

EXPERIMENT -6

Title: Use of Inbuilt functions and relational algebra operation

Objective: To understand the use of inbuilt function and relational algebra with sql query.

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BATCH – 12

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```
mysql> CREATE DATABASE EXP6;  
Query OK, 1 row affected (0.01 sec)
```

```
mysql> CREATE TABLE EMP (  
-> EMPNO INT PRIMARY KEY,  
-> ENAME VARCHAR(50),  
-> JOB VARCHAR(50),  
-> MGR INT,  
-> HIREDATE DATE,  
-> SAL DECIMAL(10, 2),  
-> COMM DECIMAL(10, 2),  
-> DEPTNO INT  
-> );  
Query OK, 0 rows affected (0.03 sec)
```

```

mysql> CREATE TABLE EMP (
->     EMPNO INT PRIMARY KEY,
->     ENAME VARCHAR(50),
->     JOB VARCHAR(50),
->     MGR INT,
->     HIREDATE VARCHAR(10),
->     SAL DECIMAL(10, 2),
->     COMM DECIMAL(10, 2),
->     DEPTNO INT
-> );
Query OK, 0 rows affected (0.03 sec)

mysql> INSERT INTO EMP (EMPNO, ENAME, JOB, MGR, HIREDATE, SAL, COMM, DEPTNO)
-> VALUES
-> (7369, 'SMITH', 'CLERK', 7902, '17-DEC-80', 800, NULL, 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, NULL, 20),
-> (7654, 'MARTIN', 'SALESMAN', 7698, '28-SEP-81', 1250, 1400, 30),
-> (7698, 'BLAKE', 'MANAGER', 7839, '01-MAY-81', 2850, NULL, 30),
-> (7782, 'CLARK', 'MANAGER', 7839, '09-JUN-81', 2450, NULL, 10),
-> (7788, 'SCOTT', 'ANALYST', 7566, '09-DEC-82', 3000, NULL, 20),
-> (7839, 'KING', 'PRESIDENT', NULL, '17-NOV-81', 5000, NULL, 10),
-> (7844, 'TURNER', 'SALESMAN', 7698, '08-SEP-81', 1500, 0, 30),
-> (7876, 'ADAMS', 'CLERK', 7788, '12-JAN-83', 1100, NULL, 20),
-> (7900, 'JAMES', 'CLERK', 7698, '03-DEC-81', 950, NULL, 30),
-> (7902, 'FORD', 'ANALYST', 7566, '03-DEC-81', 3000, NULL, 20),
-> (7934, 'MILLER', 'CLERK', 7782, '23-JAN-82', 1300, NULL, 10);
Query OK, 14 rows affected (0.01 sec)
Records: 14  Duplicates: 0  Warnings: 0

```

```

mysql> INSERT INTO EMP (EMPNO, ENAME, JOB, MGR, HIREDATE, SAL, COMM, DEPTNO)
-> VALUES
-> (7369, 'SMITH', 'CLERK', 7902, TO_DATE('17-DEC-1980', 'DD-MON-YYYY'), 800, NULL, 20),
-> (7499, 'ALLEN', 'SALESMAN', 7698, TO_DATE('20-FEB-1981', 'DD-MON-YYYY'), 1600, 300, 30),
-> (7521, 'WARD', 'SALESMAN', 7698, TO_DATE('22-FEB-1981', 'DD-MON-YYYY'), 1250, 500, 30),
-> (7566, 'JONES', 'MANAGER', 7839, TO_DATE('02-APR-1981', 'DD-MON-YYYY'), 2975, NULL, 20),
-> (7654, 'MARTIN', 'SALESMAN', 7698, TO_DATE('28-SEP-1981', 'DD-MON-YYYY'), 1250, 1400, 30),
-> (7698, 'BLAKE', 'MANAGER', 7839, TO_DATE('01-MAY-1981', 'DD-MON-YYYY'), 2850, NULL, 30),
-> (7782, 'CLARK', 'MANAGER', 7839, TO_DATE('09-JUN-1981', 'DD-MON-YYYY'), 2450, NULL, 10),
-> (7788, 'SCOTT', 'ANALYST', 7566, TO_DATE('09-DEC-1982', 'DD-MON-YYYY'), 3000, NULL, 20),
-> (7839, 'KING', 'PRESIDENT', NULL, TO_DATE('17-NOV-1981', 'DD-MON-YYYY'), 5000, NULL, 10),
-> (7844, 'TURNER', 'SALESMAN', 7698, TO_DATE('08-SEP-1981', 'DD-MON-YYYY'), 1500, 0, 30),
-> (7876, 'ADAMS', 'CLERK', 7788, TO_DATE('12-JAN-1983', 'DD-MON-YYYY'), 1100, NULL, 20),
-> (7900, 'JAMES', 'CLERK', 7698, TO_DATE('03-DEC-1981', 'DD-MON-YYYY'), 950, NULL, 30),
-> (7902, 'FORD', 'ANALYST', 7566, TO_DATE('03-DEC-1981', 'DD-MON-YYYY'), 3000, NULL, 20),
-> (7934, 'MILLER', 'CLERK', 7782, TO_DATE('23-JAN-1982', 'DD-MON-YYYY'), 1300, NULL, 10);
ERROR 1305 (42000): FUNCTION exp6.TO_DATE does not exist
mysql> DROP TABLE EMP;
Query OK, 0 rows affected (0.04 sec)

