

12 Sales Example II

This assignment is a follow-up to the previous Sales Walk Through. This is the same company and data as the previous case, but now there are multiple tables, rather than a single combined table. The following is a data dictionary:

Column Name	Description
iid	This is the ID number of an item.
descr	A description of the item sold.
cost	The cost of the item (in cents).
prc	The price of the item (in cents).

Figure D.13: Information regarding sp.itemlist, which contains information about each item.

Column Name	Description
SID	This is the Salesperson's ID number.
iid	This is the ID number of an item.
salesdt	The date that the particular sales occurred.

Figure D.14: Information regarding sp.itemmap, which contains a map between salesperson, the date of the sale and what was sold.

Column Name	Description
SID	This is the Salesperson's ID number.
sname	This is the Salesperson's name.
daysworked	The number of total days that the salesperson has worked.
bonus	If the salesperson was under the high- or low- bonus plan.
region	What region they worked in.
startdate	The date that they started.

Figure D.15: Information regarding sp.sp, which contains information on each salesperson.

1. How many total sales are in the database?

```
select sum(1) from sp.itemmap;
```

2. How many sales were completed each month?

```
select count(1), date_trunc('month', salesdt)
from sp.itemmap group by 2 order by 2;
```

3. How many sales were completed by region?

```

select count(1), region
from
    sp.sp
left join
    sp.itemmap
using(SID)
group by 2 order by 2;

```

4. Using another tool (such as Excel or Google Docs) prepare a graph which contains the following information:

- (a) Month
- (b) Number of sales for that month
- (c) Total Revenue from sales that month
- (d) Total cost of items from that month

```

select
    count(1) as ct
    , date_trunc('month', salesdt)
    , sum(prc)/100.0 as totalRev
    , sum(cost)/100.0 as totalCost
from
    sp.itemmap
left join
    sp.itemlist
using(iid)
group by 2
order by 2;

```

5. Using another tool (such as Excel or Google Docs) prepare a graph which shows, by region and month, the amount of *profit* generated. This should have four lines – one for each region.

```

select
    date_trunc('month', salesdt) as mnt
    , region
    , sum(prc - cost)/ 100.0
from
    sp.itemmap
join
    sp.sp
using(sid)
join
    sp.itemlist
using(iid)
group by 1,2
order by 2,1;

```

OR:

```

select
    date_trunc('month', salesdt)::date as mnt
    ,sum (case when region = 'N' then prc-cost else 0 end ) as Npft
    ,sum (case when region = 'S' then prc-cost else 0 end ) as Spft
    ,sum (case when region = 'E' then prc-cost else 0 end ) as Epft
    ,sum (case when region = 'W' then prc-cost else 0 end ) as Wpft
from
    sp.itemmap
join
    sp.sp
    using(sid)
join
    sp.itemlist
    using(iid)
group by 1
order by 1;

```

6. Identify the top 7 sales people (name and SID) in terms of total revenue generated.

```

select
    spname, sid
from
    sp.itemlist
join
    sp.itemmap
using(iid)
join
    sp.sp
using(sid)
group by 1,2
order by sum( prc) desc limit 7;

```

7. Plot the monthly revenue (combined) for the top 7 salespeople.

```

select sum(prc)/100.0 , date_trunc('month', salesdt) as mnt
from
    sp.itemmap
join
    sp.itemlist
    using(iid)
where sid in
    (select
        sid
    from
        sp.itemlist
    join
        sp.itemmap
    using(iid)
    join
        sp.sp
    using(sid)
    group by 1
    order by sum( prc) desc limit 7)
group by 2
order by 2;

```

8. Create a pie chart which breaks down all revenue into one of four categories: (a) the salesperson worked less than 10 days (b) the salesperson worked between 10 and 20 days (c) the salesperson worked between 20 and 50 days and (d) the salesperson worked more than 50 days.

```

select sum(prc)::float/100 as rev,
    case
        when daysworked < 10 then 1
        when daysworked < 20 then 2
        when daysworked < 50 then 3
        else 4
    end
from
    sp.sp
join
    sp.itemmap
    using(sid)
join
    sp.itemlist
    using(iid)
group by 2;

```

OR

```

select
    sum( case when daysworked < 10 then prc else 0 end)/100.0 as C1
    ,sum( case when daysworked >= 10 and daysworked < 20 then prc else 0 end)/100.0 as C2
    ,sum( case when daysworked >= 20 and daysworked < 50 then prc else 0 end)/100. as C3
    ,sum( case when daysworked >= 50 then prc else 0 end)/100.0 as C4
from
    sp.sp
left join
    sp.itemmap
    using(sid)
left join
    sp.itemlist
    using(iid);

```

9. Calculate the average profit *per region*.

```

select
    avg(prft)/100.0 as prft
from
    (select sum(prc - cost)
     from
         sp.sp
        join
            sp.itemmap
            using(sid)
        join
            sp.itemlist
            using(iid)

     group by region) as innerq;

```

10. We want to understand where we should concentrate our business – high margin items (which are those where the profit margin $(\text{price} - \text{cost})/\text{cost} \geq 23\%$) or mid margin items (those where the profit margin is between 23% and 18%) and low-margin items (profit margin less than 18%). Create a dataset which identifies, for each distinct item, what margin group (high-, mid-, or low-) it is in.

```

select
    iid
    ,case
        when (prc-cost)::float / cost >= .23 then 'high'
        when (prc-cost)::float / cost >= .18 then 'mid'
        else 'low' end as margin
from
    sp.itemlist;

```

11. What was the average number of days that a salesperson worked?

```

select avg( daysworked)
from sp.sp;

```

12. Salespeople are paid based on one of two plans: The “H” bonus plan which means that they are paid \$130 per day, but receive a 10% commission or the “L” bonus plan which they are paid \$150 per

day, but receive a 5% commission. Calculate the amount of money that each salesperson made *on the non-commission* part.

```
select
    sid
    , case
        when bonus = 'H' then 130.0*daysworked
        else 150.0*daysworked
    end as totalcomp
from sp.sp;
```

13. Calculate the total compensation paid to each salesperson, including both the commission and non-commission portion.

```
select
    sid
    , case
        when max(bonus) = 'H' then 130 *max(daysworked) + .1*sum(prc/100)
        else 150* max(daysworked) + .05*sum(prc/100)
    end as totalcomp
from
    sp.sp
left join
    sp.itemmap
    using(sid)
left join
    sp.itemlist
    using(iid)
group by 1;
```

14. The company is thinking about changing the bonus plan so that the “H” bonus plan would be \$100 per day, but 20% commission and the “L” bonus plan would be \$175 per day with no commission. Calculate the number of salespeople, within each bonus plant, that would be better off under the new vs. the old plan.

```
select count(1), bh, case when totalcompT <= totalcompN then 1 else 0 end as BetterOffFlag
from (
select
    sid, max(bonus) as bh
    , case
        when max(bonus) = 'H' then 130 *max(daysworked) + .1*sum(prc/100)
        else 150* max(daysworked) + .05*sum(prc/100)
    end as totalcompT
    , case
        when max(bonus) = 'L' then 130 *max(daysworked) + .1*sum(prc/100)
        else 150* max(daysworked) + .05*sum(prc/100)
    end as totalcompN
from
    sp.sp
left join
    sp.itemmap
    using(sid)
left join
    sp.itemlist
    using(iid)
group by 1) as iq
group by 2,3;
```