**DISTINC year-month-table**SELECT DISTINCT FORMAT\_DATETIME("%Y-%m", SHOP\_DATE) AS year\_month  
FROM (SELECT PARSE\_DATE('%Y%m%d', CAST(SHOP\_DATE AS STRING)) AS SHOP\_DATE  
FROM `potent-duality-331409.SuperMarketData.SuperMarketDataSample`  
WHERE CUST\_CODE IS NOT NULL)  
ORDER BY year\_month

**DISTINC CUST-CODE-table**

SELECT DISTINCT CUST\_CODE

FROM `potent-duality-331409.SuperMarketData.SuperMarketDataSample`

WHERE CUST\_CODE IS NOT NULL

ORDER BY CUST\_CODE

**Master-table**

**SELECT year\_month,CUST\_CODE,CONCAT(CUST\_CODE,year\_month) AS CUST\_CODE\_ym**

**FROM** ((SELECT DISTINCT FORMAT\_DATETIME("%Y-%m", SHOP\_DATE) AS year\_month FROM (SELECT PARSE\_DATE('%Y%m%d', CAST(SHOP\_DATE AS STRING)) AS SHOP\_DATE FROM `potent-duality-331409.SuperMarketData.SuperMarketDataSample` WHERE CUST\_CODE IS NOT NULL) ORDER BY year\_month)  
**CROSS JOIN**  
(SELECT DISTINCT CUST\_CODE          
FROM `potent-duality-331409.SuperMarketData.SuperMarketDataSample`  
WHERE CUST\_CODE IS NOT NULL  
ORDER BY CUST\_CODE))

**MIN-DATE-table**

SELECT

CUST\_CODE,

MIN(FORMAT\_DATETIME("%Y-%m",SHOP\_DATE)) as min\_date

FROM (SELECT PARSE\_DATE('%Y%m%d', CAST(SHOP\_DATE AS STRING)) AS SHOP\_DATE,

CUST\_CODE

FROM `potent-duality-331409.SuperMarketData.SuperMarketDataSample`

WHERE CUST\_CODE IS NOT NULL)

GROUP BY CUST\_CODE

ORDER BY CUST\_CODE

**CHECK-table**

SELECT year\_month,CUST\_CODE,CONCAT(CUST\_CODE,year\_month) AS CUST\_CODE\_ym,"1" AS CHECK

FROM(SELECT CUST\_CODE,

FORMAT\_DATETIME("%Y-%m", SHOP\_DATE) AS year\_month

FROM (SELECT PARSE\_DATE('%Y%m%d', CAST(SHOP\_DATE AS STRING)) AS SHOP\_DATE,CUST\_CODE

FROM `potent-duality-331409.SuperMarketData.SuperMarketDataSample`

WHERE CUST\_CODE IS NOT NULL)

GROUP BY CUST\_CODE, year\_month)

ORDER BY year\_month,CUST\_CODE

**Master-table LEFT JOIN min-date-table (master-table2)**

**SELECT master\_table.\*,min\_date\_table.min\_date**

**FROM (**

(SELECT year\_month,CUST\_CODE,CONCAT(CUST\_CODE,year\_month) AS CUST\_CODE\_ym

FROM ((SELECT DISTINCT FORMAT\_DATETIME("%Y-%m", SHOP\_DATE) AS year\_month FROM (SELECT PARSE\_DATE('%Y%m%d', CAST(SHOP\_DATE AS STRING)) AS SHOP\_DATE FROM `potent-duality-331409.SuperMarketData.SuperMarketDataSample` WHERE CUST\_CODE IS NOT NULL) ORDER BY year\_month)  
CROSS JOIN  
(SELECT DISTINCT CUST\_CODE          
FROM `potent-duality-331409.SuperMarketData.SuperMarketDataSample`  
WHERE CUST\_CODE IS NOT NULL  
ORDER BY CUST\_CODE)))**master\_table**  
**LEFT JOIN**(SELECT   
CUST\_CODE,   
MIN(FORMAT\_DATETIME("%Y-%m",SHOP\_DATE)) as min\_date   
FROM (SELECT PARSE\_DATE('%Y%m%d', CAST(SHOP\_DATE AS STRING)) AS SHOP\_DATE,  
CUST\_CODE  
FROM `potent-duality-331409.SuperMarketData.SuperMarketDataSample`  
WHERE CUST\_CODE IS NOT NULL)  
GROUP BY CUST\_CODE  
ORDER BY CUST\_CODE)min\_date\_table  
**ON master\_table.CUST\_CODE=min\_date\_table.CUST\_CODE)**

