NAME –JAYANT JHUNJA

SQL HANDS ON --

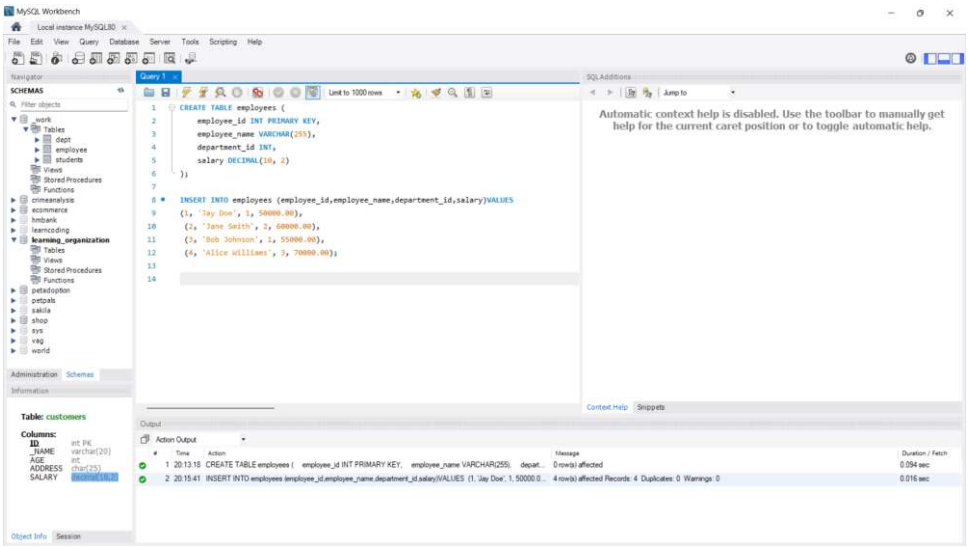
JOINS AND SUBQUERY

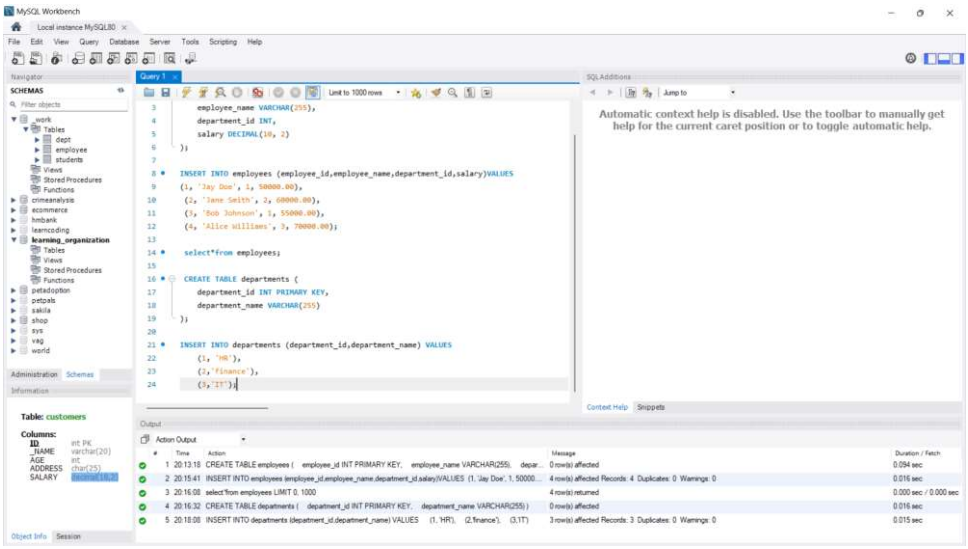
*Joins--

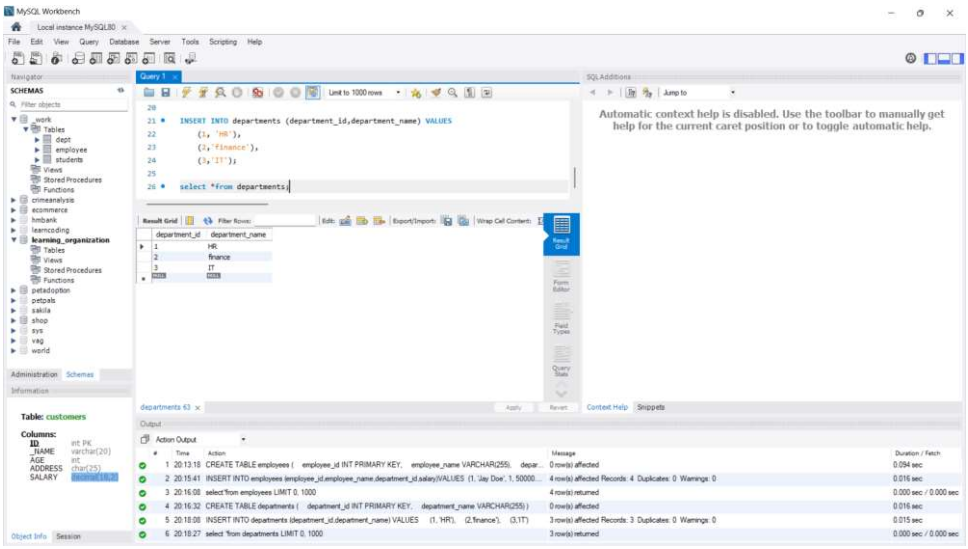
Joins in a relational database are operations that combine rows from two or more tables based on a related column between them. The purpose of joining tables is to retrieve data from multiple tables in a single result set, enabling you to work with related information in a more meaningful way.

There are several types of joins, each

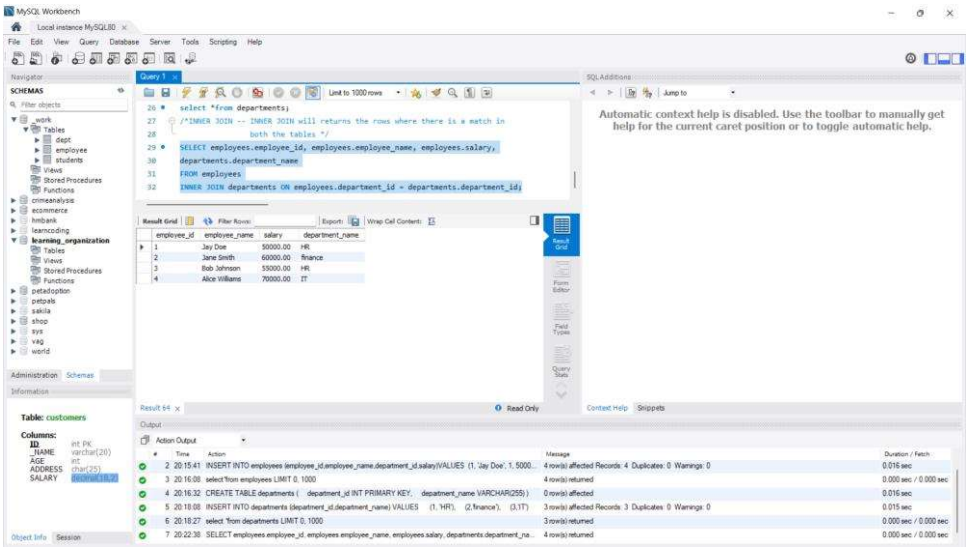
Serving different type of purpose-


MySQL Workbench
CREATE TABLE employees (
employee_id INT PRIMARY KEY,
employee_name VARCHAR(255),
department_id INT,
salary DECIMAL(10, 2)
);
INSERT INTO employees (employee_id,employee_name,department_id,salary)VALUES
(1, 'Jay Doe', 1, 50000.00),
(2, 'Jane Smith', 2, 60000.00),
(3, 'Bob Johnson', 1, 55000.00),
(4, 'Alice Williams', 3, 70000.00);
Automatic context help is disabled. Use the toolbar to manually get help for the current caret position or to toggle automatic help.

