

DBMS LAB4

V Venkataraman 106118106

```
use mysampldb;
```

```
DROP TABLE EMP;
```

```
DROP TABLE DEPT;
```

```
DROP TABLE LOCA;
```

```
CREATE TABLE EMP(  
    EMPLOYEE_ID INT,  
    FIRST_NAME VARCHAR(100),  
    LAST_NAME VARCHAR(100),  
    EMAIL VARCHAR(100),  
    PHONE_NUMBER VARCHAR(100),  
    HIRE_DATE DATE,  
    JOB_ID VARCHAR(10),  
    COMMISSION_PCT FLOAT,  
    SALARY FLOAT,  
    MANAGER_ID INT,  
    DEPARTMENT_ID INT  
);
```

```
CREATE TABLE DEPT(  
    DEPARTMENT_ID INT,  
    DEPARTMENT_NAME VARCHAR(100),  
    MANAGER_ID INT,  
    LOCATION_ID INT  
);
```

```
CREATE TABLE LOCA(  
    LOCATION_ID INT,  
    STREET_ADDRESS VARCHAR(100),  
    POSTAL_CODE INT,  
    CITY VARCHAR(100),
```

```

    STATA_PROVINCE VARCHAR(100),
    COUNTRY_ID INT
);

INSERT INTO EMP VALUES(163,'Arjun','Ramprasad','arjun@gmail.com',
'9521233450','2008-01-01','IT_PROG',5.50,3000,177,1001);
INSERT INTO EMP VALUES(169,'Clara','Singh','clara1@gmail.com',
'9533434350','2009-11-21','ACC',5.50,2000,121,1002);
INSERT INTO EMP VALUES(170,'Jagdish','Manohar','jaggi@gmail.com',
'9519633450','2018-01-21','TAX',5.50,1500,159,1003);
INSERT INTO EMP VALUES(134,'Arun','Reddy','arun@gmail.com',
'9521233321','2000-03-02','IT_PROG',5.50,4000,101,1001);
INSERT INTO EMP
VALUES(159,'Tanmay','Sharma','tanman33@gmail.com',
'9525633450','2001-01-01','DESIGN',5.50,2000,111,1004);
INSERT INTO EMP VALUES(200,'Ron','Weasley','ron88@gmail.com',
'1525633450','2001-01-01','TEST',5.50,2000,111,1004);
INSERT INTO EMP VALUES(183,'Jack','Samuel','jack@gmail.com',
'9521233450','2008-01-01','IT_PROG',5.50,3000,177,1002);
INSERT INTO EMP VALUES(199,'Dinesh','Karthik','dinesh@gmail.com',
'9523434350','2009-11-21','ACC',5.50,2000,121,1003);
INSERT INTO EMP VALUES(110,'MS','Dhoni','dhoni@gmail.com',
'9519635650','2018-01-21','TAX',5.50,1500,159,1001);
INSERT INTO EMP VALUES(114,'Lawrence','Turbo','landt@gmail.com',
'951233321','2000-03-02','IT_PROG',5.50,4000,134,1004);
INSERT INTO EMP VALUES(119,'Giri','Nath','gir33@gmail.com',
'9525623450','2001-01-01','DESIGN',5.50,2000,159,1001);
INSERT INTO EMP VALUES(112,'Tarry','Potter','tarry88@gmail.com',
'1545633450','2001-01-01','TEST',5.50,2000,221,1004);

INSERT INTO DEPT VALUES(1001,'Computer',177,51);
INSERT INTO DEPT VALUES(1002,'Finance',121,52);
INSERT INTO DEPT VALUES(1003,'Taxation',111,53);
INSERT INTO DEPT VALUES(1004,'Production',101,54);
INSERT INTO DEPT VALUES(1005,'Arts',159,55);

```

```
INSERT INTO DEPT VALUES(1006,'Electrical',211,56);
INSERT INTO DEPT VALUES(1007,'Sales',221,57);
INSERT INTO DEPT VALUES(1008,'Marketing',231,58);
INSERT INTO DEPT VALUES(1009,'Testing',241,59);
INSERT INTO DEPT VALUES(1010,'Law',210,60);
```

```
INSERT INTO LOCA VALUES(51,'Nehru
street',600017,'Chennai','TamilNadu',91);
INSERT INTO LOCA VALUES(52,'RedWood
street',300007,'Toronto','Canada',10);
INSERT INTO LOCA VALUES(53,'ABC street',200017,'New
York','USA',21);
INSERT INTO LOCA VALUES(54,'Shivaji
street',600017,'Mumbai','Maharashtra',91);
INSERT INTO LOCA VALUES(55,'Anna
street',300017,'Chennai','TamilNadu',91);
INSERT INTO LOCA VALUES(56,'Gandhi
street',600017,'Chennai','TamilNadu',91);
INSERT INTO LOCA VALUES(57,'BlueWood
street',300007,'Toronto','Canada',10);
INSERT INTO LOCA VALUES(58,'DEF street',200017,'New
York','USA',21);
INSERT INTO LOCA VALUES(59,'Pakoda
street',600017,'Mumbai','Maharashtra',91);
INSERT INTO LOCA VALUES(60,'Periyar
street',300017,'Chennai','TamilNadu',91);
```

-- 1.

```
SELECT FIRST_NAME, LAST_NAME FROM EMP WHERE SALARY >
(SELECT SALARY FROM EMP WHERE EMPLOYEE_ID = 163);
```

MySQL Workbench

Local instance MySQL80

File Edit View Query Database Server Tools Scripting Help

Navigator: Lab3cmds2 Lab4cmds1

Limit to 1000 rows

71 -- Execute the statement under the keyboard cursor

72 • `SELECT FIRST_NAME, LAST_NAME FROM EMP WHERE SALARY > (SELECT SALARY FROM EMP WHERE EMPLOYEE_ID = 169)`

73

74 -- 2.

75 • `SELECT EMPLOYEE_ID, FIRST_NAME, LAST_NAME, SALARY, DEPARTMENT_ID, JOB_ID FROM EMP WHERE EMPLOYEE_ID = 169`

76

77 -- 3.

Result Grid

FIRST_NAME	LAST_NAME
Arun	Reddy
Lawrence	Turbo

Output

Action Output

#	Time	Action	Message	Duration / Fetch
186	17:41:12	SELECT FIRST_NAME, LAST_NAME, SALARY, DEPARTMENT_ID FROM EMP WHERE...	8 row(s) returned	0.016 sec / 0.000 sec
187	17:42:28	SELECT FIRST_NAME, LAST_NAME FROM EMP WHERE SALARY > (SELECT SALARY F...	2 row(s) returned	0.000 sec / 0.000 sec

Object Info Session

05:42 PM 21-09-2020

-- 2.

`SELECT EMPLOYEE_ID,
FIRST_NAME, LAST_NAME, SALARY, DEPARTMENT_ID, JOB_ID FROM
EMP WHERE JOB_ID = (SELECT JOB_ID FROM EMP WHERE
EMPLOYEE_ID = 169) AND EMPLOYEE_ID != 169;`

MySQL Workbench

Local instance MySQL80

File Edit View Query Database Server Tools Scripting Help

Navigator: Lab3cmds2 Lab4cmds1

Limit to 1000 rows

71 -- 1

72 • `SELECT FIRST_NAME, LAST_NAME FROM EMP WHERE SALARY > (SELECT SALARY FROM EMP WHERE EMPLOYEE_ID = 169)`

73

74 -- 2.

75 • `SELECT EMPLOYEE_ID, FIRST_NAME, LAST_NAME, SALARY, DEPARTMENT_ID, JOB_ID FROM EMP WHERE EMPLOYEE_ID = 169`

76

77 -- 3.

Result Grid

EMPLOYEE_ID	FIRST_NAME	LAST_NAME	SALARY	DEPARTMENT_ID	JOB_ID
199	Dinesh	Karthik	2000	1003	ACC

Output

Action Output

#	Time	Action	Message	Duration / Fetch
187	17:42:28	SELECT FIRST_NAME, LAST_NAME FROM EMP WHERE SALARY > (SELECT SALARY F...	2 row(s) returned	0.000 sec / 0.000 sec
188	17:42:41	SELECT EMPLOYEE_ID, FIRST_NAME, LAST_NAME, SALARY, DEPARTMENT_ID, JOB_I...	1 row(s) returned	0.000 sec / 0.000 sec

Object Info Session

05:42 PM 21-09-2020

-- 3.