**Master-table2 LEFT JOIN CHECK-table**

**SELECT master\_table2.\*,check\_table.CHECK**

**FROM(**

(SELECT master\_table.\*,min\_date\_table.min\_date

FROM (

(SELECT year\_month,CUST\_CODE,CONCAT(CUST\_CODE,year\_month) AS CUST\_CODE\_ym

FROM ((SELECT DISTINCT FORMAT\_DATETIME("%Y-%m", SHOP\_DATE) AS year\_month FROM (SELECT PARSE\_DATE('%Y%m%d', CAST(SHOP\_DATE AS STRING)) AS SHOP\_DATE FROM `potent-duality-331409.SuperMarketData.SuperMarketDataSample` WHERE CUST\_CODE IS NOT NULL) ORDER BY year\_month)  
CROSS JOIN  
(SELECT DISTINCT CUST\_CODE          
FROM `potent-duality-331409.SuperMarketData.SuperMarketDataSample`  
WHERE CUST\_CODE IS NOT NULL  
ORDER BY CUST\_CODE)))master\_table  
LEFT JOIN  
(SELECT   
CUST\_CODE,   
MIN(FORMAT\_DATETIME("%Y-%m",SHOP\_DATE)) as min\_date   
FROM (SELECT PARSE\_DATE('%Y%m%d', CAST(SHOP\_DATE AS STRING)) AS SHOP\_DATE,  
CUST\_CODE  
FROM `potent-duality-331409.SuperMarketData.SuperMarketDataSample`  
WHERE CUST\_CODE IS NOT NULL)  
GROUP BY CUST\_CODE  
ORDER BY CUST\_CODE)min\_date\_table  
ON master\_table.CUST\_CODE=min\_date\_table.CUST\_CODE))**master\_table2**  
**LEFT JOIN**(SELECT year\_month,CUST\_CODE,CONCAT(CUST\_CODE,year\_month) AS CUST\_CODE\_ym,"1" AS CHECK   
FROM(SELECT CUST\_CODE,   
FORMAT\_DATETIME("%Y-%m", SHOP\_DATE) AS year\_month   
FROM (SELECT PARSE\_DATE('%Y%m%d', CAST(SHOP\_DATE AS STRING)) AS  
SHOP\_DATE,CUST\_CODE  
FROM `potent-duality-331409.SuperMarketData.SuperMarketDataSample`  
WHERE CUST\_CODE IS NOT NULL)  
GROUP BY CUST\_CODE, year\_month)  
ORDER BY year\_month,CUST\_CODE)**check\_table  
ON master\_table2.CUST\_CODE\_ym=check\_table.CUST\_CODE\_ym)**