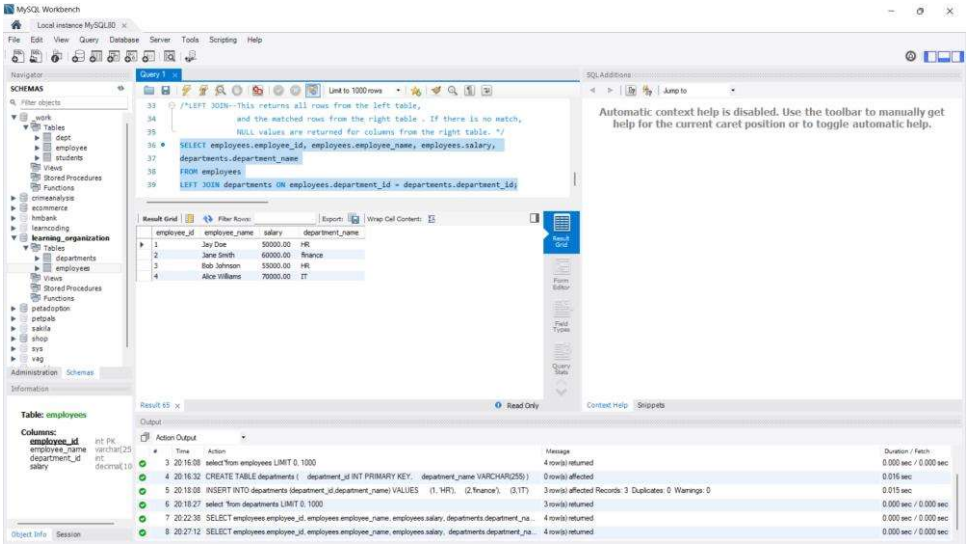

MySQL Workbench
INSERT INTO employees (employee_id,employee_name,department_id,salary)VALUES
(1, 'Jay Doe', 1, 50000.00),
(2, 'Jane Smith', 2, 60000.00),
(3, 'Bob Johnson', 1, 55000.00),
(4, 'Alice Williams', 3, 70000.00);
select*from employees;
CREATE TABLE departments (
department_id INT PRIMARY KEY,
department_name VARCHAR(255)
);
INSERT INTO departments (department_id,department_name) VALUES
(1, 'HR'),
(2,'finance'),
(3,'IT');
Automatic context help is disabled. Use the toolbar to manually get help for the current caret position or to toggle automatic help.


MySQL Workbench
INSERT INTO departments (department_id,department_name) VALUES
(1, 'HR'),
(2,'finance'),
(3,'IT');
select *from departments;
department_id
department_name
1
HR
2
finance
3
IT
Automatic context help is disabled. Use the toolbar to manually get help for the current caret position or to toggle automatic help.

