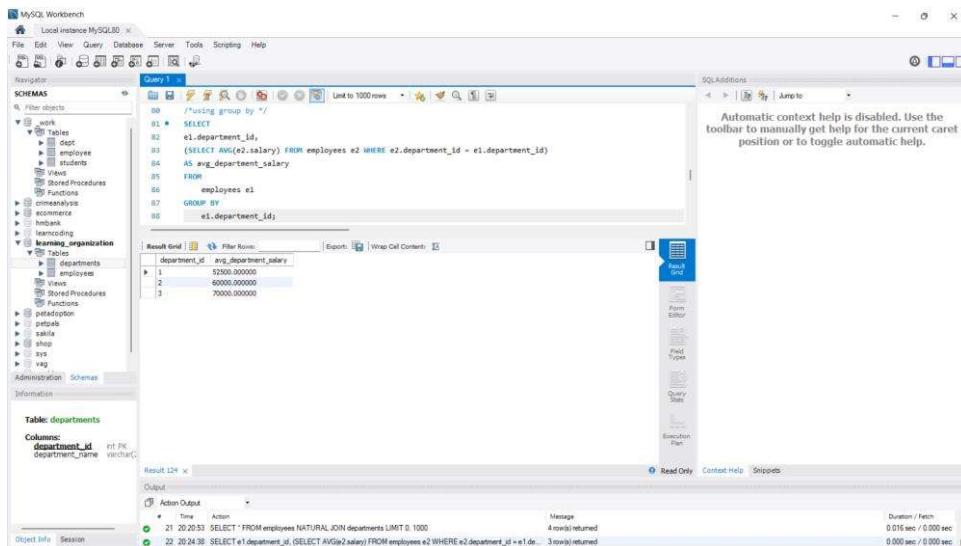
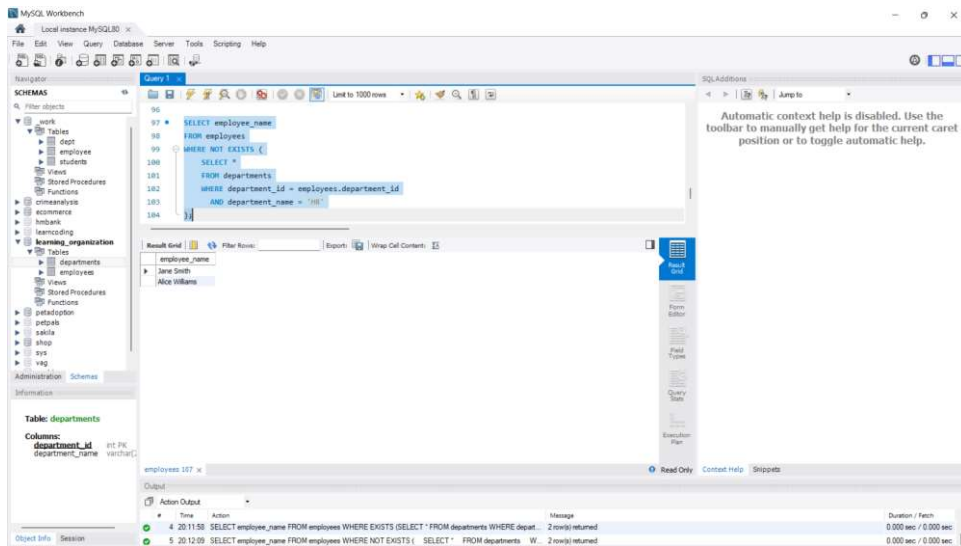
Action Output

Time	Action	Message	Duration / Fetch
3 20.11.39	SELECT d.department_name, (SELECT COUNT(*) FROM employees WHERE department_id = d.department_id) AS total_employees	3 rows returned	0.000 sec / 0.000 sec
4 20.11.58	SELECT employee_name FROM employees WHERE EXISTS (SELECT * FROM departments WHERE department_id = employees.department_id AND department_name > 'HR')	2 rows returned	0.000 sec / 0.000 sec

