Q2. Solve the following

1. Retrieve the details (Name, Salary and dept no) of the emp who are working in department code 20, 30 and 40.

```
mysql> select ename,sal,deptno
    -> from emp
    -> where deptno in(20,30,40);
+--------+---------+--------+
| ename  | sal     | deptno |
+--------+---------+--------+
| SMITH  |  800.00 |     20 |
| ALLEN  | 1600.00 |     30 |
| WARD   | 1250.00 |     30 |
| JONES  | 2975.00 |     20 |
| MARTIN | 1250.00 |     30 |
| BLAKE  | 2850.00 |     30 |
| SCOTT  | 3000.00 |     20 |
| TURNER | 1500.00 |     30 |
| ADAMS  | 1100.00 |     20 |
| JAMES  |  950.00 |     30 |
| FORD   | 3000.00 |     20 |
+--------+---------+--------+
11 rows in set (0.00 sec)
```

2. Display the total salary of all employees . Total salary will be calculated as sal+comm+sal*0.10

```
mysql> select ename,sal,comm,truncate(sal + ifnull(comm,0) + sal*0.10,2) "Total Salary"
    -> from emp;
+--------+---------+---------+--------------+
| ename  | sal     | comm    | Total Salary |
+--------+---------+---------+--------------+
| SMITH  |  800.00 |    NULL |       880.00 |
| ALLEN  | 1600.00 |  300.00 |      2060.00 |
| WARD   | 1250.00 |  500.00 |      1875.00 |
| JONES  | 2975.00 |    NULL |      3272.50 |
| MARTIN | 1250.00 | 1400.00 |      2775.00 |
| BLAKE  | 2850.00 |    NULL |      3135.00 |
| CLARK  | 2450.00 |    NULL |      2695.00 |
| SCOTT  | 3000.00 |    NULL |      3300.00 |
| KING   | 5000.00 |    NULL |      5500.00 |
| TURNER | 1500.00 |    0.00 |      1650.00 |
| ADAMS  | 1100.00 |    NULL |      1210.00 |
| JAMES  |  950.00 |    NULL |      1045.00 |
| FORD   | 3000.00 |    NULL |      3300.00 |
| MILLER | 1300.00 |    NULL |      1430.00 |
+--------+---------+---------+--------------+
14 rows in set (0.00 sec)
```

3. List the Name and job of the emp who have joined before 1 Jan 1986 and whose salary range is between 1200 and 2500. Display the columns with user defined Column headers.

```
mysql> select ename,job,hiredate,sal
    -> from emp
    -> where hiredate < '1986-01-01' and sal between 1200 and 2500;
+--------+----------+------------+---------+
| ename  | job      | hiredate   | sal     |
+--------+----------+------------+---------+
| ALLEN  | SALESMAN | 1981-02-20 | 1600.00 |
| WARD   | SALESMAN | 1981-02-22 | 1250.00 |
| MARTIN | SALESMAN | 1981-09-28 | 1250.00 |
| CLARK  | MANAGER  | 1981-06-09 | 2450.00 |
| TURNER | SALESMAN | 1981-09-08 | 1500.00 |
| MILLER | CLERK    | 1982-01-23 | 1300.00 |
+--------+----------+------------+---------+
6 rows in set (0.00 sec)
```

4. List the empno, name, and department number of the emp works under manager with id 7698.

```
mysql> select empno,ename,mgr,deptno
    -> from emp
    -> where mgr = 7698;
+-------+--------+------+--------+
| empno | ename  | mgr  | deptno |
+-------+--------+------+--------+
|  7499 | ALLEN  | 7698 |     30 |
|  7521 | WARD   | 7698 |     30 |
|  7654 | MARTIN | 7698 |     30 |
|  7844 | TURNER | 7698 |     30 |
|  7900 | JAMES  | 7698 |     30 |
+-------+--------+------+--------+
5 rows in set (0.00 sec)
```

