* Índice:

**No se encontraron elementos de tabla de contenido.**



En primer lugar estudiaremos una consulta con subconsulta, para después poder compararla con una consulta con subconsulta **correlacionada** (que son el objeto de este boletín).

## CONSULTA CON SUBCONSULTA

1. queremos obtener la lista de empleados cuyo salario sea mayor o igual que el salario medio de la empresa. En este caso la subconsulta (en rojo) calcula el salario medio de todos los empleados de la empresa

**SELECT \***

**FROM empleados**

**WHERE salario>**

**(**

**SELECT AVG (salario)**

**FROM empleados**

**);**

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
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| | **EMPLEADOS** | | | | | | | | | --- | --- | --- | --- | --- | --- | --- | --- | | **EMP\_NO** | **APELLIDO** | **OFICIO** | **DIRECTOR** | **FECHA\_ALTA** | **SALARIO** | **COMISION** | **DEP\_NO** | | 7876 | GIL | ANALISTA | 7782 | 06/05/1982 | 335000 |  | 20 | | 7782 | MARTINEZ | DIRECTOR | 7839 | 09/06/1981 | 245000 |  | 10 | | 7698 | GARRIDO | DIRECTOR | 7839 | 01/05/1981 | 385000 |  | 30 | | 7900 | JIMENEZ | EMPLEADO | 7782 | 24/03/1983 | 140000 |  | 20 | | 7521 | LOPEZ | EMPLEADO | 7782 | 08/05/1981 | 135000 |  | 10 | | 7839 | REY | PRESIDENTE |  | 17/11/1981 | 600000 |  | 10 | | 8998 | CORTES | VENDEDOR | 7698 | 20/02/1999 | 180000 |  | 30 | | 7844 | CALVO | VENDEDOR | 7698 | 08/09/1981 | 180000 | 0 | 30 | | 7654 | MARTIN | VENDEDOR | 7698 | 28/09/1981 | 150000 | 160000 | 30 | | 7499 | ALONSO | VENDEDOR | 7698 | 20/02/1981 | 140000 | 40000 | 30 | | | **EMPLEADOS** | | | | | | | | | --- | --- | --- | --- | --- | --- | --- | --- | | **EMP\_NO** | **APELLIDO** | **OFICIO** | **DIRECTOR** | **FECHA\_ALTA** | **SALARIO** | **COMISION** | **DEP\_NO** | | 7876 | GIL | ANALISTA | 7782 | 06/05/1982 | 335000 |  | 20 | | 7782 | MARTINEZ | DIRECTOR | 7839 | 09/06/1981 | 245000 |  | 10 | | 7698 | GARRIDO | DIRECTOR | 7839 | 01/05/1981 | 385000 |  | 30 | | 7900 | JIMENEZ | EMPLEADO | 7782 | 24/03/1983 | 140000 |  | 20 | | 7521 | LOPEZ | EMPLEADO | 7782 | 08/05/1981 | 135000 |  | 10 | | 7839 | REY | PRESIDENTE |  | 17/11/1981 | 600000 |  | 10 | | 8998 | CORTES | VENDEDOR | 7698 | 20/02/1999 | 180000 |  | 30 | | 7844 | CALVO | VENDEDOR | 7698 | 08/09/1981 | 180000 | 0 | 30 | | 7654 | MARTIN | VENDEDOR | 7698 | 28/09/1981 | 150000 | 160000 | 30 | | 7499 | ALONSO | VENDEDOR | 7698 | 20/02/1981 | 140000 | 40000 | 30 | |

## CONSULTA CON SUBCONSULTA CORRELACIONADA

1. Inconvenientes de las subconsultas correlacionadas:

Para las subconsultas correlacionadas, SQL realiza la consulta interna una vez por cada fila que se analiza en la consulta externa. Cuando los tamaños de las tablas se hacen más grandes, el proceso lleva más tiempo. Si encuentras que una subconsulta correlacionada toma una cantidad excesiva de tiempo para completarse, considera el uso de una alternativa, como la carga de una tabla temporal con resultados intermedios y luego procesa la tabla temporal directamente contra la tabla principal con una simple subconsulta. Aunque menos elegante, puede resultar mucho más rápido.

Por ejemplo si la consulta externa tiene que analizar 100 filas y la consulta interna tiene 70 filas, entonces la consulta interna analizará en la consulta interna el equivalente a 7000 filas.

### Ejercicios

1. Obtener el nombre, apellidos y salario de los empleados cuyo salario es mayor o igual que el salario medio de los empleados que tienen su mismo oficio. En este caso la subconsulta (en rojo) calcula el salario medio de los empleados que tienen el mismo oficio que el empleado que se esté analizando en la consulta externa (azul).