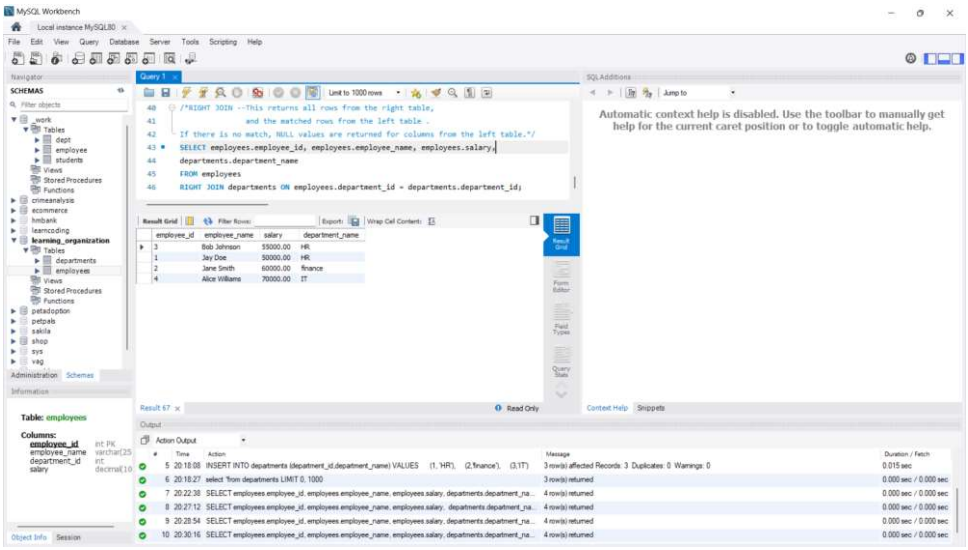
*INNER JOIN-



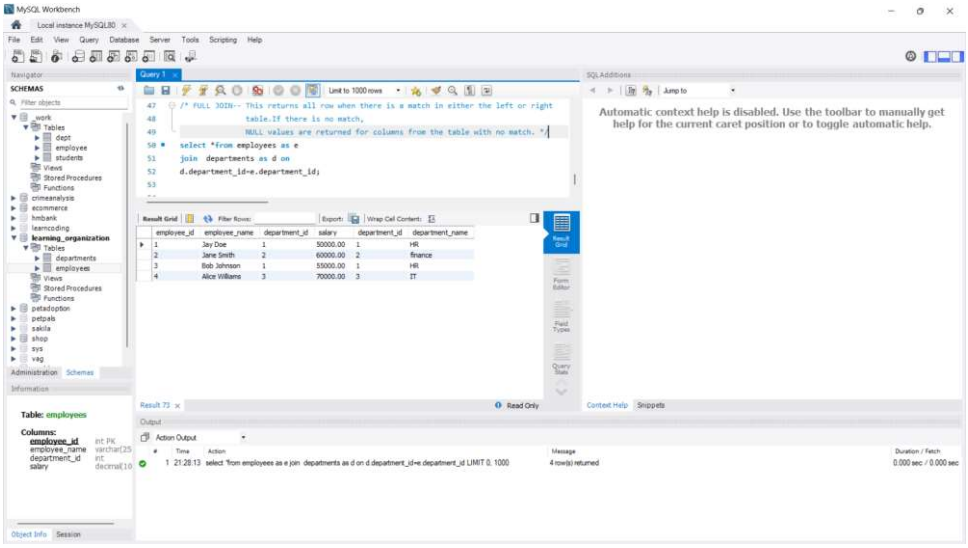
*LEFT JOIN-



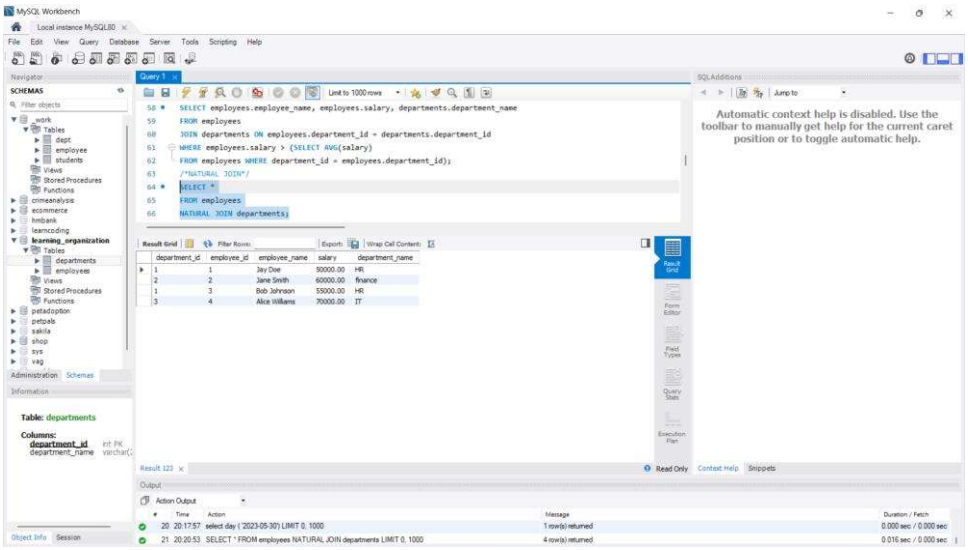
*RIGHT JOIN-



*FULL OUTTER JOIN-

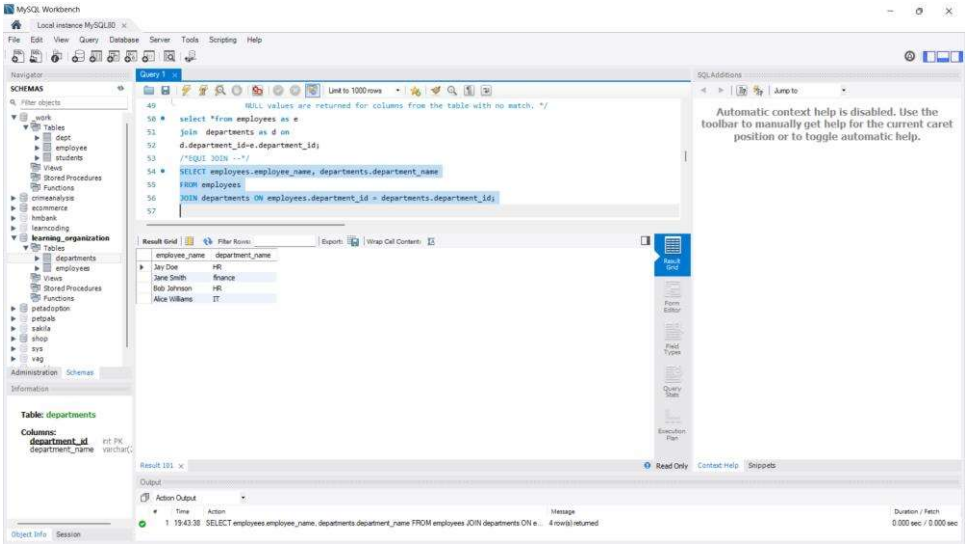


*NATURAL JOIN-



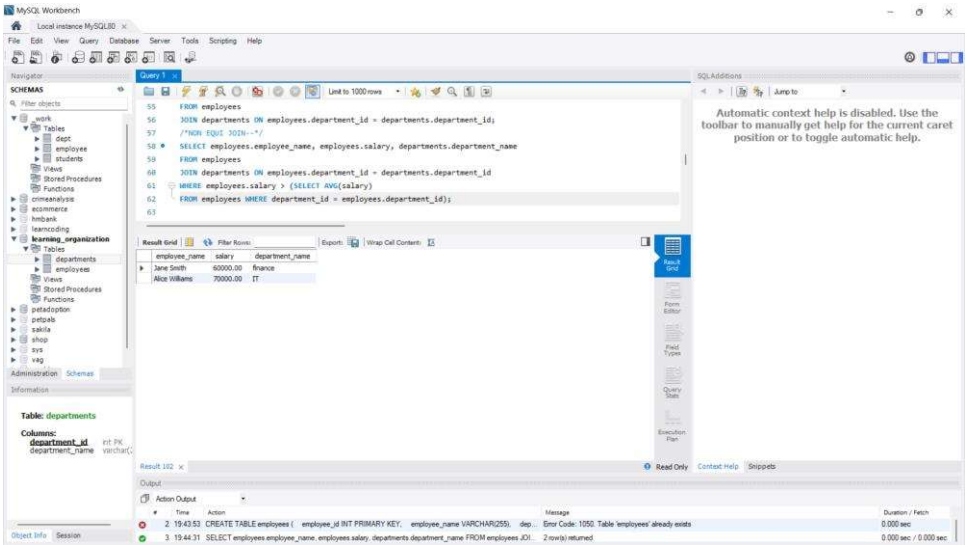
*EQUI JOIN -

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.



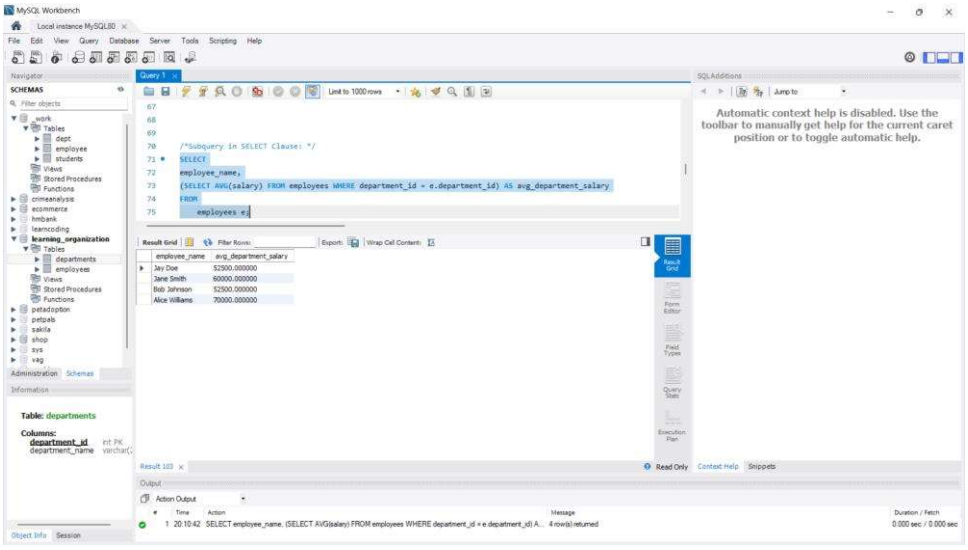
*NON EQUI JOIN-

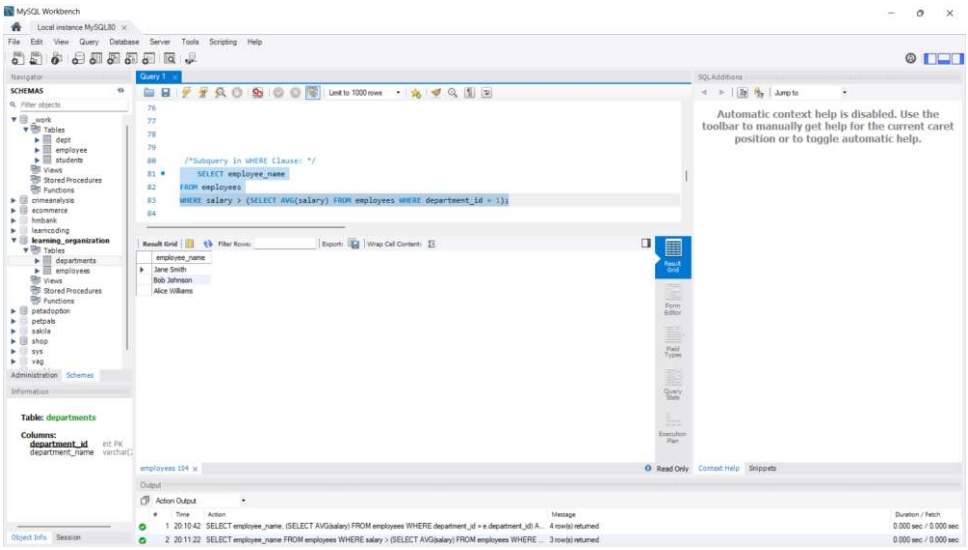
Non-Equi join, involves joining tables based on conditions other than equality

