LAB:4

1)

1)

```
mysql> select count(emp_name) as total_employees from employees;
+-----------------+
| total_employees |
+-----------------+
|              20 |
+-----------------+
1 row in set (0.00 sec)
```

2)

```
mysql> select emp_dept,max(income) as max_income from employees group by emp_dept;
+------------+------------+
| emp_dept   | max_income |
+------------+------------+
| Finance    |     280000 |
| HR         |     120000 |
| Management |     500000 |
| Sales      |      30000 |
| Accounts   |     800000 |
+------------+------------+
5 rows in set (0.02 sec)
```

3)

```
mysql> select * from employees where income>=100000 and income<=500000 and
not income=120000;
+--------+----------+------------+---------+---------+--------+------------+
| emp_id | emp_name | emp_dept   | emp_age | place   | income | doj        |
+--------+----------+------------+---------+---------+--------+------------+
|   2505 | peter    | Finance    |      32 | Newyork | 100000 | 2002-08-25 |
|   2507 | Donald   | Finance    |      28 | Arizona | 100000 | 1995-12-26 |
|   2508 | Obama    | Management |      35 | Florida | 500000 | 1990-10-30 |
|   2512 | Mac      | Finance    |      40 | Florida | 280000 | 1970-06-09 |
|   2515 | peter    | Finance    |      32 | Newyork | 100000 | 1989-10-10 |
|   2517 | Donald   | Finance    |      28 | Arizona | 100000 | 1970-06-09 |
|   2518 | Obama    | Management |      35 | Florida | 500000 | 2020-10-25 |
|   2522 | Mac      | Finance    |      40 | Florida | 280000 | 1995-12-26 |
+--------+----------+------------+---------+---------+--------+------------+
8 rows in set (0.02 sec)
```

4)

```
mysql> select count(income) from employees where income>100000;
+---------------+
| count(income) |
+---------------+
|            10 |
+---------------+
1 row in set (0.00 sec)
```

5)

```
mysql> select * from employees order by income;
+--------+----------+------------+---------+------------+--------+------------+
| emp_id | emp_name | emp_dept   | emp_age | place      | income | doj        |
+--------+----------+------------+---------+------------+--------+------------+
|   2509 | Linklon  | HR         |      25 | Georgia    |  25000 | 2008-08-08 |
|   2519 | Linklon  | HR         |      25 | Georgia    |  25000 | 2000-01-01 |
|   2510 | Kane     | Sales      |      29 | Alaska     |  30000 | 2000-01-01 |
|   2520 | Kane     | Sales      |      29 | Alaska     |  30000 | 2008-08-08 |
|   2511 | Adam     | Management |      38 | California |  54000 | 2020-10-25 |
|   2521 | Adam     | Management |      38 | California |  54000 | 1990-10-30 |
|   2505 | peter    | Finance    |      32 | Newyork    | 100000 | 2002-08-25 |
|   2507 | Donald   | Finance    |      28 | Arizona    | 100000 | 1995-12-26 |
|   2515 | peter    | Finance    |      32 | Newyork    | 100000 | 1989-10-10 |
|   2517 | Donald   | Finance    |      28 | Arizona    | 100000 | 1970-06-09 |
|   2506 | Mark     | HR         |      32 | California | 120000 | 1980-03-25 |
|   2516 | Mark     | HR         |      32 | California | 120000 | 1990-12-11 |
|   2512 | Mac      | Finance    |      40 | Florida    | 280000 | 1970-06-09 |
|   2522 | Mac      | Finance    |      40 | Florida    | 280000 | 1995-12-26 |
|   2508 | Obama    | Management |      35 | Florida    | 500000 | 1990-10-30 |
|   2518 | Obama    | Management |      35 | Florida    | 500000 | 2020-10-25 |
|   2513 | Manas    | Accounts   |      29 | India      | 600000 | 1990-12-11 |
|   2523 | Manas    | Accounts   |      29 | India      | 600000 | 1980-03-25 |
|   2514 | Vasin    | Accounts   |      30 | India      | 800000 | 1989-10-10 |
|   2524 | Vasin    | Accounts   |      30 | India      | 800000 | 2002-08-25 |
+--------+----------+------------+---------+------------+--------+------------+
20 rows in set (0.00 sec)
```

