NAME : SOUMYADEEP SINHA (D235) TEAM - 8

SQL CODING CHALLENGE (MS SQL SERVER)

CASE STUDY -1

Emp Table Data

EMPNO	ENAME	JOB	MGR	HIREDATE	SAL	COMM	DEPTNO
7369	SMITH	CLERK	7902	17-Dec-80	800		20
7499	ALLEN	SALESMAN	7698	20-Feb-81	1600	300	30
7521	WARD	SALESMAN	7698	22-Feb-81	1250	500	30
7566	JONES	MANAGER	7839	02-Apr-81	2975		20
7654	MARTIN	SALESMAN	7698	28-Sep-81	1250	1400	30
7698	BLAKE	MANAGER	7839	01-May-81	2850		30
7782	CLARK	MANAGER	7839	09-Jun-81	2450		10
7788	SCOTT	ANALYST	7566	09-Dec-82	3000		20
7839	KING	PRESIDENT		17-Nov-81	5000		10
7844	TURNER	SALESMAN	7698	08-Sep-81	1500	0	30
7876	ADAMS	CLERK	7788	12-Jan-83	1100		20
7900	JAMES	CLERK	7698	03-Dec-81	950		30
7902	FORD	ANALYST	7566	03-Dec-81	3000		20
7934	MILLER	CLERK	7782	23-Jan-82	1300		10

Dept table Data

DEPTNO	DNAME	LOC
10	ACCOUNTING	NEW YORK
20	RESEARCH	DALLAS
30	SALES	CHICAGO
40	OPERATIONS	BOSTON

CREATING TABLES

Dept Table

```
CREATE TABLE Dept (
   Id INT IDENTITY(1,1) PRIMARY KEY,
   DEPTNO INT UNIQUE NOT NULL,
   DNAME VARCHAR(50),
   LOC VARCHAR(50)
);
```

```
INSERT INTO Dept (DEPTNO, DNAME, LOC) VALUES
(10, 'ACCOUNTING', 'NEW YORK'),
(20, 'RESEARCH', 'DALLAS'),
(30, 'SALES', 'CHICAGO'),
(40, 'OPERATIONS', 'BOSTON');
```

Emp Table

```
CREATE TABLE Emp (
   Id INT IDENTITY(1,1) PRIMARY KEY,
   EMPNO INT UNIQUE NOT NULL,
   ENAME VARCHAR(50),
   JOB VARCHAR(50),
   MGR INT,
   HIREDATE DATE,
   SAL INT,
   COMM INT,
   DEPTNO INT,
   CONSTRAINT FK_Emp_Dept FOREIGN KEY (DEPTNO) REFERENCES Dept(DEPTNO)
);
```

```
INSERT INTO Emp (EMPNO, ENAME, JOB, MGR, HIREDATE, SAL, COMM, DEPTNO) VALUES
(7369, 'SMITH', 'CLERK', 7902, '1980-12-17', 800, NULL,20),
(7499, 'ALLEN', 'SALESMAN', 7698, '1981-02-20', 1600, 300,30),
(7521, 'WARD', 'SALESMAN', 7698, '1981-02-22', 1250, 500,30),
(7566, 'JONES', 'MANAGER', 7839, '1981-04-02', 2975, NULL,20),
(7654, 'MARTIN', 'SALESMAN', 7698, '1981-09-28', 1250, 1400,30),
(7698, 'BLAKE', 'MANAGER', 7839, '1981-05-01', 2850, NULL,30),
(7782, 'CLARK', 'MANAGER', 7839, '1981-06-09', 2450, NULL,10),
(7788, 'SCOTT', 'ANALYST', 7566, '1982-12-09', 3000, NULL,20),
(7839, 'KING', 'PRESIDENT', NULL, '1981-11-17', 5000, NULL,10),
(7844, 'TURNER', 'SALESMAN', 7698, '1981-09-08', 1500, 0,30),
(7876, 'ADAMS', 'CLERK', 7788, '1983-01-12', 1100, NULL,20),
(7900, 'JAMES', 'CLERK', 7698, '1981-12-03', 950, NULL,30),
(7902, 'FORD', 'ANALYST', 7566, '1981-12-03', 3000, NULL,20),
(7934, 'MILLER', 'CLERK', 7782, '1982-01-23', 1300, NULL,10);
```