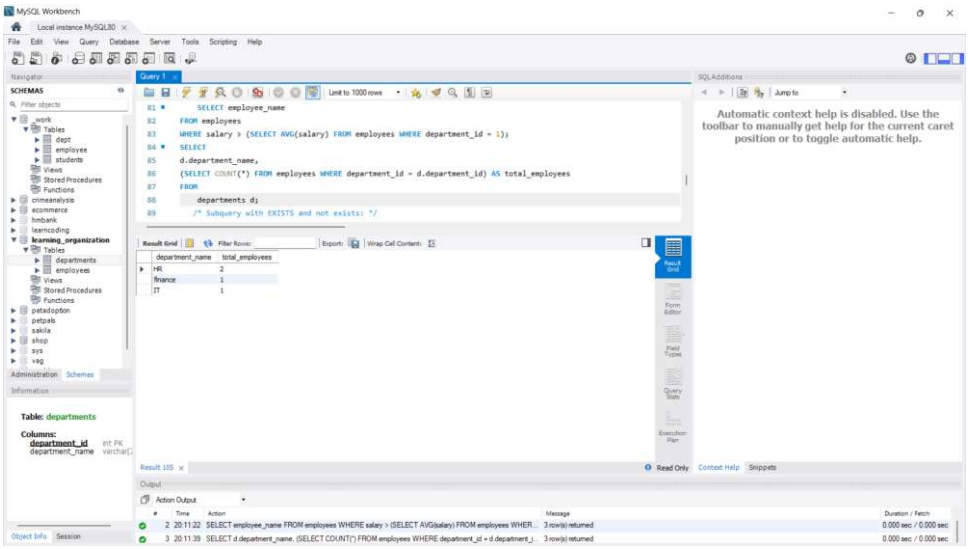


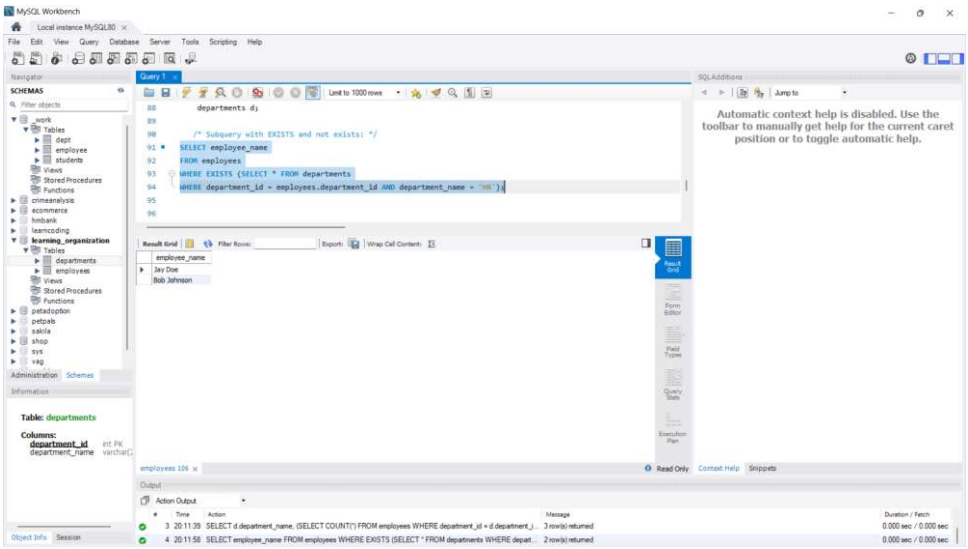
SQL Correlated Subquery-

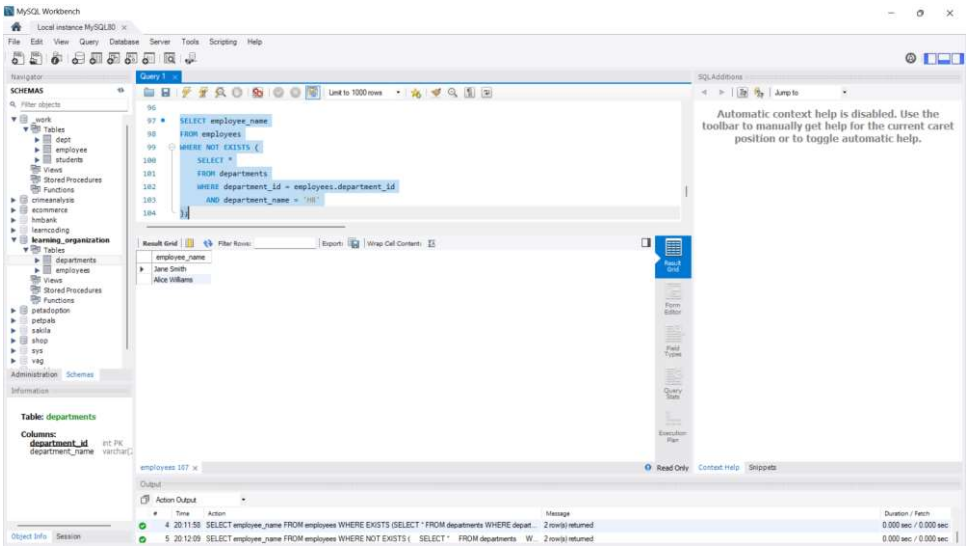
SQL Correlated Subqueries are used to select data from a table referenced in the outer query. The subquery is known as a correlated because the subquery is related to the outer query.

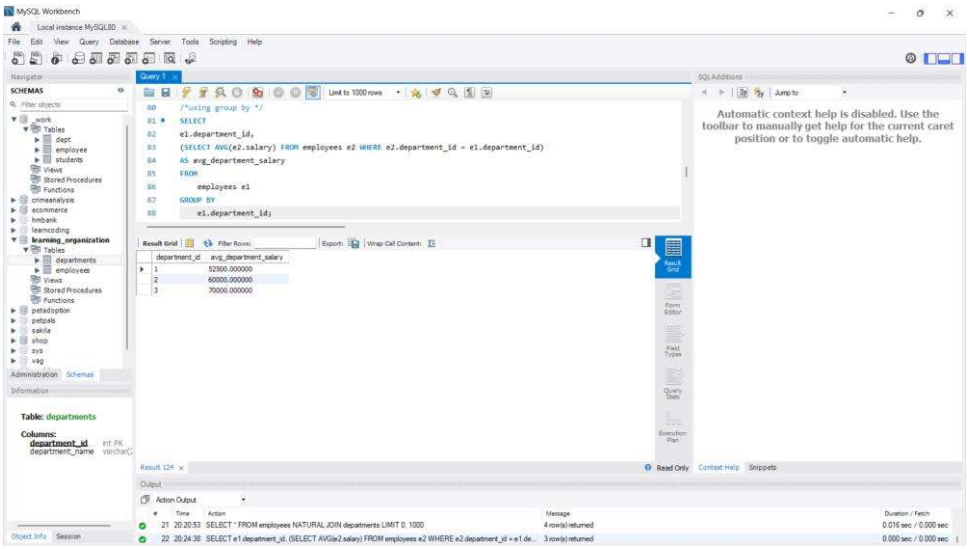


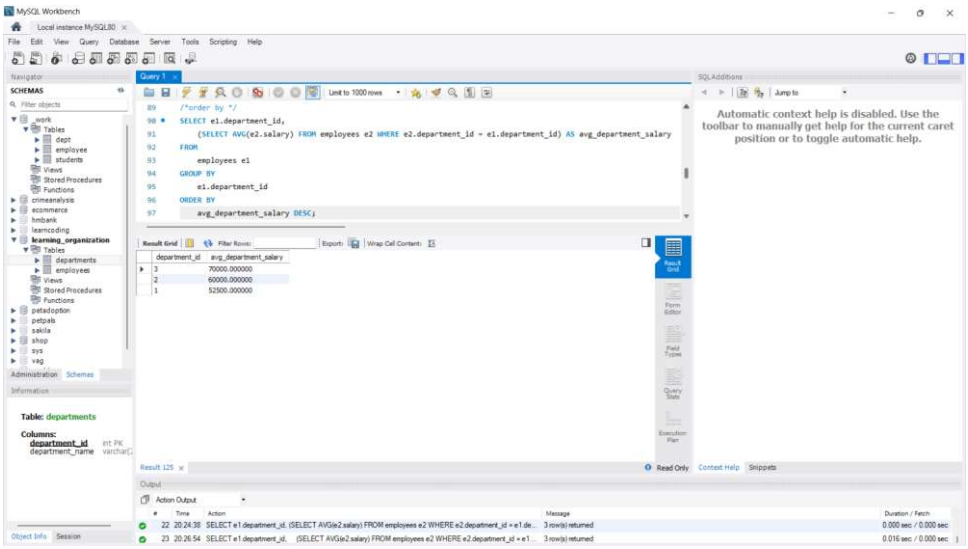

MySQL Workbench
/*Subquery in WHERE Clause: */
SELECT employee_name
FROM employees
WHERE salary > (SELECT AVG(salary) FROM employees WHERE department_id = 1);
employee_name
Jane Smith
Bob Johnson
Alice Williams
Automatic context help is disabled. Use the toolbar to manually get help for the current caret position or to toggle automatic help.
Table: departments
Columns:
department_id int PK
department_name varchar(
1 20:10:42 SELECT employee_name, (SELECT AVG(salary) FROM employees WHERE department_id = e.department_id) A... 4 row(s) returned 0.000 sec / 0.000 sec
2 20:11:22 SELECT employee_name FROM employees WHERE salary > (SELECT AVG(salary) FROM employees WHERE ... 3 row(s) returned 0.000 sec / 0.000 sec


MySQL Workbench
SELECT employee_name
FROM employees
WHERE salary > (SELECT AVG(salary) FROM employees WHERE department_id = 1);
SELECT
d.department_name,
(SELECT COUNT(*) FROM employees WHERE department_id = d.department_id) AS total_employees
FROM
departments d;
/* Subquery with EXISTS and not exists: */
department_name total_employees
HR 2
finance 1
IT 1
Automatic context help is disabled. Use the toolbar to manually get help for the current caret position or to toggle automatic help.
Table: departments
Columns:
department_id int PK
department_name varchar(
2 20:11:22 SELECT employee_name FROM employees WHERE salary > (SELECT AVG(salary) FROM employees WHER... 3 row(s) returned 0.000 sec / 0.000 sec
3 20:11:39 SELECT d.department_name, (SELECT COUNT(*) FROM employees WHERE department_id = d.department_i... 3 row(s) returned 0.000 sec / 0.000 sec

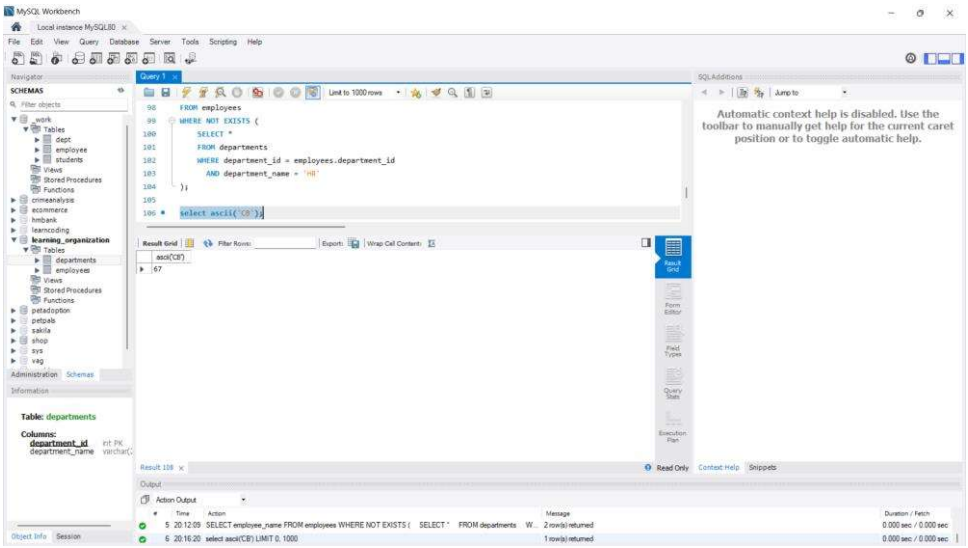

MySQL Workbench
departments d;
/* Subquery with EXISTS and not exists: */
SELECT employee_name
FROM employees
WHERE EXISTS (SELECT * FROM departments
WHERE department_id = employees.department_id AND department_name = 'HR');
employee_name
Jay Doe
Bob Johnson
Automatic context help is disabled. Use the toolbar to manually get help for the current caret position or to toggle automatic help.
Table: departments
Columns:
department_id int PK
department_name varchar(
3 20:11:39 SELECT d.department_name, (SELECT COUNT(*) FROM employees WHERE department_id = d.department_i... 3 row(s) returned 0.000 sec / 0.000 sec
4 20:11:58 SELECT employee_name FROM employees WHERE EXISTS (SELECT * FROM departments WHERE depart... 2 row(s) returned 0.000 sec / 0.000 sec

