

1. Marketing Analyst

```
SELECT C.cust_state, O.part_num, SUM(O.qty)
FROM CUSTOMER AS C
INNER JOIN ORDER AS O
ON C.cust_num = O.cust_num
GROUP BY C.cust_state, O.part_num
```

```
C <- ρ_C(cust_state,cust_num)(Customer)
O <- ρ_O(part_num,qty,cust_num)(Order)
C1 <- C ⋈ cust_num = cust_num O
R <- π_cust_state, part_num, [cust_state,part_num_F_sum(qty)] (C1)
```

2. Sales Manager

```
SELECT o.part_num, o.qty
FROM Customer C, Order O
WHERE c.cust_num = o.cust_num
AND c.cust_state = 'MA'
```

```
C <- ρ_C(cust_state,cust_num)(Customer)
O <- ρ_O(part_num,qty,cust_num)(Order)
C1 <- C ⋈ cust_num = cust_num O
C2 <- σ_cust_state = 'MA' (C1)
R <- π_part_num, qty (C2)
```

3. Sales Manager

```
Select Sum(o.product_qty*retail_price) as Sales,
Month, Country,State
From Order o
Inner join Part p ON o.part_num = p.part_num
Inner join Store s ON p.StoreID = s.StoreID
Group by Month, Country,State
```

```
O <- ρ_O(part_num,product_qty,StoreID,Month)(Order)
P <- ρ_P(part_num,retail_price)(Part)
S <- ρ_S(StoreID,Country,State)(Store)
C1 <- O ⋈ part_num = part_num P
C2 <- S ⋈ StoreID = StoreID C1
R <- π_Month, Country,State, [Month,Country,State_F_sum(product_qty*product_price)] (C2)
```

4. Customer

```
Select Sum(product_qty*product_price) ,
Category
From Order o
Inner join Product p ON o.Product_id = p.Product_id
Inner join Customer c ON o.customer_id = c.customer_id
```

where c.customerID = 101

Group by Category

C <- ρ_C (customer_id)(Customer)

O <- ρ_O (product_id ,product_qty,customer_id)(Order)

P <- ρ_P (product_id ,product_price)(Product)

C1 <- C \bowtie customer_id = customer_id O

C2 <- P \bowtie Product_id = Product_id C1

C3 <- $\sigma_{\text{customerID} = 101}$ (C2)

R <- $\pi_{\text{Category, [Category_F_sum(product_qty*product_price)]}}$ (C3)

5.Store Manager

SELECT p.product_id, product_description, product_price

FROM ORDER as o

Inner join Part p ON o.part_num = p.part_num

WHERE o.product_qty < 10

AND o.store_id = 101

O <- ρ_O (product_id ,product_qty,customer_id,store_id)(Order)

P <- ρ_P (product_id ,product_price, product_description)(Product)

C1 <- P \bowtie product_id = product_id O

C2 <- $\sigma_{\text{product_qty} < 10}$ (C1)

C3 <- $\sigma_{\text{store_id} = 101}$ (C2)

R <- $\pi_{\text{product_id, product_description, product_price}}$ (C3)