Sample Queries
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1. Test1

ESQL:

```
select cust,avg(x.quant),avg(y.quant),avg(z.quant)
from sales
where year=2000
group by cust; x,y,z
such that x.cust=cust and x.state="NY", y.cust=cust and y.state="CT", z.cust=cust and z.state="NJ"
having avg(x.quant)>avg(y.quant) and avg(x.quant)>avg(z.quant)
```

SQL:

```
select x.cust, avg(x.quant), avg(y.quant), avg(z.quant)
        from sales x, sales y, sales z
        where x.year = 2001 and y.year = 2001 and z.year = 2001
                and x.cust = y.cust and x.cust = z.cust
                and x.state = 'NY' and y.state = 'CT' and z.state = 'NJ'
        group by x.cust
        having avg(x.quant)>avg(y.quant) and avg(x.quant)>avg(z.quant)
```

2. Test2

ESQL:

```
select prod, month, sum(x.quant)/sum(y.quant)
from sales
where year=2002
group by prod,month ; x,y
such that x.prod = prod and x.month = month,
      y.prod = prod
```

SQL:

```
with x as(
select prod,month,sum(quant) as sum_1_quant
from sales
where year=2002
group by prod, month
),
y as (
select prod,sum(quant) as sum_2_quant
from sales
where year=2002
group by prod
)
Select x.prod, x.month, round(sum_1_quant::numeric/sum_2_quant::numeric,18) as
```

"sum_1_quant/sum_2_quant"
from x,y
where x.prod = y.prod

3. Test3

ESQL:

```
select cust,month,avg(x.sale),avg(sale),avg(y.sale)
from sales
where year=1997
group by cust, month ; x, y
such that x.cust=cust and x.month < month,
y.cust=cust and y.month > month
```

SQL:

```
with avg as
(
select cust,month,avg(quant) as avg_cur
from sales
where year=2002
group by cust,month
),
before as
(
select A.cust, A.month, avg(S.quant) as avg_before
from avg as A, sales as S
where S.year=2002 and S.cust=A.cust and S.month<A.month
group by A.cust,A.month
),
after as
(
select A.cust, A.month, avg(S.quant) as avg_after
from avg as A, sales as S
where S.year=2002 and S.cust=A.cust and S.month>A.month
group by A.cust,A.month
)
select *
from (before full join avg
using (cust, month)) full join after using(cust,month)
```

4. Test4

ESQL:

```
select prod, month, count(z.quant)
from sales
```

where year=1997
group by prod,month ; x,y,z
such that x.prod = prod and x.month = x.month-1,
y.prod = prod and y.month = y.month+1,
z.prod = prod and z.month = month and
z.sale>avg(x.quant) and z.quant<avg(y.quant)

SQL:

```
with avg as(
select prod,month
from sales
where year=2002
group by prod, month
),
before as(
select A.prod,A.month,avg(S.quant) as avg_before
from avg as A,sales as S
where S.year=2002 and S.prod=A.prod and S.month=A.month-1
group by A.prod, A.month
),
after as(
select A.prod,A.month,avg(S.quant) as avg_after
from avg as A,sales as S
where S.year=2002 and S.prod=A.prod and S.month=A.month+1
group by A.prod, A.month
)
select A.prod, A.month, count(S.quant)
from (before full join after
using(prod,month)) as A, sales as S
where S.year=2002 and S.prod=A.prod and S.month=A.month and S.quant>A.avg_before and S.quant<A.avg_after
group by A.prod,A.month
```

5. Test5

ESQL:

select cust, prod, avg(x.quant), avg(y.quant)
from sales
group by cust, prod ; x, y
such that x.cust=cust and x.prod=prod,
y.cust != cust and y.prod=prod

SQL:

```
with X as (
select cust, prod, avg(quant)as avg_X
```

```
from sales
group by cust, prod
),
Y as (
select X.cust, X.prod, avg(S.quant) as avg_Y
from sales as S,X
where S.prod=X.prod and S.cust!=X.cust
group by X.cust, X.prod
)
select X.cust,X.prod,X.avg_X, Y.avg_Y
from X,Y
where X.cust=Y.cust and X.prod=Y.prod
```

6. Test6

ESQL:

```
select prod, quant
from sales
group by prod, quant ; x, y
such that x.prod=prod
y.prod=prod and y.quant < quant
having count(y.prod) = count(x.prod) / 2
```

SQL:

```
with v1 as (
select prod, count(quant) as cnt_all
from sales
group by prod
),
smaller as(
select A.prod, A.quant, count(B.quant) as cnt_smaller
from sales as A, sales as B
where B.prod=A.prod and B.quant<A.quant
group by A.prod, A.quant
)
select S.prod,S.quant
from v1 as A , smaller as B, sales as S
where S.prod=A.prod and S.prod=B.prod and B.quant=S.quant and B.cnt_smaller=A.cnt_all/2
```