

DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING FALL 2022

COURSE CODE: CSE370
LAB HOMEWORK: 03
SECTION: 05
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Proving yourself worthy of being able to handle bigger tasks, the tech lead has decided to give you a challenging job. However, this time, the data that you would be handling is very sensitive and no one wants this data to be leaked. Therefore, instead of getting the entire table, the tech lead has given you the list of attributes that the table contains and the table name. The information given is as follows:

Table Name: employees

Attribute Name Attribute type

employee_id char(10)

first_name varchar(20)

last_name varchar(20)

email varchar(60)

phone_number char(14)

hire_date date

job_id int

salary int

commission_pct decimal(5,3)

manager_id char(10)

department_id int

You are tasked with building the queries to retrieve the following information [test out your queries with dummy data]: [7 X 2 =14]

1. Find the first_name, last_name, email, phone_number, hire_date and department_id of all the employees with the latest hire_date.
2. Find the first_name, last_name, employee_id, phone_number, salary and department_id of all the employees with the lowest salary in each department.
3. Find the first_name, last_name, employee_id, commission_pct and department_id of all the employees in department XYZABC (department_id = 7) who have a lower commission_pct than all of the employees of department ABCXYZ(department_id = 5).
4. Find the department_id and total number of employees of each department which does not have a single employee under it with a salary more than 30,000.
5. For each of the departments, find the department_id, job_id and commission_pct with commission_pct less than at least one other job_id in that department.