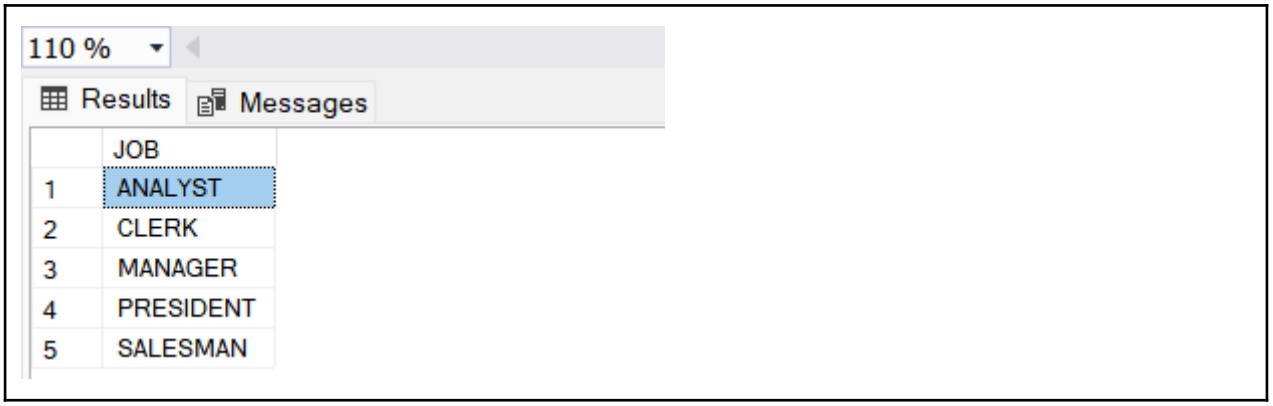
Exercises for Above Case Study

1) **Display unique Jobs from EMP table?**

QUERY

```
SELECT DISTINCT JOB FROM Emp;
```

OUTPUT



110 %

Results | Messages

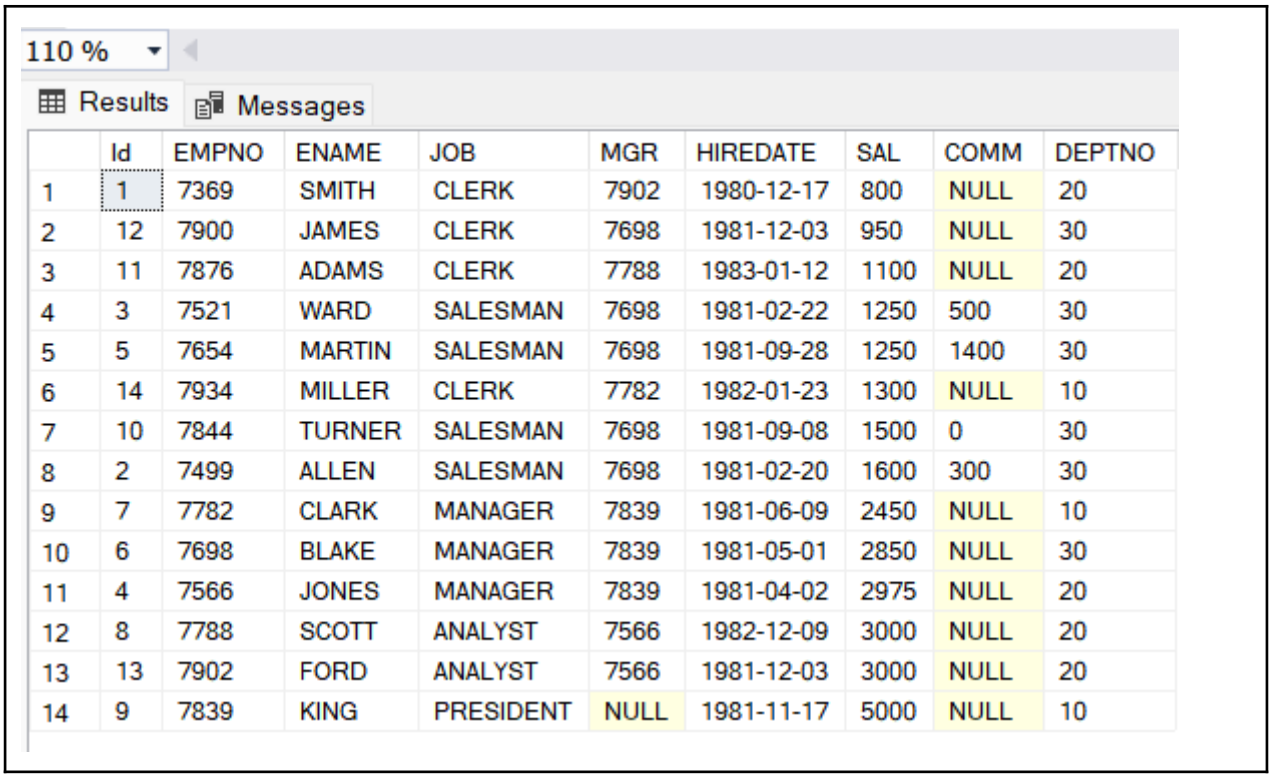
	JOB
1	ANALYST
2	CLERK
3	MANAGER
4	PRESIDENT
5	SALESMAN