6)

```
ount(emp_name),max(income) from employees group by emp_dept' at line 1
mysql> select emp_dept,count(emp_name),max(income) from employees group by emp_dept;
+------------+-----------------+-------------+
| emp_dept   | count(emp_name) | max(income) |
+------------+-----------------+-------------+
| Finance    |               6 |      280000 |
| HR         |               4 |      120000 |
| Management |               4 |      500000 |
| Sales      |               2 |       30000 |
| Accounts   |               4 |      800000 |
+------------+-----------------+-------------+
5 rows in set (0.00 sec)
```

7)

```
mysql> select place,count(emp_name) as numberofemployees from employees group by place;
+------------+-------------------+
| place      | numberofemployees |
+------------+-------------------+
| Newyork    |                 2 |
| California |                 4 |
| Arizona    |                 2 |
| Florida    |                 4 |
| Georgia    |                 2 |
| Alaska     |                 2 |
| India      |                 4 |
+------------+-------------------+
7 rows in set (0.00 sec)
```

8)

```
mysql> select place,count(emp_name) as numberofemployees from employees group by place order by numberofemployees desc;
+------------+-------------------+
| place      | numberofemployees |
+------------+-------------------+
| California |                 4 |
| Florida    |                 4 |
| India      |                 4 |
| Newyork    |                 2 |
| Arizona    |                 2 |
| Georgia    |                 2 |
| Alaska     |                 2 |
+------------+-------------------+
7 rows in set (0.00 sec)
```

9)

```
mysql> select place,count(emp_name) as numberofemployees from employees group by place having numberofemployees>1;
+------------+-------------------+
| place      | numberofemployees |
+------------+-------------------+
| Newyork    |                 2 |
| California |                 4 |
| Arizona    |                 2 |
| Florida    |                 4 |
| Georgia    |                 2 |
| Alaska     |                 2 |
| India      |                 4 |
+------------+-------------------+
7 rows in set (0.00 sec)
```

10)

```
mysql> select place,count(emp_name) as numberofemployees from employees where place!='california' group by place having count(emp_name)>=2 order by numberof
employees desc;
+---------+-------------------+
| place   | numberofemployees |
+---------+-------------------+
| Florida |                 4 |
| India   |                 4 |
| Newyork |                 2 |
| Arizona |                 2 |
| Georgia |                 2 |
| Alaska  |                 2 |
+---------+-------------------+
```

2)

1)

```
mysql> show tables;
+----------------+
| Tables_in_lab4 |
+----------------+
| account        |
| borrower       |
| branch         |
| customer       |
| depositor      |
| employees      |
| loan           |
+----------------+
7 rows in set (0.00 sec)
```

2)

```
mysql> SELECT c.customer_name, l.loan_number, l.amount
    -> FROM customer c
    -> JOIN borrower b ON c.customer_name = b.customer_name
    -> JOIN loan l ON b.loan_number = l.loan_number;
+---------------+-------------+--------+
| customer_name | loan_number | amount |
+---------------+-------------+--------+
| Smith         | L-11        |    900 |
| Hayes         | L-15        |   1500 |
| Adams         | L-16        |   1300 |
| Jones         | L-17        |   1000 |
| Williams      | L-17        |   1000 |
| Smith         | L-23        |   2000 |
| Curry         | L-93        |    500 |
+---------------+-------------+--------+
7 rows in set (0.01 sec)
```

3)

```
mysql> SELECT c.customer_name, l.loan_number, l.amount
    -> FROM customer c
    -> JOIN borrower b ON c.customer_name = b.customer_name
    -> JOIN loan l ON b.loan_number = l.loan_number
    -> JOIN branch br ON l.branch_name = br.branch_name
    -> WHERE br.branch_city = 'Perryridge';
Empty set (0.00 sec)
```

4)

```
mysql> SELECT DISTINCT b1.branch_name
    -> FROM branch b1
    -> WHERE b1.assets > ANY (
    ->     SELECT b2.assets
    ->     FROM branch b2
    ->     WHERE b2.branch_city = 'Brooklyn'
    -> );
+-------------+
| branch_name |
+-------------+
| Downtown    |
| Round Hill  |
+-------------+
2 rows in set (0.00 sec)
```