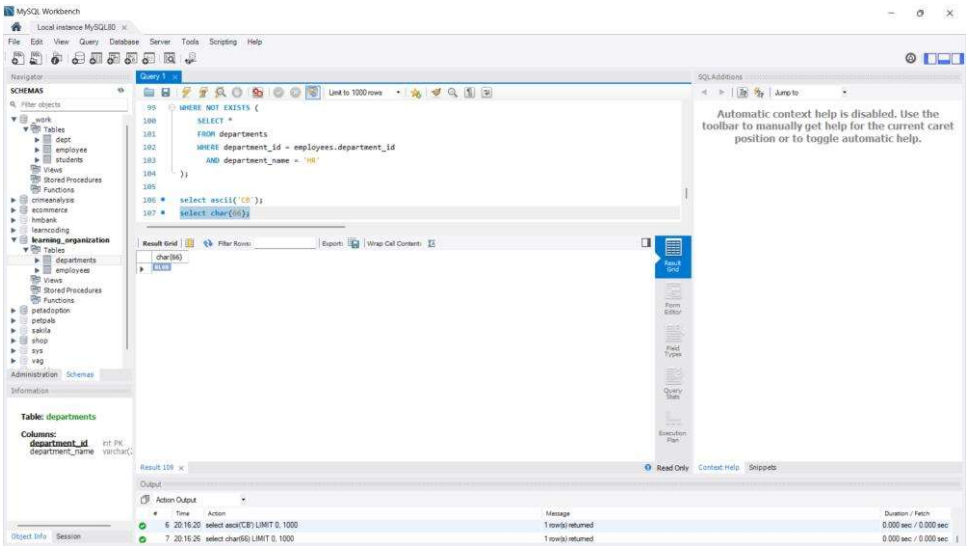


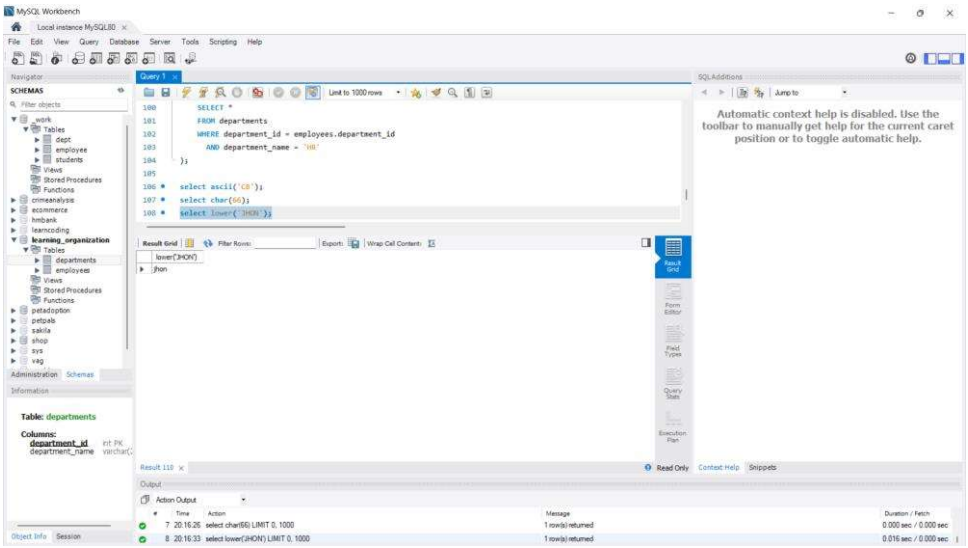


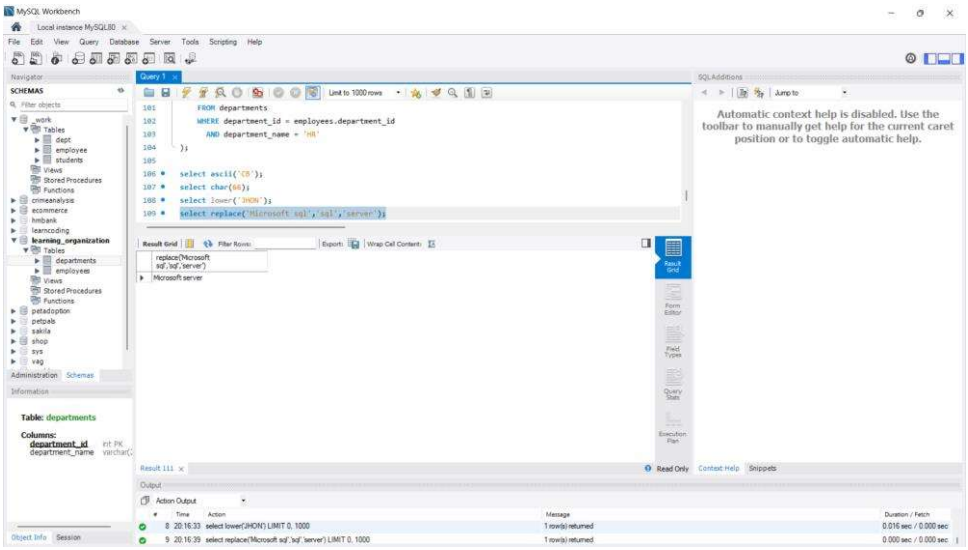


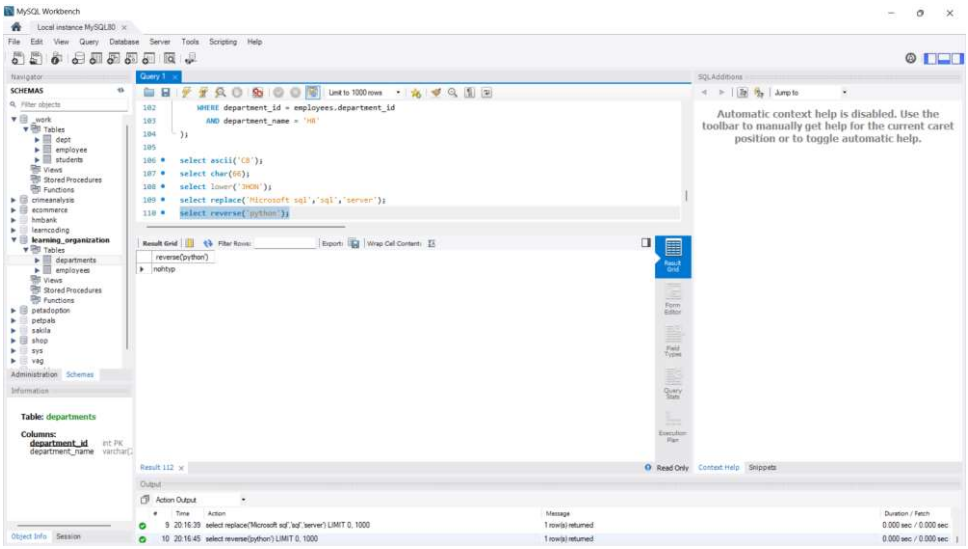
*MATHEMATICAL FUNCTIONS-

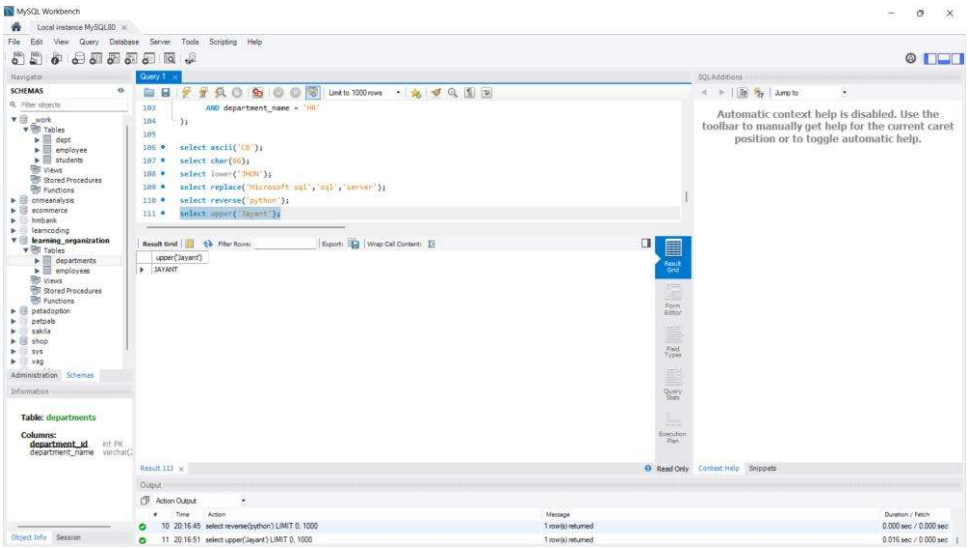

MySQL Workbench
Local instance MySQL80
File Edit View Query Database Server Tools Scripting Help
Query 1
FROM employees
WHERE NOT EXISTS (
SELECT *
FROM departments
WHERE department_id = employees.department_id
AND department_name = 'HR'
);
select ascii('C8');
ascii('C8')
67
Automatic context help is disabled. Use the toolbar to manually get help for the current caret position or to toggle automatic help.
Table: departments
Columns:
department_id
department_name
Action Output
5 20:12:09 SELECT employee_name FROM employees WHERE NOT EXISTS (SELECT * FROM departments W... 2 row(s) returned 0.000 sec / 0.000 sec
6 20:16:20 select ascii('C8') LIMIT 0, 1000 1 row(s) returned 0.000 sec / 0.000 sec

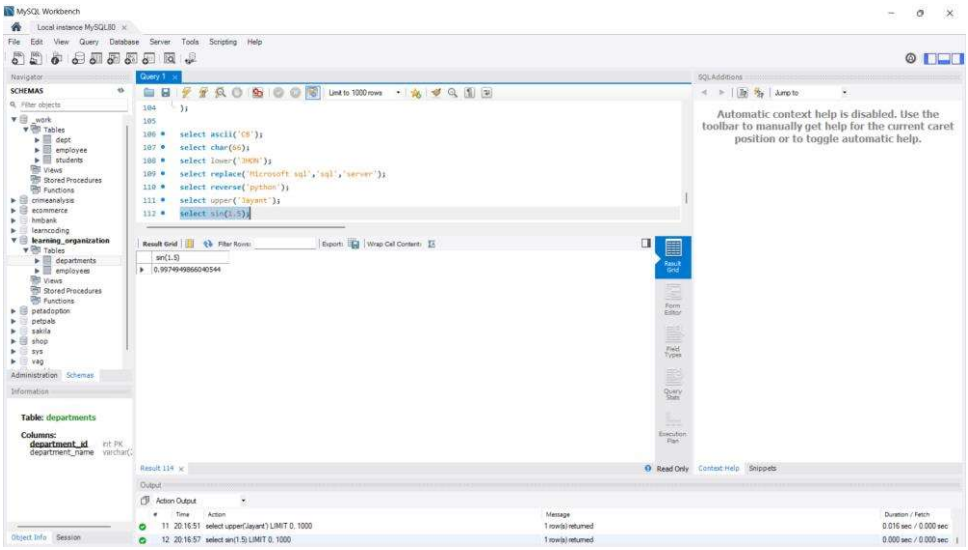

MySQL Workbench
Local instance MySQL80
File Edit View Query Database Server Tools Scripting Help
Query 1
WHERE NOT EXISTS (
SELECT *
FROM departments
WHERE department_id = employees.department_id
AND department_name = 'HR'
);
select ascii('C8');
select char(66);
char(66)
B
Automatic context help is disabled. Use the toolbar to manually get help for the current caret position or to toggle automatic help.
Table: departments
Columns:
department_id
department_name
Action Output
6 20:16:20 select ascii('C8') LIMIT 0, 1000 1 row(s) returned 0.000 sec / 0.000 sec
