PART A – Coffee Sales

-- Question 1 : Extract the total sales for each product for each month. List all months (like January, February, etc) in the columns.

```
select * from
(SELECT f.actsales, f.productid,to_char(f.factdate,'mm')AS mon
FROM factcoffee f
  )

PIVOT(sum(actsales)
   FOR mon in ('01' as Jan,'02' as FEBRUARY,'03' as MARCH,'04' as APRIL,'05' as MAY,'06' as JUNE,'07' as JULY,'08' as AUGUST,'09' as SEPTEMBER,'10' as OCTOBER,'11' as NOVEMBER,'12' as DECEMBER)
   );
```

	PRODUCTID	JAN	FEBRUARY	MARCH	APRIL	MAY	JUNE	JULY	AUGUST	SEPTEMBER	OCTOBER	NOVEMBER	DECEMBER
1	1	2292	2217	2132	2166	2122	2127	2041	2088	2303	2263	2256	2262
2	6	6615	6529	6615	6578	6473	6550	6693	6696	6525	6430	6166	6292
3	11	6017	5946	5980	5973	5996	6289	6382	6592	6218	6177	5671	5910
4	13	2649	2653	2687	2768	2689	2695	2757	2730	2702	2816	2844	2860
5	2	10299	9956	10129	10429	10455	11444	11863	11975	11000	10124	9949	10688
6	4	3131	3022	3096	3117	3091	2988	3126	2809	2854	2831	2850	2984
7	5	6824	6914	6870	6863	6673	7007	7178	7692	7167	7360	7155	7201
8	8	6273	6229	6181	6189	5959	6206	6348	6621	6277	6583	6363	6349

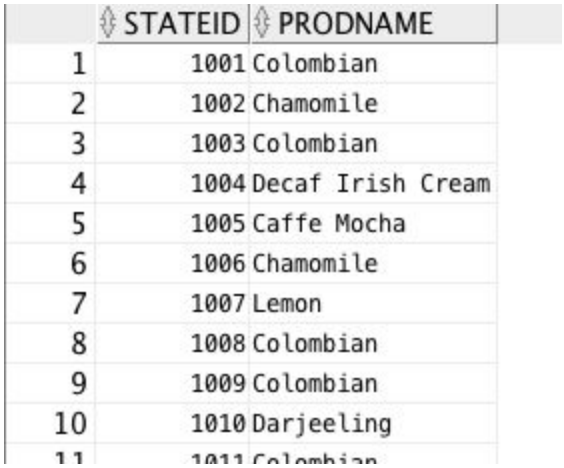
-- Question 2 : In each state, identify the product with greatest sales for the year 2012.

```
SELECT X.prodname,X.stateid FROM
(SELECT p.productid,p.prodname,s.stateid,sum(f.actsales) as sum_sales,
ROW_NUMBER() OVER (PARTITION BY s.stateid ORDER BY sum(actsales) desc) AS rankid
FROM prodcoffee p,states s,factcoffee f,areacode a
where s.stateid = a.stateid and f.areaid = a.areaid  and f.productid = p.productid and
extract(year from factdate) = 2012
group by s.stateid,p.productid,p.prodname) X
WHERE rankid = 1;
```

	PRODNAME	STATEID
1	Colombian	1001
2	Chamomile	1002
3	Colombian	1003
4	Decaf Irish Cream	1004
5	Caffe Mocha	1005
6	Chamomile	1006
7	Lemon	1007
8	Colombian	1008
9	Colombian	1009
10	Darjeeling	1010