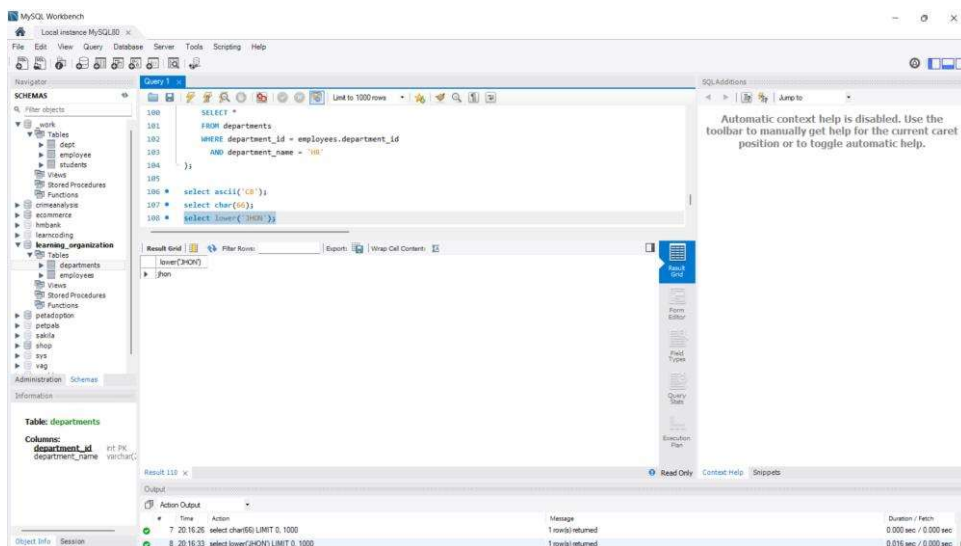
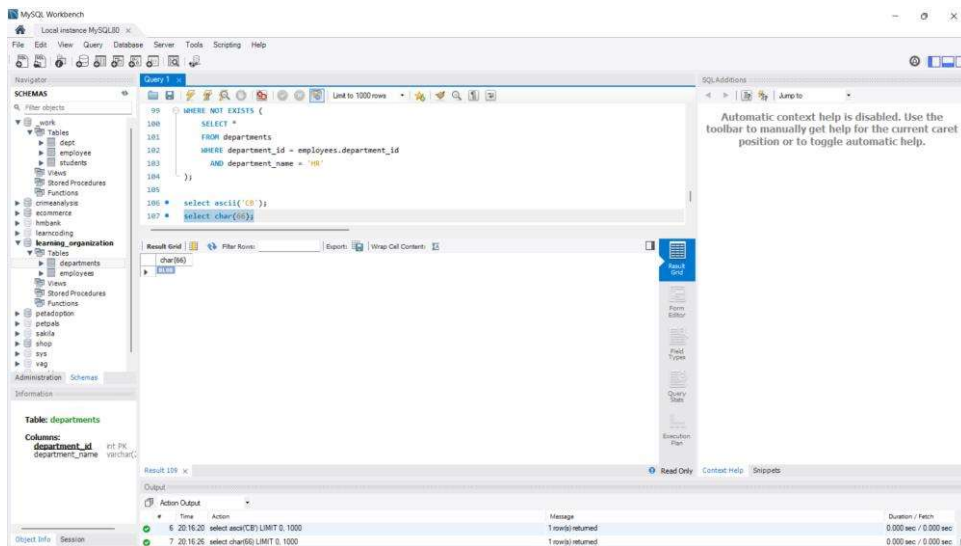
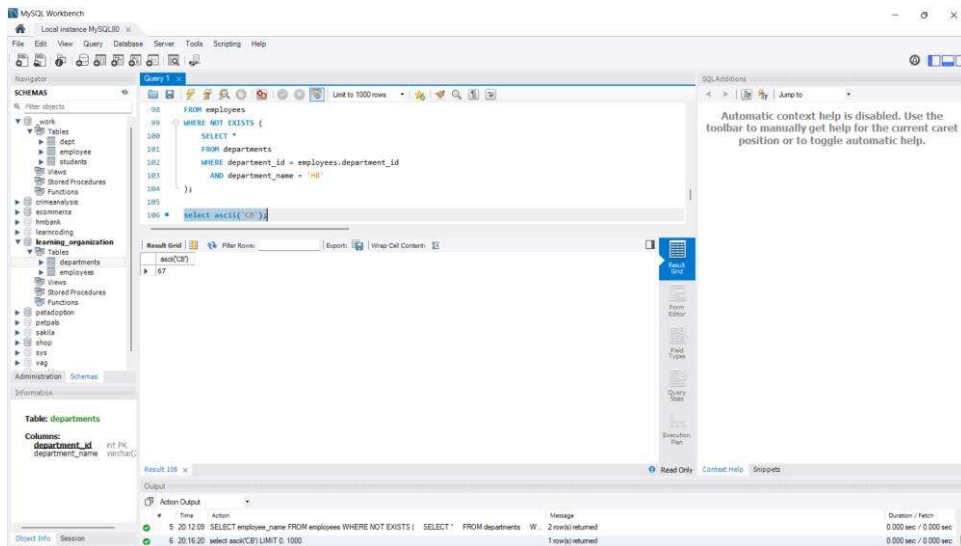
Object Info Session