2) **List the emps in the asc order of their Salaries?**

QUERY

```
SELECT * FROM Emp ORDER BY SAL;
```

OUTPUT



110 %

Results | Messages

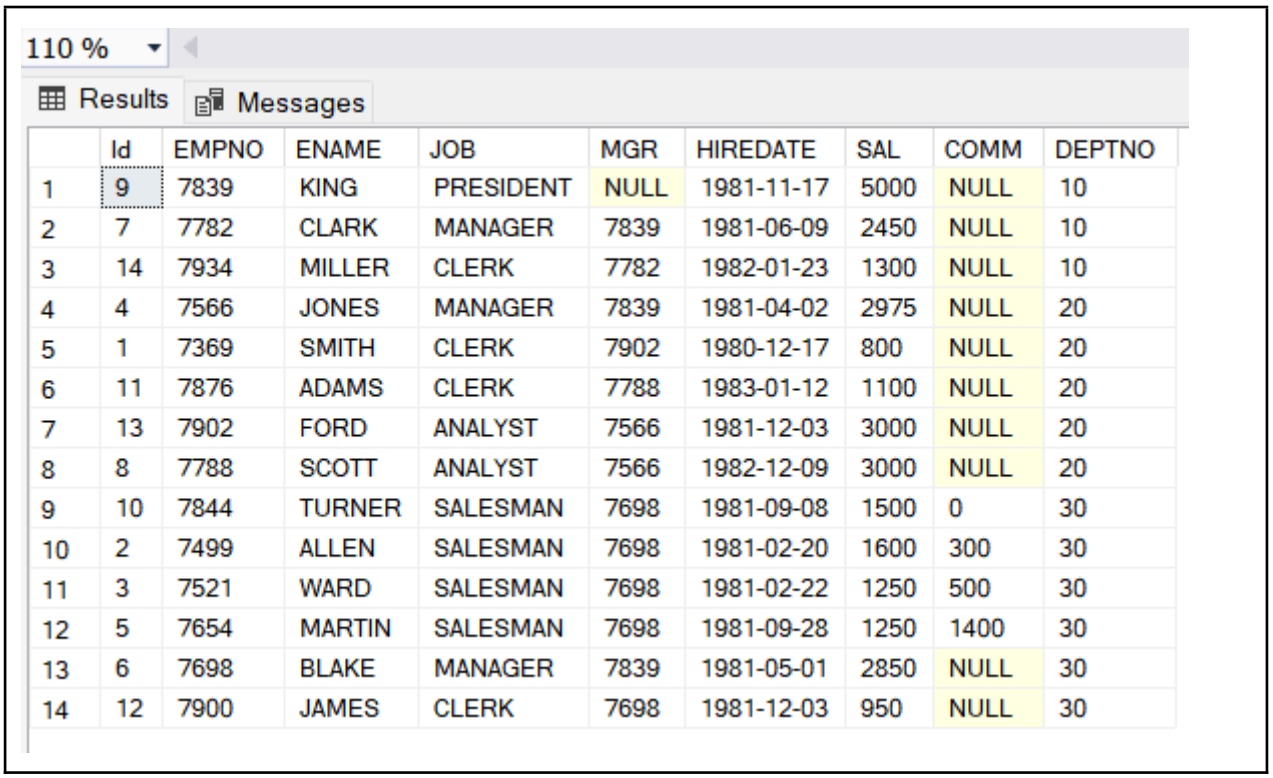
	Id	EMPNO	ENAME	JOB	MGR	HIREDATE	SAL	COMM	DEPTNO
1	1	7369	SMITH	CLERK	7902	1980-12-17	800	NULL	20
2	12	7900	JAMES	CLERK	7698	1981-12-03	950	NULL	30
3	11	7876	ADAMS	CLERK	7788	1983-01-12	1100	NULL	20
4	3	7521	WARD	SALESMAN	7698	1981-02-22	1250	500	30
5	5	7654	MARTIN	SALESMAN	7698	1981-09-28	1250	1400	30
6	14	7934	MILLER	CLERK	7782	1982-01-23	1300	NULL	10
7	10	7844	TURNER	SALESMAN	7698	1981-09-08	1500	0	30
8	2	7499	ALLEN	SALESMAN	7698	1981-02-20	1600	300	30
9	7	7782	CLARK	MANAGER	7839	1981-06-09	2450	NULL	10
10	6	7698	BLAKE	MANAGER	7839	1981-05-01	2850	NULL	30
11	4	7566	JONES	MANAGER	7839	1981-04-02	2975	NULL	20
12	8	7788	SCOTT	ANALYST	7566	1982-12-09	3000	NULL	20
13	13	7902	FORD	ANALYST	7566	1981-12-03	3000	NULL	20
14	9	7839	KING	PRESIDENT	NULL	1981-11-17	5000	NULL	10