SELECT FIRST_NAME, LAST_NAME, SALARY, DEPARTMENT_ID FROM EMP WHERE SALARY IN (SELECT MIN(SALARY) FROM EMP GROUP BY DEPARTMENT_ID);

The screenshot shows the MySQL Workbench interface. The query editor contains the following SQL statement:

```
-- 2.
SELECT EMPLOYEE_ID, FIRST_NAME, LAST_NAME, SALARY, DEPARTMENT_ID, JOB_ID FROM EMP WHERE SALARY IN ( SELECT MIN(SALARY) FROM EMP GROUP BY DEPARTMENT_ID );
```

The result grid displays the following data:

FIRST_NAME	LAST_NAME	SALARY	DEPARTMENT_ID
Clara	Singh	2000	1002
Jagdish	Manohar	1500	1003
Tanmay	Sharma	2000	1004
Ron	Weasley	2000	1004
Dinesh	Karthik	2000	1003
MS	Dhoni	1500	1001
Giri	Nath	2000	1001

The output pane shows the execution details:

#	Time	Action	Message	Duration / Fetch
188	17:42:41	SELECT EMPLOYEE_ID, FIRST_NAME, LAST_NAME, SALARY, DEPARTMENT_ID, JOB_ID FROM EMP WHERE SALARY IN (SELECT MIN(SALARY) FROM EMP GROUP BY DEPARTMENT_ID);	1 row(s) returned	0.000 sec / 0.000 sec
189	17:42:51	SELECT FIRST_NAME, LAST_NAME, SALARY, DEPARTMENT_ID FROM EMP WHERE SALARY IN (SELECT MIN(SALARY) FROM EMP GROUP BY DEPARTMENT_ID);	8 row(s) returned	0.016 sec / 0.000 sec

-- 4.

SELECT EMPLOYEE_ID, FIRST_NAME, LAST_NAME, SALARY FROM EMP WHERE SALARY > (SELECT AVG(SALARY) FROM EMP);

The screenshot shows the MySQL Workbench interface. The query editor contains the following SQL statement:

```
-- 3.
SELECT FIRST_NAME, LAST_NAME, SALARY, DEPARTMENT_ID FROM EMP WHERE SALARY IN ( SELECT MIN(SALARY) FROM EMP GROUP BY DEPARTMENT_ID );
```

The result grid displays the following data:

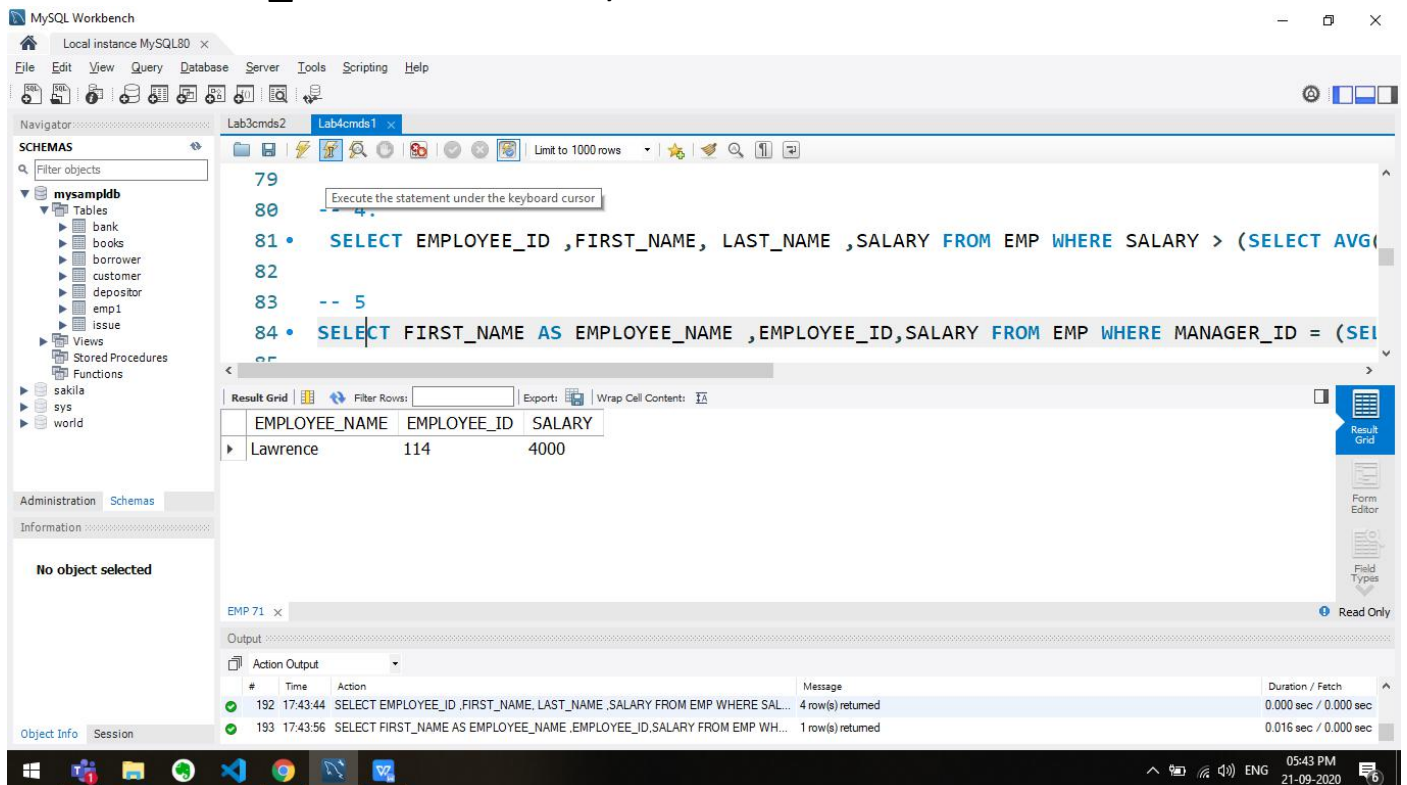
EMPLOYEE_ID	FIRST_NAME	LAST_NAME	SALARY
163	Arjun	Ramprasad	3000
134	Arun	Reddy	4000
183	Jack	Samuel	3000
114	Lawrence	Turbo	4000

The output pane shows the execution details:

#	Time	Action	Message	Duration / Fetch
191	17:43:37	SELECT FIRST_NAME, LAST_NAME, SALARY, DEPARTMENT_ID FROM EMP WHERE SALARY IN (SELECT MIN(SALARY) FROM EMP GROUP BY DEPARTMENT_ID);	8 row(s) returned	0.000 sec / 0.000 sec
192	17:43:44	SELECT EMPLOYEE_ID, FIRST_NAME, LAST_NAME, SALARY FROM EMP WHERE SALARY > (SELECT AVG(SALARY) FROM EMP);	4 row(s) returned	0.000 sec / 0.000 sec

-- 5

```
SELECT FIRST_NAME AS EMPLOYEE_NAME ,EMPLOYEE_ID,SALARY  
FROM EMP WHERE MANAGER_ID = (SELECT EMPLOYEE_ID FROM EMP  
WHERE FIRST_NAME ="ARUN");
```



MySQL Workbench interface showing a query execution. The query is:

```
SELECT FIRST_NAME AS EMPLOYEE_NAME ,EMPLOYEE_ID,SALARY  
FROM EMP WHERE MANAGER_ID = (SELECT EMPLOYEE_ID FROM EMP  
WHERE FIRST_NAME ="ARUN");
```

The result grid displays the following data:

EMPLOYEE_NAME	EMPLOYEE_ID	SALARY
Lawrence	114	4000

The output pane shows the execution details:

#	Time	Action	Message	Duration / Fetch
192	17:43:44	SELECT EMPLOYEE_ID ,FIRST_NAME, LAST_NAME ,SALARY FROM EMP WHERE SALARY > (SELECT AVG(SALARY) FROM EMP)	4 row(s) returned	0.000 sec / 0.000 sec
193	17:43:56	SELECT FIRST_NAME AS EMPLOYEE_NAME ,EMPLOYEE_ID,SALARY FROM EMP WHERE MANAGER_ID = (SELECT EMPLOYEE_ID FROM EMP WHERE FIRST_NAME ='ARUN');	1 row(s) returned	0.016 sec / 0.000 sec

-- 6

```
SELECT DISTINCT  
FIRST_NAME, LAST_NAME, JOB_ID, DEPARTMENT_NAME FROM  
EMP, DEPT  
WHERE EMP.DEPARTMENT_ID = (  
SELECT DEPARTMENT_ID FROM DEPT  
WHERE DEPARTMENT_NAME = 'FINANCE') AND  
EMP.DEPARTMENT_ID = DEPT.DEPARTMENT_ID;
```