SQLAdditions

Automatic context help is disabled. Use the toolbar to manually get help for the current caret position or to toggle automatic help.



*MATHEMATICAL FUNCTIONS-



MySQL Workbench

Local instance MySQL80

File Edit View Query Database Server Tools Scripting Help

Navigator

SCHMAS

Filter objects

work

- dept
- employee
- students
- views
- Stored Procedures
- Functions
- crimanalysis
- e-commerce
- hmbank
- learncoding
- learning_organization
- departments
- employees
- views
- Stored Procedures
- Functions
- petadoption
- petrels
- sakila
- shop
- sys
- vag

Information

Table: departments

Columns:

department_id int PK

department_name varchar

Query 1

```

FROM departments
WHERE department_id = employees.department_id
AND department_name = 'HR'
)
)
select ascii('C8')
select char(60)
select lower('HON')
select replace('Microsoft sql','sql','server')

```

Result Grid

Filter Rows:

Export Wrap Cell Contents

Read Only Context Help Snippets

Output

Action Output

#	Time	Action	Message	Duration / Feat
8	20.16.33	select lower(HON) LIMIT 0, 1000	1 row(s) returned	0.016 sec / 0.000 sec
9	20.16.39	select replace(Microsoft sql,'sql','server') LIMIT 0, 1000	1 row(s) returned	0.000 sec / 0.000 sec

MySQL Workbench

Local instance MySQL80

File Edit View Query Database Server Tools Scripting Help

Navigator

SCHMAS

Filter objects

work

- dept
- employee
- students
- views
- Stored Procedures
- Functions
- crimanalysis
- e-commerce
- hmbank
- learncoding
- learning_organization
- departments
- employees
- views
- Stored Procedures
- Functions
- petadoption
- petrels
- sakila
- shop
- sys
- vag

Information

Table: departments

Columns:

department_id int PK

department_name varchar

Query 1

```

WHERE department_id = employees.department_id
AND department_name = 'HR'
)
)
select ascii('C8')
select char(60)
select lower('HON')
select replace('Microsoft sql','sql','server')
select reverse('python')

```

Result Grid

Filter Rows:

Export Wrap Cell Contents

Read Only Context Help Snippets

Output

Action Output

#	Time	Action	Message	Duration / Feat
9	20.16.39	select replace(Microsoft sql,'sql','server') LIMIT 0, 1000	1 row(s) returned	0.000 sec / 0.000 sec
10	20.16.45	select reverse('python') LIMIT 0, 1000	1 row(s) returned	0.000 sec / 0.000 sec