-- Question 2(a) :Identify the states where the best selling product remained the same in 2013 (compared to best selling product in 2012)

```
SELECT table_year_twelve.stateid,table_year_twelve.prodname FROM

(SELECT X.prodname,X.stateid FROM
(SELECT p.productid,p.prodname,s.stateid,sum(f.actsales) as sum_sales,
ROW_NUMBER() OVER (PARTITION BY s.stateid ORDER BY sum(f.actsales) desc) AS rankid
FROM prodcoffee p,states s,factcoffee f,areacode a
where s.stateid = a.stateid and f.areaid = a.areaid  and f.productid = p.productid and
extract(year from factdate) = 2012
group by s.stateid,p.productid,p.prodname) X
WHERE rankid = 1) table_year_twelve,

(SELECT X.prodname,X.stateid FROM
(SELECT p.productid,p.prodname,s.stateid,sum(f.actsales) as sum_sales,
ROW_NUMBER() OVER (PARTITION BY s.stateid ORDER BY sum(f.actsales) desc) AS rankid
FROM prodcoffee p,states s,factcoffee f,areacode a
where s.stateid = a.stateid and f.areaid = a.areaid  and f.productid = p.productid and
extract(year from factdate) = 2013
group by s.stateid,p.productid,p.prodname) X
WHERE rankid = 1) table_year_thirteen

WHERE table_year_twelve.stateid = table_year_thirteen.stateid AND
table_year_twelve.prodname = table_year_thirteen.prodname;
```



	STATEID	PRODNAME
1	1001	Colombian
2	1002	Chamomile
3	1003	Colombian
4	1004	Decaf Irish Cream
5	1005	Caffe Mocha
6	1006	Chamomile
7	1007	Lemon
8	1008	Colombian
9	1009	Colombian
10	1010	Darjeeling
11	1011	Colombian

-- Question 2(b) :Identify the states where the best selling product has changed. (doubt)

```
SELECT s.stateid FROM states s

WHERE s.stateid NOT IN

(SELECT table_year_twelve.stateid FROM

(SELECT X.prodname,X.stateid FROM
(SELECT p.productid,p.prodname,s.stateid,sum(f.actsales) as sum_sales,
ROW_NUMBER() OVER (PARTITION BY s.stateid ORDER BY sum(actsales) desc) AS rankid
FROM prodcoffee p,states s,factcoffee f,areacode a
where s.stateid = a.stateid and f.areaid = a.areaid  and f.productid = p.productid and
extract(year from factdate) = 2012
group by s.stateid,p.productid,p.prodname) X
WHERE rankid = 1) table_year_twelve,

(SELECT X.prodname,X.stateid FROM
(SELECT p.productid,p.prodname,s.stateid,sum(f.actsales) as sum_sales,
ROW_NUMBER() OVER (PARTITION BY s.stateid ORDER BY sum(actsales) desc) AS rankid
FROM prodcoffee p,states s,factcoffee f,areacode a
where s.stateid = a.stateid and f.areaid = a.areaid  and f.productid = p.productid and
extract(year from factdate) = 2013
group by s.stateid,p.productid,p.prodname) X
WHERE rankid = 1) table_year_thirteen

WHERE table_year_thirteen.stateid = table_year_twelve.stateid);
```

-- Question 2(c) :Identify the products that were best in 2012 but not in 2013.

```
SELECT X.prodname,X.stateid FROM
(SELECT p.productid,p.prodname,s.stateid,sum(f.actsales) as sum_sales,
ROW_NUMBER() OVER (PARTITION BY s.stateid ORDER BY sum(f.actsales) desc) AS rankid
FROM prodcoffee p,states s,factcoffee f,areacode a
where s.stateid = a.stateid and f.areaid = a.areaid  and f.productid = p.productid and
extract(year from factdate) = 2012
group by s.stateid,p.productid,p.prodname) X
WHERE rankid = 1

MINUS

SELECT X.prodname,X.stateid FROM
(SELECT p.productid,p.prodname,s.stateid,sum(f.actsales) as sum_sales,
ROW_NUMBER() OVER (PARTITION BY s.stateid ORDER BY sum(f.actsales) desc) AS rankid
FROM prodcoffee p,states s,factcoffee f,areacode a
where s.stateid = a.stateid and f.areaid = a.areaid  and f.productid = p.productid and
extract(year from factdate) = 2013
group by s.stateid,p.productid,p.prodname) X
WHERE rankid = 1 ;
```

