Ejercicio

La siguiente tabla es una serie de movimientos en los cuales una dirección compra o vende una cierta cantidad de monedas a un cierto precio.

| timestamp | address | action | amount | price |
|-----------|---------|--------|--------|-------|
| 2020-01-01 | a1 | buy | 10 | 340 |
| 2020-01-02 | a1 | buy | 5 | 300 |
| 2020-01-03 | a1 | sell | 4 | 350 |
| 2020-01-04 | a1 | buy | 2 | 320 |
| 2020-01-06 | a1 | sell | 6 | 310 |
| 2020-01-07 | a1 | sell | 1 | 310 |
| 2020-01-08 | a1 | buy | 2 | 305 |
| 2020-01-01 | a2 | buy | 2 | 340 |

Construir una query que permita saber día a día en que precio promedio por unidad está constituido el balance de cada dirección. Para las ventas usamos un método FIFO.

Respuesta.

```
-- creo la tabla.
create table itb_transactions (
timestamp timestamp,
address text,
action text,
amount int,
price decimal
)
```

– inserto los valores del enunciado.

```
insert into itb_transactions
VALUES('2020-01-01','a1','buy',10,340),
('2020-01-02','a1','buy',5,300),
('2020-01-03','a1','sell',4,350),
('2020-01-04','a1','buy',2,320),
('2020-01-06','a1','sell',6,310),
('2020-01-07','a1','sell',1,310),
('2020-01-08','a1','buy',2,305),
('2020-01-01','a2','buy',2,340) ;
```

--query 1 con el precio promedio por unidad

SELECT timestamp, address, action, amount, price,
SUM(CASE WHEN lower(action)='buy' then price*amount else -price*amount END)
OVER(PARTITION BY address ORDER BY timestamp) /
SUM(CASE WHEN lower(action)='buy' then amount else -amount END) OVER(PARTITION BY
address ORDER BY timestamp) AS precio_promedio
FROM itb_transactions;

| timestamp<br>timestamp without time zone | address<br>text | action<br>text | amount<br>integer | price<br>numeric | precio_promedio<br>numeric |
|---|---|---|---|---|---|
| 2020-01-01 00:00:00 | a1 | buy | 10 | 340 | 340.0000000000000000 |
| 2020-01-02 00:00:00 | a1 | buy | 5 | 300 | 326.6666666666666667 |
| 2020-01-03 00:00:00 | a1 | sell | 4 | 350 | 318.1818181818181818 |
| 2020-01-04 00:00:00 | a1 | buy | 2 | 320 | 318.4615384615384615 |
| 2020-01-06 00:00:00 | a1 | sell | 6 | 310 | 325.7142857142857143 |
| 2020-01-07 00:00:00 | a1 | sell | 1 | 310 | 328.3333333333333333 |
| 2020-01-08 00:00:00 | a1 | buy | 2 | 305 | 322.5000000000000000 |
| 2020-01-01 00:00:00 | a2 | buy | 2 | 340 | 340.0000000000000000 |

-- query 2 con el balance y el precio promedio por unidad

WITH base AS (
SELECT timestamp, address, action, amount, price,
SUM(CASE WHEN lower(action)='buy' then price*amount else -price*amount END)
OVER(PARTITION BY address ORDER BY timestamp) as balance,
SUM(CASE WHEN lower(action)='buy' then amount else -amount END) OVER(PARTITION BY
address ORDER BY timestamp) AS total
FROM itb_transactions
)
SELECT timestamp, address, action, amount, price,balance, balance/total AS precio_promedio
FROM base;

| timestamp<br>timestamp without time zone | address<br>text | action<br>text | amount<br>integer | price<br>numeric | balance<br>numeric | precio_promedio<br>numeric |
|---|---|---|---|---|---|---|
| 2020-01-01 00:00:00 | a1 | buy | 10 | 340 | 3400 | 340.0000000000000000 |
| 2020-01-02 00:00:00 | a1 | buy | 5 | 300 | 4900 | 326.6666666666666667 |
| 2020-01-03 00:00:00 | a1 | sell | 4 | 350 | 3500 | 318.1818181818181818 |
| 2020-01-04 00:00:00 | a1 | buy | 2 | 320 | 4140 | 318.4615384615384615 |
| 2020-01-06 00:00:00 | a1 | sell | 6 | 310 | 2280 | 325.7142857142857143 |
| 2020-01-07 00:00:00 | a1 | sell | 1 | 310 | 1970 | 328.3333333333333333 |
| 2020-01-08 00:00:00 | a1 | buy | 2 | 305 | 2580 | 322.5000000000000000 |
| 2020-01-01 00:00:00 | a2 | buy | 2 | 340 | 680 | 340.0000000000000000 |