MySQL Workbench

Local instance MySQL80

File Edit View Query Database Server Tools Scripting Help

Navigator

SCHMAS

Filter objects

work

- dept
- employee
- students
- views
- Stored Procedures
- Functions
- crimanalysis
- e-commerce
- hmbank
- learncoding
- learning_organization
- departments
- employees
- views
- Stored Procedures
- Functions
- petadoption
- petrels
- sakila
- shop
- sys
- vag

Information

Table: departments

Columns:

department_id int PK

department_name varchar

Query 1

```

AND department_name = 'HR'
)
)
select ascii('C8')
select char(60)
select lower('HON')
select replace('Microsoft sql','sql','server')
select reverse('python')
select upper('jAYANT')

```

Result Grid

Filter Rows:

Export Wrap Cell Contents

Read Only Context Help Snippets

Output

Action Output

#	Time	Action	Message	Duration / Feat
10	20.16.45	select reverse('python') LIMIT 0, 1000	1 row(s) returned	0.000 sec / 0.000 sec
11	20.16.51	select upper('jAYANT') LIMIT 0, 1000	1 row(s) returned	0.016 sec / 0.000 sec

MySQL Workbench

Local instance MySQL80

File Edit View Query Database Server Tools Scripting Help

Navigator

Schemas

work

Tables

dept

employee

students

views

Stored Procedures

Functions

crimanalysis

ecommerce

hmbank

learncoding

learning_organization

Tables

departments

employees

views

Stored Procedures

Functions

petadoption

petrels

sakila

shop

sys

vag

Administration Schemas

Information

Table: departments

Columns:

department_id int PK

department_name varchar

Query 1

```

184  })
185
186  select ascii('8')
187  select char(60)
188  select lower('MOM')
189  select replace('Microsoft sql','sql','server')
190  select reverse('python')
191  select upper('layer')
192  select sin(4.5)

```

Result Grid

Filter Rows

Export

Wrap Cell Contents

Read Only

Context Help

Snippets

Output

Action Output

#	Time	Action	Message	Duration / Fetch
11	20:16:51	select upper(layer) LIMIT 0, 1000	1 row(s) returned	0.016 sec / 0.000 sec
12	20:16:57	select sin(5) LIMIT 0, 1000	1 row(s) returned	0.000 sec / 0.000 sec

Object Info Session

MySQL Workbench

Local instance MySQL80

File Edit View Query Database Server Tools Scripting Help

Navigator

Schemas

work

Tables

dept

employee

students

views

Stored Procedures

Functions

crimanalysis

ecommerce

hmbank

learncoding

learning_organization

Tables

departments

employees

views

Stored Procedures

Functions

petadoption

petrels

sakila

shop

sys

vag

Administration Schemas

Information

Table: departments

Columns:

department_id int PK

department_name varchar

Query 1

```

186  select ascii('8')
187  select char(60)
188  select lower('MOM')
189  select replace('Microsoft sql','sql','server')
190  select reverse('python')
191  select upper('layer')
192  select sin(1.5)
193  select ceiling(14.01)

```

Result Grid

Filter Rows

Export

Wrap Cell Contents

Read Only

Context Help

Snippets

Output

Action Output

#	Time	Action	Message	Duration / Fetch
12	20:16:57	select sin(5) LIMIT 0, 1000	1 row(s) returned	0.000 sec / 0.000 sec
13	20:17:03	select ceiling(14.01) LIMIT 0, 1000	1 row(s) returned	0.000 sec / 0.000 sec

Object Info Session

MySQL Workbench

Local instance MySQL80

File Edit View Query Database Server Tools Scripting Help

Navigator

Schemas

work

Tables

dept

employee

students

views

Stored Procedures

Functions

crimanalysis

ecommerce

hmbank

learncoding

learning_organization

Tables

departments

employees

views

Stored Procedures

Functions

petadoption

petrels

sakila

shop

sys

vag

Administration Schemas

Information

Table: departments

Columns:

department_id int PK

department_name varchar

Query 1

```

186  select ascii('8')
187  select char(60)
188  select lower('MOM')
189  select replace('Microsoft sql','sql','server')
190  select reverse('python')
191  select upper('layer')
192  select sin(1.5)
193  select ceiling(14.01)
194  select exp(4.5)