6. Find the manager_id who does not have any employee under them with a salary less than 3500.
7. Find the first_name, last_name, employee_id, email, salary, department_id and commission_pct of the employee who has the lowest commission_pct under each manager.

```
CREATE TABLE `employees` (  
  `employee_id` char(10) DEFAULT NULL,  
  `first_name` varchar(20) DEFAULT NULL,  
  `last_name` varchar(20) DEFAULT NULL,  
  `email` varchar(60) DEFAULT NULL,  
  `phone_number` char(14) DEFAULT NULL,  
  `hire_date` date DEFAULT NULL,  
  `job_id` int(11) DEFAULT NULL,  
  `salary` int(11) DEFAULT NULL,  
  `commission_pct` decimal(5,3) DEFAULT NULL,  
  `manager_id` char(10) DEFAULT NULL,  
  `department_id` int(11) DEFAULT NULL  
) ENGINE=InnoDB DEFAULT CHARSET=latin1;
```

```
--  
-- Dumping data for table `employees`  
--
```

```
INSERT INTO `employees` (`employee_id`, `first_name`, `last_name`, `email`,  
  `phone_number`, `hire_date`, `job_id`, `salary`, `commission_pct`, `manager_id`,  
  `department_id`) VALUES  
(  
'2000', 'Shakib', 'Al Hasan', 'shakib@gmail.com', '21301740', '2006-02-11', 1, 200000, '10.001',  
'000', 11),  
(  
'2001', 'Musfiquir', 'Rahman', 'musfiq@gmail.com', '21301741', '2005-02-12', 2, 180000,  
'10.002', '001', 12),  
(  
'2002', 'Mashrafe', 'Murtaza', 'mash@gmail.com', '21301742', '2001-04-13', 3, 190000, '10.003',  
'002', 12),  
(  
'2003', 'Mahmudullah', 'Riad', 'riad@gmail.com', '21301743', '2007-03-14', 4, 160000, '10.004',  
'003', 13),  
(  
'2004', 'Tamim', 'Iqbal', 'tamim@gmail.com', '21301744', '2007-05-12', 5, 150000, '10.005', '004',  
13),  
(  
'2005', 'Taskin', 'Ahmed', 'taskin@gmail.com', '21301745', '2014-03-16', 6, 90000, '10.006',  
'005', 13),  
(  
'2006', 'Afif', 'Hossain', 'afif@gmail.com', '21301746', '2017-07-17', 7, 80000, '10.007', '006', 12),  
(  
'2007', 'Liton', 'Das', 'liton@gmail.com', '21301747', '2015-11-18', 8, 85000, '10.008', '007', 14),  
(  
'2008', 'Rubel', 'Hossain', 'rubel@gmail.com', '21301748', '2000-11-19', 9, 87000, '10.009', '008',  
14),
```

```
('2009', 'Anamul', 'Haque', 'anamul@gmail.com', '21301749', '2011-11-20', 10, 70000, '10.010',
'009', 14),
('2010', 'Shoriful', 'Hasan', 'shoriful@gmail.com', '21301750', '2013-01-21', 11, 65000, '10.011',
'010', 14);
```

```
Type 'help;' or '\h' for help. Type '\c' to clear the current input statement.

MariaDB [(none)]> use cse370_hw03;
Database changed
MariaDB [cse370_hw03]> CREATE TABLE employees (employee_id char(10),
-> first_name varchar(20),
-> last_name varchar(20),
-> email varchar(60),
-> phone_number char(14),
-> hire_date date,
-> job_id int,
-> salary int,
-> commission_pct decimal(5,3),
-> manager_id char(10),
-> department_id int);
Query OK, 0 rows affected (0.031 sec)

MariaDB [cse370_hw03]> DESCRIBE employees;
+-----+
| Field | Type | Null | Key | Default | Extra |
+-----+
| employee_id | char(10) | YES | | NULL | |
| first_name | varchar(20) | YES | | NULL | |
| last_name | varchar(20) | YES | | NULL | |
| email | varchar(60) | YES | | NULL | |
| phone_number | char(14) | YES | | NULL | |
| hire_date | date | YES | | NULL | |
| job_id | int(11) | YES | | NULL | |
| salary | int(11) | YES | | NULL | |
| commission_pct | decimal(5,3) | YES | | NULL | |
| manager_id | char(10) | YES | | NULL | |
| department_id | int(11) | YES | | NULL | |
+-----+
11 rows in set (0.011 sec)

MariaDB [cse370_hw03]> Insert into employees values
-> ('2000', 'Shakib', 'Al Hasan', 'shakib@gmail.com', 21301740, '2006-02-11', 1, 200000, 10.001, '000', 11),
-> ('2001', 'Musfiqur', 'Rahman', 'musfiq@gmail.com', 21301741, '2005-02-12', 2, 180000, 10.002, '001', 12),
-> ('2002', 'Mashrafe', 'Murtaza', 'mash@gmail.com', 21301742, '2001-04-13', 3, 190000, 10.003, '002', 12),
-> ('2003', 'Mahmudullah', 'Riad', 'riad@gmail.com', 21301743, '2007-03-14', 4, 160000, 10.004, '003', 13),
-> ('2004', 'Tamim', 'Iqbal', 'tamim@gmail.com', 21301744, '2007-05-12', 5, 150000, 10.005, '004', 13),
-> ('2005', 'Taskin', 'Ahmed', 'taskin@gmail.com', 21301745, '2014-03-16', 6, 90000, 10.006, '005', 13),
-> ('2006', 'Afif', 'Hossain', 'afif@gmail.com', 21301746, '2017-07-17', 7, 80000, 10.007, '006', 12),
-> ('2007', 'Liton', 'Das', 'liton@gmail.com', 21301747, '2015-11-18', 8, 85000, 10.008, '007', 14),
-> ('2008', 'Rubel', 'Hossain', 'rubel@gmail.com', 21301748, '2000-11-19', 9, 87000, 10.009, '008', 14),
-> ('2009', 'Anamul', 'Haque', 'anamul@gmail.com', 21301749, '2011-11-20', 10, 70000, 10.010, '009', 14),
-> ('2010', 'Shoriful', 'Hasan', 'shoriful@gmail.com', 21301750, '2013-01-21', 11, 65000, 10.011, '010', 14);
Query OK, 11 rows affected (0.007 sec)
Records: 11 Duplicates: 0 Warnings: 0
```

