**Query1-**

WITH Q1 AS

(

SELECT CUST, PROD, MONTH, STATE, ROUND(AVG(QUANT)) AS AVG\_PROD

FROM SALES

GROUP BY CUST, PROD, MONTH, STATE

),

Q2 AS

(

SELECT a.CUST, a.PROD, a.MONTH, a.STATE, ROUND(AVG(b.QUANT)) AS AVG\_OTHER\_PROD

FROM Q1 a JOIN SALES b

on a.CUST = b.CUST AND

a.MONTH = b.MONTH AND

a.STATE = b.STATE AND

a.PROD != b.PROD

GROUP BY a.CUST, a.PROD, a.MONTH, a.STATE

),

Q3 AS

(

SELECT a.CUST, a.PROD, a.MONTH, a.STATE, ROUND(AVG(b.QUANT)) AS AVG\_OTHER\_MON

FROM Q1 a JOIN SALES b

on a.CUST = b.CUST AND

a.PROD = b.PROD AND

a.STATE = b.STATE AND

a.MONTH != b.MONTH

GROUP BY a.CUST, a.PROD, a.MONTH, a.STATE

),

Q4 AS

(

SELECT a.CUST, a.PROD, a.MONTH, a.STATE, ROUND(AVG(b.QUANT)) AS AVG\_OTHER\_STATE

FROM Q1 a JOIN SALES b

on a.CUST = b.CUST AND

a.PROD = b.PROD AND

a.MONTH = b.MONTH AND

a.STATE != b.STATE

GROUP BY a.CUST, a.PROD, a.MONTH, a.STATE

)

SELECT Q1.CUST, Q1.PROD, Q1.MONTH, Q1.STATE, AVG\_PROD, AVG\_OTHER\_PROD, AVG\_OTHER\_MON, AVG\_OTHER\_STATE

FROM Q1 NATURAL FULL JOIN Q2 NATURAL FULL JOIN Q3 NATURAL FULL JOIN Q4

ORDER BY CUST, PROD, MONTH, STATE

Or

WITH Q1 AS

(

SELECT CUST, PROD, MONTH, STATE, ROUND(AVG(QUANT)) AS AVG\_PROD

FROM SALES

GROUP BY CUST, PROD, MONTH, STATE

),

Q2 AS

(

SELECT a.CUST, a.PROD, a.MONTH, a.STATE, ROUND(AVG(b.QUANT)) AS AVG\_OTHER\_PROD

FROM Q1 a JOIN SALES b

on a.CUST = b.CUST AND

a.MONTH = b.MONTH AND

a.STATE = b.STATE AND

a.PROD != b.PROD

GROUP BY a.CUST, a.PROD, a.MONTH, a.STATE

),

Q3 AS

(

SELECT a.CUST, a.PROD, a.MONTH, a.STATE, ROUND(AVG(b.QUANT)) AS AVG\_OTHER\_MON

FROM Q1 a JOIN SALES b

on a.CUST = b.CUST AND

a.PROD = b.PROD AND

a.STATE = b.STATE AND

a.MONTH != b.MONTH

GROUP BY a.CUST, a.PROD, a.MONTH, a.STATE

),

Q4 AS

(

SELECT PROD, MONTH, STATE, ROUND(AVG(QUANT)) AS AVERAGE\_PROD

FROM SALES

GROUP BY PROD, MONTH, STATE

),

Q5 AS

(

SELECT a.PROD, a.MONTH, a.STATE, ROUND(AVG(b.QUANT)) AS AVERAGE\_OTHER\_STATE

FROM Q4 a JOIN SALES b

ON a.PROD = b.PROD AND

a.MONTH = b.MONTH AND

a.STATE != b.STATE

GROUP BY a.PROD, a.MONTH, a.STATE

)

SELECT Q1.CUST, Q1.PROD, Q1.MONTH, Q1.STATE, AVG\_PROD, AVG\_OTHER\_PROD, AVG\_OTHER\_MON, AVERAGE\_OTHER\_STATE

FROM Q1 NATURAL FULL JOIN Q2 NATURAL FULL JOIN Q3 NATURAL FULL JOIN Q5

ORDER BY CUST, PROD, MONTH, STATE

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**Query 2-**

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**Query 3-**

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**Query 4-**

WITH BASE AS

(

SELECT CUST, PROD, MONTH, SUM(QUANT) AS MON\_SALES

FROM SALES

GROUP BY CUST, PROD, MONTH

),

Q1 AS

(

SELECT a.CUST, a.PROD, a.MONTH, sum(b.MON\_SALES) TOT\_SALES

FROM BASE a JOIN BASE b

ON a.CUST = b.CUST AND a.PROD = b.PROD

WHERE a.MONTH >= b.MONTH

GROUP BY a.CUST, a.PROD, a.MONTH

),

Q2 AS

(

SELECT CUST, PROD, ROUND(SUM(MON\_SALES)\*75/100) AS REQ\_SALES

FROM BASE

GROUP BY CUST, PROD

)

SELECT a.CUST, a.PROD , a.MONTH as "75% PURCHASED BY MONTH"

FROM Q1 a JOIN Q2 b

ON a.CUST = b.CUST AND a.PROD = b.PROD

where TOT\_SALES >= REQ\_SALES

GROUP BY a.CUST, a.PROD, a.MONTH

ORDER BY CUST, PROD

Or

WITH BASE AS

(

SELECT CUST, PROD, MONTH, SUM(QUANT) AS MON\_SALES

FROM SALES

GROUP BY CUST, PROD, MONTH

),

Q1 AS

(

SELECT a.CUST, a.PROD, a.MONTH, sum(b.MON\_SALES) TOT\_SALES

FROM BASE a JOIN BASE b

ON a.CUST = b.CUST AND a.PROD = b.PROD

WHERE a.MONTH >= b.MONTH

GROUP BY a.CUST, a.PROD, a.MONTH

),

Q2 AS

(

SELECT CUST, PROD, ROUND(SUM(MON\_SALES)\*75/100) AS REQ\_SALES

FROM BASE

GROUP BY CUST, PROD

)

SELECT a.CUST, a.PROD , MIN(a.MONTH) as "75% PURCHASED BY MONTH"

FROM Q1 a JOIN Q2 b

ON a.CUST = b.CUST AND a.PROD = b.PROD

where TOT\_SALES >= REQ\_SALES

GROUP BY a.CUST, a.PROD

ORDER BY CUST, PROD