**Add Prev-month column**

**SELECT \*,** **LAG(CHECK) OVER (PARTITION BY CUST\_CODE ORDER BY year\_month) AS prev\_month  
FROM**

(SELECT master\_table2.\*,check\_table.CHECK

FROM(

(SELECT master\_table.\*,min\_date\_table.min\_date

FROM (

(SELECT year\_month,CUST\_CODE,CONCAT(CUST\_CODE,year\_month) AS CUST\_CODE\_ym

FROM ((SELECT DISTINCT FORMAT\_DATETIME("%Y-%m", SHOP\_DATE) AS year\_month FROM (SELECT PARSE\_DATE('%Y%m%d', CAST(SHOP\_DATE AS STRING)) AS SHOP\_DATE FROM `potent-duality-331409.SuperMarketData.SuperMarketDataSample` WHERE CUST\_CODE IS NOT NULL) ORDER BY year\_month)  
CROSS JOIN  
(SELECT DISTINCT CUST\_CODE          
FROM `potent-duality-331409.SuperMarketData.SuperMarketDataSample`  
WHERE CUST\_CODE IS NOT NULL  
ORDER BY CUST\_CODE)))master\_table  
LEFT JOIN  
(SELECT   
CUST\_CODE,   
MIN(FORMAT\_DATETIME("%Y-%m",SHOP\_DATE)) as min\_date   
FROM (SELECT PARSE\_DATE('%Y%m%d', CAST(SHOP\_DATE AS STRING)) AS SHOP\_DATE,  
CUST\_CODE  
FROM `potent-duality-331409.SuperMarketData.SuperMarketDataSample`  
WHERE CUST\_CODE IS NOT NULL)  
GROUP BY CUST\_CODE  
ORDER BY CUST\_CODE)min\_date\_table  
ON master\_table.CUST\_CODE=min\_date\_table.CUST\_CODE))master\_table2  
LEFT JOIN  
(SELECT year\_month,CUST\_CODE,CONCAT(CUST\_CODE,year\_month) AS CUST\_CODE\_ym,"1" AS CHECK   
FROM(SELECT CUST\_CODE,   
FORMAT\_DATETIME("%Y-%m", SHOP\_DATE) AS year\_month   
FROM (SELECT PARSE\_DATE('%Y%m%d', CAST(SHOP\_DATE AS STRING)) AS  
SHOP\_DATE,CUST\_CODE  
FROM `potent-duality-331409.SuperMarketData.SuperMarketDataSample`  
WHERE CUST\_CODE IS NOT NULL)  
GROUP BY CUST\_CODE, year\_month)  
ORDER BY year\_month,CUST\_CODE)check\_table  
ON master\_table2.CUST\_CODE\_ym=check\_table.CUST\_CODE\_ym))

**Add Status column**

**SELECT \*,  
CASE   
    WHEN min\_date=year\_month THEN "New"  
    WHEN min\_date>year\_month THEN NULL  
    WHEN prev\_month IS NOT NULL AND CHECK="1" THEN "Repeat"   
    WHEN prev\_month IS NULL AND CHECK="1" AND min\_date<year\_month THEN "Reactivated"  
WHEN ~~prev\_month IS NOT NULL AND~~ CHECK IS NULL THEN "Churn"  
ELSE NULL   
END AS status  
FROM**

(SELECT \*, LAG(CHECK) OVER (PARTITION BY CUST\_CODE ORDER BY year\_month) AS prev\_month  
FROM

(SELECT master\_table2.\*,check\_table.CHECK

FROM(

(SELECT master\_table.\*,min\_date\_table.min\_date

FROM (

(SELECT year\_month,CUST\_CODE,CONCAT(CUST\_CODE,year\_month) AS CUST\_CODE\_ym

FROM ((SELECT DISTINCT FORMAT\_DATETIME("%Y-%m", SHOP\_DATE) AS year\_month FROM (SELECT PARSE\_DATE('%Y%m%d', CAST(SHOP\_DATE AS STRING)) AS SHOP\_DATE FROM `potent-duality-331409.SuperMarketData.SuperMarketDataSample` WHERE CUST\_CODE IS NOT NULL) ORDER BY year\_month)  
CROSS JOIN  
(SELECT DISTINCT CUST\_CODE          
FROM `potent-duality-331409.SuperMarketData.SuperMarketDataSample`  
WHERE CUST\_CODE IS NOT NULL  
ORDER BY CUST\_CODE)))master\_table  
LEFT JOIN  
(SELECT   
CUST\_CODE,   
MIN(FORMAT\_DATETIME("%Y-%m",SHOP\_DATE)) as min\_date   
FROM (SELECT PARSE\_DATE('%Y%m%d', CAST(SHOP\_DATE AS STRING)) AS SHOP\_DATE,  
CUST\_CODE  
FROM `potent-duality-331409.SuperMarketData.SuperMarketDataSample`  
WHERE CUST\_CODE IS NOT NULL)  
GROUP BY CUST\_CODE  
ORDER BY CUST\_CODE)min\_date\_table  
ON master\_table.CUST\_CODE=min\_date\_table.CUST\_CODE))master\_table2  
LEFT JOIN  
(SELECT year\_month,CUST\_CODE,CONCAT(CUST\_CODE,year\_month) AS CUST\_CODE\_ym,"1" AS CHECK   
FROM(SELECT CUST\_CODE,   
FORMAT\_DATETIME("%Y-%m", SHOP\_DATE) AS year\_month   
FROM (SELECT PARSE\_DATE('%Y%m%d', CAST(SHOP\_DATE AS STRING)) AS  
SHOP\_DATE,CUST\_CODE  
FROM `potent-duality-331409.SuperMarketData.SuperMarketDataSample`  
WHERE CUST\_CODE IS NOT NULL)  
GROUP BY CUST\_CODE, year\_month)  
ORDER BY year\_month,CUST\_CODE)check\_table  
ON master\_table2.CUST\_CODE\_ym=check\_table.CUST\_CODE\_ym)))