5. List the name, job, and salary of the emp who are working in departments 10 or 30.

```
mysql> select ename,job,sal,deptno
    -> from emp
    -> where deptno in (10,30);
+--------+----------+---------+--------+
| ename  | job      | sal     | deptno |
+--------+----------+---------+--------+
| ALLEN  | SALESMAN | 1600.00 |     30 |
| WARD   | SALESMAN | 1250.00 |     30 |
| MARTIN | SALESMAN | 1250.00 |     30 |
| BLAKE  | MANAGER  | 2850.00 |     30 |
| CLARK  | MANAGER  | 2450.00 |     10 |
| KING   | PRESIDENT| 5000.00 |     10 |
| TURNER | SALESMAN | 1500.00 |     30 |
| JAMES  | CLERK    |  950.00 |     30 |
| MILLER | CLERK    | 1300.00 |     10 |
+--------+----------+---------+--------+
9 rows in set (0.00 sec)
```

6. Display name concatenated with dept code separated by comma and space. Name the column as ‘Emp info’.

```
mysql> select ename, deptno, concat(ename,', ',deptno) "Emp info"
    -> from emp;
+--------+--------+------------+
| ename  | deptno | Emp info   |
+--------+--------+------------+
| SMITH  |     20 | SMITH, 20  |
| ALLEN  |     30 | ALLEN, 30  |
| WARD   |     30 | WARD, 30   |
| JONES  |     20 | JONES, 20  |
| MARTIN |     30 | MARTIN, 30 |
| BLAKE  |     30 | BLAKE, 30  |
| CLARK  |     10 | CLARK, 10  |
| SCOTT  |     20 | SCOTT, 20  |
| KING   |     10 | KING, 10   |
| TURNER |     30 | TURNER, 30 |
| ADAMS  |     20 | ADAMS, 20  |
| JAMES  |     30 | JAMES, 30  |
| FORD   |     20 | FORD, 20   |
| MILLER |     10 | MILLER, 10 |
+--------+--------+------------+
14 rows in set (0.00 sec)
```

7. Display the emp details who do not have manager.

```
mysql> select *
    -> from emp
    -> where mgr is null;
+-------+-------+-----------+------+------------+---------+------+--------+
| EMPNO | ENAME | JOB       | MGR  | HIREDATE   | SAL     | COMM | DEPTNO |
+-------+-------+-----------+------+------------+---------+------+--------+
|  7839 | KING  | PRESIDENT | NULL | 1981-11-17 | 5000.00 | NULL |     10 |
+-------+-------+-----------+------+------------+---------+------+--------+
1 row in set (0.00 sec)
```

8. Write a query which will display name, department no and date of joining of all employee who were joined January 1, 1981 and March 31, 1983. Sort it based on date of joining (ascending).

```
mysql> select ename, deptno, hiredate
    -> from emp
    -> where hiredate between '1981-01-01' and '1983-03-31'
    -> order by hiredate asc;
+--------+--------+------------+
| ename  | deptno | hiredate   |
+--------+--------+------------+
| ALLEN  |     30 | 1981-02-20 |
| WARD   |     30 | 1981-02-22 |
| JONES  |     20 | 1981-04-02 |
| BLAKE  |     30 | 1981-05-01 |
| CLARK  |     10 | 1981-06-09 |
| TURNER |     30 | 1981-09-08 |
| MARTIN |     30 | 1981-09-28 |
| KING   |     10 | 1981-11-17 |
| JAMES  |     30 | 1981-12-03 |
| FORD   |     20 | 1981-12-03 |
| MILLER |     10 | 1982-01-23 |
| SCOTT  |     20 | 1982-12-09 |
| ADAMS  |     20 | 1983-01-12 |
+--------+--------+------------+
13 rows in set (0.00 sec)
```

9. Display the employee details where the job contains word ‘AGE’ anywhere in the Job

```
mysql> select *
    -> from emp
    -> where job like '%AGE%';
+-------+-------+---------+------+------------+---------+------+--------+
| EMPNO | ENAME | JOB     | MGR  | HIREDATE   | SAL     | COMM | DEPTNO |
+-------+-------+---------+------+------------+---------+------+--------+
|  7566 | JONES | MANAGER | 7839 | 1981-04-02 | 2975.00 | NULL |     20 |
|  7698 | BLAKE | MANAGER | 7839 | 1981-05-01 | 2850.00 | NULL |     30 |
|  7782 | CLARK | MANAGER | 7839 | 1981-06-09 | 2450.00 | NULL |     10 |
+-------+-------+---------+------+------------+---------+------+--------+
3 rows in set (0.00 sec)
```

```
mysql> select *
    -> from emp
    -> where job regexp '.*AGE.*';
+-------+-------+---------+------+------------+---------+------+--------+
| EMPNO | ENAME | JOB     | MGR  | HIREDATE   | SAL     | COMM | DEPTNO |
+-------+-------+---------+------+------------+---------+------+--------+
|  7566 | JONES | MANAGER | 7839 | 1981-04-02 | 2975.00 | NULL |     20 |
|  7698 | BLAKE | MANAGER | 7839 | 1981-05-01 | 2850.00 | NULL |     30 |
|  7782 | CLARK | MANAGER | 7839 | 1981-06-09 | 2450.00 | NULL |     10 |
+-------+-------+---------+------+------------+---------+------+--------+
3 rows in set (0.02 sec)
```

