QUERY 1

with

maxq as

(select max.prod as product,max.quant as max\_q,max.cust as max\_cust,max.day,max.month,max.year,max.state from (select prod, max(quant) as max\_q from sales group by prod) as a

left join

(select \* from sales) as max

on max.prod=a.prod and max.quant=a.max\_q),

minq as

(select min.prod as product,min.quant as min\_q,min.cust as min\_cust,min.day,min.month,min.year,min.state from (select prod, min(quant) as min\_q from sales group by prod) as b

left join

(select \* from sales) as min

on min.prod=b.prod and min.quant=b.min\_q),

avgq as

(select prod, avg(quant) from sales group by prod)

select maxq.product,maxq.max\_q,maxq.max\_cust,concat(maxq.month,'/',maxq.day,'/',maxq.year) as max\_date,maxq.state,minq.min\_q,minq.min\_cust,concat(minq.month,'/',minq.day,'/',minq.year) as min\_date,minq.state,avgq.avg

from maxq join minq on maxq.product=minq.product join avgq on avgq.prod=maxq.product

Query 2

with

mix as

(select cust, prod, max(quant) as max, min(quant) as min from sales group by cust, prod,state),

nymax as

(select cust as customer, prod as product, quant as quantity, day as nyday, month as nymonth, year as nyyear from sales where state='NY'),

njmin as

(select cust as customer, prod as product, quant as quantity, day as njday, month as njmonth, year as njyear from sales where state='NJ' and year > 2000),

ctmin as

(select cust as customer, prod as product, quant as quantity, day as ctday, month as ctmonth, year as ctyear from sales where state='CT' and year > 2000),

ny as (select ny.customer, ny.product, ny.quantity as ny\_max, concat(ny.nymonth,'/',ny.nyday,'/',ny.nyyear) as nymax\_date from (mix join nymax on mix.cust=nymax.customer and mix.prod=nymax.product and mix.max=nymax.quantity) as ny),

nj as (select nj.customer, nj.product, nj.quantity as nj\_min, concat(nj.njmonth,'/',nj.njday,'/',nj.njyear) as njmin\_date from (mix join njmin on mix.cust=njmin.customer and mix.prod=njmin.product and mix.min=njmin.quantity) as nj),

ct as (select ct.customer, ct.product, ct.quantity as ct\_min, concat(ct.ctmonth,'/',ct.ctday,'/',ct.ctyear) as ctmin\_date from (mix join ctmin on mix.cust=ctmin.customer and mix.prod=ctmin.product and mix.min=ctmin.quantity) as ct)

select \* from ((ny natural full outer join nj) natural full outer join ct)

QUERY 3

with

months as

(select generate\_series as month from generate\_series(1, 12)),

aggsale as

(select month, prod, sum(quant) from months left join sales using (month) group by month, prod),

mostpop as

(select distinct on (month) month, prod, sum from aggsale order by month, sum desc),

leastpop as

(select distinct on (month) month, prod, sum from aggsale order by month, sum asc)

select mostpop.month, mostpop.prod as most\_popular\_prod, mostpop.sum as most\_pop\_total\_q, leastpop.prod as least\_popular\_prod, leastpop.sum as least\_pop\_total\_q from mostpop join leastpop using (month)

QUERY 4

with

t1 as

(select distinct prod from sales),

t2 as

(select distinct month from sales),

t3 as

(select distinct t1.prod,t2.month from t1,t2 order by t1.prod,t2.month),

t4 as

(select t3.prod,t3.month,sum(sales.quant) from t3 left join sales using (prod,month) group by t3.prod,t3.month order by t3.prod,t3.month),

t5 as

(select t4.prod, max(t4.sum), min(t4.sum) from t4 group by t4.prod),

t6 as

(select t4.prod, t4.month as most\_fav\_mo from t5,t4 where t5.max=t4.sum),

t7 as

(select t4.prod, t4.month as least\_fav\_mo from t5,t4 where t5.min=t4.sum )

select t6.prod, t6.most\_fav\_mo, t7.least\_fav\_mo from t6,t7 where t6.prod = t7.prod order by prod

Query 5

with

t1 as

(select cust,prod, avg(quant), count(quant),sum(quant) from sales group by cust,prod),

t2 as

(select cust, prod ,avg(quant) as q1\_avg from sales where month between 1 and 3 group by cust,prod),

t3 as

(select cust, prod ,avg(quant) as q2\_avg from sales where month between 4 and 6 group by cust,prod),

t4 as

(select cust, prod ,avg(quant) as q3\_avg from sales where month between 7 and 9 group by cust,prod),

t5 as

(select cust, prod ,avg(quant) as q4\_avg from sales where month between 10 and 12 group by cust,prod)

select t1.cust,t1.prod,t2.q1\_avg,t3.q2\_avg,t4.q3\_avg,t5.q4\_avg,t1.avg,t1.sum as total,t1.count from t1 left join t2 on t2.cust=t1.cust and t2.prod=t1.prod

left join t3 on t3.cust=t1.cust and t3.prod=t1.prod

left join t4 on t4.cust=t1.cust and t4.prod=t1.prod

left join t5 on t5.cust=t1.cust and t5.prod=t1.prod