DATABASE ASSIGNMENT 9

Aggregate Functions

12. find max sal and min sal for each job

```
mysql> select job ,max(sal) , min(sal) from emp group by job;
+-----------+----------+----------+
| job       | max(sal) | min(sal) |
+-----------+----------+----------+
| CLERK     |  1300.00 |   800.00 |
| SALESMAN  |  1600.00 |  1250.00 |
| MANAGER   |  2975.00 |  2450.00 |
| ANALYST   |  3000.00 |  3000.00 |
| PRESIDENT |  5000.00 |  5000.00 |
+-----------+----------+----------+
5 rows in set (0.07 sec)
```

13. find how many employess have not received commission

```
ysql> select ename , count(comm) from emp where comm=0 group by ename;
--------+-------------+
 ename  | count(comm) |
--------+-------------+
 TURNER |           1 |
--------+-------------+
 row in set (0.01 sec)
```

```
ysql> select ename , count(*) from emp where comm is null group by ename;
--------+----------+
 ename  | count(*) |
--------+----------+
 SMITH  |        1 |
 JONES  |        1 |
 BLAKE  |        1 |
 CLARK  |        1 |
 SCOTT  |        1 |
 KING   |        1 |
 ADAMS  |        1 |
 JAMES  |        1 |
 FORD   |        1 |
 MILLER |        1 |
--------+----------+
```

14. find sum of sal of all employees working in dept no 10

```
mysql> select deptno , sum(sal) from emp where deptno=10;
+--------+----------+
| deptno | sum(sal) |
+--------+----------+
|     10 |  8750.00 |
+--------+----------+
1 row in set (0.07 sec)

mysql> select deptno , sum(sal) from emp where deptno=10 group by deptno;
+--------+----------+
| deptno | sum(sal) |
+--------+----------+
|     10 |  8750.00 |
+--------+----------+
1 row in set (0.00 sec)
```

15. find maximum salary,average sal for each job in every department

```
mysql> select deptno ,job, max(sal),avg(sal) from emp group by deptno,job;
+--------+-----------+----------+-------------+
| deptno | job       | max(sal) | avg(sal)    |
+--------+-----------+----------+-------------+
|     20 | CLERK     |  1100.00 |  950.000000 |
|     30 | SALESMAN  |  1600.00 | 1400.000000 |
|     20 | MANAGER   |  2975.00 | 2975.000000 |
|     30 | MANAGER   |  2850.00 | 2850.000000 |
|     10 | MANAGER   |  2450.00 | 2450.000000 |
|     20 | ANALYST   |  3000.00 | 3000.000000 |
|     10 | PRESIDENT |  5000.00 | 5000.000000 |
|     30 | CLERK     |   950.00 |  950.000000 |
|     10 | CLERK     |  1300.00 | 1300.000000 |
+--------+-----------+----------+-------------+
```

16. find max salary for every department if deptno is > 15 and arrange data in deptno order.

```
mysql> select deptno ,max(sal) from emp group by deptno order by deptno;
+--------+----------+
| deptno | max(sal) |
+--------+----------+
|     10 |  5000.00 |
|     20 |  3000.00 |
|     30 |  2850.00 |
+--------+----------+
3 rows in set (0.07 sec)
```

17. find sum salary for every department if sum is > 3000

```
mysql> select deptno , sum(sal) from emp group by deptno having sum(sal)>3000;
+--------+----------+
| deptno | sum(sal) |
+--------+----------+
|     20 | 10875.00 |
|     30 |  9400.00 |
|     10 |  8750.00 |
+--------+----------+
3 rows in set (0.00 sec)

mysql> select deptno , sum(sal) from emp group by deptno having sum(sal)>9000;
+--------+----------+
| deptno | sum(sal) |
+--------+----------+
|     20 | 10875.00 |
|     30 |  9400.00 |
+--------+----------+
```

18. list all department which has minimum 5 employees

```
ysql> select deptno, count(*) from emp group by deptno;
--------+----------+
 deptno | count(*) |
--------+----------+
     20 |        5 |
     30 |        6 |
     10 |        3 |
--------+----------+
 rows in set (0.00 sec)

ysql> select deptno, count(*) from emp group by deptno having count(*)=5;
--------+----------+
 deptno | count(*) |
--------+----------+
     20 |        5 |
--------+----------+
```

19. count how many employees earn salary more than 2000 in each job

```
2 rows in set (0.00 sec)

mysql> select job , count(*) from emp where sal>2000 group by job;
+-----------+----------+
| job       | count(*) |
+-----------+----------+
| MANAGER   |        3 |
| ANALYST   |        2 |
| PRESIDENT |        1 |
+-----------+----------+
3 rows in set (0.00 sec)
```

Function used for strings:

20. list all enames and jobs in small case letter

```
 `lower`
mysql> select lower(ename),lower(job) from emp;
+--------------+------------+
| lower(ename) | lower(job) |
+--------------+------------+
| smith        | clerk      |
| allen        | salesman   |
| ward         | salesman   |
| jones        | manager    |
| martin       | salesman   |
| blake        | manager    |
| clark        | manager    |
| scott        | analyst    |
| king         | president  |
| turner       | salesman   |
| adams        | clerk      |
| james        | clerk      |
| ford         | analyst    |
| miller       | clerk      |
+--------------+------------+
14 rows in set (0.00 sec)
```

21. list all names and jobs so that the length of name should be 15 if it is smaller then add spaces
to left

```
mysql> select lpad(ename,15,' '),lpad(job ,15,' ') from emp;
+--------------------+--------------------+
| lpad(ename,15,' ') | lpad(job ,15,' ') |
+--------------------+--------------------+
|           SMITH    |           CLERK    |
|           ALLEN    |        SALESMAN    |
|            WARD    |        SALESMAN    |
|           JONES    |         MANAGER    |
|          MARTIN    |        SALESMAN    |
|           BLAKE    |         MANAGER    |
|           CLARK    |         MANAGER    |
|           SCOTT    |         ANALYST    |
|            KING    |       PRESIDENT    |
|          TURNER    |        SALESMAN    |
|           ADAMS    |           CLERK    |
|           JAMES    |           CLERK    |
|            FORD    |         ANALYST    |
|          MILLER    |           CLERK    |
+--------------------+--------------------+
```

22. display min sal,max sal, average sal for all employees working under same manager

```
mysql> select mgr , min(sal), max(sal) ,avg(sal) from emp group by mgr ;
+------+----------+----------+-------------+
| mgr  | min(sal) | max(sal) | avg(sal)    |
+------+----------+----------+-------------+
| 7902 |   800.00 |   800.00 |  800.000000 |
| 7698 |   950.00 |  1600.00 | 1310.000000 |
| 7839 |  2450.00 |  2975.00 | 2758.333333 |
| 7566 |  3000.00 |  3000.00 | 3000.000000 |
| NULL |  5000.00 |  5000.00 | 5000.000000 |
| 7788 |  1100.00 |  1100.00 | 1100.000000 |
| 7782 |  1300.00 |  1300.00 | 1300.000000 |
+------+----------+----------+-------------+
```

23. find sum of total earnings(sal+comm), average of sal+comm,
for all employees who earn sal > 2000 and work in either dept no 10 or 20

```
mysql> select deptno, sum(sal+ifnull(comm,0)) , avg(sal+ifnull(comm,0)) from emp where sal>2000 and deptno in (10,20) group by deptno;
+--------+-------------------------+-------------------------+
| deptno | sum(sal+ifnull(comm,0)) | avg(sal+ifnull(comm,0)) |
+--------+-------------------------+-------------------------+
|     20 |                 8975.00 |             2991.666667 |
|     10 |                 7450.00 |             3725.000000 |
+--------+-------------------------+-------------------------+
2 rows in set (0.00 sec)
```

24. list all employees who joined in Aug 1980 and salary is >1500 and < 2500

```
Empty set (0.00 sec)

mysql> select * from emp where hiredate between '1981-01-01' and '1981-12-12' and sal>1500 and sal<2500;
+-------+-------+----------+------+------------+---------+--------+--------+
| EMPNO | ENAME | JOB      | MGR  | HIREDATE   | SAL     | COMM   | DEPTNO |
+-------+-------+----------+------+------------+---------+--------+--------+
|  7499 | ALLEN | SALESMAN | 7698 | 1981-02-20 | 1600.00 | 300.00 |     30 |
|  7782 | CLARK | MANAGER  | 7839 | 1981-06-09 | 2450.00 |   NULL |     10 |
+-------+-------+----------+------+------------+---------+--------+--------+
2 rows in set (0.06 sec)

mysql>
```

25. list all employees joined in either aug or may or dec

```
5 rows in set (0.07 sec)

mysql> select ename , monthname(hiredate) from emp where monthname(hiredate) in ('may','august','december') group by ename;
ERROR 1055 (42000): Expression #2 of SELECT list is not in GROUP BY clause and contains nonaggregated column 'iacsd0324.emp.HIRE
lly dependent on columns in GROUP BY clause; this is incompatible with sql_mode=only_full_group_by
mysql> select empno , monthname(hiredate) from emp where monthname(hiredate) in ('may','august','december') group by empno;
+-------+--------------------+
| empno | monthname(hiredate) |
+-------+--------------------+
|  7369 | December           |
|  7698 | May                |
|  7788 | December           |
|  7900 | December           |
|  7902 | December           |
+-------+--------------------+
5 rows in set (0.07 sec)
```