-- Question 3: Identify the top two best selling products that are common to both 2012 and 2013. (CORRECT)

```
SELECT p.prodname,sum(f.actsales),C.productid
FROM
(SELECT A.productid
FROM
(SELECT p.productid
FROM prodcoffee p,factcoffee f
WHERE p.productid = f.productid and extract(year from factdate) = 2012) A,

(SELECT p.productid
FROM prodcoffee p,factcoffee f
WHERE p.productid = f.productid and extract(year from factdate) = 2013) B
WHERE A.productid = B.productid) C,
factcoffee f,prodcoffee p
WHERE C.productid = p.productid and f.productid = p.productid
group by C.productid,p.prodname
order by sum(f.actsales) desc
FETCH FIRST 2 ROWS ONLY;
```

	PRODNAME	SUM(F.ACTSALES)	PRODUCTID
1	Colombian	7390713600	2
2	Lemon	5525337600	9

-- Question 4: What fraction of the top selling states contributes to at least 50% of the total sales? Do they also contribute to 50% of the profit share as well? (Please note that you won't likely get exact 50% when you do your analysis)

```
With Cumsale as
(SELECT s.stateid, SUM(f.actsales) Sumsales,
   Row_number() OVER (ORDER BY sum(f.actsales) DESC) Rowsales
FROM factcoffee f,states s ,areacode a
where f.areaid = a.areaid and s.stateid = a.stateid
GROUP BY s.stateid),


totalcount AS (SELECT count(*) as totcount FROM Cumsale),

totsales as (SELECT sum(sumsales) totsumsales FROM cumsale),

Cumtotsales as (SELECT rowsales, sum(sumsales) over (order by rowsales) Csales FROM
cumsale)

SELECT totcount, totsumsales, rowsales, csales, 100 * rowsales/totcount
FROM totalcount, totsales, cumtotsales
WHERE csales >= 0.5*totsumsales AND rownum =1;
```

	TOTCOUNT	TOTSUMSALES	ROWSALES	CSALES	100*ROWSALES/TOTCOUNT
1	20	819811	7	441614	35

-- Question 5 :If you have to discontinue some product, which one would you suggest and why? Formulate your questions.

```
SELECT prodname, Fyear, SYear, 100*(Syear-Fyear)/abs(Fyear) as PerInc
FROM (SELECT * FROM (Select prodcoffee.prodname, Extract(Year from factdate) as Years,
sum(actprofit) as TotProfits
FROM areacode, factcoffee, states,prodcoffee
WHERE areacode.areaid = factcoffee.areaid and states.stateid = areacode.STATEID and
prodcoffee.productid = factcoffee.productid
GROUP BY  prodcoffee.prodname ,Extract(Year from factdate))
PIVOT (  sum(TotProfits)
FOR Years IN (2012 as Fyear,2013 as SYear)  ))
WHERE  100*(Syear-Fyear)/abs(Fyear) <> 0
order by 100*(Syear-Fyear)/abs(Fyear);
```

	PRODNAME	FYEAR	SYEAR	PERINC
1	Green Tea	-90	-141	-56.66666666666666666666666666666666666667
2	Lemon	12195	17674	44.928249282492824928249282492824928249282492824928
3	Colombian	22777	33027	45.00153663783641392632919172849804627475
4	Decaf Irish Cream	5708	8281	45.07708479327259985984583041345480028031
5	Mint	2511	3643	45.08164078056551174830744723217841497411
6	Earl Grey	9851	14313	45.29489391939904578215409603085981118668
7	Darjeeling	11844	17209	45.29719689294157379263762242485646740966
8	Decaf Espresso	12025	17477	45.33887733887733887733887733887733887734
9	Caffe Latte	4636	6739	45.36238136324417601380500431406384814495
10	Chamomile	11093	16138	45.47913098350311006941314342378076264311

-- Question 6 : The overall sales per month could be seasonal. That is, you will find sales in some months greater than the others and this may be consistent in both 2012 and 2013. Identify if there are seasonal trends. Plot month vs. sales for each year.

