with first\_payments as -- step 1

(select user\_id

,min (transaction\_datetime::date) as first\_payment\_date

from skyeng\_db.payments

where status\_name = 'success'

group by user\_id),

all\_dates as -- step 2

(select distinct date (class\_start\_datetime) as dt

from skyeng\_db.classes

where extract(year from class\_start\_datetime) = 2016),

all\_dates\_by\_user as -- step 3

( select user\_id

, dt

from first\_payments

join all\_dates

on first\_payment\_date <= dt

order by user\_id, dt),

payments\_by\_dates as -- step 4

(select user\_id

, date (transaction\_datetime) as payment\_date

, sum (classes) as transaction\_balance\_change

from skyeng\_db.payments

where status\_name = 'success'

group by user\_id, payment\_date

order by user\_id, payment\_date),

payments\_by\_dates\_cumsum as -- step 5

(select adu.user\_id

, dt

, coalesce (transaction\_balance\_change, 0) as transaction\_balance\_change

, sum (coalesce (transaction\_balance\_change, 0)) over (partition by adu.user\_id order by dt) as transaction\_balance\_change\_cs

from all\_dates\_by\_user as adu

left join payments\_by\_dates as pd

on dt = payment\_date

and adu.user\_id = pd.user\_id

order by user\_id, dt),

classes\_by\_dates as -- step 6

(select user\_id

, date (class\_start\_datetime) as class\_date

, count (id\_class) \* (-1) as classes

from skyeng\_db.classes

where class\_type <> 'trial' and class\_status in ('success', 'failed\_by\_student')

group by user\_id, class\_date),

classes\_by\_dates\_dates\_cumsum as --step 7

(select adu.user\_id

, dt

, coalesce (classes, 0) as classes

, sum (coalesce (classes, 0)) over (partition by adu.user\_id order by dt) as classes\_cs

from all\_dates\_by\_user as adu

left join classes\_by\_dates as cd

on dt = class\_date

and adu.user\_id = cd.user\_id

order by user\_id, dt),

balances as -- step 8

( select pbd.user\_id

, pbd.dt

, transaction\_balance\_change

, transaction\_balance\_change\_cs

, classes

, classes\_cs

, (classes\_cs + transaction\_balance\_change\_cs) as balance

from payments\_by\_dates\_cumsum as pbd

join classes\_by\_dates\_dates\_cumsum as cddc

using (user\_id, dt)

)

-- Step 9

select dt

, sum (transaction\_balance\_change) as transaction\_balance\_change

, sum (transaction\_balance\_change\_cs) as transaction\_balance\_change\_cs

, sum (classes) as classes

, sum (classes\_cs) as classes\_cs

, sum (balance) as balance

from balances

group by dt

order by dt