26. display name and hiredate in dd/mm/yy format for all employees whose job is clerk and they
earn some commission

```
lly dependent on columns in GROUP BY clause; this is incompatible with sql_mode=only_full_group_by
mysql> select ename , date_format(hiredate,'%d/%m/%y') from emp where job='clerk';
+--------+-----------------------------------+
| ename  | date_format(hiredate,'%d/%m/%y') |
+--------+-----------------------------------+
| SMITH  | 17/12/80                          |
| ADAMS  | 12/01/83                          |
| JAMES  | 03/12/81                          |
| MILLER | 23/01/82                          |
+--------+-----------------------------------+
4 rows in set (0.00 sec)
```

27. list empcode,empno,name and job for each employee. (note :empcode is 3 to 5 characters
from name and last 2 characters of job)

```
mysql> select empno, concat(substr(ename,3,5),'.',right(job,2)) empcode from emp group by empno;
+-------+---------+
| empno | empcode |
+-------+---------+
|  7369 | ITH.RK  |
|  7499 | LEN.AN  |
|  7521 | RD.AN   |
|  7566 | NES.ER  |
|  7654 | RTIN.AN |
|  7698 | AKE.ER  |
|  7782 | ARK.ER  |
|  7788 | OTT.ST  |
|  7839 | NG.NT   |
|  7844 | RNER.AN |
|  7876 | AMS.RK  |
|  7900 | MES.RK  |
|  7902 | RD.ST   |
|  7934 | LLER.RK |
+-------+---------+
14 rows in set (0.00 sec)
```

28. display thousand separator and $ symbol for commission if it is null then display it as 0 for all
employees whose name starts with A and ends with N

```
mysql> select empno,ename , sal, concat('$',format(ifnull(comm,0),2)) from  emp
    -> where ename regexp '^A.*S$';
+-------+-------+---------+-----------------------------------+
| empno | ename | sal     | concat('$',format(ifnull(comm,0),2)) |
+-------+-------+---------+-----------------------------------+
|  7876 | ADAMS | 1100.00 | $300.00                           |
+-------+-------+---------+-----------------------------------+
1 row in set (0.00 sec)

mysql>
```

29. Display empid,name,sal,comm,remark Remark should base on following conditions
comm >= 600 "excellent Keep it up"
if it < 600 or not null "good"
otherwise "Need improvement"

```
WHEN comm<600 or not null THEN  at line 2
mysql> select empno,ename,sal,comm,
    -> case
    -> WHEN comm>=600 THEN "excellent keep it up"
    -> WHEN comm<600 or not null THEN "good"
    -> ELSE "need improvement"end remark
    -> from emp;
+-------+---------+---------+--------+------------------+
| empno | ename   | sal     | comm   | remark           |
+-------+---------+---------+--------+------------------+
|  7369 | SMITH   |  800.00 |   NULL | need improvement |
|  7566 | JONES   | 2975.00 |   NULL | need improvement |
|  7775 | athrava |   45.00 |   NULL | need improvement |
|  7777 | revati  |   45.00 |   NULL | need improvement |
|  7782 | CLARK   | 2450.00 |   NULL | need improvement |
|  7788 | SCOTT   | 3000.00 |   NULL | need improvement |
|  7839 | KING    | 5000.00 |   NULL | need improvement |
|  7876 | ADAMS   | 1100.00 | 300.00 | good             |
|  7902 | FORD    | 3000.00 |   NULL | need improvement |
|  7934 | MILLER  | 1300.00 |   NULL | need improvement |
+-------+---------+---------+--------+------------------+
10 rows in set (0.00 sec)
```

30. Display empid, name, deptno and department name by using following conditions.
dept 10 then "Hr"
if 20 then "Admin"
if 30 then "accounts"
otherwise purchase

```
  -> ^C
ysql> SELECT empno, ename, deptno,
  ->   CASE
  ->     WHEN deptno = 10 THEN 'hr'
  ->     WHEN deptno = 30 THEN 'account'
  ->     ELSE 'purchase'
  ->   END AS depart_name
  ->     from emp;
+-------+--------+--------+-------------+
| empno | ename  | deptno | depart_name |
+-------+--------+--------+-------------+
|  7369 | SMITH  |     20 | purchase    |
|  7499 | ALLEN  |     30 | account     |
|  7521 | WARD   |     30 | account     |
|  7566 | JONES  |     20 | purchase    |
|  7654 | MARTIN |     30 | account     |
|  7698 | BLAKE  |     30 | account     |
|  7782 | CLARK  |     10 | hr          |
|  7788 | SCOTT  |     20 | purchase    |
|  7839 | KING   |     10 | hr          |
|  7844 | TURNER |     30 | account     |
|  7876 | ADAMS  |     20 | purchase    |
|  7900 | JAMES  |     30 | account     |
|  7902 | FORD   |     20 | purchase    |
|  7934 | MILLER |     10 | hr          |
+-------+--------+--------+-------------+
```