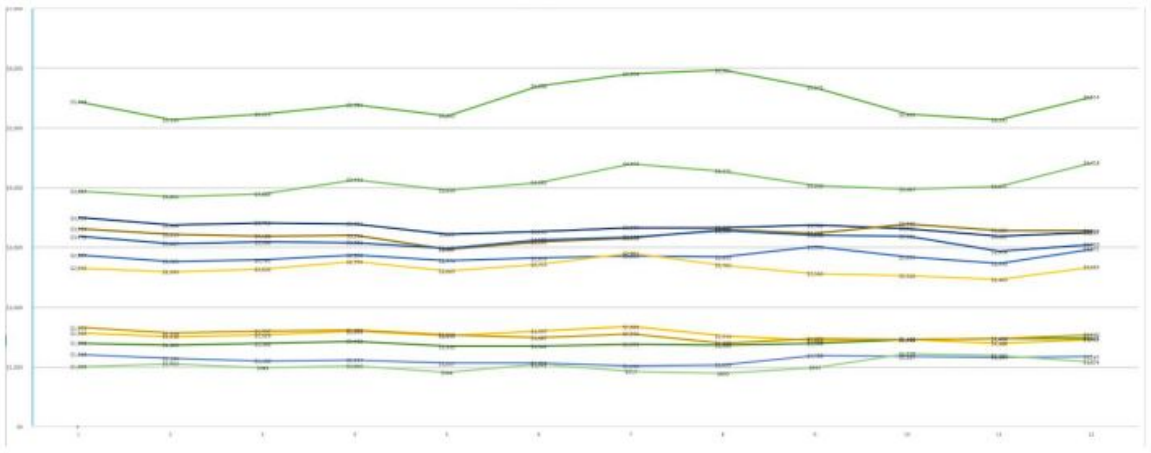
select * from (select extract(month from fc.factdate) as Month,sum(fc.actsales) as sum_total from factcoffee fc, prodcoffee pc where fc.productid = pc.productid and extract(year from fc.factdate) = 2012 group by extract(month from fc.factdate)) pivot (sum(sum_total) for month in (1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12)); select * from (select extract(month from fc.factdate) as Month,sum(fc.actsales) as sum_total from factcoffee fc, prodcoffee pc where fc.productid = pc.productid and extract(year from fc.factdate) = 2013 group by extract(month from fc.factdate)) pivot (sum(sum_total) for month in (1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12));

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
2012	$ 31,555	$ 32,092	$ 32,245	$ 32,943	$ 33,692	$ 35,125	$ 36,161	$ 36,029	$ 33,092	$ 32,849	$ 32,003	$ 33,373
2013	$ 35,316	$ 34,192	$ 34,355	$ 35,112	$ 33,394	$ 34,807	$ 35,830	$ 35,707	$ 35,269	$ 34,987	$ 34,103	$ 35,580

-- Question 6(a) : Are there trends for any particular product?

- Products reached peak monthly sales during the summer months.
- In particular, most products had the greatest monthly sales during the month of August.

2013 Monthly sales



-- Question 6(b) : Are there trends in any particular state for any product?

```
select *
from (
select st.statename as state_name,pc.prodname as
product_name,extract(month from fc.factdate) as Month,sum(fc.actsales) as
sum_total
from factcoffee fc, prodcoffee pc,areacode ac, states st
where fc.productid = pc.productid
and fc.areaid = ac.areaid
and ac.stateid = st.stateid
and extract(year from fc.factdate) = 2012
group by st.statename,pc.prodname,extract(month from fc.factdate)
order by st.statename)
pivot
(
sum(sum_total)
for month in (1, 2, 3, 4,
5, 6, 7, 8, 9, 10, 11, 12)
)
order by state_name;
```

