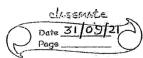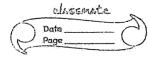# SUB QUERIES

A subquery or Inner query or a Nested query is a query within another query and embedded within ~~another query~~ the WHERE clause.

Subqueries can be used with the SELECT, INSERT, UPDATE and DELETE statements along with the operators like $=$, $<$, $>$, $<=$, $>=$, IN, BETWEEN etc.

→ RULES THAT SUBQUERIES MUST FOLLOW

1) Subqueries must be enclosed within paranthesis.

2) A subquery can have only one column in the SELECT clause, unless multiple columns are in the main query.

3) An ORDER BY command cannot be used in a subquery, although the main query can use an ORDER BY. The GROUP BY command can be used to perform the same function as the ORDER BY in subquery.

4) Subqueries that return more than one row can only be used with multiple value operators such as the IN operator.

5) The BETWEEN operator cannot be used with a subquery. However, the BETWEEN operator can be used within a subquery.

CO-RELATED SUB QUERY

* A query is called co-related sub query when both the inner ~~query when both the inner~~ query and the outer query are interdependent.

* For every row processed by their inner query, the outer query is processed as well.

* The inner query depends on the outer query before it can be processed,

Ex: Lets select all employees whose salary is less than the avg of all the employees salaries in the same department.

```
SELECT ENAME, SAL, DEPTNO FROM EMP A WHERE
A.SAL < (SELECT AVG (SAL) FROM EMP B WHERE
A.DEPTNO = B.DEPTNO). ORDER BY DEPTNO.
```

2) Write a query to display EMPNO and count how many times repeated:

```
SELECT EMPNO, COUNT (EMPNO) FROM EMP GROUP
BY EMPNO;
```

3) WAQ to display all duplicate ID's and how many people has repeated. < T N >

```
SELECT ID, COUNT (ID) FROM NSR - CUST GROUP
BY ID HAVING COUNT (ID) > 1 ;
```

SYNTAX: SELECT < C N >, COUNT (< C N >) FROM < T N >
GROUP BY < C N > HAVING COUNT (< C N >) > 1 ;

IN LINE QUERY

When we write a subquery after from clause
of the main query that is called 'In-line query.'

<div align="center">

OR

</div>

When we write a subquery in place of table
name of main query i.e called In-line query
or In-line view.

EX: SELECT * FROM
(SELECT PID, PNAME, PRICE, PRICE×10/100 AS
DISCOUNT FROM PRODUCT);

SELECT * FROM
(SELECT PID, PNAME, PRICE, PRICE × 10/100 AS
DISCOUNT FROM PRODUCT) WHERE DISCOUNT > 20·00;

NOTE :

1) In line query. the subquery result set act as
a table which is in buffer and holds data
under Alias name. also.

2) 'Order by' clause supports Alias Name.

EX: SELECT DEPTNO, SUM (SAL) AS TOT_SAL FROM EMP
GROUP BY DEPTNO, ORDER by TOT_SAL;

→   Here query will execute first upto group by.
clause. Then the data will be in buffer only
with Alias name. 'Order by' clause will sort
the data in buffer itself.