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-- CS 448 Project1 Solutions  
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-- query 1 --

with

partialOrderPrices AS (

SELECT od.ono, p.pno, p.price\*od.qty + od.sfee AS paidForPart

FROM ODETAILS od, PARTS p

WHERE od.pno = p.pno ),

orderPrices AS (

SELECT pop.ono, SUM(pop.paidForPart) AS orderPrice

FROM partialOrderPrices pop

GROUP BY pop.ono)

SELECT c.cname

FROM orderPrices op, ORDERS o, CUSTOMERS c

WHERE o.ono = op.ono AND o.cno = c.cno AND op.orderPrice = ( SELECT  
MAX(op.orderPrice) FROM orderPrices op );

-- query 2 --

SELECT MAX(o.shipped - o.received) AS maximumWaitingTime

FROM ORDERS o;

-- query 3 --

SELECT e.wno, e.wname

FROM WORKERS e

MINUS SELECT e.wno, e.wname

FROM ORDERS o, CUSTOMERS c, WORKERS e

WHERE o.cno = c.cno AND o.wno = e.wno AND c.zip != e.zip;

-- query 4 --

SELECT p.olevel, AVG(p.qoh) AS averageQOH, MAX(p.qoh) AS maxQOH, MIN(p.qoh) AS  
minQOH, COUNT(\*) AS numberOfParts

FROM PARTS p

GROUP BY p.olevel;

-- query 5 --

with

partialOrderPrices95 AS (

SELECT od.ono, p.pno, p.price\*od.qty + od.sfee AS paidForPart, to\_char(o.received,  
'MON') as month

FROM ODETAILS od, PARTS p, ORDERS o

WHERE od.pno = p.pno AND od.ono = o.ono AND to\_char(o.received, 'YY') = '95' ),

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monthSales AS (
    SELECT pop95.month, SUM(pop95.paidForPart) AS sale
    FROM partialOrderPrices95 pop95
    GROUP BY pop95.month )
SELECT ms.month
FROM monthSales ms
WHERE ms.sale = ( SELECT MIN(ms.sale) FROM monthSales ms );

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-- query 6 --

with

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customersParts AS (
    SELECT o.cno, od.pno
    FROM ORDERS o, ODETAILS od
    WHERE o.ono = od.ono ),
pairCounts AS (
    SELECT cp1.pno AS part1, cp2.pno AS part2, COUNT(*) AS pairCount
    FROM customersParts cp1, customersParts cp2
    WHERE cp1.cno = cp2.cno AND cp1.pno < cp2.pno
    GROUP BY cp1.pno, cp2.pno )
SELECT pc.part1, pc.part2
FROM pairCounts pc
WHERE pc.pairCount = ( SELECT MIN(pc.pairCount) FROM pairCounts pc );

```

-- query 7 --

with

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orderCounts AS (
    SELECT od.pno, COUNT(*) AS orderedCount, SUM(od.sfee) AS shippingTotal
    FROM ODETAILS od
    GROUP BY od.pno ),
shippingCounts AS (
    SELECT od.pno, COUNT(*) AS shippingCount
    FROM ODETAILS od
    WHERE od.sfee > 0
    GROUP BY od.pno ),
shippingInfo AS (
    SELECT oc.pno, sc.shippingCount/oc.orderedCount AS sfeePaidRatio,
oc.shippingTotal
    FROM orderCounts oc, shippingCounts sc
    WHERE oc.pno = sc.pno )
SELECT p.pname, p.qoh, si.shippingTotal
FROM shippingInfo si, PARTS p
WHERE si.pno = p.pno AND si.sfeePaidRatio = ( SELECT MIN(si.sfeePaidRatio) FROM
shippingInfo si );

```

-- query 8 --

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with orderDatesSorted AS (  
    SELECT od.pno, o.received  
    FROM ODETAILS od, ORDERS o  
    WHERE od.ono = o.ono  
    ORDER BY od.pno, o.received ),  
orderDatesNumbered AS (  
    SELECT ROWNUM AS no, ods.pno, ods.received  
    FROM orderDatesSorted ods ),  
downfallTimes AS (  
    SELECT odn1.pno, MAX(odn2.received - odn1.received) AS downfallTime  
    FROM orderDatesNumbered odn1, orderDatesNumbered odn2  
    WHERE odn1.pno = odn2.pno AND odn1.no + 1 = odn2.no  
    GROUP BY odn1.pno )  
SELECT p.pname, p.qoh, dt.downfallTime  
FROM downfallTimes dt, PARTS p  
WHERE dt.pno = p.pno  
ORDER BY dt.downfallTime DESC;
```

-- query 9 --

```
with  
customersOnePart AS (  
    SELECT o.cno  
    FROM ORDERS o, ODETAILS od  
    WHERE o.ono = od.ono  
    GROUP BY o.cno  
    HAVING COUNT(DISTINCT od.pno) > 2 ),  
oneParts AS (  
    SELECT DISTINCT od.pno  
    FROM customersOnePart cop, ORDERS o, ODETAILS od  
    WHERE cop.cno = o.cno AND o.ono = od.ono )  
SELECT p.pname  
FROM PARTS p, oneParts op  
WHERE p.pno = op.pno;
```

--query 10 --

```
with  
numYears AS (  
    SELECT COUNT(DISTINCT to_char(o.received, 'YY')) AS yearCount  
    FROM ORDERS o ),  
monthSales AS (  

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```
SELECT to_char(o.received, 'MON') as month, SUM(p.price*od.qty + od.sfee) AS  
totalSale  
FROM ODETAILS od, PARTS p, ORDERS o, numYears ny  
WHERE od.pno = p.pno AND od.ono = o.ono  
GROUP BY to_char(o.received, 'MON') ),  
avgMonthSales AS (  
SELECT ms.month, ms.totalSale/ny.yearCount AS avgSale  
FROM monthSales ms, numYears ny )  
SELECT ams.month, ams.avgSale  
FROM avgMonthSales ams  
WHERE ams.avgSale = ( SELECT MIN(ams.avgSale) FROM avgMonthSales ams );
```