3) **List the details of the emps in asc order of the Dptnos and desc of Jobs**

QUERY

```
SELECT * FROM Emp ORDER BY DEPTNO ASC, JOB DESC;
```

OUTPUT



110 %

Results | Messages

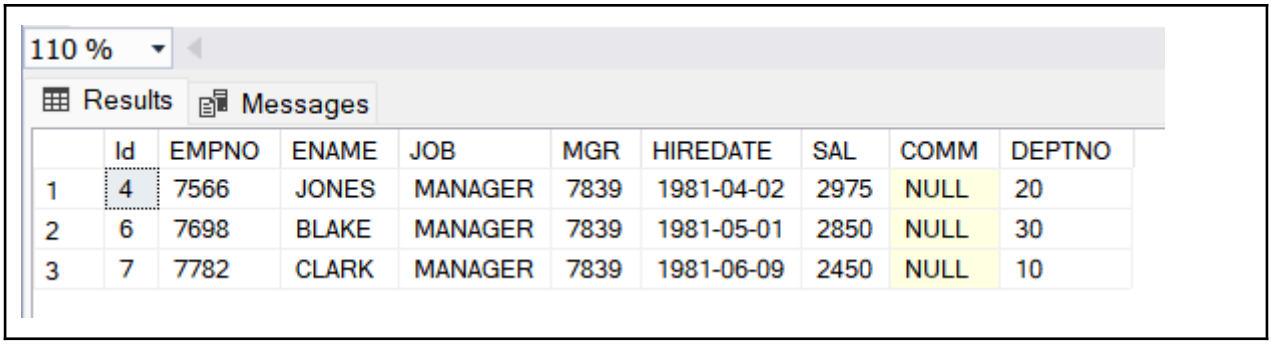
	Id	EMPNO	ENAME	JOB	MGR	HIREDATE	SAL	COMM	DEPTNO
1	9	7839	KING	PRESIDENT	NULL	1981-11-17	5000	NULL	10
2	7	7782	CLARK	MANAGER	7839	1981-06-09	2450	NULL	10
3	14	7934	MILLER	CLERK	7782	1982-01-23	1300	NULL	10
4	4	7566	JONES	MANAGER	7839	1981-04-02	2975	NULL	20
5	1	7369	SMITH	CLERK	7902	1980-12-17	800	NULL	20
6	11	7876	ADAMS	CLERK	7788	1983-01-12	1100	NULL	20
7	13	7902	FORD	ANALYST	7566	1981-12-03	3000	NULL	20
8	8	7788	SCOTT	ANALYST	7566	1982-12-09	3000	NULL	20
9	10	7844	TURNER	SALESMAN	7698	1981-09-08	1500	0	30
10	2	7499	ALLEN	SALESMAN	7698	1981-02-20	1600	300	30
11	3	7521	WARD	SALESMAN	7698	1981-02-22	1250	500	30
12	5	7654	MARTIN	SALESMAN	7698	1981-09-28	1250	1400	30
13	6	7698	BLAKE	MANAGER	7839	1981-05-01	2850	NULL	30
14	12	7900	JAMES	CLERK	7698	1981-12-03	950	NULL	30

4) Display all the details of all ‘Mgrs’

QUERY

```
SELECT * FROM Emp WHERE JOB = 'MANAGER';
```

OUTPUT



110 %

Results | Messages

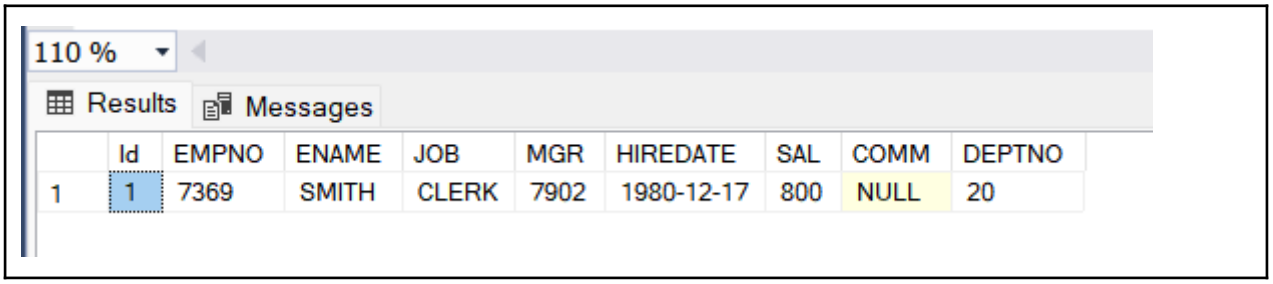
	Id	EMPNO	ENAME	JOB	MGR	HIREDATE	SAL	COMM	DEPTNO
1	4	7566	JONES	MANAGER	7839	1981-04-02	2975	NULL	20
2	6	7698	BLAKE	MANAGER	7839	1981-05-01	2850	NULL	30
3	7	7782	CLARK	MANAGER	7839	1981-06-09	2450	NULL	10

5) List the emps who joined before 1981.

QUERY

```
SELECT * FROM Emp
WHERE HIREDATE < '1981-01-01';
```

OUTPUT



110 %

Results | Messages

	Id	EMPNO	ENAME	JOB	MGR	HIREDATE	SAL	COMM	DEPTNO
1	1	7369	SMITH	CLERK	7902	1980-12-17	800	NULL	20

6) List the Empno, Ename, Sal, Daily sal of all emps in the asc order of Annsal.

Considering the salary given is per month salary.