	STATE_NAME	PRODUCT_NAME	1	2	3	4	5	6	7	8	9	10	11	12
159	Washington	Caffe Latte	110	110	112	103	110	110	115	69	76	51	52	56
160	Washington	Caffe Mocha	120	118	120	127	130	133	133	140	149	126	121	145
161	Washington	Chamomile	310	325	309	292	275	232	225	225	258	313	325	289
162	Washington	Colombian	130	142	150	169	175	193	211	211	167	167	156	176
163	Washington	Darjeeling	180	174	167	133	130	125	104	126	151	159	141	107
164	Washington	Decaf Espresso	150	154	155	151	170	177	189	226	182	174	164	176
165	Washington	Decaf Irish Cream	190	220	227	227	221	264	297	317	223	230	224	250
166	Washington	Earl Grey	150	137	129	114	110	99	90	90	113	113	120	106
167	Washington	Green Tea	180	155	150	150	154	128	113	105	149	144	147	131
168	Washington	Lemon	85	94	82	86	99	107	99	118	119	119	115	120
169	Wisconsin	Amaretto	120	118	120	127	130	133	133	140	149	126	121	145

```
select *
from (
select st.statename as state_name,pc.prodname as
product_name,extract(month from fc.factdate) as Month,sum(fc.actsales) as
sum_total
from factcoffee fc, prodcoffee pc,areacode ac, states st
where fc.productid = pc.productid
and fc.areaid = ac.areaid
and ac.stateid = st.stateid
and extract(year from fc.factdate) = 2013
group by st.statename,pc.prodname,extract(month from fc.factdate)
order by st.statename)
pivot
(
sum(sum_total)
for month in (1, 2, 3, 4,
5, 6, 7, 8, 9, 10, 11, 12)
)
order by state_name;
```

	STATE_NAME	PRODUCT_NAME	1	2	3	4	5	6	7	8	9	10	11	12
161	Washington	Chamomile	347	346	329	311	273	230	223	223	275	334	346	308
162	Washington	Colombian	145	151	160	180	173	191	209	209	178	178	166	188
163	Washington	Darjeeling	201	185	178	142	129	124	103	125	161	169	150	114
164	Washington	Decaf Espresso	168	164	165	161	168	175	187	224	194	185	175	188
165	Washington	Decaf Irish Cream	213	234	242	242	219	262	294	314	238	245	239	266
166	Washington	Earl Grey	168	146	137	121	109	98	89	89	120	120	128	113
167	Washington	Green Tea	201	165	160	160	153	127	112	104	159	153	157	140
168	Washington	Lemon	95	100	87	92	98	106	98	117	127	127	123	128
169	Wisconsin	Amaretto	134	126	128	135	129	132	132	139	159	134	129	155
170	Wisconsin	Caffe Mocha	168	164	165	161	168	175	187	224	194	185	175	188
171	Wisconsin	Chamomile	201	185	178	142	129	124	103	125	161	169	150	114

Here you can see in 2012, the worst-selling month for the Colombian coffee in Washington was July. The trend remained consistent in 2013.Similarly for other few products as well.

-- Question 7:Insert a new column into Factcoffee table called Quarter. Now depending on the month, update the quarter number as Q1, Q2, Q3, or Q4 for each row.

```
ALTER TABLE factcoffee add  quarter varchar2(10);

UPDATE factcoffee
SET quarter = to_char(factdate,'Q');
```

	MARGIN	BUDCOGS	BUDPROFIT	ACTSALES	ACTMARGIN	ACTCOGS	ACTPROFIT	ACTEXPENSES	ACTMARKCOST	QUARTER
2	-90	190	-150	87	-67	154	-138	71	49	3
3	70	110	30	162	50	95	-3	55	30	1
4	-30	150	-90	109	-25	127	-131	63	40	4
5	70	50	40	122	71	52	37	41	17	2
6	80	50	50	133	72	53	42	44	17	3
7	70	40	40	108	62	46	19	43	15	3
8	80	50	50	147	79	59	49	46	19	4
9	70	50	40	135	73	54	43	44	17	4
10	70	50	30	120	66	54	13	53	20	1

-- Question 7(a): Now find the total sales for years 2012 and 2013 for each quarter. Display quarter in columns.

