COSC 2P32 - Spring 2009
Assign 3

1. $\pi_{name, ordernum}(Customer \bowtie Orders \bowtie \sigma_{qty > 50} Orderlist)$

2. $\pi_{cid, name} Customer(\pi_{cid, isbn} Order \bowtie Orderlist / \pi_{isbn} \sigma_{qty > 0} Book)$
$\qquad\qquad\qquad\qquad\qquad\qquad qty-in-stock$

3. $\rho(OL2(1 \to ordernum2, 2 \to isbn2), Order List)$
$\rho(OL3(1 \to ordernum3, 2 \to isbn3), Order List)$

$\pi_{ordernum}(\sigma_{ordernum = ordernum2 \wedge ordernum2 = ordernum3 \wedge isbn \neq isbn2 \wedge isbn \neq isbn3 \wedge isbn2 \neq isbn3} \; OrderList \times O2 \times O3)$

4. $\rho(T1, \sigma_{qty-in-stock \geq qty \wedge ship\_date = null} \; Orderlist \bowtie Book)$

$\pi_{ordernum, isbn, cid, address} \; Customer \bowtie Order \bowtie T1$

5. $\rho(B2(1 \to isbn2, 5 \to price2), Book)$

$\rho(T1, \pi_{isbn, price}(\sigma_{price < price2} \; Book \times B2))$
$\qquad\; \curvearrowleft Book \; list \; without \; most \; expensive$

$\rho(T2(1 \to isbn2, 2 \to price2), T1)$

$\rho(T3, \pi_{isbn, price}(\sigma_{price < price2} \; T1 \times T2))$
$\qquad\; \curvearrowleft Book \; list \; without \; 2nd \; most \; expensive$

$\pi_{isbn, title, author} \; Book(T1 - T3)$

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-- Q1
select isbn as ans1_isbn, sum(qty) as ans1_sum
from orderlist
where ship_date is null
group by isbn;

-- Q2
select c.name as ans2_cname
from customer c
where c.cid in (
  (select o.cid
  from order o, orderlist ol, book b
  where o.ordernum = ol.ordernum and ol.isbn = b.isbn
  and b.title like 'Database Management Systems')
  intersect
  (select o2.cid
  from order o2, orderlist ol2, book b2
  where o2.ordernum = ol2.ordernum and ol2.isbn = b2.isbn
  and b2.title like 'Operating Systems: Internals and Design Principles')
);

-- Q3
select o.cid as ans3_cid
from order o
where not exists (
  select *
  from book b
  where b.author like 'Robert Jordan'
  and not exists (
    select *
    from order o2, orderlist ol2
    where o2.ordernum = ol2.ordernum and o2.cid = o.cid and ol2.isbn = b.isbn
  )
);

-- Q4
create or replace view exclude_most_expensive_book as (
  select *
  from book b
  where not b.price = ( select max(b2.price) from book b2)
);

select isbn as ans4_isbn, title, author
from exclude_most_expensive_book e1
where e1.price = (select max(price) from exclude_most_expensive_book);

-- Q5
create or replace view order_total as (
  select ol.ordernum, sum(ol.qty) as totalqty, sum(ol.qty * b.price) as totalcost
  from orderlist ol, book b
  where ol.isbn = b.isbn
  group by ol.ordernum
);

select ordernum as ans5_ordernum, totalcost / totalqty as ans5_avg_cost
from order_total;
```