MySQL Workbench

Local instance MySQL80

File Edit View Query Database Server Tools Scripting Help

Navigator

Lab3cmds2 Lab4cmds1

Limit to 1000 rows

82 Execute the statement under the keyboard cursor

83 -- 5

84 • SELECT FIRST_NAME AS EMPLOYEE_NAME , EMPLOYEE_ID, SALARY FROM EMP WHERE MANAGER_ID = (SEI

85

86 -- 6

87 • SELECT DISTINCT FIRST_NAME, LAST_NAME, JOB_ID, DEPARTMENT_NAME FROM EMP, DEPT

88 WHERE EMP.DEPARTMENT_ID = /

Result Grid

FIRST_NAME	LAST_NAME	JOB_ID	DEPARTMENT_NAME
Clara	Singh	ACC	Finance
Jack	Samuel	IT_PROG	Finance

Result 72

Output

Action Output

#	Time	Action	Message	Duration / Fetch
193	17:43:56	SELECT FIRST_NAME AS EMPLOYEE_NAME, EMPLOYEE_ID, SALARY FROM EMP WH...	1 row(s) returned	0.016 sec / 0.000 sec
194	17:44:11	SELECT DISTINCT FIRST_NAME, LAST_NAME, JOB_ID, DEPARTMENT_NAME FROM E...	2 row(s) returned	0.000 sec / 0.000 sec

Object Info Session

05:44 PM 21-09-2020

-- 7

SELECT * FROM EMP WHERE SALARY = 3000 AND MANAGER_ID = 121;

MySQL Workbench

Local instance MySQL80

File Edit View Query Database Server Tools Scripting Help

Navigator

Lab3cmds2 Lab4cmds1

Limit to 1000 rows

89 SELECT DEPARTMENT_ID FROM DEPT

90 WHERE DEPARTMENT_NAME = 'FINANCE') AND EMP.DEPARTMENT_ID = DEPT.DEPARTMENT_ID;

91

92 -- 7

93 • SELECT * FROM EMP WHERE SALARY = 3000 AND MANAGER_ID = 121;

94

Result Grid

EMPLOYEE_ID	FIRST_NAME	LAST_NAME	EMAIL	PHONE_NUMBER	HIRE_DATE	JOB_ID	COMMISSION_PCT	SALARY	MANAGER_ID
-------------	------------	-----------	-------	--------------	-----------	--------	----------------	--------	------------

Result 73

Output

Action Output

#	Time	Action	Message	Duration / Fetch
194	17:44:11	SELECT DISTINCT FIRST_NAME, LAST_NAME, JOB_ID, DEPARTMENT_NAME FROM E...	2 row(s) returned	0.000 sec / 0.000 sec
195	17:44:25	SELECT * FROM EMP WHERE SALARY = 3000 AND MANAGER_ID = 121 LIMIT 0, 1000	0 row(s) returned	0.000 sec / 0.000 sec

Object Info Session

05:44 PM 21-09-2020

-- 8

SELECT * FROM EMP WHERE EMPLOYEE_ID IN (134,159,183);

MySQL Workbench

Local instance MySQL80

File Edit View Query Database Server Tools Scripting Help

Navigator: Lab3cmds2 Lab4cmds1

SCHEMAS

Filter objects

mysampdb

Tables

bank

books

borrower

customer

depositor

emp1

issue

Views

Stored Procedures

Functions

sakila

sys

world

Administration Schemas

Information

No object selected

Object Info Session

Lab4cmds1

Limit to 1000 rows

91

92 -- 7

93 • SELECT * FROM EMP WHERE SALARY = 3000 AND MANAGER_ID = 121;

94

95 -- 8

96 • SELECT * FROM EMP WHERE EMPLOYEE_ID IN (134,159,183);

Result Grid

EMPLOYEE_ID	FIRST_NAME	LAST_NAME	EMAIL	PHONE_NUMBER	HIRE_DATE	JOB_ID	COMMISSION_PCT	SALARY
134	Arun	Reddy	arun@gmail.com	9521233321	2000-03-02	IT_PROG	5.5	4000
159	Tanmay	Sharma	tanman33@gmail.com	9525633450	2001-01-01	DESIGN	5.5	2000
183	Jack	Samuel	jack@gmail.com	9521233450	2008-01-01	IT_PROG	5.5	3000

Output

Action Output

#	Time	Action	Message	Duration / Fetch
195	17:44:25	SELECT * FROM EMP WHERE SALARY = 3000 AND MANAGER_ID = 121 LIMIT 0, 1000	0 row(s) returned	0.000 sec / 0.000 sec
196	17:44:34	SELECT * FROM EMP WHERE EMPLOYEE_ID IN (134,159,183) LIMIT 0, 1000	3 row(s) returned	0.000 sec / 0.000 sec

05:44 PM 21-09-2020

-- 9

SELECT * FROM EMP WHERE SALARY BETWEEN 1000 AND 3000;

MySQL Workbench

Local instance MySQL80

File Edit View Query Database Server Tools Scripting Help

Navigator: Lab3cmds2 Lab4cmds1

SCHEMAS

Filter objects

mysampdb

Tables

bank

books

borrower

customer

depositor

emp1

issue

Views

Stored Procedures

Functions

sakila

sys

world

Administration Schemas

Information

No object selected

Object Info Session

Lab4cmds1

Limit to 1000 rows

94

95 -- 8

96 • SELECT * FROM EMP WHERE EMPLOYEE_ID IN (134,159,183);

97

98 -- 9

99 • SELECT * FROM EMP WHERE SALARY BETWEEN 1000 AND 3000;

Result Grid

EMPLOYEE_ID	FIRST_NAME	LAST_NAME	EMAIL	PHONE_NUMBER	HIRE_DATE	JOB_ID	COMMISSION_PCT	SALARY
163	Arjun	Ramprasad	arjun@gmail.com	9521233450	2008-01-01	IT_PROG	5.5	3000
169	Clara	Singh	clara1@gmail.com	9533434350	2009-11-21	ACC	5.5	2000
170	Jagdish	Manohar	jaggi@gmail.com	9519633450	2018-01-21	TAX	5.5	1500
159	Tanmay	Sharma	tanman33@gmail.com	9525633450	2001-01-01	DESIGN	5.5	2000
200	Ron	Weasley	ron88@gmail.com	1525633450	2001-01-01	TEST	5.5	2000
183	Jack	Samuel	jack@gmail.com	9521233450	2008-01-01	IT_PROG	5.5	3000

Output

Action Output

#	Time	Action	Message	Duration / Fetch
196	17:44:34	SELECT * FROM EMP WHERE EMPLOYEE_ID IN (134,159,183) LIMIT 0, 1000	3 row(s) returned	0.000 sec / 0.000 sec
197	17:44:45	SELECT * FROM EMP WHERE SALARY BETWEEN 1000 AND 3000 LIMIT 0, 1000	10 row(s) returned	0.000 sec / 0.000 sec

05:44 PM 21-09-2020

-- 10

SELECT * FROM EMP WHERE SALARY BETWEEN (SELECT MIN(SALARY) FROM EMP) AND 2500;

MySQL Workbench

Local instance MySQL80

File Edit View Query Database Server Tools Scripting Help

Navigator: Lab3cmds2 Lab4cmds1

SCHEMAS

Filter objects

mysampdb

Tables

bank

books

borrower

customer

depositor

emp1

issue

Views

Stored Procedures

Functions

sakila

sys

world

Administration Schemas

Information

No object selected

Object Info Session

Lab4cmds1

Limit to 1000 rows

Execute the statement under the keyboard cursor

```
-- 9
99 • SELECT * FROM EMP WHERE SALARY BETWEEN 1000 AND 3000;
100
101 -- 10
102 • SELECT * FROM EMP WHERE SALARY BETWEEN (SELECT MIN(SALARY) FROM EMP) AND 2500;
```

Result Grid

EMPLOYEE_ID	FIRST_NAME	LAST_NAME	EMAIL	PHONE_NUMBER	HIRE_DATE	JOB_ID	COMMISSION_PCT	SALARY
169	Clara	Singh	dara1@gmail.com	9533434350	2009-11-21	ACC	5.5	2000
170	Jagdish	Manohar	jaggi@gmail.com	9519633450	2018-01-21	TAX	5.5	1500
159	Tanmay	Sharma	tanman33@gmail.com	9525633450	2001-01-01	DESIGN	5.5	2000
200	Ron	Weasley	ron88@gmail.com	1525633450	2001-01-01	TEST	5.5	2000
199	Dinesh	Karthik	dinesh@gmail.com	9523434350	2009-11-21	ACC	5.5	2000
110	MS	Dhoni	dhoni@gmail.com	9519635650	2018-01-21	TAX	5.5	1500