5)

```
mysql> SELECT DISTINCT c.customer_name
    -> FROM customer c
    -> JOIN borrower b ON c.customer_name = b.customer_name
    -> JOIN loan l ON b.loan_number = l.loan_number
    -> JOIN branch br ON l.branch_name = br.branch_name
    -> WHERE br.branch_city = 'Perryridge'
    -> ORDER BY c.customer_name;
Empty set (0.00 sec)
```

6)

```
mysql> SELECT *
    -> FROM loan
    -> ORDER BY amount DESC, loan_number ASC;
+-------------+-------------+--------+
| loan_number | branch_name | amount |
+-------------+-------------+--------+
| L-23        | Redwood     |   2000 |
| L-14        | Downtown    |   1500 |
| L-15        | Perryridge  |   1500 |
| L-16        | Perryridge  |   1300 |
| L-17        | Downtown    |   1000 |
| L-11        | Round Hill  |    900 |
| L-93        | Mianus      |    500 |
+-------------+-------------+--------+
7 rows in set (0.00 sec)
```

7)

```
mysql> SELECT AVG(balance) AS average_balance
    -> FROM account;
+-----------------+
| average_balance |
+-----------------+
|      614.285714 |
+-----------------+
1 row in set (0.00 sec)
```

8)

```
mysql> SELECT COUNT(*) AS num_tuples
    -> FROM customer;
+------------+
| num_tuples |
+------------+
|         12 |
+------------+
1 row in set (0.02 sec)
```

9)

```
mysql> SELECT SUM(amount) AS total_loan_amount
    -> FROM loan;
+-------------------+
| total_loan_amount |
+-------------------+
|              8700 |
+-------------------+
1 row in set (0.00 sec)
```

10)

```
mysql> SELECT AVG(a.balance) AS average_balance
    -> FROM account a
    -> JOIN branch b ON a.branch_name = b.branch_name
    -> WHERE b.branch_city = 'Perryridge';
+-----------------+
| average_balance |
+-----------------+
|            NULL |
+-----------------+
1 row in set (0.00 sec)
```

11)

```
mysql> SELECT b.branch_name, AVG(a.balance) AS average_balance
    -> FROM account a
    -> JOIN branch b ON a.branch_name = b.branch_name
    -> GROUP BY b.branch_name;
+-------------+-----------------+
| branch_name | average_balance |
+-------------+-----------------+
| Downtown    |      500.000000 |
| Perryridge  |      400.000000 |
| Brighton    |      825.000000 |
| Mianus      |      700.000000 |
| Redwood     |      700.000000 |
| Round Hill  |      350.000000 |
+-------------+-----------------+
6 rows in set (0.00 sec)
```

12)

```
mysql> SELECT b.branch_name, AVG(a.balance) AS average_balance
    -> FROM account a
    -> JOIN branch b ON a.branch_name = b.branch_name
    -> GROUP BY b.branch_name
    -> HAVING AVG(a.balance) > 1200;
Empty set (0.00 sec)
```

13)

```
mysql> SELECT b.branch_name, COUNT(DISTINCT d.customer_name) AS num_depositors
    -> FROM branch b
    -> LEFT JOIN account a ON b.branch_name = a.branch_name
    -> LEFT JOIN depositor d ON a.account_number = d.account_number
    -> GROUP BY b.branch_name;
+-------------+----------------+
| branch_name | num_depositors |
+-------------+----------------+
| Brighton    |              2 |
| Downtown    |              1 |
| Mianus      |              1 |
| North Town  |              0 |
| Perryridge  |              1 |
| Pownal      |              0 |
| Redwood     |              1 |
| Round Hill  |              1 |
+-------------+----------------+
8 rows in set (0.00 sec)
```

14)

```
mysql> SELECT c.customer_name, AVG(a.balance) AS average_balance
    -> FROM customer c
    -> JOIN depositor d ON c.customer_name = d.customer_name
    -> JOIN account a ON d.account_number = a.account_number
    -> WHERE c.customer_city = 'Harrison'
    -> GROUP BY c.customer_name
    -> HAVING COUNT(d.account_number) >= 3;
Empty set (0.00 sec)
```