QUERY 1

with

t1 as

(select cust, prod, state, round(avg(quant),0) as cust\_avg from sales group by cust, prod, state),

t2 as

(select t1.cust, t1.prod, t1.state, t1.cust\_avg, round(avg(s.quant),0) as other\_state\_avg from t1, sales as s where t1.cust = s.cust and t1.prod = s.prod and t1.state != s.state group by t1.cust, t1.prod, t1.state, t1.cust\_avg),

t3 as

(select t1.cust, t1.prod, t1.state, t1.cust\_avg, round(avg(s.quant),0) as other\_prod\_avg from t1, sales as s where t1.cust = s.cust and t1.state = s.state and t1.prod != s.prod group by t1.cust, t1.prod, t1.state, t1.cust\_avg)

select t1.cust as customer, t1.prod as product, t1.state, t1.cust\_avg, t2.other\_state\_avg, t3.other\_prod\_avg from (t1 full outer join t2 on t1.cust=t2.cust and t1.prod=t2.prod and t1.state=t2.state) full outer join t3 on t1.cust=t3.cust and t1.prod=t3.prod and t1.state=t3.state order by t1.cust,t1.prod,t1.state

Query 2

with q1 as

(select cust, prod, round(avg(quant),0) as quant from sales where month between 1 and 3 group by cust, prod),

q2 as

(select cust, prod, round(avg(quant),0) as quant from sales where month between 4 and 6 group by cust, prod),

q3 as

(select cust, prod, round(avg(quant),0) as quant from sales where month between 7 and 9 group by cust, prod),

q4 as

(select cust, prod, round(avg(quant),0) as quant from sales where month between 10 and 12 group by cust, prod),

base as

(select cust, prod from sales group by cust, prod),

t1 as

( select b.cust, b.prod, cast('1' as int) as q, cast(null as numeric) as before\_avg, q2.quant as after\_avg from base as b left join q2 using(cust, prod)),

t2 as

(select b.cust, b.prod, cast('2' as int) as q, q1.quant as before\_avg, q3.quant as after\_avg from base as b left join q1 using(cust, prod) left join q3 using(cust, prod)),

t3 as

(select b.cust, b.prod, cast('3' as int) as q, q2.quant as before\_avg, q4.quant as after\_avg from base as b left join q2 using(cust, prod) left join q4 using(cust, prod)),

t4 as

(select b.cust, b.prod, cast('4' as int) as q, q3.quant as before\_avg, cast(null as numeric) as after\_avg from base as b left join q3 using(cust, prod)),

t5 as

(select \* from t1 union select \* from t2 union select \* from t3 union select \* from t4)

select \* from t5 order by cust,prod,q

QUERY 3

with

t1 as

(select prod, quant from sales order by prod, quant),

t2 as

(select prod, round((count(quant)/2)+1) as median from t1 group by prod order by prod),

t3 as

(select a.prod, a.quant, count(b.quant) from t1 as a join t1 as b on b.quant <= a.quant and a.prod = b.prod group by a.prod, a.quant order by a.prod, a.quant)

select t3.prod as product, t3.quant as "median quant" from t3 join t2 on t3.prod = t2.prod and t3.count = t2.median

QUERY 4

with

t1 as

(select cust, prod, month, sum(quant) from sales group by cust, prod, month order by cust, prod, month),

t2 as

(select cust, prod, sum(sum) from t1 group by cust, prod),

t3 as

(select a.cust, a.prod, a.month, a.sum, sum(b.sum) as running\_sum from t1 as a join t1 as b on b.month <= a.month and a.cust = b.cust and a.prod = b.prod group by a.cust, a.prod, a.month, a.sum order by cust, prod, month),

t4 as

(select a.cust, a.prod, a.month from t3 as a, t2 as b where a.cust = b.cust and a.prod = b.prod and a.running\_sum >= (2.0/3.0 \* b.sum) order by cust, prod, month)

select cust, prod, min(month) as "2/3 purchased by month" from t4 group by cust, prod order by cust, prod