```

Result Grid

Filter Rows

Export

Wrap Cell Contents

Read Only

Context Help

Snippets

Output

Action Output

#	Time	Action	Message	Duration / Fetch
13	20:17:03	select ceiling(14.01) LIMIT 0, 1000	1 row(s) returned	0.000 sec / 0.000 sec
14	20:17:26	select exp(4.5) LIMIT 0, 1000	1 row(s) returned	0.000 sec / 0.000 sec

Object Info Session

MySQL Workbench

Local instance MySQL80

File Edit View Query Database Server Tools Scripting Help

Navigator

SCHEMAS

Filter objects

work

- dept
- employee
- students
- views
- Shared Procedures
- Functions
- crimanalysis
- economics
- hmbank
- learncoding
- learning_organization
- departments
- employees
- views
- Shared Procedures
- Functions
- petadoption
- petrels
- sakila
- shop
- sys
- vag

Information

Table: departments

Columns:

department_id int PK

department_name varchar

Query 1

```

107 select char(60);
108 select lower('DOWN');
109 select replace('Microsoft sql','sql','server');
110 select reverse('python');
111 select upper('jayant');
112 select sin(1.5);
113 select ceiling(14.81);
114 select exp(4.5);
115 select floor(14.75);

```

Result Grid

Filter Rows: Export Wrap Cell Contents

Read Only Context Help Snippets

Output

Action Output

#	Time	Action	Message	Duration / Fetch
14	20:17:26	select exp(4.5) LIMIT 0, 1000	1 row(s) returned	0.000 sec / 0.000 sec
15	20:17:31	select floor(14.75) LIMIT 0, 1000	1 row(s) returned	0.000 sec / 0.000 sec

Object Info Session

MySQL Workbench

Local instance MySQL80

File Edit View Query Database Server Tools Scripting Help

Navigator

SCHEMAS

Filter objects

work

- dept
- employee
- students
- views
- Shared Procedures
- Functions
- crimanalysis
- economics
- hmbank
- learncoding
- learning_organization
- departments
- employees
- views
- Shared Procedures
- Functions
- petadoption
- petrels
- sakila
- shop
- sys
- vag

Information

Table: departments

Columns:

department_id int PK

department_name varchar

Query 1

```

108 select lower('DOWN');
109 select replace('Microsoft sql','sql','server');
110 select reverse('python');
111 select upper('jayant');
112 select sin(1.5);
113 select ceiling(14.81);
114 select exp(4.5);
115 select floor(14.75);
116 select log(5.4);

```

Result Grid

Filter Rows: Export Wrap Cell Contents

Read Only Context Help Snippets

Output

Action Output

#	Time	Action	Message	Duration / Fetch
15	20:17:31	select floor(14.75) LIMIT 0, 1000	1 row(s) returned	0.000 sec / 0.000 sec
16	20:17:37	select log(5.4) LIMIT 0, 1000	1 row(s) returned	0.000 sec / 0.000 sec

Object Info Session

MySQL Workbench

Local instance MySQL80

File Edit View Query Database Server Tools Scripting Help

Navigator

SCHEMAS

Filter objects

work

- dept
- employee
- students
- views
- Shared Procedures
- Functions
- crimanalysis
- economics
- hmbank
- learncoding
- learning_organization
- departments
- employees
- views
- Shared Procedures
- Functions
- petadoption
- petrels
- sakila
- shop
- sys
- vag

Information

Table: departments

Columns:

department_id int PK

department_name varchar

Query 1

```

109 select replace('Microsoft sql','sql','server');
110 select reverse('python');
111 select upper('jayant');
112 select sin(1.5);
113 select ceiling(14.81);
114 select exp(4.5);
115 select floor(14.75);
116 select log(5.4);
117 select abs(-101);

```

Result Grid

Filter Rows: Export Wrap Cell Contents

Read Only Context Help Snippets

Output

Action Output

#	Time	Action	Message	Duration / Fetch
16	20:17:37	select log(5.4) LIMIT 0, 1000	1 row(s) returned	0.000 sec / 0.000 sec
17	20:17:42	select abs(-101) LIMIT 0, 1000	1 row(s) returned	0.000 sec / 0.000 sec

