Nested queries Vs Natural Join

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Queries using group by, having, order by classes, sub queries and co-related sub queries. Transaction control language commands: Commit, Rollback, and Savepoint.

Group by clause:

Using group by, we can create groups of related information. Columns used in select clause must be used with group by clause, otherwise it was not a group by expression.

Having clause:

This will work as where clause which can be used only with group by clause because of absence of where clause in group by.

Order by clause:

This will be used to ordering the columns data (ascending or descending).

ASC (default) and DESC – specify the ordering of values, either ascending or descending

Sub queries and co-related sub queries

1. Display the name of the employee who earns highest salary.

    Query : select ename from employee where salary=(select max(salary) from employee);

    Result:

ENAME
Venkat

2. Display the employee number and name for employee working as clerk and earning highest salary among clerks.

    select   empno, ename
    from   employee
    where   job = (select jcode from job where name ='Clerk') and
                        salary= (select max(salary)   from employee
                                            where job = (select jcode
                                                    from job
                                                    where name ='Clerk'));

Result:

EMPNO	ENAME
10	Suresh
12	Kumar

3. Display the names of employee whose job role is 'Staff' and earns salary more than
    the highest salary of any 'Clerk'.

            select   empno, ename
            from   employee
            where   job=   (select jcode
                                    from job
                                    where name ='Staff')
                        and
                        salary > (select max(salary)
                                    from employee
                                    where job = (select jcode
                                                    from job
                                                    where name ='Clerk'));
        Result:

EMPNO	ENAME
5	Krishna
6	Deepa
7	Keerthi
9	Srikanth

4. Display the names of clerks who earn a salary more than the lowest salary of any
    employee whose job role is Staff.

            select   empno, ename
            from   employee
            where   job =   (select jcode from job where name ='Clerk') and
                        salary > (select min(salary)
                                    from employee
                                        where job = (select jcode
                                                        from job
                                                        where name ='Staff'));
        Result:
                no data found

5. Display the names of the employees who earn highest salary in their respective
    departments.

select ename, sal, deptno from emp where sal in(select max(sal) from emp group by deptno);

Result:

ENAME	SALARY	DEPTNO
Srinivas	1000000	30
Pradeep	1000000	40
Srikanth	400000	34
Aravind	800000	30
Nirmala	800000	20
Keerthi	600000	24
Deepa	600000	23
Venkat	1200000	40
Krishna	500000	12

6. Display the names of the employees who earn highest salaries in their respective job groups.

select ename, salary, job from employee where salary in(select max(salary) from employee group by job);

Result:

ENAME	SALARY	JOB
Venkat	1200000	672
Aravind	800000	671
Nirmala	800000	671
Srinivas	1000000	669
Pradeep	1000000	669
Kumar	120000	667
Suresh	120000	667
Keerthi	600000	668
Deepa	600000	668

7. Display the employee names who are working in 'Operations' department.

    Select ename
    From   employee
    Where deptno in (select deptno
                    from dept
                    where name='Operations');

Result:

ENAME
Venkat
Pradeep
Keerthi
Srikanth

8. Display the employee names who are working in Kakinada.

```
Select  ename
From    employee
Where  deptno in (select deptno
                        from dept
                        where location = (select lcode
                                                from location
                                                where name = 'Kakinada') );
```

Result:

ENAME
Krishna

9. Display the names of employees from department number 30 with salary greater than that of any employee working in other department.

```
Select  ename
From    employee
Where  deptno=30 and
            salary  > any   (select salary
                            from employee
                            where deptno not in 30)
```

Result:

ENAME
Srinivas
Aravind

10. Display the names of the employees from department number 30 with salary greater than that of all employee working in other departments.

```
Select  ename
From    employee
Where  deptno=30 and
            salary  > all   (select salary
                            from employee
                            where deptno not in 30)
```

Result:

No data Found

11. Display the names of the employees from department number 40 with salary greater than that of all employee working in other departments.

Select ename
From   employee
Where deptno=40 and
            salary > all   (select salary
                                     from employee
                                     where deptno not in 40)

Result:

ENAME
Venkat

1 rows returned

Transaction control language commands: Commit, Rollback, and Savepoint.

1. select * from emp;

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

Result: 14 rows selected.

2. delete from emp where empno=7369;
        Result: 1 row deleted.

3. select * from emp;

EMPNO	ENAME	JOB	MGR	HIREDATE	SAL	COMM	DEPTNO
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

Result: 13 rows selected.

4. rollback;

   Result: rollback completed.

5. select * from emp;

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

   Result: 14 rows selected.

6. delete from emp where empno<=7550;

   Result: 3 rows deleted.

