codecademy

Churn rate for Codeflix

Learn SQL from Scratch
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1. Codeflix Customer Behavior

1. CODEFLIX CUSTOMER BEHAVIOR

Codeflix has launched for four months and management are eager to learn about the customer behaviors and how their company is operating. Churn rate for its subscriptions is an important metric to provide a snapshot of customers satisfaction level.
- Codeflix has launched since 4 months ago. The first subscription started on 2016-12-01.
- Marketing department has tracked and breaks down the customer segment as 30 and 87.
- The four columns in the table are the user id, first date for the subscription of the specific user, the last date for the subscription (churn) or still active user (NULL) and the segment
- Since the first subscription only starts in December 2016 and the most last cancellation happens in March, we have Jan, Feb and Mar 2017 - three months to calculate the churn rate.

id	subscription_start	subscription_end	segment
1	2016-12-01	2017-02-01	87
2	2016-12-01	2017-01-24	87
3	2016-12-01	2017-03-07	87

2. Overall Churn Rate

2. Overall churn rate by the month

Overall churn rate each month is increasing based on the calculation.
- Overall churn rate
- Jan-2017: 16.2%
- Feb-2017: 18.98%
- Mar-2017: 27.43%
- The churn rate jumped by 2.78% from Feb to Jan, a relatively smaller jump.
- However, the churn rate increased by 8.45% in March, requiring further analysis to understand the sudden change of consumer behavior.

month	churn_30	churn_87	total_churn
2017-01-01	0.0756013745704467	0.251798561151079	0.161687170474517
2017-02-01	0.0733590733590734	0.32034632034632	0.189795918367347
2017-03-01	0.11731843575419	0.485875706214689	0.274258219727346

2. Code for calculating the churn rate

```
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)
   AND segment = 87
   Then 1
   ELSE 0
   END AS is_active_87,
 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_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,
```

2. Code for calculating the churn rate (cont'd)

```
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
),

status_aggregate as
(SELECT
 month,
 SUM(is_active_87) as sum_active_87,
 SUM(is_active_30) as sum_active_30,
 SUM(is_canceled_87) as sum_canceled_87,
 SUM(is_canceled_30) as sum_canceled_30
 FROM status
 Group by month
)

Select
 month,
 1.0 * sum_canceled_30 / sum_active_30 as churn_30,
 1.0 * sum_canceled_87 / sum_active_87 as
churn_87,
 1.0 * (sum_canceled_30 +
sum_canceled_87)/(sum_active_30 + sum_active_87) as
total_churn
FROM status_aggregate;
```

3. Churn rate by segments

3. Churn rate by segments

In order to understand the heterogeneity of customers, the marketing department segment the customers by Segment 30 and Segment 87.
- From the table below, you can find out that Segment 30 has consistently lower churn rate vs. Segment 87
- Segment 30 has consistent low churn rate at 7-12% range over the 3 months
- Segment 87 has increasingly high churn rate at 25-49% range over the same period.
- Segment 87 is less loyal compared to Segment 30 at the beginning.
- Marketing efforts should focus on Segment 30 to attract more customers in Segment 30 group.

month	churn_30	churn_87	total_churn
2017-01-01	0.0756013745704467	0.251798561151079	0.161687170474517
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