7 20:16:26 select char(66) LIMIT 0, 1000 1 row(s) returned 0.000 sec / 0.000 sec

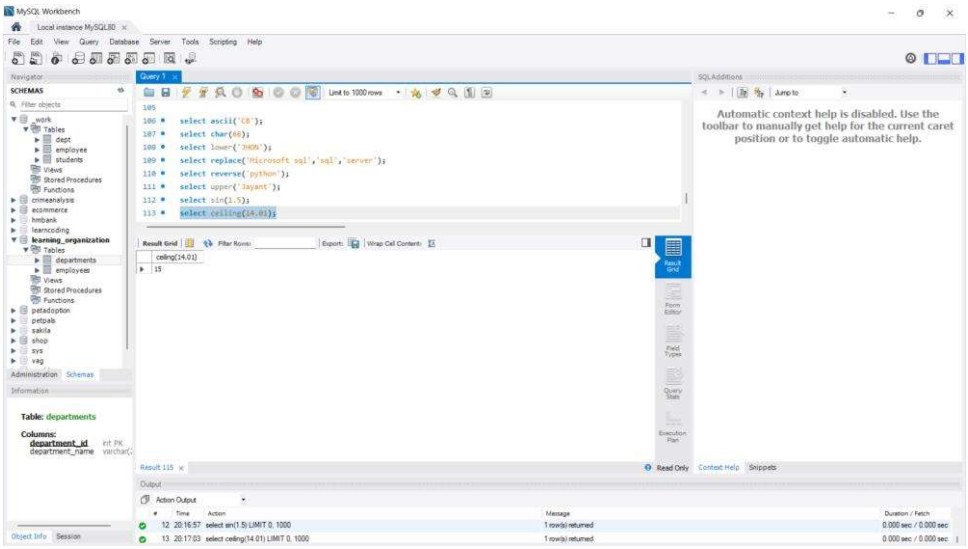

MySQL Workbench
Local instance MySQL80
File Edit View Query Database Server Tools Scripting Help
Query 1
SELECT *
FROM departments
WHERE department_id = employees.department_id
AND department_name = 'HR'
);
select ascii('C8');
select char(66);
select lower('JHON');
lower('JHON')
jhon
Automatic context help is disabled. Use the toolbar to manually get help for the current caret position or to toggle automatic help.
Table: departments
Columns:
department_id
department_name
Action Output
7 20:16:26 select char(66) LIMIT 0, 1000 1 row(s) returned 0.000 sec / 0.000 sec
8 20:16:33 select lower('JHON') LIMIT 0, 1000 1 row(s) returned 0.016 sec / 0.000 sec

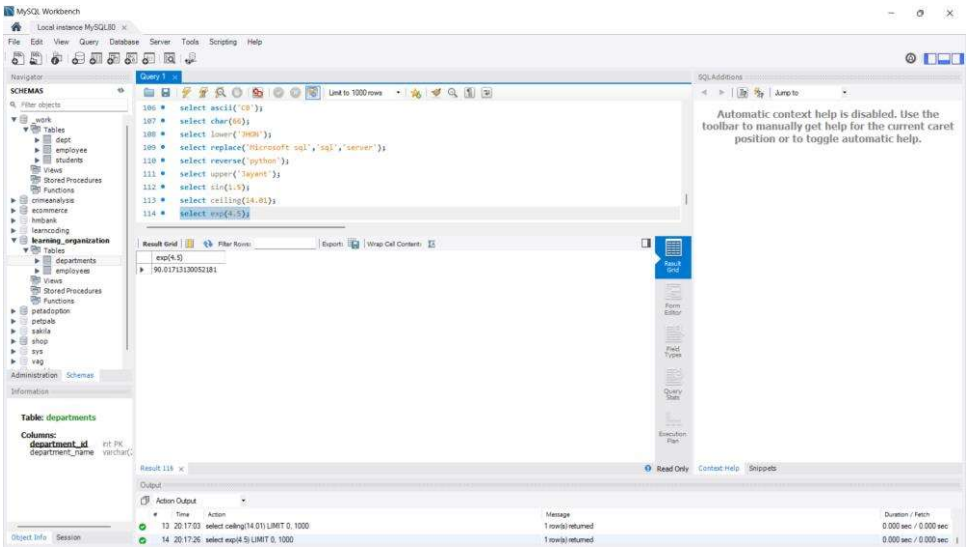

MySQL Workbench
Local instance MySQL80
File Edit View Query Database Server Tools Scripting Help
Query 1
FROM departments
WHERE department_id = employees.department_id
AND department_name = 'HR'
);
select ascii('CB');
select char(66);
select lower('JHON');
select replace('Microsoft sql','sql','server');
Result Grid
replace('Microsoft sql','sql','server')
Microsoft server
Automatic context help is disabled. Use the toolbar to manually get help for the current caret position or to toggle automatic help.
Table: departments
Columns:
department_id int PK
department_name varchar
Output
Action Output
8 20:16:33 select lower('JHON') 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

