

Tracking Cumulative Balances in Banking Transactions

You have a Bank _ Transactions table that logs deposits and withdrawals by customers:

Write an SQL query to transform the data so that each customer_id Has:

Cumulative balance after each transaction

A running balance column that updates based on transaction type (Deposit increases balance, Withdrawal decreases balance)

An indicator column to specify if the account balance is below a threshold (<=300)

Table Script :

```
CREATE TABLE Bank_Transactions (  
  transaction_id INT PRIMARY KEY,  
  customer_id VARCHAR(10),  
  transaction_date DATETIME,  
  transaction_type VARCHAR(20) CHECK (transaction_type IN ('Deposit', 'Withdrawal')),  
  amount INT  
);
```

```
INSERT INTO Bank_Transactions (transaction_id, customer_id, transaction_date, transaction_type, amount)  
VALUES  
  (1001, 'A1', '2099-01-01 10:00', 'Deposit', 500),  
  (1002, 'A1', '2099-01-01 12:30', 'Withdrawal', 200),  
  (1003, 'A2', '2099-01-02 09:45', 'Deposit', 300),  
  (1004, 'A1', '2099-01-02 15:00', 'Deposit', 700),  
  (1005, 'A3', '2099-01-03 11:20', 'Deposit', 400),  
  (1006, 'A2', '2099-01-04 14:10', 'Withdrawal', 100),  
  (1007, 'A1', '2099-01-05 10:00', 'Withdrawal', 500),  
  (1008, 'A3', '2099-01-06 08:45', 'Withdrawal', 150);
```

Query :

```
with cte as (  
  select  
    customer_id,  
    transaction_date,  
    transaction_type,  
    amount,  
    sum(case when transaction_type = 'Deposit' then Amount  
            when transaction_type = 'Withdrawal' then (-amount) end )  
        over(partition by customer_id order by transaction_date asc) as running_balance  
  from Bank_Transactions)  
select  
  customer_id,  
  transaction_date,  
  transaction_type,  
  amount,  
  running_balance,  
  case when running_balance <=300 then 'Notify' else '' end as Indicator  
from cte
```