**Q1. Find for each customer the sum sale in ‘NY’, the sum sale in ‘CT’ and the average sale in ‘NJ’, if New York’s average is greater than the other two**

EMF :

Select cust, prod, sum(1.quant), sum(2.quant), sum(3.quant)

From sales

Group by cust

Such that 1.cust = cust and 1.state = “NJ”

2.cust = cust and 2.state = “CT”

3.cust = cust and 3.state = “NY”

Having avg(1.quant)>avg(2.quant) and

avg(1.quant)>=avg(3.quant)

Input:

SELECT ATTRIBUTE(S):

cust, prod, 1\_sum\_quant, 2\_sum\_quant, 3\_sum\_quant

NUMBER OF GROUPING VARIABLES(n):

1,2,3

GROUPING ATTRIBUTES(V):

cust,prod

F-VECT([F]):

1\_sum\_quant, 1\_avg\_quant, 2\_avg\_quant, 3\_sum\_quant, 3\_avg\_quant, 3\_sum\_quant

SELECT CONDITION-VECT([σ]):

1.cust=cust and 1.state='NY'

2.cust=cust and 2.state='CT'

3.cust=cust and 3.state='NJ'

HAVING\_CONDITION(G):

1\_avg\_quant > 2\_avg\_quant and 1\_avg\_quant >= 3\_avg\_quant

**Q2. Compare for each customer’s and each prod, the customer’s average sale of this prod vs the average sale of the prod to the other customer**

EMF:

Select cust,prod,avg(x.quant),avg(y.quant)

From sales

Group by cust, prod; x, y

Such that x.cust=cust and prod=prod

y.cust<>cust and y.prod=prod

Input:

|  |  |
| --- | --- |
|  | SELECT ATTRIBUTE(S): |
|  | cust,prod,1\_avg\_quant,2\_avg\_quant |
|  | NUMBER OF GROUPING VARIABLES(n): |
|  | 1,2 |
|  | GROUPING ATTRIBUTES(V): |
|  | cust,prod |
|  | F-VECT([F]): |
|  | 1\_avg\_quant, 2\_avg\_quant |
|  | SELECT CONDITION-VECT([C]): |
|  | 1.cust=cust and 1.prod=prod |
|  | 2.cust<>cust and 2.prod=prod |
|  | HAVING\_CONDITION(G): |
|  | 1\_avg\_quant<>0 |

SQL :

Select s1.cust, s1.prod, s1.a, s2.a

From

(select cust, prod, avg(quant) as a

From sales

Group by cust, prod) as s1,

(

Select x.cust, x.prod, avg(y.quant) as a

Fom sales as x, sales as y

Where x.cust<>y.cust and x.prod=y.prod

Group by x.cust,x.prod) as s2

Where s1.cust = s2. Cust and s1.prod=s2.prod

Order by s1.cust

**Q3. Find for each product the median sale(odd no. of sales)**

EMF :

Select prod,quant

From sales

Group by prod, quant;x,y

Such that x.prod=prod,

y.prod=prod and y.quant<qunat

having count(y.prod)=count(x.prod)/2

Input:

|  |  |
| --- | --- |
|  | SELECT ATTRIBUTE(S): |
|  | prod,quant |
|  | NUMBER OF GROUPING VARIABLES(n): |
|  | 1,2 |
|  | GROUPING ATTRIBUTES(V): |
|  | prod,quant |
|  | F-VECT([F]): |
|  | 1\_count\_prod, 2\_count\_prod |
|  | SELECT CONDITION-VECT([C]): |
|  | 1.prod=prod |
|  | 2.prod=prod and 2.quant<quant |
|  | HAVING\_CONDITION(G): |
|  | 2\_count\_prod= 1\_count\_prod/2 |

SQL:

Select s1.prod,s2.quant

From (

Select prod, count(\*) as c

From sales

Group by prod) as s1,

(select x.prod,x.quant and y.quant<x.quant

Group by x.prod,x.quant)as s2

Where s1.prod=s2.prod and s1.c/2=s2.c

Order by s2.prod