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with customer as (
select year_month,cust_code,repeat_customer
      ,case when prev_month is null then year_month else prev_month end as prev_month
      ,date_diff(parse_date("%Y%m",year_month), parse_date("%Y%m",prev_month), month) as repe
at_month
,from (select year_month,cust_code
        , row_number() over (partition by cust_code order by year_month asc) as repeat_c
ustomer
        , lag(year_month) over (partition by cust_code order by year_month asc) as prev_
month,
      from (select CUST_CODE, substring(cast(SHOP_DATE as string), 1, 6) as year_month ,
        from `earnest-stock-271803.supermarket.supermarket`
        where cust_code is not null
        group by cust_code, year_month))
order by CUST_CODE,year_month
)
,status as(
select year_month,cust_code,repeat_customer ,repeat_month
,case when repeat_customer = 1 then 1 else 0 end as NewCustomer
,case when repeat_month = 1 then 1 else 0 end as RepeatCustomer
,case when repeat_month > 1 then 1 else 0 end as ReactivatedCustomer
from customer
order by CUST_CODE,year_month
)
,churn as (
select CUST_CODE,year_month,max(ChurnCustomer) as ChurnCustomer
from(
  select distinct CUST_CODE,year_month
    ,case when date_diff ('2008-06-
01',parse_date('%Y%m%d', cast(Last_purchase_date as string)),day) >30 and
      Last_purchase_date = SHOP_DATE then 1 ELSE 0 END AS ChurnCustomer
  from(select CUST_CODE,SHOP_DATE
    ,substring(cast(SHOP_DATE as string), 1, 6) AS year_month
    ,format_datetime("%Y-
%m",parse_date('%Y%m%d', cast(min(SHOP_DATE) over (partition by CUST_CODE) as string))) as fi
rst_purchase_month
    ,min(SHOP_DATE) over (partition by CUST_CODE) AS first_purchase_date
    ,max(SHOP_DATE) over (partition by CUST_CODE) AS Last_purchase_date
  from `earnest-stock-271803.supermarket.supermarket`
  where CUST_CODE is not null and SHOP_DATE is not null
  )
)
group by CUST_CODE,year_month
order by CUST_CODE,year_month
)
select s.*, c.ChurnCustomer
from status s left join churn c
on s.cust_code=c.cust_code and s.year_month = c.year_month
order by CUST_CODE,year_month

```

cust_code	year_month	NewCustomer	RepeatCustomer	ReactivatedCustomer	ChurnCustomer
CUST0000000181	200701	1	0	0	1
CUST0000000369	200604	1	0	0	0
CUST0000000369	200605	0	1	0	0
CUST0000000369	200606	0	1	0	0
CUST0000000369	200607	0	1	0	0
CUST0000000369	200608	0	1	0	0
CUST0000000369	200609	0	1	0	0
CUST0000000369	200610	0	1	0	0
CUST0000000369	200611	0	1	0	0
CUST0000000369	200612	0	1	0	0
CUST0000000369	200701	0	1	0	0
CUST0000000369	200702	0	1	0	0
CUST0000000369	200703	0	1	0	0
CUST0000000369	200704	0	1	0	0
CUST0000000369	200705	0	1	0	0
CUST0000000369	200706	0	1	0	0
CUST0000000369	200707	0	1	0	0
CUST0000000369	200708	0	1	0	0
CUST0000000369	200709	0	1	0	0
CUST0000000369	200710	0	1	0	0
CUST0000000369	200711	0	1	0	0
CUST0000000369	200712	0	1	0	0
CUST0000000369	200801	0	1	0	0
CUST0000000369	200802	0	1	0	0
CUST0000000369	200803	0	1	0	0
CUST0000000369	200804	0	1	0	0
CUST0000000369	200805	0	1	0	0
CUST0000000369	200806	0	1	0	0
CUST0000000369	200807	0	1	0	0
CUST0000000689	200707	1	0	0	0
CUST0000000689	200708	0	1	0	0
CUST0000000689	200710	0	0	1	0
CUST0000000689	200711	0	1	0	0
CUST0000000689	200712	0	1	0	0
CUST0000000689	200801	0	1	0	0
CUST0000000689	200804	0	0	1	0
CUST0000000689	200805	0	1	0	0
CUST0000000689	200806	0	1	0	0
CUST0000000998	200605	1	0	0	0

# CRM: Churn Prediction