**Add Status-value column**

**SELECT \*,  
CASE**

**WHEN status IS NOT NULL and status="Churn" THEN -1**

**WHEN status IS NOT NULL and status<>"Churn" THEN 1**

**ELSE 0**

**END AS status\_value**

**FROM**   
(SELECT \*,  
CASE   
    WHEN min\_date=year\_month THEN "New"  
    WHEN min\_date>year\_month THEN NULL  
    WHEN prev\_month IS NOT NULL AND CHECK="1" THEN "Repeat"   
    WHEN prev\_month IS NULL AND CHECK="1" AND min\_date<year\_month THEN "Reactivated"  
WHEN prev\_month IS NOT NULL AND CHECK IS NULL THEN "Churn"  
ELSE NULL   
END AS status  
FROM

(SELECT \*, LAG(CHECK) OVER (PARTITION BY CUST\_CODE ORDER BY year\_month) AS prev\_month  
FROM

(SELECT master\_table2.\*,check\_table.CHECK

FROM(

(SELECT master\_table.\*,min\_date\_table.min\_date

FROM (

(SELECT year\_month,CUST\_CODE,CONCAT(CUST\_CODE,year\_month) AS CUST\_CODE\_ym

FROM ((SELECT DISTINCT FORMAT\_DATETIME("%Y-%m", SHOP\_DATE) AS year\_month FROM (SELECT PARSE\_DATE('%Y%m%d', CAST(SHOP\_DATE AS STRING)) AS SHOP\_DATE FROM `potent-duality-331409.SuperMarketData.SuperMarketDataSample` WHERE CUST\_CODE IS NOT NULL) ORDER BY year\_month)  
CROSS JOIN  
(SELECT DISTINCT CUST\_CODE          
FROM `potent-duality-331409.SuperMarketData.SuperMarketDataSample`  
WHERE CUST\_CODE IS NOT NULL  
ORDER BY CUST\_CODE)))master\_table  
LEFT JOIN  
(SELECT   
CUST\_CODE,   
MIN(FORMAT\_DATETIME("%Y-%m",SHOP\_DATE)) as min\_date   
FROM (SELECT PARSE\_DATE('%Y%m%d', CAST(SHOP\_DATE AS STRING)) AS SHOP\_DATE,  
CUST\_CODE  
FROM `potent-duality-331409.SuperMarketData.SuperMarketDataSample`  
WHERE CUST\_CODE IS NOT NULL)  
GROUP BY CUST\_CODE  
ORDER BY CUST\_CODE)min\_date\_table  
ON master\_table.CUST\_CODE=min\_date\_table.CUST\_CODE))master\_table2  
LEFT JOIN  
(SELECT year\_month,CUST\_CODE,CONCAT(CUST\_CODE,year\_month) AS CUST\_CODE\_ym,"1" AS CHECK   
FROM(SELECT CUST\_CODE,   
FORMAT\_DATETIME("%Y-%m", SHOP\_DATE) AS year\_month   
FROM (SELECT PARSE\_DATE('%Y%m%d', CAST(SHOP\_DATE AS STRING)) AS  
SHOP\_DATE,CUST\_CODE  
FROM `potent-duality-331409.SuperMarketData.SuperMarketDataSample`  
WHERE CUST\_CODE IS NOT NULL)  
GROUP BY CUST\_CODE, year\_month)  
ORDER BY year\_month,CUST\_CODE)check\_table  
ON master\_table2.CUST\_CODE\_ym=check\_table.CUST\_CODE\_ym))))  
**WHERE status IS NOT NULL  
ORDER BY year\_month**