QUERY

```
SELECT EMPNO, ENAME, SAL AS 'Monthly Salary', (SAL / 30) AS 'Daily Salary'
FROM Emp
ORDER BY (SAL * 12);
```

OUTPUT

110 %

Results Messages

	EMPNO	ENAME	Monthly Salary	Daily Salary
1	7369	SMITH	800	26
2	7900	JAMES	950	31
3	7876	ADAMS	1100	36
4	7521	WARD	1250	41
5	7654	MARTIN	1250	41
6	7934	MILLER	1300	43
7	7844	TURNER	1500	50
8	7499	ALLEN	1600	53
9	7782	CLARK	2450	81
10	7698	BLAKE	2850	95
11	7566	JONES	2975	99
12	7788	SCOTT	3000	100
13	7902	FORD	3000	100
14	7839	KING	5000	166

7) List the emps in the asc order of Designations of those joined after the second half of 1981.

QUERY

```
SELECT * FROM Emp
WHERE HIREDATE >= '1981-07-01'
ORDER BY JOB;
```

OUTPUT

110 %

Results Messages

	Id	EMPNO	ENAME	JOB	MGR	HIREDATE	SAL	COMM	DEPTNO
1	8	7788	SCOTT	ANALYST	7566	1982-12-09	3000	NULL	20
2	13	7902	FORD	ANALYST	7566	1981-12-03	3000	NULL	20
3	14	7934	MILLER	CLERK	7782	1982-01-23	1300	NULL	10
4	11	7876	ADAMS	CLERK	7788	1983-01-12	1100	NULL	20
5	12	7900	JAMES	CLERK	7698	1981-12-03	950	NULL	30
6	9	7839	KING	PRESIDENT	NULL	1981-11-17	5000	NULL	10
7	10	7844	TURNER	SALESMAN	7698	1981-09-08	1500	0	30
8	5	7654	MARTIN	SALESMAN	7698	1981-09-28	1250	1400	30

8) List the emps who are either ‘CLERK’ or ‘ANALYST’ in the Desc order.

QUERY

```
SELECT * FROM Emp
WHERE JOB IN ('CLERK', 'ANALYST')
ORDER BY JOB DESC;
```

OUTPUT

110 %

Results | Messages

	Id	EMPNO	ENAME	JOB	MGR	HIREDATE	SAL	COMM	DEPTNO
1	1	7369	SMITH	CLERK	7902	1980-12-17	800	NULL	20
2	11	7876	ADAMS	CLERK	7788	1983-01-12	1100	NULL	20
3	12	7900	JAMES	CLERK	7698	1981-12-03	950	NULL	30
4	14	7934	MILLER	CLERK	7782	1982-01-23	1300	NULL	10
5	13	7902	FORD	ANALYST	7566	1981-12-03	3000	NULL	20
6	8	7788	SCOTT	ANALYST	7566	1982-12-09	3000	NULL	20

9) List the emps who joined on 1-MAY-81,3-DEC-81,17-DEC-81,19-JAN 80 in asc order of seniority.

QUERY

```
SELECT * FROM Emp
WHERE HIREDATE IN ('1981-05-01', '1981-12-03', '1981-12-17', '1980-01-19')
ORDER BY HIREDATE;
```

OUTPUT

110 %

Results | Messages

	Id	EMPNO	ENAME	JOB	MGR	HIREDATE	SAL	COMM	DEPTNO
1	6	7698	BLAKE	MANAGER	7839	1981-05-01	2850	NULL	30
2	12	7900	JAMES	CLERK	7698	1981-12-03	950	NULL	30
3	13	7902	FORD	ANALYST	7566	1981-12-03	3000	NULL	20

10) List the Enames those are having five characters in their Names.

QUERY

```
SELECT ENAME FROM Emp WHERE LEN(ENAME) = 5;
```

OUTPUT

110 %

Results | Messages

	ENAME
1	SMITH
2	ALLEN
3	JONES
4	BLAKE
5	CLARK
6	SCOTT
7	ADAMS
8	JAMES

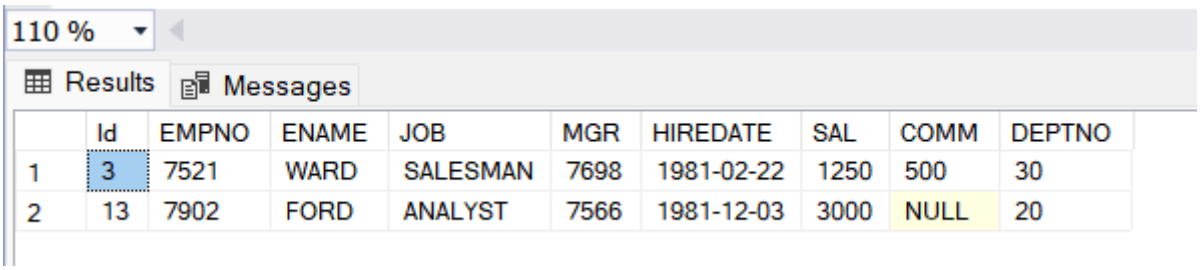
11) List the emps those are having four chars and third character must be ‘r’

QUERY (2 Ways)

```
SELECT * FROM Emp
WHERE LEN(ENAME) = 4 AND SUBSTRING(ENAME, 3, 1) = 'R';
```

```
SELECT * FROM Emp
WHERE ENAME LIKE '__R_';
```

OUTPUT



110 %

Results | Messages

	Id	EMPNO	ENAME	JOB	MGR	HIREDATE	SAL	COMM	DEPTNO
1	3	7521	WARD	SALESMAN	7698	1981-02-22	1250	500	30
2	13	7902	FORD	ANALYST	7566	1981-12-03	3000	NULL	20

12) List the Five character names starting with ‘S’ and ending with ‘H’.