Output

Action Output

#	Time	Action	Message	Duration / Fetch
197	17:44:45	SELECT * FROM EMP WHERE SALARY BETWEEN 1000 AND 3000 LIMIT 0, 1000	10 row(s) returned	0.000 sec / 0.000 sec
198	17:44:56	SELECT * FROM EMP WHERE SALARY BETWEEN (SELECT MIN(SALARY) FROM EMP) ...	8 row(s) returned	0.000 sec / 0.000 sec

05:44 PM
21-09-2020

-- 11

SELECT * FROM EMP WHERE DEPARTMENT_ID NOT IN (SELECT DEPARTMENT_ID FROM DEPT WHERE MANAGER_ID BETWEEN 100 AND 200);

MySQL Workbench

Local instance MySQL80

File Edit View Query Database Server Tools Scripting Help

Navigator: Lab3cmds2 Lab4cmds1

SCHEMAS

Filter objects

mysampdb

Tables

bank

books

borrower

customer

depositor

emp1

issue

Views

Stored Procedures

Functions

sakila

sys

world

Administration Schemas

Information

No object selected

Object Info Session

Lab4cmds1

Limit to 1000 rows

Execute the statement under the keyboard cursor

```
-- 10
102 • SELECT * FROM EMP WHERE SALARY BETWEEN (SELECT MIN(SALARY) FROM EMP) AND 2500;
103
104 -- 11
105 • SELECT * FROM EMP WHERE DEPARTMENT_ID NOT IN (SELECT DEPARTMENT_ID FROM DEPT WHERE MAN
106
```

Result Grid

EMPLOYEE_ID	FIRST_NAME	LAST_NAME	EMAIL	PHONE_NUMBER	HIRE_DATE	JOB_ID	COMMISSION_PCT	SALARY	MANAGER_ID
-------------	------------	-----------	-------	--------------	-----------	--------	----------------	--------	------------

Output

Action Output

#	Time	Action	Message	Duration / Fetch
198	17:44:56	SELECT * FROM EMP WHERE SALARY BETWEEN (SELECT MIN(SALARY) FROM EMP) ...	8 row(s) returned	0.000 sec / 0.000 sec
199	17:45:07	SELECT * FROM EMP WHERE DEPARTMENT_ID NOT IN (SELECT DEPARTMENT_ID ...	0 row(s) returned	0.000 sec / 0.000 sec

05:45 PM
21-09-2020

-- 12

The screenshot displays the MySQL Workbench interface. The top toolbar includes icons for file operations, editing, and database management. The left sidebar shows the 'Schemas' tab with a tree view of the 'mysampdb' database, including tables like 'bank', 'books', 'borrower', 'customer', 'depositor', 'emp1', and 'issue'. The main editor window shows a SQL query: `SELECT * FROM EMP WHERE DEPARTMENT_ID NOT IN (SELECT DEPARTMENT_ID FROM DEPT WHERE MANAGER_ID = EMPLOYEE_ID);`. The 'Result Grid' at the bottom displays the query results in a table with columns: EMPLOYEE_ID, FIRST_NAME, LAST_NAME, EMAIL, PHONE_NUMBER, HIRE_DATE, JOB_ID, COMMISSION_PCT, and SALARY. The results show two rows: (163, Arjun, Ramprasad, arjun@gmail.com, 9521233450, 2008-01-01, IT_PROG, 5.5, 3000) and (183, Jack, Samuel, jack@gmail.com, 9521233450, 2008-01-01, IT_PROG, 5.5, 3000). The 'Output' pane at the bottom shows two messages: '0 row(s) returned' and '2 row(s) returned'.

```
SELECT FIRST_NAME, LAST_NAME, HIRE_DATE FROM EMP WHERE  
DEPARTMENT_ID IN (SELECT DEPARTMENT_ID FROM EMP WHERE  
FIRST_NAME = "Clara") AND FIRST_NAME != "Clara";
```

The screenshot shows the MySQL Workbench interface. The top menu bar includes File, Edit, View, Query, Database, Server, Tools, Scripting, and Help. The left sidebar contains a Navigator pane with a Schemas list (mysampldb, sakila, sys, world) and a Functions list. The main editor window displays a SQL query in a script editor, with a toolbar above it. The query is as follows:

```

106  Execute the statement under the keyboard cursor
107  -- 12
108  • SELECT * FROM EMP WHERE SALARY IN (SELECT max(SALARY) FROM EMP WHERE SALARY NOT IN(select
109
110  -- 13
111  • SELECT FIRST_NAME, LAST_NAME, HIRE_DATE FROM EMP WHERE DEPARTMENT_ID IN (SELECT DEPARTM

```

The query results are displayed in a table with the following columns: FIRST_NAME, LAST_NAME, HIRE_DATE. The results show one row: Jack, Samuel, 2008-01-01.

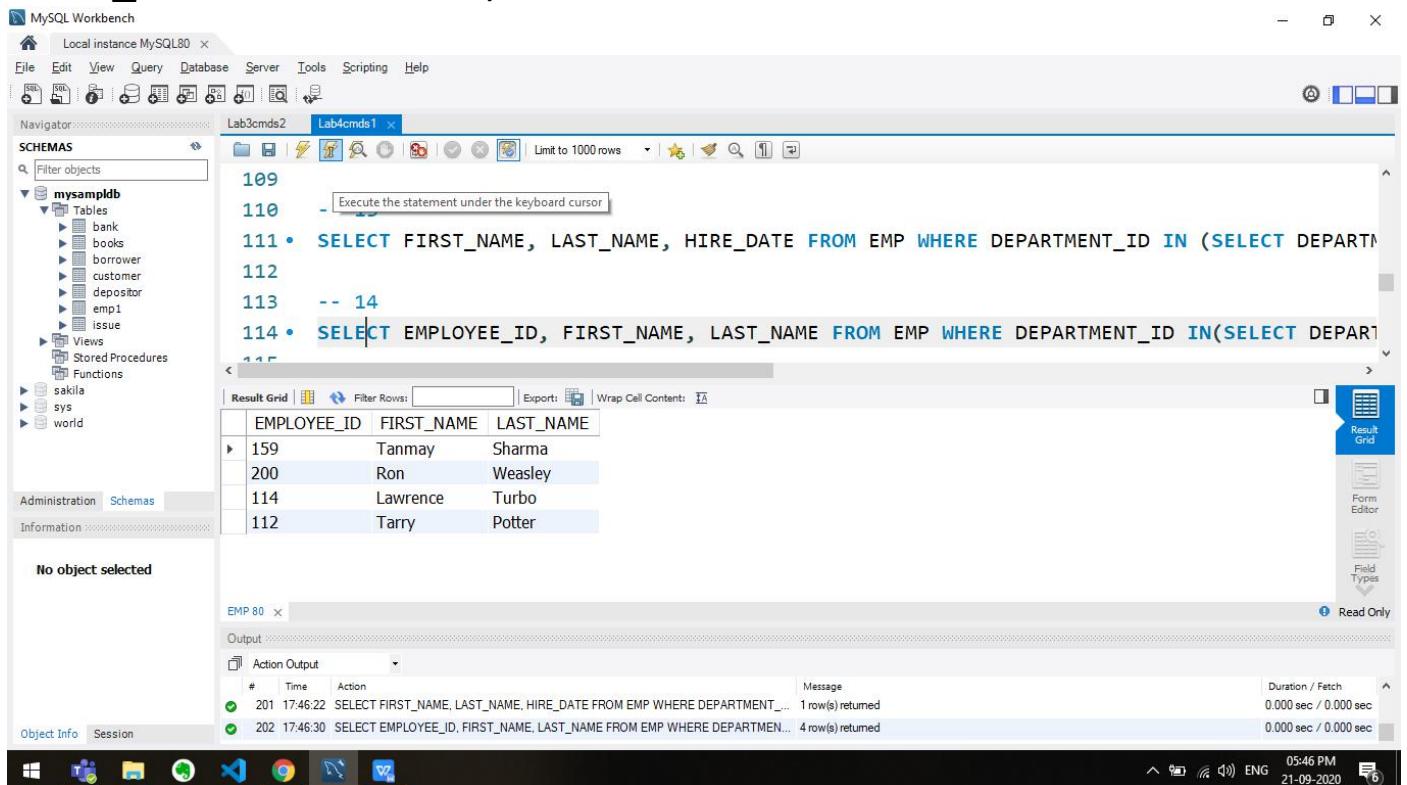
FIRST_NAME	LAST_NAME	HIRE_DATE
Jack	Samuel	2008-01-01