**SELECT apellido1, apellido2, nombre, salario, oficio**

**FROM empleados e1**

**WHERE salario > (**

**SELECT AVG(salario)**

**FROM empleados e2**

**WHERE e2.oficio = e1.oficio**

**);**

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
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| | **EMPLEADOS** | | | | | | | | | --- | --- | --- | --- | --- | --- | --- | --- | | **EMP\_NO** | **APELLIDO** | **OFICIO** | **DIRECTOR** | **FECHA\_ALTA** | **SALARIO** | **COMISION** | **DEP\_NO** | | 7876 | GIL | ANALISTA | 7782 | 06/05/1982 | 335000 |  | 20 | | 7782 | MARTINEZ | DIRECTOR | 7839 | 09/06/1981 | 245000 |  | 10 | | 7698 | GARRIDO | DIRECTOR | 7839 | 01/05/1981 | 385000 |  | 30 | | 7900 | JIMENEZ | EMPLEADO | 7782 | 24/03/1983 | 140000 |  | 20 | | 7521 | LOPEZ | EMPLEADO | 7782 | 08/05/1981 | 135000 |  | 10 | | 7839 | REY | PRESIDENTE |  | 17/11/1981 | 600000 |  | 10 | | 8998 | CORTES | VENDEDOR | 7698 | 20/02/1999 | 180000 |  | 30 | | 7844 | CALVO | VENDEDOR | 7698 | 08/09/1981 | 180000 | 0 | 30 | | 7654 | MARTIN | VENDEDOR | 7698 | 28/09/1981 | 150000 | 160000 | 30 | | 7499 | ALONSO | VENDEDOR | 7698 | 20/02/1981 | 140000 | 40000 | 30 | | | **EMPLEADOS** | | | | | | | | | --- | --- | --- | --- | --- | --- | --- | --- | | **EMP\_NO** | **APELLIDO** | **OFICIO** | **DIRECTOR** | **FECHA\_ALTA** | **SALARIO** | **COMISION** | **DEP\_NO** | | 7876 | GIL | ANALISTA | 7782 | 06/05/1982 | 335000 |  | 20 | | 7782 | MARTINEZ | DIRECTOR | 7839 | 09/06/1981 | 245000 |  | 10 | | 7698 | GARRIDO | DIRECTOR | 7839 | 01/05/1981 | 385000 |  | 30 | | 7900 | JIMENEZ | EMPLEADO | 7782 | 24/03/1983 | 140000 |  | 20 | | 7521 | LOPEZ | EMPLEADO | 7782 | 08/05/1981 | 135000 |  | 10 | | 7839 | REY | PRESIDENTE |  | 17/11/1981 | 600000 |  | 10 | | 8998 | CORTES | VENDEDOR | 7698 | 20/02/1999 | 180000 |  | 30 | | 7844 | CALVO | VENDEDOR | 7698 | 08/09/1981 | 180000 | 0 | 30 | | 7654 | MARTIN | VENDEDOR | 7698 | 28/09/1981 | 150000 | 160000 | 30 | | 7499 | ALONSO | VENDEDOR | 7698 | 20/02/1981 | 140000 | 40000 | 30 | |

### Ejercicios

Obtener el nombre, apellidos y salario del empleado (o empleados si varios empatan) que mayor salario tiene dentro de cada oficio

Select NOMBRE, APELLIDO1, APELLIDO2, SALARIO, OFICIO

from empleados e1

where e1.SALARIO >= ALL (

select max(SALARIO)

from empleados e2

where e2.oficio = e1.oficio

)

order by OFICIO

;

1. Obtener el nombre y salario del empleado (o empleados si varios empatan) que mayor salario tiene dentro de cada oficio, excluyendo al presidente.

Select NOMBRE, SALARIO, OFICIO

from empleados e1

where OFICIO <> "PRESIDENTE" and e1.SALARIO = (

select max(SALARIO)

from empleados e2

where e2.oficio = e1.oficio

)

order by OFICIO

;

1. Obtener el nombre y salario de los empleados que ganan menos que la media salarial de su departamento.

Select NOMBRE, SALARIO, DEP\_NO

from empleados e1

where SALARIO < (

select avg(SALARIO)

from empleados e2

where e1.dep\_no = e2.dep\_no

)

;

1. Para cada empleado obtener el nombre de su mejor cliente ( entendido como el cliente que más pedidos le ha realizado

Select e1.apellido1 AS 'Empleado', c1.nombre AS 'Cliente', COUNT(\*) AS 'Número de Pedidos'

FROM (empleados e1 INNER JOIN clientes c1 on e1.emp\_no = c1.vendedor\_no) INNER JOIN pedidos p1 ON p1.cliente\_no = c1.cliente\_no

GROUP BY e1.emp\_no, c1.cliente\_no

HAVING COUNT(\*) >= ALL (

(Select COUNT(\*)

FROM (empleados e2 INNER JOIN clientes c2 on e2.emp\_no = c2.vendedor\_no) INNER JOIN pedidos p2 ON p2.cliente\_no = c2.cliente\_no

WHERE e1.emp\_no = e2.emp\_no

GROUP BY e2.emp\_no, c2.cliente\_no)

);

1. Para cada cliente indicar cuál es el producto del que más unidades ha comprado (si hay empate entre varios productos, indicarlos todos).

SELECT c1.nombre, pr1.descripcion, SUM(pe1.unidades)

FROM (clientes c1 NATURAL JOIN pedidos pe1) NATURAL JOIN productos pr1

GROUP BY c1.cliente\_no, pe1.producto\_no

HAVING SUM(pe1.unidades) >= ALL (

(SELECT SUM(pe2.unidades)

FROM (clientes c2 NATURAL JOIN pedidos pe2) NATURAL JOIN productos pr2

WHERE c1.cliente\_no = c2.cliente\_no

GROUP BY c2.cliente\_no, pe2.producto\_no)

);

### Más ejercicios de consultas correlacionadas:

Una vez se entiende la técnica de las consultas con subconsulta correlacionada, todas ellas parecen muy similares.

A continuación se presentan algunos ejercicios extra:

1. Para cada empleado indicar cuál es el producto del que más unidades ha vendido.
2. Para cada empleado indicar cuál es el producto que más dinero ha generado.