QUERY

```
SELECT * FROM Emp
WHERE LEN(ENAME) = 5 AND ENAME LIKE 'S%H';
```

OUTPUT

110 %

Results | Messages

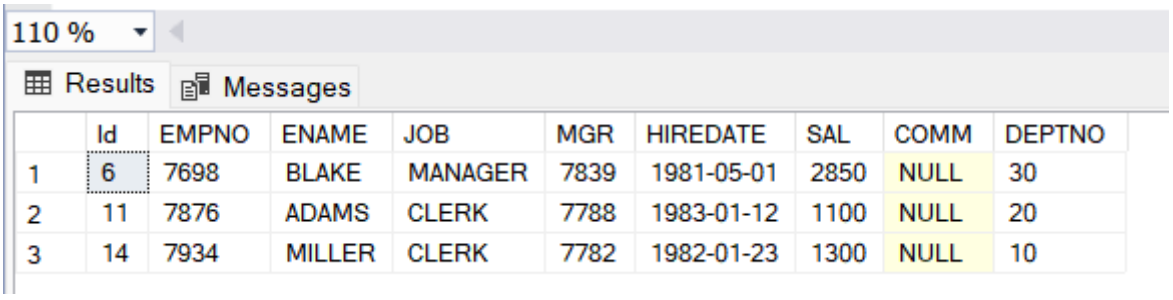
	Id	EMPNO	ENAME	JOB	MGR	HIREDATE	SAL	COMM	DEPTNO
1	1	7369	SMITH	CLERK	7902	1980-12-17	800	NULL	20

13) List the emps who joined in the month of which second character is ‘a’.

QUERY

```
SELECT * FROM Emp
WHERE DATENAME(MONTH, HIREDATE) LIKE '_a%';
```

OUTPUT (JAN, MAY)



110 %

Results | Messages

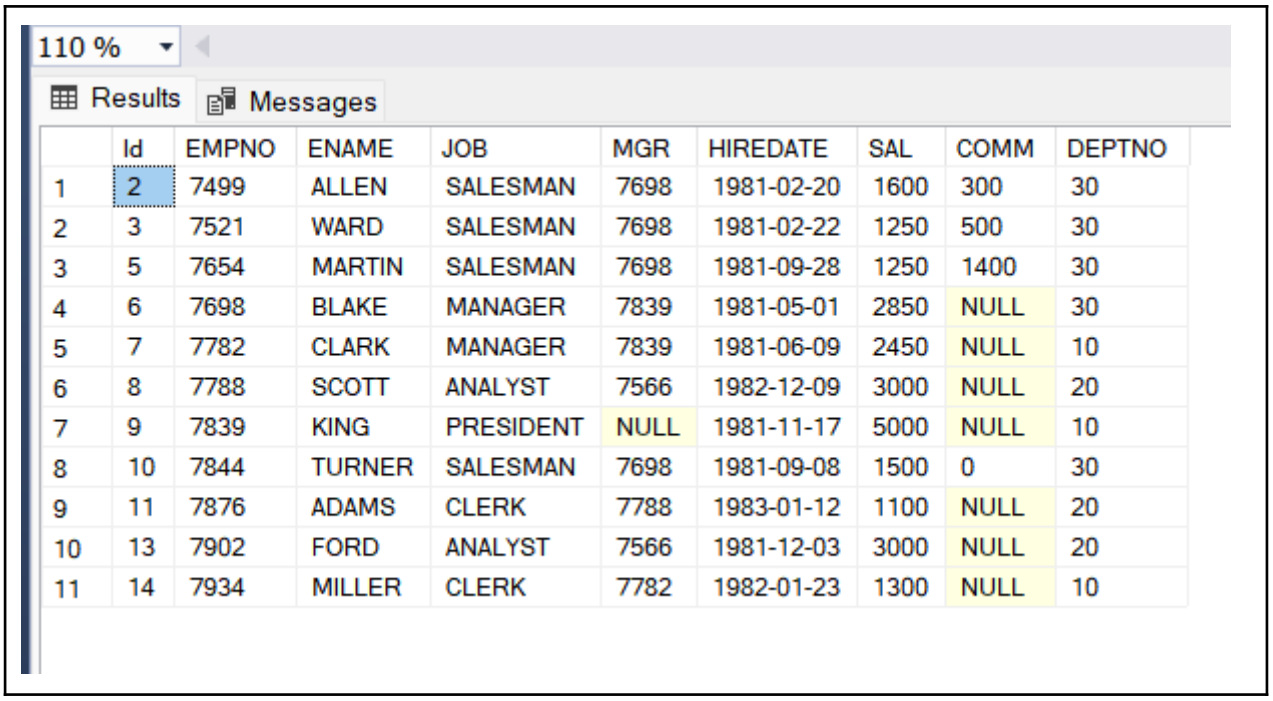
	Id	EMPNO	ENAME	JOB	MGR	HIREDATE	SAL	COMM	DEPTNO
1	6	7698	BLAKE	MANAGER	7839	1981-05-01	2850	NULL	30
2	11	7876	ADAMS	CLERK	7788	1983-01-12	1100	NULL	20
3	14	7934	MILLER	CLERK	7782	1982-01-23	1300	NULL	10