10. List the details of the employee , whose names start with ‘A’ and end with ‘S’ or whose names contains N as the second or third character, and ending with either ‘N’ or ‘S’.

```
mysql> select *
    -> from emp
    -> where ename like 'A%S' or ename like '_N%N' or ename like '__N%N' or ename like '_N%S' or ename like '__N%S';
+-------+-------+---------+------+-----------+---------+------+--------+
| EMPNO | ENAME | JOB     | MGR  | HIREDATE  | SAL     | COMM | DEPTNO |
+-------+-------+---------+------+-----------+---------+------+--------+
|  7566 | JONES | MANAGER | 7839 | 1981-04-02 | 2975.00 | NULL |     20 |
|  7876 | ADAMS | CLERK   | 7788 | 1983-01-12 | 1100.00 | NULL |     20 |
+-------+-------+---------+------+-----------+---------+------+--------+
2 rows in set (0.00 sec)
```

```
mysql> Select *
    -> From emp
    -> where ename REGEXP '^A.*S$|^.N.*[NS]$|^..N.*[NS]$';
+-------+-------+---------+------+------------+---------+------+--------+
| EMPNO | ENAME | JOB     | MGR  | HIREDATE   | SAL     | COMM | DEPTNO |
+-------+-------+---------+------+------------+---------+------+--------+
|  7566 | JONES | MANAGER | 7839 | 1981-04-02 | 2975.00 | NULL |     20 |
|  7876 | ADAMS | CLERK   | 7788 | 1983-01-12 | 1100.00 | NULL |     20 |
+-------+-------+---------+------+------------+---------+------+--------+
2 rows in set (0.00 sec)
```

11. List the names of the emp having ‘_’ character in their name.

```
mysql> select ename
    -> from emp
    -> where ename like '%"_"%';
Empty set (0.00 sec)
```

```
mysql> select ename
    -> from emp
    -> where ename regexp '^.*_.*$';
Empty set (0.00 sec)
```

Single Row functions

1. To list all employees and their email, to generate email use 2 to 5 characters from ename Concat it with 2 to 4 characters in job and then concat it with '@mycompany.com'

```
mysql> select *, concat (substr(ename,2,5),".",substr(job,2,4),"@mycomapny.com") Email
    -> from emp;
+-------+--------+-----------+------+------------+---------+---------+--------+-------------------------+
| EMPNO | ENAME  | JOB       | MGR  | HIREDATE   | SAL     | COMM    | DEPTNO | Email                   |
+-------+--------+-----------+------+------------+---------+---------+--------+-------------------------+
|  7369 | SMITH  | CLERK     | 7902 | 1980-12-17 |  800.00 |    NULL |     20 | MITH.LERK@mycomapny.com |
|  7499 | ALLEN  | SALESMAN  | 7698 | 1981-02-20 | 1600.00 |  300.00 |     30 | LLEN.ALES@mycomapny.com |
|  7521 | WARD   | SALESMAN  | 7698 | 1981-02-22 | 1250.00 |  500.00 |     30 | ARD.ALES@mycomapny.com  |
|  7566 | JONES  | MANAGER   | 7839 | 1981-04-02 | 2975.00 |    NULL |     20 | ONES.ANAG@mycomapny.com |
|  7654 | MARTIN | SALESMAN  | 7698 | 1981-09-28 | 1250.00 | 1400.00 |     30 | ARTIN.ALES@mycomapny.com |
|  7698 | BLAKE  | MANAGER   | 7839 | 1981-05-01 | 2850.00 |    NULL |     30 | LAKE.ANAG@mycomapny.com |
|  7782 | CLARK  | MANAGER   | 7839 | 1981-06-09 | 2450.00 |    NULL |     10 | LARK.ANAG@mycomapny.com |
|  7788 | SCOTT  | ANALYST   | 7566 | 1982-12-09 | 3000.00 |    NULL |     20 | COTT.NALY@mycomapny.com |
|  7839 | KING   | PRESIDENT | NULL | 1981-11-17 | 5000.00 |    NULL |     10 | ING.RESI@mycomapny.com  |
|  7844 | TURNER | SALESMAN  | 7698 | 1981-09-08 | 1500.00 |    0.00 |     30 | URNER.ALES@mycomapny.com |
|  7876 | ADAMS  | CLERK     | 7788 | 1983-01-12 | 1100.00 |    NULL |     20 | DAMS.LERK@mycomapny.com |
|  7900 | JAMES  | CLERK     | 7698 | 1981-12-03 |  950.00 |    NULL |     30 | AMES.LERK@mycomapny.com |
|  7902 | FORD   | ANALYST   | 7566 | 1981-12-03 | 3000.00 |    NULL |     20 | ORD.NALY@mycomapny.com  |
|  7934 | MILLER | CLERK     | 7782 | 1982-01-23 | 1300.00 |    NULL |     10 | ILLER.LERK@mycomapny.com |
+-------+--------+-----------+------+------------+---------+---------+--------+-------------------------+
14 rows in set (0.00 sec)
```