The bottom pane shows the Output window with a table of results. The table has columns: #, Time, Action, Message, and Duration / Fetch. The results show two rows:

#	Time	Action	Message	Duration / Fetch
200	17:46:12	SELECT * FROM EMP WHERE SALARY IN (SELECT max(SALARY) FROM EMP WHERE ...	2 row(s) returned	0.000 sec / 0.000 sec
201	17:46:22	SELECT FIRST_NAME, LAST_NAME, HIRE_DATE FROM EMP WHERE DEPARTMENT_ID ...	1 row(s) returned	0.000 sec / 0.000 sec

-- 14

```
SELECT EMPLOYEE_ID, FIRST_NAME, LAST_NAME FROM EMP WHERE  
DEPARTMENT_ID IN(SELECT DEPARTMENT_ID FROM EMP WHERE  
FIRST_NAME LIKE "%t%");
```



MySQL Workbench interface showing a query execution. The query is:

```
-- 14  
SELECT EMPLOYEE_ID, FIRST_NAME, LAST_NAME FROM EMP WHERE  
DEPARTMENT_ID IN(SELECT DEPARTMENT_ID FROM EMP WHERE  
FIRST_NAME LIKE "%t%");
```

The result grid displays the following data:

EMPLOYEE_ID	FIRST_NAME	LAST_NAME
159	Tanmay	Sharma
200	Ron	Weasley
114	Lawrence	Turbo
112	Tarry	Potter

The output pane shows the following messages:

#	Time	Action	Message	Duration / Fetch
201	17:46:22	SELECT FIRST_NAME, LAST_NAME, HIRE_DATE FROM EMP WHERE DEPARTMENT_ID IN (SELECT DEPARTMENT_ID FROM EMP WHERE FIRST_NAME LIKE "%t%");	1 row(s) returned	0.000 sec / 0.000 sec
202	17:46:30	SELECT EMPLOYEE_ID, FIRST_NAME, LAST_NAME FROM EMP WHERE DEPARTMENT_ID IN (SELECT DEPARTMENT_ID FROM EMP WHERE FIRST_NAME LIKE "%t%");	4 row(s) returned	0.000 sec / 0.000 sec

-- 15:

```
SELECT EMPLOYEE_ID, FIRST_NAME, LAST_NAME, SALARY FROM  
EMP  
WHERE  
SALARY > (select avg(SALARY) from EMP)  
&&  
DEPARTMENT_ID IN (SELECT DISTINCT DEPARTMENT_ID FROM EMP  
WHERE FIRST_NAME LIKE 'J%');
```


MySQL Workbench interface showing a query execution. The query is:

```

112
113 -- 14
114 • SELECT EMPLOYEE_ID, FIRST_NAME, LAST_NAME FROM EMP WHERE DEPARTMENT_ID IN (SELECT DEPARTMENT_ID FROM dept WHERE LOCATION_ID = (SELECT LOCATION_ID FROM loca WHERE CITY = 'TORONTO'));
115
116 -- 15:
117 • SELECT EMPLOYEE_ID, FIRST_NAME, LAST_NAME, SALARY FROM EMP
118 WHERE

```

The result grid shows the following data:

EMPLOYEE_ID	FIRST_NAME	LAST_NAME	SALARY
183	Jack	Samuel	3000

The output pane shows the execution details:

#	Time	Action	Message	Duration / Fetch
202	17:46:30	SELECT EMPLOYEE_ID, FIRST_NAME, LAST_NAME FROM EMP WHERE DEPARTMENT_ID IN (SELECT DEPARTMENT_ID FROM dept WHERE LOCATION_ID = (SELECT LOCATION_ID FROM loca WHERE CITY = 'TORONTO'))	4 row(s) returned	0.000 sec / 0.000 sec
203	17:46:39	SELECT EMPLOYEE_ID, FIRST_NAME, LAST_NAME, SALARY FROM EMP WHERE DEPARTMENT_ID IN (SELECT DEPARTMENT_ID FROM dept WHERE LOCATION_ID = (SELECT LOCATION_ID FROM loca WHERE CITY = 'TORONTO'))	1 row(s) returned	0.000 sec / 0.000 sec

-- 16:

```

SELECT FIRST_NAME, LAST_NAME, EMPLOYEE_ID, JOB_ID FROM EMP
WHERE
DEPARTMENT_ID = (SELECT DEPARTMENT_ID FROM dept
WHERE LOCATION_ID = (SELECT LOCATION_ID FROM loca WHERE CITY = 'TORONTO'));

```

MySQL Workbench interface showing a query execution. The query is:

```

120
121 DEPARTMENT_ID IN (SELECT DISTINCT DEPARTMENT_ID FROM EMP WHERE FIRST_NAME LIKE 'J%');
122
123 -- 16:
124 • SELECT FIRST_NAME, LAST_NAME, EMPLOYEE_ID, JOB_ID FROM EMP
125 WHERE
126 DEPARTMENT_ID = (SELECT DEPARTMENT_ID FROM dept WHERE LOCATION_ID = (SELECT LOCATION_ID FROM loca WHERE CITY = 'TORONTO'));

```

The result grid shows the following data:

FIRST_NAME	LAST_NAME	EMPLOYEE_ID	JOB_ID
Clara	Singh	169	ACC
Jack	Samuel	183	IT_PROG

The output pane shows the execution details:

#	Time	Action	Message	Duration / Fetch
203	17:46:39	SELECT EMPLOYEE_ID, FIRST_NAME, LAST_NAME, SALARY FROM EMP WHERE DEPARTMENT_ID IN (SELECT DEPARTMENT_ID FROM dept WHERE LOCATION_ID = (SELECT LOCATION_ID FROM loca WHERE CITY = 'TORONTO'))	1 row(s) returned	0.000 sec / 0.000 sec
204	17:46:49	SELECT FIRST_NAME, LAST_NAME, EMPLOYEE_ID, JOB_ID FROM EMP WHERE DEPARTMENT_ID = (SELECT DEPARTMENT_ID FROM dept WHERE LOCATION_ID = (SELECT LOCATION_ID FROM loca WHERE CITY = 'TORONTO'))	2 row(s) returned	0.000 sec / 0.000 sec

-- 17:

```
SELECT EMPLOYEE_ID, FIRST_NAME, LAST_NAME, JOB_ID FROM EMP
WHERE
SALARY < ANY (select min(SALARY) from EMP WHERE
JOB_ID='IT_PROG');
```

The screenshot shows the MySQL Workbench interface. The SQL editor contains the following query:

```
-- 17:
SELECT EMPLOYEE_ID, FIRST_NAME, LAST_NAME, JOB_ID FROM EMP
WHERE
SALARY < ANY (select min(SALARY) from EMP WHERE JOB_ID='IT_PROG');
```

The query results are displayed in the Result Grid, showing 8 rows of data:

EMPLOYEE_ID	FIRST_NAME	LAST_NAME	JOB_ID
169	Clara	Singh	ACC
170	Jagdish	Manohar	TAX
159	Tanmay	Sharma	DESIGN
200	Ron	Weasley	TEST
199	Dinesh	Karthik	ACC
110	MS	Dhoni	TAX
119	Giri	Nath	DESIGN

The Output tab at the bottom shows the execution details:

#	Time	Action	Message	Duration / Fetch
204	17:46:49	SELECT FIRST_NAME, LAST_NAME, EMPLOYEE_ID, JOB_ID FROM EMP WHERE ...	2 row(s) returned	0.000 sec / 0.000 sec
205	17:47:00	SELECT EMPLOYEE_ID, FIRST_NAME, LAST_NAME, JOB_ID FROM EMP WHERE S...	8 row(s) returned	0.000 sec / 0.000 sec

-- 18:

```
SELECT EMPLOYEE_ID, FIRST_NAME, LAST_NAME, JOB_ID FROM EMP
WHERE
SALARY < ANY ( SELECT SALARY FROM EMP WHERE JOB_ID =
'IT_PROG' );
```


MySQL Workbench

Local instance MySQL80

File Edit View Query Database Server Tools Scripting Help

Navigator: Lab3cmds2 Lab4cmds1

SCHEMAS

Filter objects

mysampdb

Tables

bank

books

borrower

customer

depositor

emp1

issue

Views

Stored Procedures

Functions

sakila

sys

world

Administration Schemas

Information

No object selected

Object Info Session

132 SALARY < ANY (select min(SALARY) from EMP WHERE JOB_ID='IT_PROG');

133 Execute the statement under the keyboard cursor

134 -- 18:

135 • SELECT EMPLOYEE_ID, FIRST_NAME, LAST_NAME, JOB_ID FROM EMP

136 WHERE

137 SALARY < ANY (SELECT SALARY FROM EMP WHERE JOB_ID = 'IT_PROG');

Result Grid

EMPLOYEE_ID	FIRST_NAME	LAST_NAME	JOB_ID
163	Arjun	Ramprasad	IT_PROG
169	Clara	Singh	ACC
170	Jagdish	Manohar	TAX
159	Tanmay	Sharma	DESIGN
200	Ron	Weasley	TEST
183	Jack	Samuel	IT_PROG
199	Dinesh	Karthik	ACC

Output

Action Output

#	Time	Action	Message	Duration / Fetch
206	17:47:22	SELECT EMPLOYEE_ID, FIRST_NAME, LAST_NAME, JOB_ID FROM EMP WHERE SAL...	10 row(s) returned	0.000 sec / 0.000 sec
207	17:47:42	SELECT EMPLOYEE_ID, FIRST_NAME, LAST_NAME, JOB_ID FROM EMP WHERE SAL...	10 row(s) returned	0.000 sec / 0.000 sec

05:47 PM 21-09-2020

-- 19:

SELECT EMPLOYEE_ID, FIRST_NAME, LAST_NAME, JOB_ID FROM EMP
WHERE
SALARY > ALL (select SALARY from EMP WHERE JOB_ID='IT_PROG');

MySQL Workbench

Local instance MySQL80

File Edit View Query Database Server Tools Scripting Help

Navigator: Lab3cmds2 Lab4cmds1

SCHEMAS

Filter objects

mysampdb

Tables

bank

books

borrower

customer

depositor

emp1

issue

Views

Stored Procedures

Functions

sakila

sys

world

Administration Schemas

Information

No object selected

Object Info Session

136 WHERE

137 Execute the statement under the keyboard cursor

138 SALARY < ANY (SELECT SALARY FROM EMP WHERE JOB_ID = 'IT_PROG');

139 -- 19:

140 • SELECT EMPLOYEE_ID, FIRST_NAME, LAST_NAME, JOB_ID FROM EMP

141 WHERE

142 SALARY > ALL (select SALARY from EMP WHERE JOB_ID='IT_PROG');

Result Grid

EMPLOYEE_ID	FIRST_NAME	LAST_NAME	JOB_ID
-------------	------------	-----------	--------

Output

Action Output

#	Time	Action	Message	Duration / Fetch
207	17:47:42	SELECT EMPLOYEE_ID, FIRST_NAME, LAST_NAME, JOB_ID FROM EMP WHERE SAL...	10 row(s) returned	0.000 sec / 0.000 sec
208	17:47:56	SELECT EMPLOYEE_ID, FIRST_NAME, LAST_NAME, JOB_ID FROM EMP WHERE SAL...	0 row(s) returned	0.000 sec / 0.000 sec

05:47 PM 21-09-2020

-- 20:

SELECT EMPLOYEE_ID, FIRST_NAME, LAST_NAME, JOB_ID FROM EMP

WHERE

SALARY > ALL (SELECT AVG(SALARY) FROM EMP GROUP BY
DEPARTMENT_ID);

The screenshot shows the MySQL Workbench interface. The query editor contains the following SQL code:

```
142 SALARY > ALL (select SALARY from EMP WHERE JOB_ID='IT_PROG');
143
144 -- 20:
145 • SELECT EMPLOYEE_ID, FIRST_NAME, LAST_NAME, JOB_ID FROM EMP
146 WHERE
147 SALARY > ALL ( SELECT AVG(SALARY) FROM EMP GROUP BY DEPARTMENT_ID );
```

The result grid displays the following data:

EMPLOYEE_ID	FIRST_NAME	LAST_NAME	JOB_ID
163	Arjun	Ramprasad	IT_PROG
134	Arun	Reddy	IT_PROG
183	Jack	Samuel	IT_PROG
114	Lawrence	Turbo	IT_PROG

The output pane shows the execution of the query, indicating that 4 rows were returned.

-- 21

SELECT * FROM EMP E WHERE (SELECT COUNT(DISTINCT SALARY)
FROM EMP WHERE E.SALARY >= SALARY) = 2;

The screenshot shows the MySQL Workbench interface. The query editor contains the following SQL code:

```
148
149 -- 21
150 • SELECT * FROM EMP E WHERE (SELECT COUNT(DISTINCT SALARY ) FROM EMP WHERE E.SALARY >=
151
152 -- 22
153 • SELECT CITY FROM LOCA,DEPT,EMP WHERE LOCA.LOCATION_ID=DEPT.LOCATION_ID AND DEPT.DEPART
```

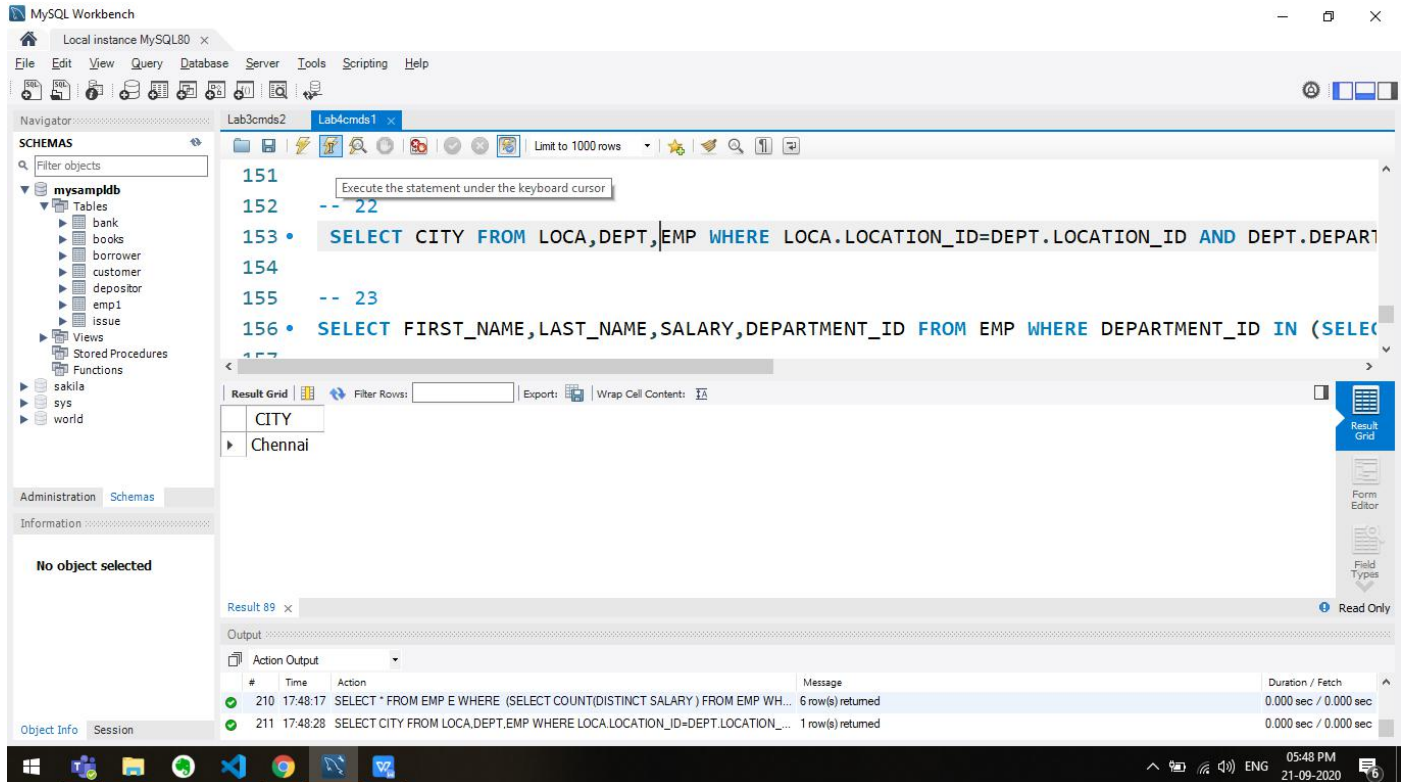
The result grid displays the following data:

EMPLOYEE_ID	FIRST_NAME	LAST_NAME	EMAIL	PHONE_NUMBER	HIRE_DATE	JOB_ID	COMMISSION_PCT	SALARY
169	Clara	Singh	clara1@gmail.com	9533434350	2009-11-21	ACC	5.5	2000
159	Tanmay	Sharma	tanman33@gmail.com	9525633450	2001-01-01	DESIGN	5.5	2000
200	Ron	Weasley	ron88@gmail.com	1525633450	2001-01-01	TEST	5.5	2000
199	Dinesh	Karthik	dinesh@gmail.com	9523434350	2009-11-21	ACC	5.5	2000
119	Giri	Nath	gir33@gmail.com	9525623450	2001-01-01	DESIGN	5.5	2000
112	Tarry	Potter	tarry88@gmail.com	1545633450	2001-01-01	TEST	5.5	2000

The output pane shows the execution of the query, indicating that 6 rows were returned.