14) List the emps whose Sal is four digit number ending with Zero.

QUERY

```
SELECT * FROM Emp
WHERE SAL BETWEEN 1000 AND 9999 AND SAL % 10 = 0;
```

OUTPUT



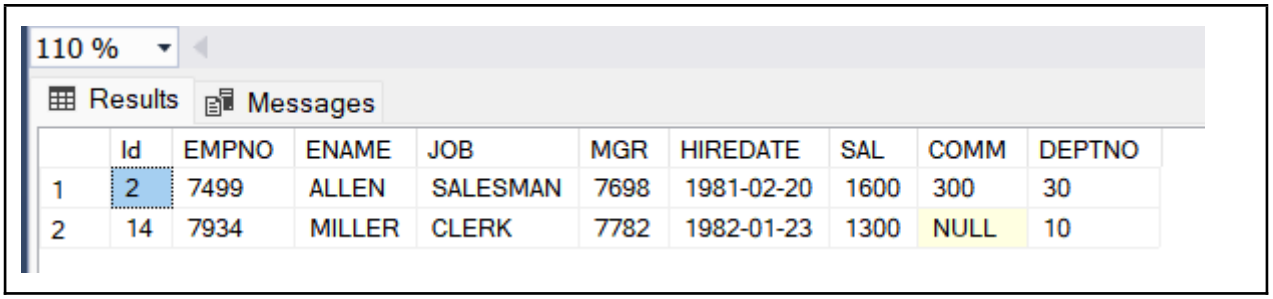
	Id	EMPNO	ENAME	JOB	MGR	HIREDATE	SAL	COMM	DEPTNO
1	2	7499	ALLEN	SALESMAN	7698	1981-02-20	1600	300	30
2	3	7521	WARD	SALESMAN	7698	1981-02-22	1250	500	30
3	5	7654	MARTIN	SALESMAN	7698	1981-09-28	1250	1400	30
4	6	7698	BLAKE	MANAGER	7839	1981-05-01	2850	NULL	30
5	7	7782	CLARK	MANAGER	7839	1981-06-09	2450	NULL	10
6	8	7788	SCOTT	ANALYST	7566	1982-12-09	3000	NULL	20
7	9	7839	KING	PRESIDENT	NULL	1981-11-17	5000	NULL	10
8	10	7844	TURNER	SALESMAN	7698	1981-09-08	1500	0	30
9	11	7876	ADAMS	CLERK	7788	1983-01-12	1100	NULL	20
10	13	7902	FORD	ANALYST	7566	1981-12-03	3000	NULL	20
11	14	7934	MILLER	CLERK	7782	1982-01-23	1300	NULL	10

15) List the emps whose names having a character set ‘ll’ together

QUERY

```
SELECT * FROM Emp
WHERE ENAME LIKE '%LL%';
```

OUTPUT



	Id	EMPNO	ENAME	JOB	MGR	HIREDATE	SAL	COMM	DEPTNO
1	2	7499	ALLEN	SALESMAN	7698	1981-02-20	1600	300	30
2	14	7934	MILLER	CLERK	7782	1982-01-23	1300	NULL	10

Case study : 2

Table: Views

+---------------+---------+

| Column Name | Type |

+---------------+---------+

| article_id | int |

| author_id | int |

| viewer_id | int |

| view_date | date |

+---------------+---------+

There is no primary key for this table, it may have duplicate rows. Each row of this table indicates that some viewer viewed an article (written by some author) on some date. Note that equal author_id and viewer_id indicate the same person. Write an SQL query to find all the authors that viewed at least one of their own articles, sorted in ascending order by their id. The query result format is in the following example: Views table