2. List all employees who joined in September.

```
mysql> select *
    -> from emp
    -> where month (hiredate) = 09;
+-------+--------+----------+------+------------+---------+---------+--------+
| EMPNO | ENAME  | JOB      | MGR  | HIREDATE   | SAL     | COMM    | DEPTNO |
+-------+--------+----------+------+------------+---------+---------+--------+
|  7654 | MARTIN | SALESMAN | 7698 | 1981-09-28 | 1250.00 | 1400.00 |     30 |
|  7844 | TURNER | SALESMAN | 7698 | 1981-09-08 | 1500.00 |    0.00 |     30 |
+-------+--------+----------+------+------------+---------+---------+--------+
2 rows in set (0.03 sec)
```

3. List the empno, name, and department number of the emp who have experience of 18 or more years and sort them based on their experience.

```
mysql> select empno, ename, hiredate, deptno, floor(datediff(curdate(),hiredate)/365) "
Experience"
    -> from emp
    -> where 18 <= floor(datediff(curdate(),hiredate)/365)
    -> order by experience asc;
+-------+--------+------------+--------+------------+
| empno | ename  | hiredate   | deptno | Experience |
+-------+--------+------------+--------+------------+
|  7788 | SCOTT  | 1982-12-09 |     20 |         40 |
|  7876 | ADAMS  | 1983-01-12 |     20 |         40 |
|  7654 | MARTIN | 1981-09-28 |     30 |         41 |
|  7698 | BLAKE  | 1981-05-01 |     30 |         41 |
|  7782 | CLARK  | 1981-06-09 |     10 |         41 |
|  7839 | KING   | 1981-11-17 |     10 |         41 |
|  7844 | TURNER | 1981-09-08 |     30 |         41 |
|  7900 | JAMES  | 1981-12-03 |     30 |         41 |
|  7902 | FORD   | 1981-12-03 |     20 |         41 |
|  7934 | MILLER | 1982-01-23 |     10 |         41 |
|  7369 | SMITH  | 1980-12-17 |     20 |         42 |
|  7499 | ALLEN  | 1981-02-20 |     30 |         42 |
|  7521 | WARD   | 1981-02-22 |     30 |         42 |
|  7566 | JONES  | 1981-04-02 |     20 |         42 |
+-------+--------+------------+--------+------------+
14 rows in set (0.00 sec)
```

4. Display the employee details who joined on 3rd of any month or any year

```
mysql> select *
    -> from emp
    -> where day(hiredate) = 03;
+-------+-------+---------+------+------------+---------+------+--------+
| EMPNO | ENAME | JOB     | MGR  | HIREDATE   | SAL     | COMM | DEPTNO |
+-------+-------+---------+------+------------+---------+------+--------+
|  7900 | JAMES | CLERK   | 7698 | 1981-12-03 |  950.00 | NULL |     30 |
|  7902 | FORD  | ANALYST | 7566 | 1981-12-03 | 3000.00 | NULL |     20 |
+-------+-------+---------+------+------------+---------+------+--------+
2 rows in set (0.00 sec)
```

