**THE CHURN RATE:** the percent of subscribers that have cancelled within a certain period:

Cancellations/total subscribers of the month

Cancellation: who registered before that month and Cancel within that month

Total subscribers: The total subscribers at the BEGINNING of the month, not count the new subscribers in the month

SELECT 1.0 \* churn rate = 1.0 \* cancel/active

(

SELECT COUNT(\*)

FROM subscriptions

WHERE subscription\_start < '2017-01-01'

AND (

subscription\_end

BETWEEN '2017-01-01'

AND '2017-01-31'

)

) / (

SELECT COUNT(\*)

FROM subscriptions

WHERE subscription\_start < '2017-01-01'

AND (

(subscription\_end >= '2017-01-01')

OR (subscription\_end IS NULL)

)

)

AS result;

**THE CHURN RAT (MULTI TABLES):**

WITH months AS

(SELECT

'2017-01-01' as first\_day,

'2017-01-31' as last\_day

UNION This part to create a temporary table

SELECT has only first day and last day

'2017-02-01' as first\_day,

'2017-02-28' as last\_day

UNION

SELECT

'2017-03-01' as first\_day,

'2017-03-31' as last\_day

),

cross\_join AS This part create a temporary table

(SELECT \* cross join everythhing

FROM subscriptions

CROSS JOIN months),

status AS

(SELECT id, first\_day as month, This part create a table

CASE for counting is\_active or not

WHEN (subscription\_start < first\_day)

AND (

subscription\_end > first\_day

OR subscription\_end IS NULL

) THEN 1

ELSE 0

END as is\_active

FROM cross\_join)

SELECT \*

FROM status

LIMIT 100;

This is the result from code above

|  |  |  |
| --- | --- | --- |
| **id** | **month** | **is\_active** |
| 1 | 2017-01-01 | 0 |
| 1 | 2017-02-01 | 0 |
| 1 | 2017-03-01 | 0 |
| 2 | 2017-01-01 | 0 |

WITH months AS

(SELECT

'2017-01-01' as first\_day,

'2017-01-31' as last\_day

UNION

SELECT

'2017-02-01' as first\_day,

'2017-02-28' as last\_day

UNION

SELECT

'2017-03-01' as first\_day,

'2017-03-31' as last\_day

),

cross\_join AS

(SELECT \*

FROM subscriptions

CROSS JOIN months),

status AS

(SELECT id, first\_day as month,

CASE

WHEN (subscription\_start < first\_day)

AND (

subscription\_end > first\_day

OR subscription\_end IS NULL

) THEN 1

ELSE 0

END as is\_active,

CASE

WHEN subscription\_end BETWEEN first\_day AND last\_day THEN 1

ELSE 0

END as is\_canceled

FROM cross\_join)

SELECT \*

FROM status

LIMIT 100;

status\_aggregate AS (

SELECT

month, churn rate = 1.0 \* cancel/active

SUM(is\_active) AS active,

SUM(is\_canceled) AS canceled

FROM status

GROUP BY month

)

SELECT

month,

1.0 \* canceled / active AS churn\_rate

FROM status\_aggregate;

Marketing attribute: there is a sofware that count times when customer visits website and add information into a table, these visits called attribute.

* First touch attribution: consider the first soource for each customer
* Last\_touch attribution: consider the last source for each customer, that may lead to purchase

WITH last\_touch AS (

SELECT user\_id,

MAX(timestamp) AS

'last\_touch\_at'

FROM page\_visits

GROUP BY user\_id)

SELECT lt.user\_id,

lt.last\_touch\_at,

pv.utm\_source

FROM last\_touch AS 'lt'

JOIN page\_visits AS 'pv'

ON lt.user\_id = pv.user\_id

AND lt.last\_touch\_at = pv.timestamp

WHERE lt.user\_id = 10069;

|  |  |  |
| --- | --- | --- |
| **user\_id** | **last\_touch\_at** | **utm\_source** |
| 10006 | 2018-01-25 23:10:16 | email |
| 10030 | 2018-01-28 13:38:02 | email |
| 10045 | 2018-01-09 03:05:17 | facebook |

WITH first\_touch AS (

SELECT user\_id, Create first\_touch table

MIN(timestamp) as 'first\_touch\_at'

FROM page\_visits

GROUP BY user\_id),

ft\_attr AS ( Create table ft\_attr

SELECT ft.user\_id,

ft.first\_touch\_at,

pv.utm\_source,

pv.utm\_campaign

FROM first\_touch ft

JOIN page\_visits pv

ON ft.user\_id = pv.user\_id

AND ft.first\_touch\_at = pv.timestamp

)

SELECT ft\_attr.utm\_source,

ft\_attr.utm\_campaign,

COUNT(\*)

FROM ft\_attr

GROUP BY 1, 2

ORDER BY 3 DESC;

|  |  |  |
| --- | --- | --- |
| **ft\_attr.utm\_source** | **ft\_attr.utm\_campaign** | **COUNT(\*)** |
| medium | interview-with-cool-tshirts-founder | 622 |
| nytimes | getting-to-know-cool-tshirts | 612 |