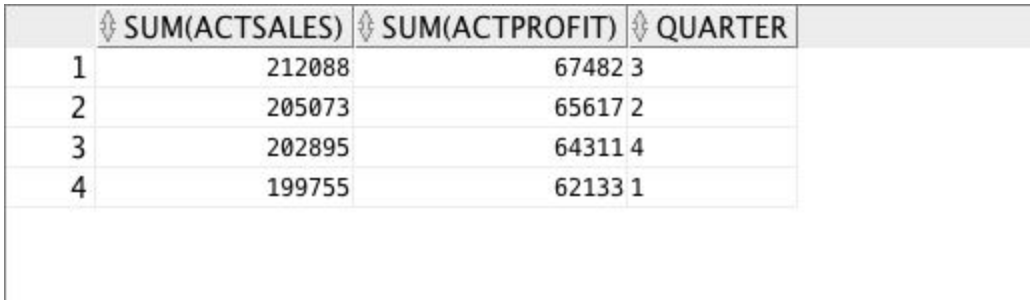
```
SELECT  *
FROM
(SELECT extract(year from factdate) Years,quarter,actsales
from factcoffee
)

PIVOT
( sum(actsales)
   FOR quarter IN ('1' AS Q1, '2' AS Q2, '3' AS Q3, '4' AS Q4));
```

	YEARS	Q1	Q2	Q3	Q4
1	2013	103863	103313	106806	104670
2	2012	95892	101760	105282	98225

-- Question 7(b):Which quarter has the greatest sales and profits?

```
SELECT sum(actsales),sum(actprofit),quarter
from factcoffee
```

group by quarter
order by sum(actsales)desc,sum(actprofit)desc;



	SUM(ACTSALES)	SUM(ACTPROFIT)	QUARTER
1	212088	67482	3
2	205073	65617	2
3	202895	64311	4
4	199755	62133	1

-- Question 8:

```
SELECT sum(f.actsales) totsales
      ,sum(f.actprofit) totprofit
      , (100 * (f.actmargin - f.budmargin)/f.actmargin) marg_perc
      ,sum(f.actmarkcost) totmarkcost
      ,s.stateid
      ,p.productid
      ,f.quarter
      ,rank() over(partition by f.quarter order by sum(f.actsales))
from states s,factcoffee f,prodcoffee p,areacode a
where s.stateid =a.stateid
and f.productid = p.productid
and a.areaid = f.areaid
group by s.stateid,p.productid,(100 * (f.actmargin - f.budmargin)/f.actmargin),f.quarter;
```

	TOTSALES	TOTPROFIT	MARG_PERC	TOTMARKCOST	STATEID	PRODUCTID	QUARTER	RANK()OVER(...
1	48	-850	37.5	182	1010	13	1	1
2	85	22	-20	8	1006	5	1	2
3	85	25	20	8	1010	6	1	2
4	91	26	-53.846153846153846153846153846153846153846	8	1006	6	1	4
5	91	28	-15.384615384615384615384615384615384615384	8	1011	13	1	4
6	91	28	-15.384615384615384615384615384615384615384	8	1010	6	1	4
7	91	28	-15.384615384615384615384615384615384615384	8	1010	4	1	4
8	91	28	-53.846153846153846153846153846153846153846	8	1006	5	1	4
9	97	27	-7.142857142857142857142857142857142857142	10	1006	5	1	9
10	97	27	-7.142857142857142857142857142857142857142	10	1010	6	1	9

CREATE TABLE StateProdQuarter as

(select Rank, TotalSales, TotalProfit, PercentMargin, TotalMarketingCost,
StateID, ProductID, Quarter from (

```
SELECT sum(f.actsales) TotalSales,
sum(f.actprofit) TotalProfit,
(100 * (f.actmargin - f.budmargin)/f.actmargin) PercentMargin,
sum(f.actmarkcost) TotalMarketingCost,
s.stateid,
p.productid,
f.quarter,
rank() over(partition by f.quarter order by sum(f.actsales)) as Rank
from states s,factcoffee f,prodcoffee p,areacode a
where s.stateid =a.stateid
and f.productid = p.productid
and a.areaid = f.areaid
group by s.stateid,p.productid,(100 * (f.actmargin - f.budmargin)/f.actmargin),f.quarter )            )
```

PART B: Office Product

```
-- Question 1 : Rank managers based on the sales generated.

SELECT  m.regmanager,sum(od.ordsales),
   rank() over (order by sum(od.ordsales) desc)
from customers c,orderdet od,managers m
where c.custreg = m.regid and c.custid = od.custid
group by m.regmanager
order by sum(od.ordsales)desc ;
```

