

Correlated SubQueries ==> =====

* Correlated subqueries are different from the simple subqueries in 2 ways:
- First, they allow us to reference columns from the outer query in the subquery.
- Second, they execute the inner query repeatedly.

* A CORRELATED SUBQUERY is so named because of the reference of a column from the OUTER QUERY.

* We use a CORRELATED SUBQUERY when we need to review every row of the OUTER QUERY against the result of the inner query.

* The INNER QUERY is executed repeatedly, each time specific to the correlated value of the outer query, while in previous examples the INNER QUERY executed only once.

To understand the concept CORRELATED SUBQUERY , consider the following table.

Empno	Ename	Sal	Deptno
101	ALLEN	10000	10
102	SMITH	8000	10
103	BLAKE	10000	20
104	JAMES	15000	20

WAQ to display ename and sal of highest paid employee of each department.

- SELECT e1.ename,e1.sal,e1.deptno FROM emp e1 Where e1.sal = (Select max(e2.sal) from emp e2 where e2.deptno = e1.deptno);

The output of the query will be correct and will be just 2 rows :

ALLEN 10000 10
JAMES 20000 20

How Oracle Solves Correlated SubQueries ? =====

* As mentioned previously a CORRELATED SUBQUERY is handled in a completely different way as compared to NORMAL SUBQUERIES.

* In case of NORMAL SUBQUERIES Oracle evaluates the INNER QUERY only once and then uses it's result to solve the OUTER QUERY.

* But in case of CORRELATED SUBQUERIES , Oracle follows a different approach.

* In this Oracle , at first picks up a specific value from one row of the OUTER QUERY TABLE runs the INNER QUERY for that specific value and then makes the COMPARISON.

* Like this for every rows of OUTER QUERY ,Oracle evaluates the INNER QUERY.

Consider the following two tables.

* EMP
Empno
Ename
Deptno

Sal

```
* INVOICE
  Invoice_No
  Empno
  Amount
  Tour_Date
```

```
# WAQ to display ename of those employees who have earned more than their salary
via touring
- SELECT ename FROM emp
Where sal < (Select sum(amount) from Invoice where
Invocie.empno=Emp.empno);
```

```
# WAQ to display ename of those employees who went for a tour in last one year
```