TASK: 01

SELECT first_name, last_name, email, phone_number, hire_date, department_id FROM employees WHERE (hire_date) IN (SELECT MAX(hire_date) FROM employees);

```
MariaDB [cse370_hw03]> SELECT first_name, last_name, email, phone_number, hire_date, department_id FROM employees WHERE (hire_date) IN (SELECT MAX(hire_date) FROM employees);
```

first_name	last_name	email	phone_number	hire_date	department_id
Afif	Hossain	afif@gmail.com	21301746	2017-07-17	12

TASK: 02

SELECT first_name, last_name, employee_id, phone_number, salary, department_id FROM employees WHERE salary IN (SELECT MIN(salary) FROM employees GROUP BY department_id);

```
MariaDB [cse370_hw03]> SELECT first_name, last_name, employee_id, phone_number, salary, department_id FROM employees WHERE salary IN (SELECT MIN(salary) FROM employees GROUP BY department_id);
```

first_name	last_name	employee_id	phone_number	salary	department_id
Shakib	Al Hasan	2000	21301740	200000	11
Taskin	Ahmed	2005	21301745	90000	13
Afif	Hossain	2006	21301746	80000	12

TASK: 03

SELECT first_name, last_name, employee_id, commission_pct, department_id FROM employees WHERE department_id=7 AND commission_pct < (SELECT MIN(commission_pct) FROM employees WHERE department_id=5);

```
MariaDB [cse370_hw03]> SELECT first_name, last_name, employee_id, commission_pct, department_id FROM employees WHERE department_id=7 AND commission_pct < (SELECT MIN(commission_pct) FROM employees WHERE department_id=5);
```

Empty set (0.001 sec)

TASK: 04

SELECT Department_id, count(*) as salary_over_30000 from employees where salary>30000 group by Department_id;

```
MariaDB [cse370_hw03]> SELECT Department_id, count(*) as salary_over_30000 from employees where salary>30000 group by Department_id;
```

Department_id	salary_over_30000
11	1
12	3
13	3
14	4

```
4 rows in set (0.000 sec)
```

TASK: 05

SELECT Department_id, job_id, min(commission_pct) as lowest_commission_pct from employees group by job_id;

```
MariaDB [cse370_hw03]> SELECT Department_id, job_id, min(commission_pct) as lowest_commission_pct from employees group by job_id;
```

Department_id	job_id	lowest_commission_pct
11	1	10.001
12	2	10.002
12	3	10.003
13	4	10.004
13	5	10.005
13	6	10.006
12	7	10.007
14	8	10.008
14	9	10.009
14	10	10.010
14	11	10.011

```
11 rows in set (0.000 sec)
```

TASK: 06

SELECT manager_id from employees where salary<3500;

```
MariaDB [cse370_hw03]> SELECT manager_id from employees where salary<3500;
```

Empty set (0.000 sec)

TASK: 07

SELECT first_name, last_name, employee_id, email, salary, department_id, min(commission_pct) from employees group by manager_id;

```
MariaDB [cse370_hw03]> SELECT first_name, last_name, employee_id, email, salary, department_id, min(commission_pct) from employees group by manager_id;
```

first_name	last_name	employee_id	email	salary	department_id	min(commission_pct)
Shakib	Al Hasan	2000	shakib@gmail.com	200000	11	10.001
Musfiqur	Rahman	2001	musfiq@gmail.com	180000	12	10.002
Mashrafe	Murtaza	2002	mash@gmail.com	190000	12	10.003
Mahmudullah	Riad	2003	riad@gmail.com	160000	13	10.004
Tamim	Iqbal	2004	tamim@gmail.com	150000	13	10.005
Taskin	Ahmed	2005	taskin@gmail.com	90000	13	10.006
Afif	Hossain	2006	afif@gmail.com	80000	12	10.007
Liton	Das	2007	liton@gmail.com	85000	14	10.008
Rubel	Hossain	2008	rubel@gmail.com	87000	14	10.009
Anamul	Haque	2009	anamul@gmail.com	70000	14	10.010
Shoriful	Hasan	2010	shoriful@gmail.com	65000	14	10.011

```
11 rows in set (0.000 sec)
```