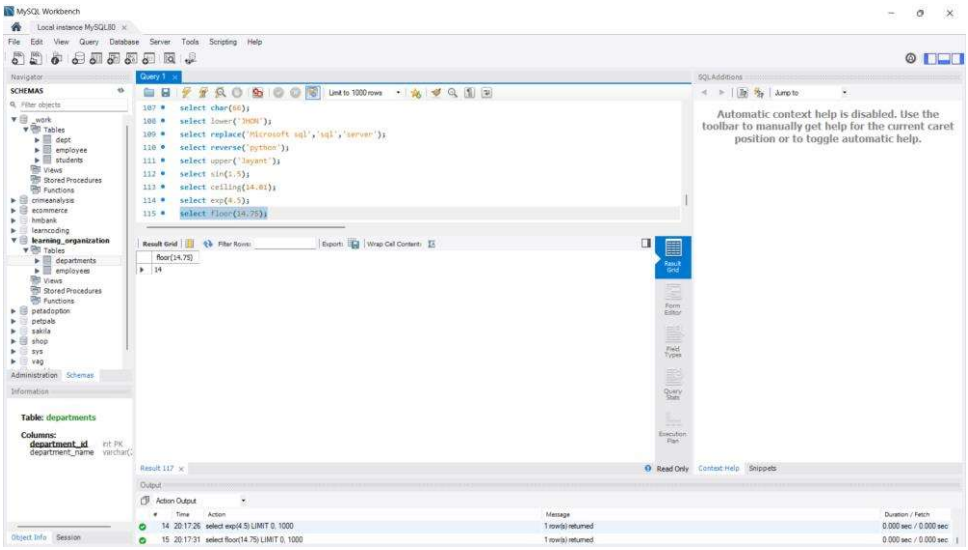

MySQL Workbench
Local instance MySQL80
File Edit View Query Database Server Tools Scripting Help
Query 1
WHERE department_id = employees.department_id
AND department_name = 'HR'
);
select ascii('CB');
select char(66);
select lower('JHON');
select replace('Microsoft sql','sql','server');
select reverse('python');
Result Grid
reverse('python')
nohtyp
Automatic context help is disabled. Use the toolbar to manually get help for the current caret position or to toggle automatic help.
Table: departments
Columns:
department_id int PK
department_name varchar
Output
Action Output
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

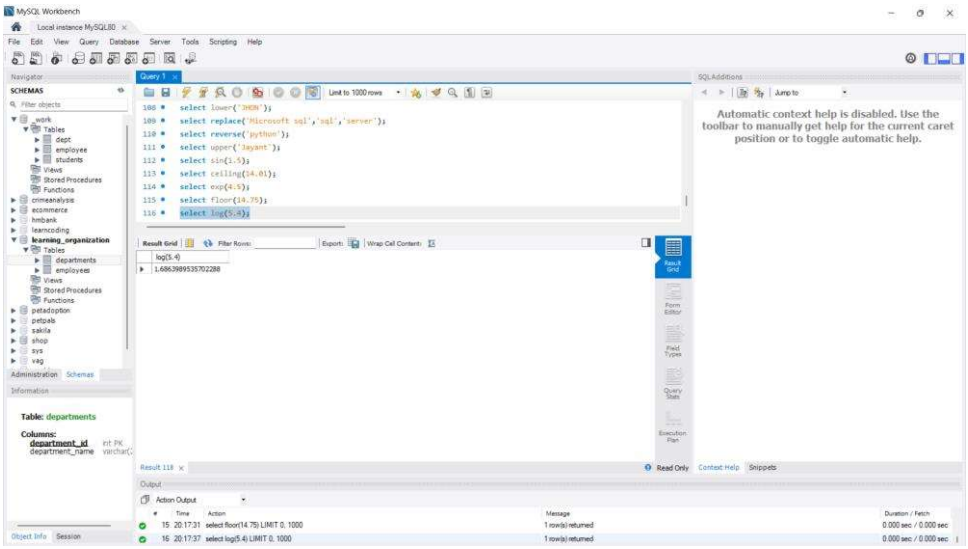

MySQL Workbench
Local instance MySQL80
File Edit View Query Database Server Tools Scripting Help
Query 1
AND department_name = 'HR'
);
select ascii('CB');
select char(66);
select lower('JHON');
select replace('Microsoft sql','sql','server');
select reverse('python');
select upper('Jayant');
Result Grid
upper('Jayant')
JAYANT
Automatic context help is disabled. Use the toolbar to manually get help for the current caret position or to toggle automatic help.
Table: departments
Columns:
department_id int PK
department_name varchar
Output
Action Output
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

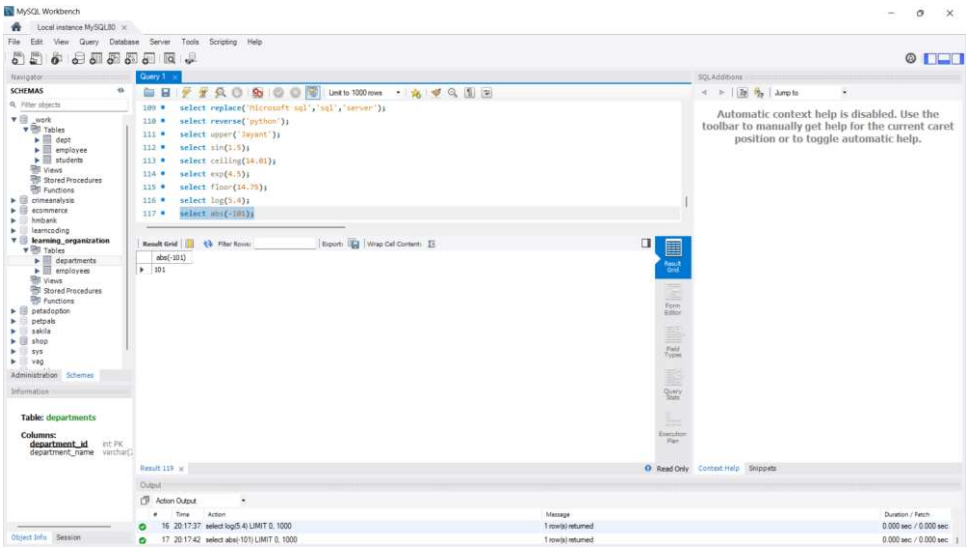

MySQL Workbench
Local instance MySQL80
File Edit View Query Database Server Tools Scripting Help
Query 1
select ascii('C8');
select char(66);
select lower('JHON');
select replace('Microsoft sql','sql','server');
select reverse('python');
select upper('Jayant');
select sin(1.5);
sin(1.5)
0.9974949866040544
Automatic context help is disabled. Use the toolbar to manually get help for the current caret position or to toggle automatic help.
Table: departments
Columns:
department_id
department_name
Action Output
11 20:16:51 select upper(Jayant') LIMIT 0, 1000 1 row(s) returned 0.016 sec / 0.000 sec
12 20:16:57 select sin(1.5) LIMIT 0, 1000 1 row(s) returned 0.000 sec / 0.000 sec

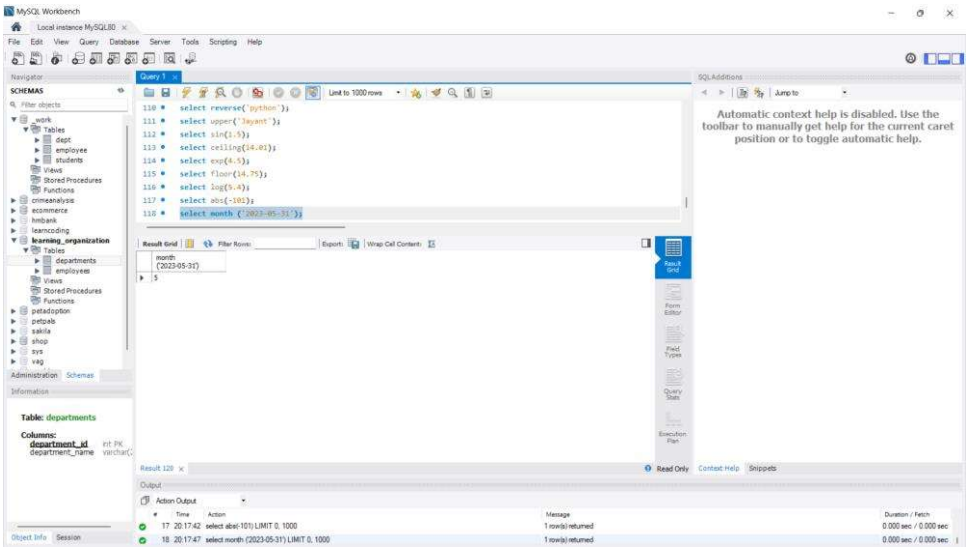

MySQL Workbench
Local instance MySQL80
File Edit View Query Database Server Tools Scripting Help
Query 1
select ascii('C8');
select char(66);
select lower('JHON');
select replace('Microsoft sql','sql','server');
select reverse('python');
select upper('Jayant');
select sin(1.5);
select ceiling(14.01);
ceiling(14.01)
15
Automatic context help is disabled. Use the toolbar to manually get help for the current caret position or to toggle automatic help.
Table: departments
Columns:
department_id
department_name
Action Output
12 20:16:57 select sin(1.5) 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