Object Info Session

MySQL Workbench

Local instance MySQL80

File Edit View Query Database Server Tools Scripting Help

Navigator

SCHMAS

work

dept

employee

students

views

Stored Procedures

Functions

crimanalysis

economics

hmbank

learncoding

learning_organization

departments

employees

views

Stored Procedures

Functions

petadoption

petrels

sakila

shop

sys

vag

Administration Schemas

Information

Table: departments

Columns:

department_id int PK

department_name varchar

Query 1

```
110 select reverse('python');
111 select upper('bayant');
112 select sin(1.5);
113 select ceiling(14.01);
114 select exp(4.5);
115 select floor(14.75);
116 select log(5.4);
117 select abs(-10);
118 select month ('2023-05-31');
```

Result Grid

month (2023-05-31)

5

Output

Action Output

#	Time	Action	Message	Duration / Fetch
17	20:17:42	select abs(-10) LIMIT 0, 1000	1 row(s) returned	0.000 sec / 0.000 sec
18	20:17:47	select month ('2023-05-31') LIMIT 0, 1000	1 row(s) returned	0.000 sec / 0.000 sec

Object Info Session

SQLAdditions

Automatic context help is disabled. Use the toolbar to manually get help for the current caret position or to toggle automatic help.

MySQL Workbench

Local instance MySQL80

File Edit View Query Database Server Tools Scripting Help

Navigator

SCHMAS

work

dept

employee

students

views

Stored Procedures

Functions

crimanalysis

economics

hmbank

learncoding

learning_organization

departments

employees

views

Stored Procedures

Functions

petadoption

petrels

sakila

shop

sys

vag

Administration Schemas

Information

Table: departments

Columns:

department_id int PK

department_name varchar

Query 1

```
111 select upper('bayant');
112 select sin(1.5);
113 select ceiling(14.01);
114 select exp(4.5);
115 select floor(14.75);
116 select log(5.4);
117 select abs(-10);
118 select month ('2023-05-31');
119 select year ('2023-05-31');
```

Result Grid

year (2023-05-31)

2023

Output

Action Output

#	Time	Action	Message	Duration / Fetch
18	20:17:47	select month ('2023-05-31') LIMIT 0, 1000	1 row(s) returned	0.000 sec / 0.000 sec
19	20:17:52	select year ('2023-05-31') LIMIT 0, 1000	1 row(s) returned	0.000 sec / 0.000 sec

Object Info Session

SQLAdditions

Automatic context help is disabled. Use the toolbar to manually get help for the current caret position or to toggle automatic help.

MySQL Workbench

Local instance MySQL80

File Edit View Query Database Server Tools Scripting Help

Navigator

SCHMAS

work

dept

employee

students

views

Stored Procedures

Functions

crimanalysis

economics

hmbank

learncoding

learning_organization

departments

employees

views

Stored Procedures

Functions

petadoption

petrels

sakila

shop

sys

vag

Administration Schemas

Information

Table: departments

Columns:

department_id int PK

department_name varchar

Query 1

```
112 select sin(1.5);
113 select ceiling(14.01);
114 select exp(4.5);
115 select floor(14.75);
116 select log(5.4);
117 select abs(-10);
118 select month ('2023-05-31');
119 select year ('2023-05-31');
120 select day ('2023-05-31');
```

Result Grid

day (2023-05-31)

30

Output

Action Output

#	Time	Action	Message	Duration / Fetch
19	20:17:52	select year ('2023-05-31') LIMIT 0, 1000	1 row(s) returned	0.000 sec / 0.000 sec
20	20:17:57	select day ('2023-05-31') LIMIT 0, 1000	1 row(s) returned	0.000 sec / 0.000 sec

Object Info Session

SQLAdditions

Automatic context help is disabled. Use the toolbar to manually get help for the current caret position or to toggle automatic help.