	REGMANAGER	SUM(OD.ORDSALES)	RANK()OVER(ORDERBYSUM(OD.ORDSALES)DESC)
1	Chris	693859.12	1
2	William	679779.5	2
3	Erin	618192.35	3
4	Sam	446943.71	4

```
-- Question 2 : Find the products that had the worst average shipping times.

SELECT p.prodid, round(avg((o.ordshipdate - o.orddate)),2)as shiptime,p.prodname
from orderdet o,products p
```

where o.prodid = p.prodid
group by p.prodid,p.prodname
order by shiptime desc;

	PRODID	SHIPTIME	PRODNAME
1	4	19	#10 Self-Seal White Envelopes
2	933	9.91	Quartet Alpha® White Chalk, 12/Pack
3	28	9.57	282
4	62	9.22	688
5	348	7	Chromcraft Bull-Nose Wood 48" x 96" Rectangular Conference Tables
6	72	7	Accessory1
7	181	7	Avery 484
8	859	7	Nu-Dell Float Frame 11 x 14 1/2
9	1095	7	Tenex Antistatic Computer Chair Mats
10	1272	7	Xerox 1985

-- Question 3 : What fraction of the revenues is generated from the top 10% of the customers?

SUM_RATIO
0.5557879789655027155212801649462815837327

--Question 4: Are these 10% of the customers also the leaders in the number of orders placed?

SELECT custid from
(SELECT custid,sum(ordqty) sumquantity, Row_number() OVER (ORDER BY sum(ordqty) DESC) Rowsquantity
FROM orderdet
group by custid)
where rownum <= 0.1 * (select count(custid) from customers)

INTERSECT

SELECT custid from
(SELECT custid, SUM(ordsales) sumsales, Row_number() OVER (ORDER BY sum(ordsales) DESC) Rowsales
FROM orderdet
group BY custid)
where rownum <= 0.1 * (select count(custid) from customers);

	CUSTID
1	21
2	68
3	94
4	102
5	272
6	308
7	349
8	373
9	478
10	491

--Question 5: For each city and product combination, list the total sales and rank order in each city by total sales.

```
select c.custcity, p.prodname, sum(o.ordsales),
rank() over (partition by c.custcity order by sum(o.ordsales) desc) as rankid
from customers c join orderdet o
on c.custid = o.custid
join products p
on p.prodid = o.prodid
group by c.custcity, p.prodname
order by c.custcity, sum(o.ordsales) desc;
```

	CUSTCITY	PRODNAME	SUM(O.ORDSALES)	RANKID
1	Aberdeen	Global Leather and Oak Executive Chair, Black	2538.68	1
2	Aberdeen	GBC DocuBind TL200 Manual Binding Machine	1783.06	2
3	Aberdeen	Avery Arch Ring Binders	723.5	3
4	Aberdeen	Xerox 1984	130.69	4
5	Aberdeen	It's Hot Message Books with Stickers, 2 3/4" x 5"	79.77	5
6	Aberdeen	Bravo II™ Megaboss® 12-Amp Hard Body Upright, Replacement Belts, 2 Belts per Pack	40.69	6
7	Addison	Accessory37	392.45	1
8	Addison	Self-Adhesive Address Labels for Typewriters by Universal	79.74	2
9	Addison	Avery 494	18.53	3
10	Addison	Avery 49	5.9	4

--Question 6: Which are the top 5 customers for each of the years?

```
select X.custname, X.sales, X.dt from
(select c.custname, sum(o.ordsales) as sales, extract(year from o.orddate) as dt, rank()
over (partition by extract(year from o.orddate) order by sum(o.ordsales) desc) as rankid
from customers c join orderdet o
on c.custid = o.custid
group by extract(year from o.orddate), c.custname
order by extract(year from o.orddate)) X
where rankid <= 5
```

	CUSTNAME	SALES	DT
1	Rosemary O'Brien	29916.01	2010
2	Yvonne Mann	28779.13	2010
3	Tammy Raynor	18642.71	2010
4	Andrew Levine	16792.21	2010
5	Andrew Gonzalez	12417.56	2010
6	Amanda Kay	55040.47	2011
7	Rosemary O'Brien	49226.5	2011
8	Vivian Hunt	20544.3	2011
9	George Shields	15509.36	2011
10	Dana Teague	15340.99	2011