+------------+-----------+-----------+------------+

| article_id | author_id | viewer_id | view_date |

+------------+-----------+-----------+------------+

| 1 | 3 | 5 | 2019-08-01 |

| 1 | 3 | 6 | 2019-08-02 |

| 2 | 7 | 7 | 2019-08-01 |

| 2 | 7 | 6 | 2019-08-02 |

| 4 | 7 | 1 | 2019-07-22 |

| 3 | 4 | 4 | 2019-07-21 |

| 3 | 4 | 4 | 2019-07-21 |

+------------+-----------+-----------+------------+

Result table:

```
+------+
| id   |
+------+
| 4    |
| 7    |
+------+
```

SOLUTION QUERY

CREATING TABLE Views

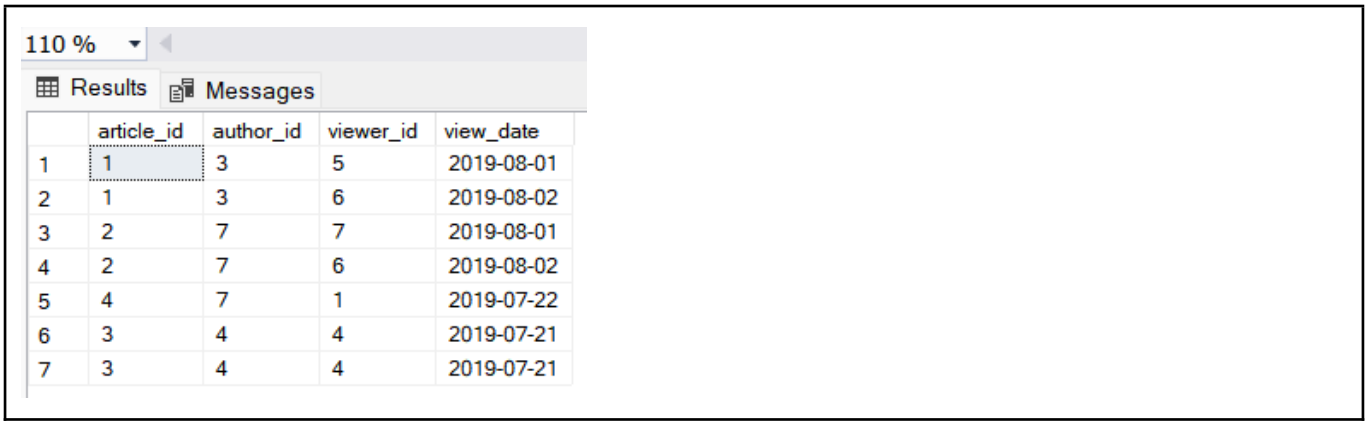
```
CREATE TABLE Views (
   article_id INT,
   author_id INT,
   viewer_id INT,
   view_date DATE
);
```

FILLING DATA

```
INSERT INTO Views (article_id, author_id, viewer_id, view_date) VALUES
(1, 3, 5, '2019-08-01'),
(1, 3, 6, '2019-08-02'),
(2, 7, 7, '2019-08-01'),
(2, 7, 6, '2019-08-02'),
(4, 7, 1, '2019-07-22'),
(3, 4, 4, '2019-07-21'),
(3, 4, 4, '2019-07-21');
```

CHECKING TABLE

```
SELECT * FROM Views;
```



110 %

Results Messages

	article_id	author_id	viewer_id	view_date
1	1	3	5	2019-08-01
2	1	3	6	2019-08-02
3	2	7	7	2019-08-01
4	2	7	6	2019-08-02
5	4	7	1	2019-07-22
6	3	4	4	2019-07-21
7	3	4	4	2019-07-21

MAIN QUESTION

Write an SQL query to find all the authors that viewed at least one of their own articles, sorted in ascending order by their id.

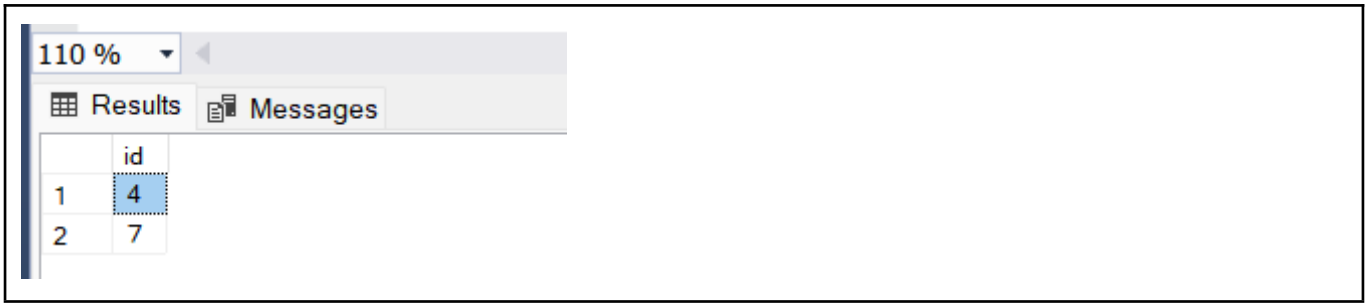
QUERY

```
SELECT DISTINCT author_id AS id
FROM Views
WHERE author_id = viewer_id
ORDER BY author_id;
```

2nd way USING SELF JOIN

```
SELECT DISTINCT v1.author_id AS id
FROM Views v1
JOIN Views v2 ON v1.author_id = v2.viewer_id AND v1.article_id = v2.article_id
ORDER BY v1.author_id;
```

OUTPUT



110 %

Results Messages

	id
1	4
2	7