-- 22

```
SELECT CITY FROM LOCA,DEPT,EMP WHERE  
LOCA.LOCATION_ID=DEPT.LOCATION_ID AND  
DEPT.DEPARTMENT_ID=EMP.DEPARTMENT_ID AND  
EMPLOYEE_ID=134;
```



-- 23

```
SELECT FIRST_NAME, LAST_NAME, SALARY, DEPARTMENT_ID FROM  
EMP WHERE DEPARTMENT_ID IN (SELECT DEPARTMENT_ID FROM  
DEPT, LOCA WHERE DEPT.LOCATION_ID=LOCA.LOCATION_ID AND  
CITY='LONDON');
```


MySQL Workbench interface showing a query editor with the following SQL code:

```

151
152 -- 22
153 • SELECT CITY FROM LOCA,DEPT,EMP WHERE LOCA.LOCATION_ID=DEPT.LOCATION_ID AND DEPT.DEPART
154
155 -- 23
156 • SELECT FIRST_NAME, LAST_NAME, SALARY, DEPARTMENT_ID FROM EMP WHERE DEPARTMENT_ID IN (SELE

```

The result grid shows the following columns: FIRST_NAME, LAST_NAME, SALARY, DEPARTMENT_ID.

The output panel shows the following messages:

#	Time	Action	Message	Duration / Fetch
211	17:48:28	SELECT CITY FROM LOCA,DEPT,EMP WHERE LOCA.LOCATION_ID=DEPT.LOCATION_...	1 row(s) returned	0.000 sec / 0.000 sec
212	17:48:36	SELECT FIRST_NAME, LAST_NAME, SALARY, DEPARTMENT_ID FROM EMP WHERE D...	0 row(s) returned	0.000 sec / 0.000 sec

-- 24

SELECT FIRST_NAME, LAST_NAME, SALARY, DEPARTMENT_ID FROM
EMP HAVING SALARY > (SELECT AVG(SALARY) FROM EMP) ORDER BY
SALARY DESC;

MySQL Workbench interface showing a query editor with the following SQL code:

```

157
158
159 • SELECT FIRST_NAME, LAST_NAME, SALARY, DEPARTMENT_ID FROM EMP HAVING SALARY > (SELECT AVG(SAL
160
161 -- 25
162 • SELECT * FROM EMP WHERE EXISTS (SELECT * FROM DEPT WHERE DEPT.MANAGER_ID = EMP.EMPLOYEE

```

The result grid shows the following columns: FIRST_NAME, LAST_NAME, SALARY, DEPARTMENT_ID.

The output panel shows the following messages:

#	Time	Action	Message	Duration / Fetch
212	17:48:36	SELECT FIRST_NAME, LAST_NAME, SALARY, DEPARTMENT_ID FROM EMP WHERE D...	0 row(s) returned	0.000 sec / 0.000 sec
213	17:49:01	SELECT FIRST_NAME, LAST_NAME, SALARY, DEPARTMENT_ID FROM EMP HAVING S...	4 row(s) returned	0.000 sec / 0.000 sec

-- 25

SELECT * FROM EMP WHERE EXISTS (SELECT * FROM DEPT WHERE DEPT.MANAGER_ID = EMP.EMPLOYEE_ID);

The screenshot shows the MySQL Workbench interface. The query editor contains the following SQL statement:

```
157
158 -- 24
159 • SELECT FIRST_NAME, LAST_NAME, SALARY, DEPARTMENT_ID FROM EMP HAVING SALARY > (SELECT AVG(SALARY) FROM EMP)
160
161 -- 25
162 • SELECT * FROM EMP WHERE EXISTS (SELECT * FROM DEPT WHERE DEPT.MANAGER_ID = EMP.EMPLOYEE_ID);
```

The result grid shows the following data:

EMPLOYEE_ID	FIRST_NAME	LAST_NAME	EMAIL	PHONE_NUMBER	HIRE_DATE	JOB_ID	COMMISSION_PCT	SALARY
159	Tanmay	Sharma	tanman33@gmail.com	9525633450	2001-01-01	DESIGN	5.5	2000

The output pane shows the execution of the query, indicating that 1 row(s) were returned.

-- 26

SELECT e1.FIRST_NAME, e1.LAST_NAME FROM EMP e1 WHERE e1.SALARY > (SELECT (SUM(SALARY))*0.5 FROM EMP e2 WHERE e1.DEPARTMENT_ID = e2.DEPARTMENT_ID);

The screenshot shows the MySQL Workbench interface. The query editor contains the following SQL statement:

```
163
164 -- 26
165 • SELECT e1.FIRST_NAME, e1.LAST_NAME FROM EMP e1 WHERE e1.SALARY > ( SELECT (SUM(SALARY))*0.5 FROM EMP e2 WHERE e1.DEPARTMENT_ID = e2.DEPARTMENT_ID);
166
167 -- 27
168 • SELECT * FROM DEPT WHERE DEPT.DEPARTMENT_ID IN (SELECT DISTINCT (DEPARTMENT_ID) FROM EMP);
```

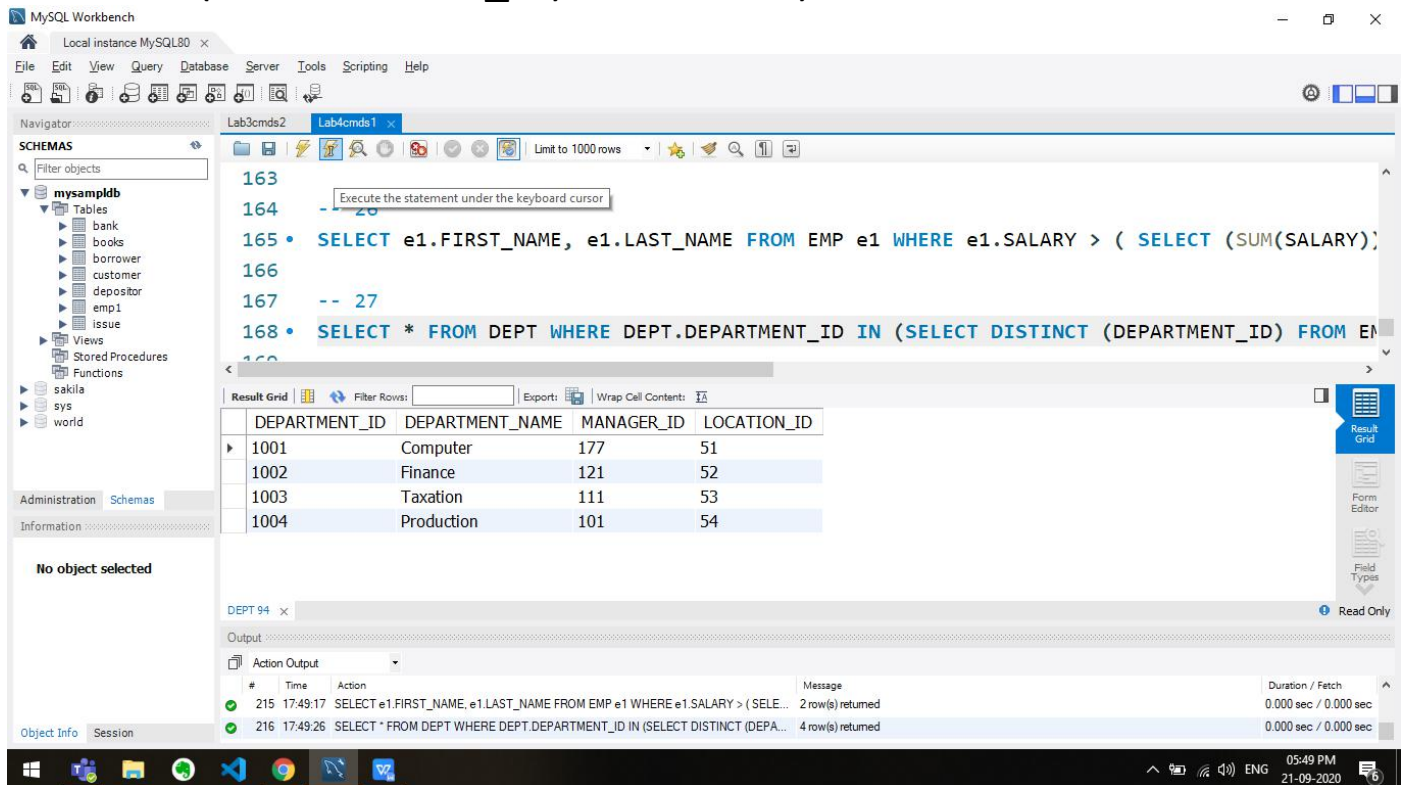
The result grid shows the following data:

FIRST_NAME	LAST_NAME
Jack	Samuel
Dinesh	Karthik

The output pane shows the execution of the query, indicating that 2 row(s) were returned.