--Question 6(a): Who are common customers across all years?

```
select Y.custname, count(Y.custname) as ct from
(select X.custname, X.sales, X.dt from
(select c.custname, sum(o.ordsales) as sales, extract(year from o.orddate) as dt, rank()
over (partition by extract(year from o.orddate) order by sum(o.ordsales) desc) as rankid
from customers c join orderdet o
on c.custid = o.custid
group by extract(year from o.orddate), c.custname
order by extract(year from o.orddate)) X
where rankid <= 5) Y
group by Y.custname
having count(Y.custname) = 4
```

CUSTN...	CT

--Question 6(b): Are there some customers in any year that are distinct?

```
select Y.custname, count(Y.custname) as ct from
(select X.custname, X.sales, X.dt from
(select c.custname, sum(o.ordsales) as sales, extract(year from o.orddate) as dt, rank()
over (partition by extract(year from o.orddate) order by sum(o.ordsales) desc) as rankid
from customers c join orderdet o
on c.custid = o.custid
group by extract(year from o.orddate), c.custname
order by extract(year from o.orddate)) X
where rankid <= 5) Y
group by Y.custname
having count(Y.custname) = 1
```

	CUSTNAME	CT
1	Dwight Robinson	1
2	Amanda Kay	1
3	Jason Hernandez	1
4	Yvonne Mann	1
5	Andrea Shaw	1
6	Andrew Gonzalez	1
7	George Shields	1
8	Theresa Stephens	1
9	Tammy Raynor	1
10	Vivian Hunt	1

--Question 7: Find the number of orders in each subcategory in states Michigan and Washington. List Washington and Michigan in different columns.

```
select prodsubcat,
sum(case when custstate = 'Michigan' then total end) as Michigan,
sum(case when custstate = 'Washington' then total end) as Washington
from (
select c.custstate, p.prodsubcat, count(1) as total
from customers c join orderdet o
on c.custid = o.custid
join products p
on p.prodid = o.prodid
group by c.custstate, p.prodsubcat
order by c.custstate)
group by prodsubcat
```

order by prodsubcat

	PRODSUBCAT	MICHIGAN	WASHINGTON
1	Appliances	5	6
2	Binders and Binder Accessories	17	18
3	Bookcases	4	2
4	Chairs & Chairmats	3	7
5	Computer Peripherals	20	16
6	Copiers and Fax	2	6
7	Envelopes	3	2
8	Labels	3	5
9	Office Furnishings	14	13
10	Office Machines	5	6

--Question 8: Find total orders in each quarter.

```
select
count(case when extract(month from orddate) in (1,2,3) then 1 else null end) as Q1,
count(case when extract(month from orddate) in (4,5,6) then 1 else null end) as Q2,
count(case when extract(month from orddate) in (7,8,9) then 1 else null end) as Q3,
count(case when extract(month from orddate) in (10,11,12) then 1 else null end) as Q4
from orderdet;
```

	Q1	Q2	Q3	Q4
1	2311	2332	2367	2344

--Question 9: For each quarter and customer segment, find the total sales. Display data for quarters in column.

```
select custseg,
sum(case when dt in (1,2,3) then sales else null end) as Q1,
sum(case when dt in (4,5,6) then sales else null end) as Q2,
sum(case when dt in (7,8,9) then sales else null end) as Q3,
sum(case when dt in (10,11,12) then sales else null end) as Q4
from
(select c.custseg, sum(o.ordsales) as sales, extract(month from orddate) as dt
from customers c join orderdet o
on c.custid = o.custid
```

group by c.custseg, extract(month from orddate)
order by extract(month from orddate), sum(o.ordsales) desc) Y
group by custseg;

	CUSTSEG	Q1	Q2	Q3	Q4
1	Home Office	55808.14	119365	136574.9	257954.38
2	Corporate	188100.3	115326.35	191225.7	471234.78
3	Small Business	48089.2	69270.92	39225.42	143993.7
4	Consumer	105301.33	93884.19	164116.97	239303.4