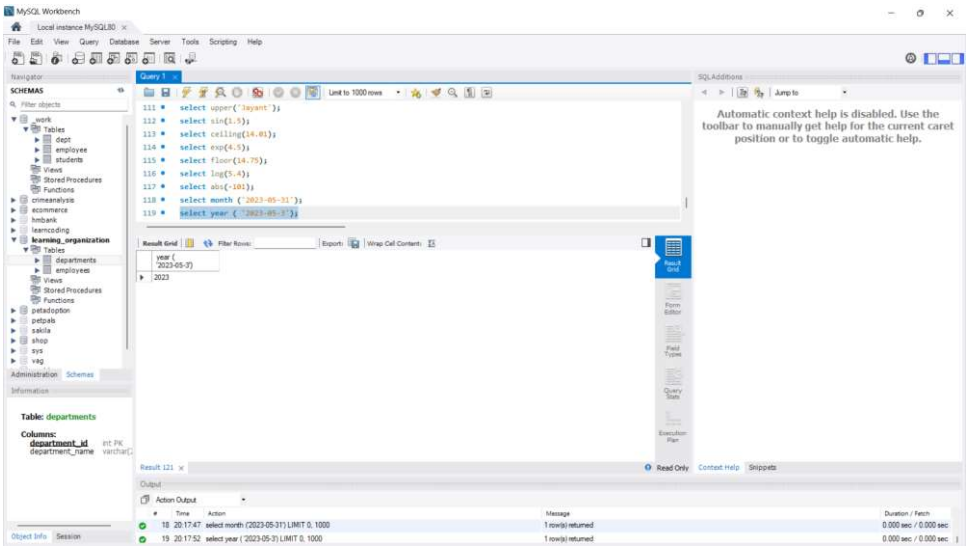

MySQL Workbench
Local instance MySQL80
File Edit View Query Database Server Tools Scripting Help
Query 1
select ascii('C8');
select char(66);
select lower('JHON');
select replace('Microsoft sql','sql','server');
select reverse('python');
select upper('Jayant');
select sin(1.5);
select ceiling(14.01);
select exp(4.5);
exp(4.5)
90.01713130052181
Automatic context help is disabled. Use the toolbar to manually get help for the current caret position or to toggle automatic help.
Table: departments
Columns:
department_id
department_name
Action Output
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

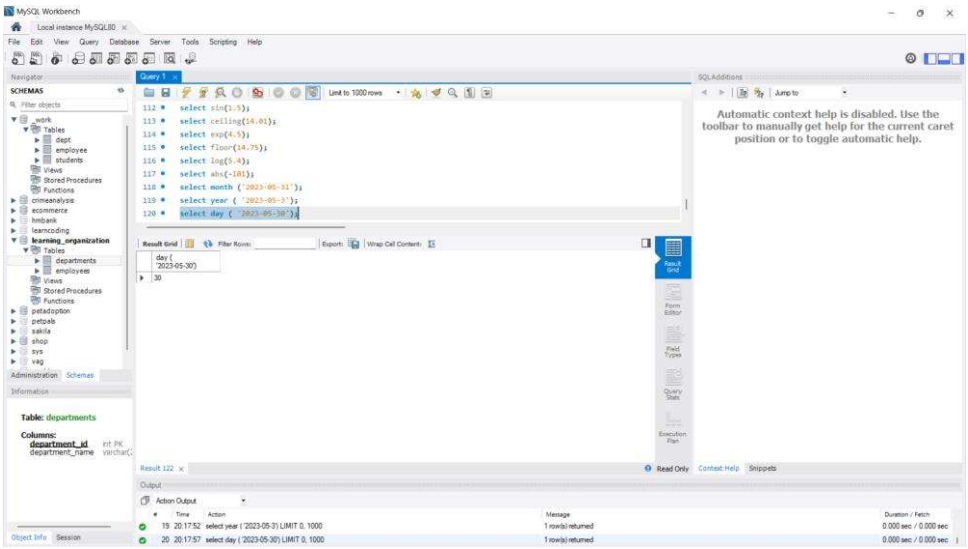

MySQL Workbench
Local instance MySQL80
File Edit View Query Database Server Tools Scripting Help
Query 1
107 * select char(66);
108 * select lower('JHON');
109 * select replace('Microsoft sql','sql','server');
110 * select reverse('python');
111 * select upper('Jayant');
112 * select sin(1.5);
113 * select ceiling(14.01);
114 * select exp(4.5);
115 * select floor(14.75);
floor(14.75)
14
Automatic context help is disabled. Use the toolbar to manually get help for the current caret position or to toggle automatic help.
Table: departments
Columns:
department_id int PK
department_name varchar(
Result 117
Read Only
Context Help
Snippets
Output
Action Output
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


MySQL Workbench
Local instance MySQL80
File Edit View Query Database Server Tools Scripting Help
Query 1
108 * select lower('JHON');
109 * select replace('Microsoft sql','sql','server');
110 * select reverse('python');
111 * select upper('Jayant');
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);
log(5.4)
1.6863989535702288
Automatic context help is disabled. Use the toolbar to manually get help for the current caret position or to toggle automatic help.
Table: departments
Columns:
department_id int PK
department_name varchar(
Result 118
Read Only
Context Help
Snippets
Output
Action Output
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


MySQL Workbench
Local instance MySQL80
File Edit View Query Database Server Tools Scripting Help
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(14.01);
114 * select exp(4.5);
115 * select floor(14.75);
116 * select log(5.4);
117 * select abs(-101);
abs(-101)
101
Automatic context help is disabled. Use the toolbar to manually get help for the current caret position or to toggle automatic help.
Table: departments
Columns:
department_id int PK
department_name varchar(
Result 119
Read Only
Context Help
Snippets
Output
Action Output
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


MySQL Workbench
Local instance MySQL80
File Edit View Query Database Server Tools Scripting Help
Query 1
select reverse('python');
select upper('Jayant');
select sin(1.5);
select ceiling(14.01);
select exp(4.5);
select floor(14.75);
select log(5.4);
select abs(-101);
select month ('2023-05-31');
month ('2023-05-31')
5
Automatic context help is disabled. Use the toolbar to manually get help for the current caret position or to toggle automatic help.
Table: departments
Columns:
department_id int PK
department_name varchar(
Result 120
Read Only
Context Help
Snippets
Action Output
17 20:17:42 select abs(-101) 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


MySQL Workbench
Local instance MySQL80
File Edit View Query Database Server Tools Scripting Help
Query 1
select upper('Jayant');
select sin(1.5);
select ceiling(14.01);
select exp(4.5);
select floor(14.75);
select log(5.4);
select abs(-101);
select month ('2023-05-31');
select year ('2023-05-3');
year ('2023-05-3')
2023
Automatic context help is disabled. Use the toolbar to manually get help for the current caret position or to toggle automatic help.
Table: departments
Columns:
department_id int PK
department_name varchar(
Result 121
Read Only
Context Help
Snippets
Action Output
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 ('2023-05-3') 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
Query 1
select sin(1.5);
select ceiling(14.01);
select exp(4.5);
select floor(14.75);
select log(5.4);
select abs(-101);
select month ('2023-05-31');
select year ('2023-05-3');
select day ('2023-05-30');
day ('2023-05-30')
30
Automatic context help is disabled. Use the toolbar to manually get help for the current caret position or to toggle automatic help.
Table: departments
Columns:
department_id int PK
department_name varchar(
Result 122
Read Only
Context Help
Snippets
Action Output
19 20:17:52 select year ('2023-05-3') LIMIT 0, 1000 1 row(s) returned 0.000 sec / 0.000 sec
20 20:17:57 select day ('2023-05-30') LIMIT 0, 1000 1 row(s) returned 0.000 sec / 0.000 sec