mysql> CREATE TABLE EMP (
->     EMPNO INT PRIMARY KEY,
->     ENAME VARCHAR(50),
->     JOB VARCHAR(50),
->     MGR INT,
->     HIREDATE VARCHAR(10),
->     SAL DECIMAL(10, 2),
->     COMM DECIMAL(10, 2),
->     DEPTNO INT
-> );
Query OK, 0 rows affected (0.03 sec)

```

```
mysql> CREATE TABLE DEPT (
->     DEPTNO INT PRIMARY KEY,
->     DNAME VARCHAR(50),
->     LOC VARCHAR(50)
-> );
Query OK, 0 rows affected (0.02 sec)

mysql> INSERT INTO DEPT (DEPTNO, DNAME, LOC)
-> VALUES
-> (10, 'ACCOUNTING', 'NEW YORK'),
-> (20, 'RESEARCH', 'DALLAS'),
-> (30, 'SALES', 'CHICAGO'),
-> (40, 'OPERATIONS', 'BOSTON');
Query OK, 4 rows affected (0.01 sec)
Records: 4  Duplicates: 0  Warnings: 0
```

```
mysql> SELECT * FROM EMP;
+-----+-----+-----+-----+-----+-----+-----+-----+
| EMPNO | ENAME  | JOB      | MGR  | HIREDATE | SAL      | COMM      | DEPTNO |
+-----+-----+-----+-----+-----+-----+-----+-----+
| 7369 | SMITH  | CLERK    | 7902 | 17-DEC-80 | 800.00    | NULL      | 20      |
| 7499 | ALLEN  | SALESMAN | 7698 | 20-FEB-81 | 1600.00    | 300.00    | 30      |
| 7521 | WARD   | SALESMAN | 7698 | 22-FEB-81 | 1250.00    | 500.00    | 30      |
| 7566 | JONES  | MANAGER  | 7839 | 02-APR-81 | 2975.00    | NULL      | 20      |
| 7654 | MARTIN | SALESMAN | 7698 | 28-SEP-81 | 1250.00    | 1400.00    | 30      |
| 7698 | BLAKE  | MANAGER  | 7839 | 01-MAY-81 | 2850.00    | NULL      | 30      |
| 7782 | CLARK  | MANAGER  | 7839 | 09-JUN-81 | 2450.00    | NULL      | 10      |
| 7788 | SCOTT  | ANALYST  | 7566 | 09-DEC-82 | 3000.00    | NULL      | 20      |
| 7839 | KING   | PRESIDENT | NULL | 17-NOV-81 | 5000.00    | NULL      | 10      |
| 7844 | TURNER | SALESMAN | 7698 | 08-SEP-81 | 1500.00    | 0.00      | 30      |
| 7876 | ADAMS  | CLERK    | 7788 | 12-JAN-83 | 1100.00    | NULL      | 20      |
| 7900 | JAMES  | CLERK    | 7698 | 03-DEC-81 | 950.00     | NULL      | 30      |
| 7902 | FORD   | ANALYST  | 7566 | 03-DEC-81 | 3000.00    | NULL      | 20      |
| 7934 | MILLER | CLERK    | 7782 | 23-JAN-82 | 1300.00    | NULL      | 10      |
+-----+-----+-----+-----+-----+-----+-----+-----+
14 rows in set (0.01 sec)
```

1.Retrieve average salary of all employees.

```
mysql> SELECT AVG(SAL) FROM EMP;
+-----+
| AVG(SAL) |
+-----+
| 2073.214286 |
+-----+
1 row in set (0.00 sec)
```

2. Retrieve the number of employees.