5. Display all employees who joined between years 1981 to 1983.

```
mysql> select *
    -> from emp
    -> where hiredate between '1981-01-01' and '1983-12-31';
+-------+--------+-----------+------+------------+---------+---------+--------+
| EMPNO | ENAME  | JOB       | MGR  | HIREDATE   | SAL     | COMM    | DEPTNO |
+-------+--------+-----------+------+------------+---------+---------+--------+
|  7499 | ALLEN  | SALESMAN  | 7698 | 1981-02-20 | 1600.00 |  300.00 |     30 |
|  7521 | WARD   | SALESMAN  | 7698 | 1981-02-22 | 1250.00 |  500.00 |     30 |
|  7566 | JONES  | MANAGER   | 7839 | 1981-04-02 | 2975.00 |    NULL |     20 |
|  7654 | MARTIN | SALESMAN  | 7698 | 1981-09-28 | 1250.00 | 1400.00 |     30 |
|  7698 | BLAKE  | MANAGER   | 7839 | 1981-05-01 | 2850.00 |    NULL |     30 |
|  7782 | CLARK  | MANAGER   | 7839 | 1981-06-09 | 2450.00 |    NULL |     10 |
|  7788 | SCOTT  | ANALYST   | 7566 | 1982-12-09 | 3000.00 |    NULL |     20 |
|  7839 | KING   | PRESIDENT | NULL | 1981-11-17 | 5000.00 |    NULL |     10 |
|  7844 | TURNER | SALESMAN  | 7698 | 1981-09-08 | 1500.00 |    0.00 |     30 |
|  7876 | ADAMS  | CLERK     | 7788 | 1983-01-12 | 1100.00 |    NULL |     20 |
|  7900 | JAMES  | CLERK     | 7698 | 1981-12-03 |  950.00 |    NULL |     30 |
|  7902 | FORD   | ANALYST   | 7566 | 1981-12-03 | 3000.00 |    NULL |     20 |
|  7934 | MILLER | CLERK     | 7782 | 1982-01-23 | 1300.00 |    NULL |     10 |
+-------+--------+-----------+------+------------+---------+---------+--------+
13 rows in set (0.00 sec)
```

Group functions

6. Display the Highest, Lowest, Total & Average salary of all employee. Label the columns Maximum, Minimum, Total and Average respectively for each Department. Also round the result to the nearest whole number.

```
mysql> select deptno, max(sal) Maximum , min(sal) Minimum, round(avg(sal)) Average, sum(sal)Total
    -> from emp
    -> group by deptno
    -> order by deptno;
+--------+---------+---------+---------+----------+
| deptno | Maximum | Minimum | Average | Total    |
+--------+---------+---------+---------+----------+
|     10 | 5000.00 | 1300.00 |    2917 |  8750.00 |
|     20 | 3000.00 |  800.00 |    2175 | 10875.00 |
|     30 | 2850.00 |  950.00 |    1567 |  9400.00 |
+--------+---------+---------+---------+----------+
```

7. Display Department no and number of managers working in that department. Label the column as 'Total Number of Managers' for each department.

```
mysql> select deptno,count(*) "Total number of Manager"
    -> from emp
    -> where job='Manager'
    -> group by deptno
    -> order by deptno;
+--------+--------------------------+
| deptno | Total number of Manager |
+--------+--------------------------+
|     10 |                        1 |
|     20 |                        1 |
|     30 |                        1 |
+--------+--------------------------+
3 rows in set (0.00 sec)
```

8. Get the Department number, and sum of Salary of all non managers where the sum is greater than 20000.

```
mysql> select deptno, sum(sal)
    -> from emp
    -> where job!='manager'
    -> group by deptno
    -> having sum(sal) > 2000;
+--------+----------+
| deptno | sum(sal) |
+--------+----------+
|     20 |  7900.00 |
|     30 |  6550.00 |
|     10 |  6300.00 |
+--------+----------+
3 rows in set (0.00 sec)

mysql> select deptno, sum(sal)
    -> from emp
    -> where job!='manager'
    -> group by deptno
    -> having sum(sal) > 20000;
Empty set (0.00 sec)
```