7. commit;

   Result: commit completed.

8. rollback;

   Result: rollback completed.

9. select * from emp;

EMPNO	ENAME	JOB	MGR	HIREDATE	SAL	COMM	DEPTNO
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

   Result: 11 rows selected.

10. insert into emp values(7369,'smith','clear',7902,'17-DEC-1980',800,null,20);

    Result: 1 row inserted.

11. insert into emp values(7499,'allen','salesman',7698,'20-FEB-1981',1600,300,30);

    Result: 1 row inserted.

12. insert into emp values(7521,'ward','salesman',7698,'22-FEB-1981',1250,500,30);

    Result: 1 row inserted.

13. savepoint firstrow;

    Result: savepoint created.

14. delete from emp where empno=7369;

    Result: 1 row deleted.

15. savepoint secondrow;

    Result: savepoint created.

16. delete from emp where empno=7499;

          Result: 1 row deleted.

17. savepoint thirdrow;

          Result: savepoint created.

18. delete from emp where empno=7521;

          Result: 1 row deleted.

19. select * from emp;

EMPNO	ENAME	JOB	MGR	HIREDATE	SAL	COMM	DEPTNO
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

          Result: 11 rows selected.

20. rollback to secondrow;

          Result: rollback completed.

21. Select * from emp;

| EMPNO	ENAME	JOB	MGR	HIREDATE	SAL	COMM	DEPTNO
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
7499	allen	salesman	7698	20-FEB-81	1600	300	30
7521	ward	salesman	7698	22-FEB-81	1250	500	30

          Result: 13 rows selected.

Natural Join

Natural join operation is used to combine two tables based on common columns. To perform natural join, there must be a common attribute between the two tables.
Syntax:

SELECT *
FROM Table 1
NATURAL JOIN Table 2

Fig.1. Flipped class room – Demo by a student
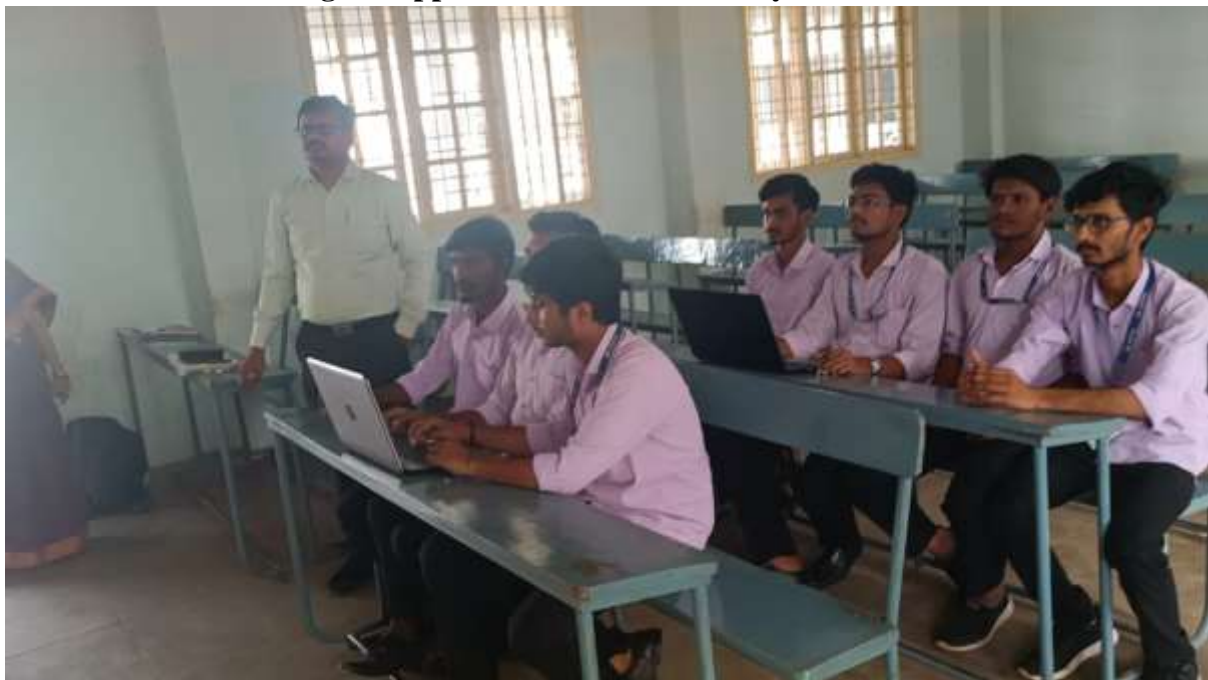
Fig.2. Flipped class room- Giving guidelines by Faculty