code_cademy

JSancio:
Churn Rate Capstone

Learn SQL from Scratch

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GET FAMILIAR
WITH THE COMPANY

How many different segments are there? What segments of users exist?

There are two different segments, 87 and 30.

```
select * from subscriptions limit 100;

select distinct segment from subscriptions;
```

How many months has the company been operating?

4 months:
- December 2016
- January 2017
- February 2017
- March 2017

```
select
min(subscription_start),
max(subscription_start)
from subscriptions;
```

Which months do you have enough information to calculate a churn rate?

There is only enough data to calculate the churn rate over the first 3 months of 2017 (I can't calculate it for December, since there are no subscription_end values).

```
Temporary Table → Months

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
)
```

CHURN RATE

What is the overall churn trend since the company started?

Overall Churn Rate
- January 2017 = 16.17%
- February 2017 = 18.98%
- March 2017 = 27.42%

Compare Churn Rates for Segments

month	churn_rate_30	churn_rate_87
2017-01-01	0.0756013745704467	0.251798561151079
2017-02-01	0.0733590733590734	0.32034632034632
2017-03-01	0.11731843575419	0.485875706214689

The focus company's focus should be on expanding Segment 87 (higher churn rates)

Churn Rate Query

```
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 subscriptions.*, months.*
  FROM subscriptions
  CROSS JOIN months
),

status AS (
  SELECT
    cross_join.id,
    first_day AS month,
    CASE
      WHEN (subscription_start <
first_day)
        AND (
          subscription_end >
first_day
          OR subscription_end IS
NULL
        ) and segment =87
    THEN 1
      ELSE 0
    END AS is_active_87,
  CASE
      WHEN (subscription_start <
first_day)
        AND (
          subscription_end >
first_day

          OR subscription_end IS
NULL
          ) and segment = 30
      THEN 1
        ELSE 0
      END AS is_active_30,
    CASE
    WHEN (subscription_end BETWEEN
first_day AND last_day) and segment
= 87
    THEN 1
    ELSE 0
END as is_canceled_87,
    CASE
    WHEN (subscription_end BETWEEN
first_day AND last_day) and segment
= 30
    THEN 1
    ELSE 0
END as is_canceled_30
  FROM cross_join
),
```

Churn Rate Query

```
status_aggregate AS (
  SELECT
    month,
  SUM(is_active_30) AS sum_active_30,
 SUM(is_active_87) AS sum_active_87,
    SUM(is_canceled_30) AS sum_canceled_30,
  SUM(is_canceled_87) AS sum_canceled_87
  FROM status
  GROUP BY month
)
SELECT
  month,
  (1.0 * sum_canceled_30 / sum_active_30) AS
churn_rate_30,
    (1.0 * sum_canceled_87 / sum_active_87) AS
churn_rate_87
FROM status_aggregate;
```