```
mysql> SELECT COUNT(*) FROM EMP;
+-----+
| COUNT(*) |
+-----+
| 14 |
+-----+
1 row in set (0.01 sec)
```

3. Retrieve distinct number of employees.

```
mysql> SELECT COUNT(DISTINCT ENAME) FROM EMP;
+-----+
| COUNT(DISTINCT ENAME) |
+-----+
|          14          |
+-----+
1 row in set (0.01 sec)
```

4. Retrieve total salary of employee group by job.

```
mysql> SELECT JOB, SUM(SAL) FROM EMP GROUP BY JOB ;
+-----+-----+
| JOB      | SUM(SAL) |
+-----+-----+
| CLERK     | 4150.00  |
| SALESMAN  | 5600.00  |
| MANAGER   | 8275.00  |
| ANALYST   | 6000.00  |
| PRESIDENT | 5000.00  |
+-----+-----+
5 rows in set (0.00 sec)
```

5. Display the employee information with maximum salary.

```
mysql> SELECT * FROM EMP WHERE SAL = (SELECT MAX(SAL) FROM EMP WHERE SAL < (SELECT MAX(SAL) FROM EMP));
+-----+-----+-----+-----+-----+-----+-----+-----+
| EMPNO | ENAME | JOB      | MGR | HIREDATE | SAL      | COMM | DEPTNO |
+-----+-----+-----+-----+-----+-----+-----+-----+
| 7788   | SCOTT | ANALYST  | 7566 | 09-DEC-82 | 3000.00  | NULL | 20     |
| 7902   | FORD  | ANALYST  | 7566 | 03-DEC-81 | 3000.00  | NULL | 20     |
+-----+-----+-----+-----+-----+-----+-----+-----+
2 rows in set (0.00 sec)
```

6. Find the highest paid employee in department 10.

```
mysql> SELECT * FROM EMP WHERE DEPTNO = 10 AND SAL = (SELECT MAX(SAL) FROM EMP WHERE DEPTNO = 10);
+-----+-----+-----+-----+-----+-----+-----+-----+
| EMPNO | ENAME | JOB      | MGR | HIREDATE | SAL      | COMM | DEPTNO |
+-----+-----+-----+-----+-----+-----+-----+-----+
| 7839   | KING  | PRESIDENT | NULL | 17-NOV-81 | 5000.00  | NULL | 10     |
+-----+-----+-----+-----+-----+-----+-----+-----+
1 row in set (0.00 sec)
```

7. List the emps whose sal is equal to the average of max and minimum.

```
mysql> SELECT * FROM EMP WHERE SAL = (SELECT (MAX(SAL) + MIN(SAL))/2 FROM EMP);
Empty set (0.00 sec)
```

8. List the emps who joined in the company on the same date.

```
mysql> SELECT * FROM EMP E WHERE HIREDATE IN (SELECT HIREDATE FROM EMP WHERE EMPNO <> E.EMPNO);
+-----+-----+-----+-----+-----+-----+-----+-----+
| EMPNO | ENAME | JOB      | MGR | HIREDATE | SAL      | COMM | DEPTNO |
+-----+-----+-----+-----+-----+-----+-----+-----+
| 7900   | JAMES | CLERK     | 7698 | 03-DEC-81 | 950.00   | NULL | 30     |
| 7902   | FORD  | ANALYST   | 7566 | 03-DEC-81 | 3000.00  | NULL | 20     |
+-----+-----+-----+-----+-----+-----+-----+-----+
2 rows in set (0.00 sec)
```

9. Display the employee names in upper and lower case.

```
mysql> SELECT UPPER (ENAME), LOWER(ENAME) FROM EMP;
```

UPPER (ENAME)	LOWER(ENAME)
SMITH	smith
ALLEN	allen
WARD	ward
JONES	jones
MARTIN	martin
BLAKE	blake
CLARK	clark
SCOTT	scott
KING	king
TURNER	turner
ADAMS	adams
JAMES	james
FORD	ford
MILLER	miller

```
14 rows in set (0.00 sec)
```

10. find the date of 3 days later from hiredate.

```
mysql> SELECT HIREDATE, (HIREDATE + 3) FROM EMP;
```

HIREDATE	(HIREDATE + 3)
17-DEC-80	20
20-FEB-81	23
22-FEB-81	25
02-APR-81	5
28-SEP-81	31
01-MAY-81	4
09-JUN-81	12
09-DEC-82	12
17-NOV-81	20
08-SEP-81	11
12-JAN-83	15
03-DEC-81	6
03-DEC-81	6
23-JAN-82	26

```
14 rows in set, 14 warnings (0.01 sec)
```