-- 27

```
SELECT * FROM DEPT WHERE DEPT.DEPARTMENT_ID IN (SELECT  
DISTINCT (DEPARTMENT_ID) FROM EMP);
```



MySQL Workbench interface showing the execution of a SQL query. The query is: `SELECT * FROM DEPT WHERE DEPT.DEPARTMENT_ID IN (SELECT DISTINCT (DEPARTMENT_ID) FROM EMP);`. The result grid displays the following data:

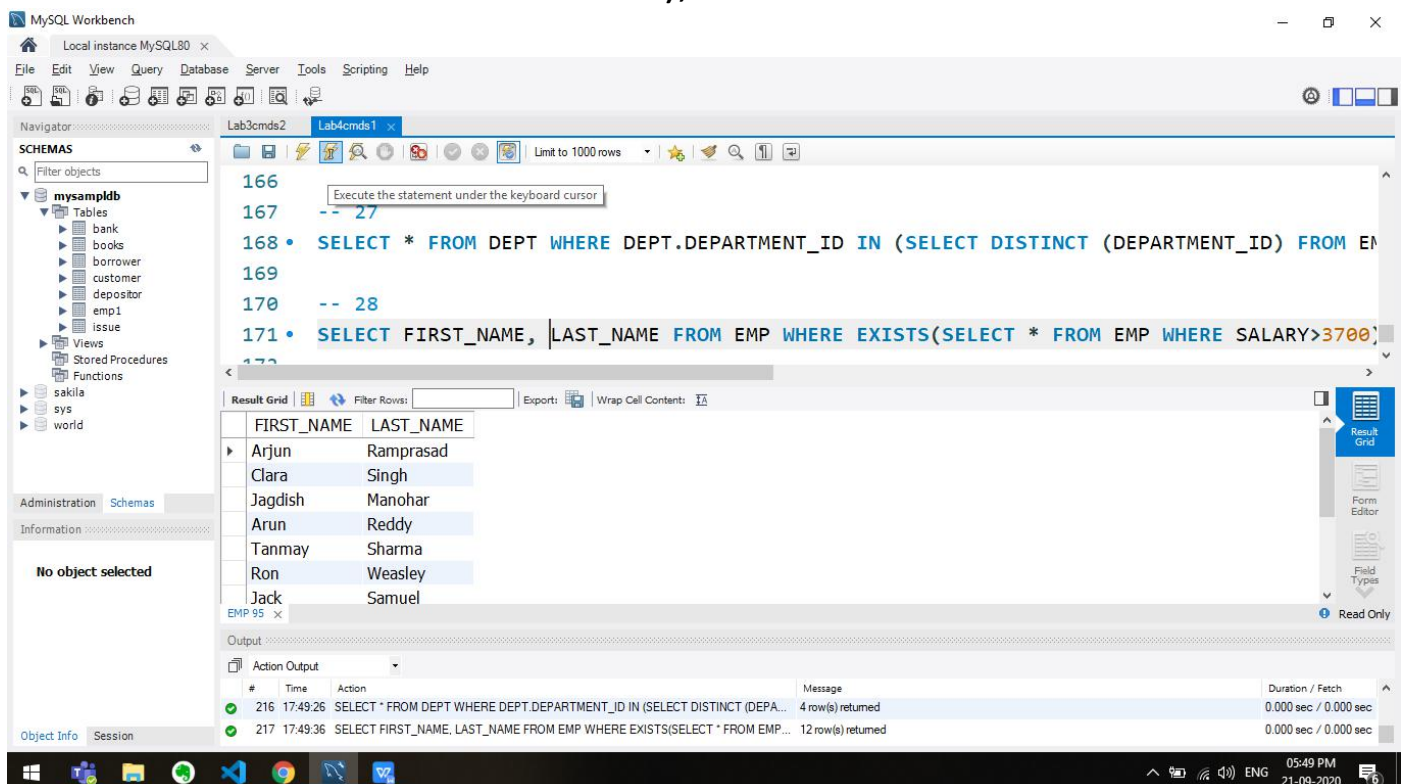
DEPARTMENT_ID	DEPARTMENT_NAME	MANAGER_ID	LOCATION_ID
1001	Computer	177	51
1002	Finance	121	52
1003	Taxation	111	53
1004	Production	101	54

The output pane shows the execution details:

#	Time	Action	Message	Duration / Fetch
215	17:49:17	SELECT e1.FIRST_NAME, e1.LAST_NAME FROM EMP e1 WHERE e1.SALARY > (SELECT (SUM(SALARY))	2 row(s) returned	0.000 sec / 0.000 sec
216	17:49:26	SELECT * FROM DEPT WHERE DEPT.DEPARTMENT_ID IN (SELECT DISTINCT (DEPA...	4 row(s) returned	0.000 sec / 0.000 sec

-- 28

```
SELECT FIRST_NAME, LAST_NAME FROM EMP WHERE EXISTS(SELECT *  
FROM EMP WHERE SALARY>3700);
```



MySQL Workbench interface showing the execution of a SQL query. The query is: `SELECT FIRST_NAME, LAST_NAME FROM EMP WHERE EXISTS(SELECT * FROM EMP WHERE SALARY>3700);`. The result grid displays the following data:

FIRST_NAME	LAST_NAME
Arjun	Ramprasad
Clara	Singh
Jagdish	Manohar
Arun	Reddy
Tanmay	Sharma
Ron	Weasley
Jack	Samuel

The output pane shows the execution details:

#	Time	Action	Message	Duration / Fetch
216	17:49:26	SELECT * FROM DEPT WHERE DEPT.DEPARTMENT_ID IN (SELECT DISTINCT (DEPA...	4 row(s) returned	0.000 sec / 0.000 sec
217	17:49:36	SELECT FIRST_NAME, LAST_NAME FROM EMP WHERE EXISTS(SELECT * FROM EMP ...	12 row(s) returned	0.000 sec / 0.000 sec

-- 29

```
SELECT DEPARTMENT_ID, DEPARTMENT_NAME FROM DEPT WHERE  
NOT EXISTS(SELECT * FROM EMP WHERE EMP.DEPARTMENT_ID =  
DEPT.DEPARTMENT_ID);
```

The screenshot shows the MySQL Workbench interface. The left sidebar displays the 'SCHEMAS' panel with a tree view of the 'mysampdb' database, including tables like 'bank', 'books', 'borrower', 'customer', 'depositor', 'emp1', 'issue', and 'sakila'. The main editor window shows a SQL query with line numbers 169 to 174. The query is:
169 -- 28
170
171 • SELECT FIRST_NAME, LAST_NAME FROM EMP WHERE EXISTS(SELECT * FROM EMP WHERE SALARY > 3700);
172
173 -- 29
174 • SELECT DEPARTMENT_ID, DEPARTMENT_NAME FROM DEPT WHERE NOT EXISTS(SELECT * FROM EMP WHERE
175
The 'Result Grid' shows the output of the query, displaying two columns: 'DEPARTMENT_ID' and 'DEPARTMENT_NAME'. The results are:
1005 Arts
1006 Electrical
1007 Sales
1008 Marketing
1009 Testing
1010 Law
The 'Output' panel at the bottom shows the execution log with two entries:
Time Action Message Duration / Fetch
217 17:49:36 SELECT FIRST_NAME, LAST_NAME FROM EMP WHERE EXISTS(SELECT * FROM EMP... 12 row(s) returned 0.000 sec / 0.000 sec
218 17:49:44 SELECT DEPARTMENT_ID, DEPARTMENT_NAME FROM DEPT WHERE NOT EXISTS(... 6 row(s) returned 0.000 sec / 0.000 sec