



CoolTShirts.com

Learn SQL from Scratch

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Table of Contents

1. Get familiar with CoolTShirts
2. What is the user journey?
3. Optimize the campaign budget

1. Get familiar with CoolTShirts

1.1 Campaigns & Sources

- Recently, CTS started a few marketing campaigns to increase website visits and purchases.
- CoolTShirts used eight campaigns via six different sources.
- There are two campaigns ran by email, like “*retargeting-campaign*” and “*weekly-newsletter*”, and another two campaigns ran by google, namely “*cool-tshirts-search*” and “*paid-search*”.

```
1  --GET COUNT OF CAMPAIGNS
2  select count(distinct utm_campaign)
3  as 'Number of campaigns'
4  from page_visits;
5  --GET COUNT OF SOURCES
6  select count(distinct utm_source) as
7  'Number of sources'
8  from page_visits;
9  --GET CAMPAIGN AND SOURCE
10 RELATIONSHIP
11 select distinct utm_campaign as
12 Campaigns, utm_source as Sources
13 from page_visits
14 order by 1;
```

Number of campaigns	Number of sources
8	6

Campaigns	Sources
cool-tshirts-search	google
getting-to-know-cool-tshirts	nytimes
Interview-with-cool-tshirts-founder	mudium
paid-search	google
retargeting-ad	facebook
retargeting-campaign	email
ten-crazy-cool-tshirts-facts	buzzfeed
weekly-newsletter	email

1.2 Pages on CoolTShirts

There are four pages on CoolTShirts website, namely landing page, shopping cart, checkout and purchase.

Page Names
1 – landing_page
2 – shopping_cart
3 – checkout
4 – purchase

```
1  --GET PAGE NAMES ON WEBSITE
2  select distinct page_name AS 'Page
   Names'
3  from page_visits;
```

2. What is the user journey?

2.1 Campaigns vs. First Touches

First-touch attribution is a good way of knowing how visitors initially discover CoolTShirts. The below table shows that the number of first touches attributed to each campaign.

- The campaign ran with medium had the most number of first touches.
- The campaign ran with google had the least number of first touches.
- Out of the eight campaigns, only four campaigns are responsible for the first touch.

Source	Campaign	Number of first touches
medium	interview-with-cool-tshirts-founder	622
nytimes	getting-to-know-cool-tshirts	612
buzzfeed	ten-crazy-cool-tshirts-facts	576
google	cool-tshirts-search	169

```
1  --Campaigns vs First Touches
2  with first_touch as (
3      select user_id,
4             min(timestamp) as
5             first_touch_at
6      from page_visits
7      group by user_id),
8  ft_attr as (
9      select ft.user_id,
10             ft.first_touch_at,
11             pv.utm_source,
12             pv.utm_campaign
13     from first_touch ft
14     join page_visits pv
15       on ft.user_id = pv.user_id
16       and ft.first_touch_at =
17          pv.timestamp)
18  select ft_attr.utm_source as Source,
19         ft_attr.utm_campaign as
20         Campaign,
21         count(*) as 'Number of first
22         touches'
23  from ft_attr
24  group by 1, 2
25  order by 3 desc;
```

2.2 Campaigns vs. Last Touches

Last-touch attribution is a good way of knowing how visitors are drawn back to CoolTShirts, especially for making a final purchase. The below table shows that the number of last touches attributed to each campaign. “*Weekly-newsletter*” campaign via email drew the most last touches.

Source	Campaign	Number of last touches
email	weekly-newsletter	447
facebook	retargetting-ad	443
email	retargetting-campaign	245
nytimes	getting-to-know-cool-tshirts	232
buzzfeed	ten-crazy-cool-tshirts-facts	190
medium	interview-with-cool-tshirts-founder	184
google	paid-search	178
google	cool-tshirts-search	60

```
1  -- Get Campaigns vs. Last Touches
2  WITH last_touch AS (
3      SELECT user_id,
4              max(timestamp) as last_touch_at
5      FROM page_visits
6      GROUP BY user_id),
7  lt_attr AS (
8      SELECT lt.user_id,
9              lt.last_touch_at,
10             pv.utm_source,
11             pv.utm_campaign,
12             pv.page_name
13     FROM last_touch lt
14     JOIN page_visits pv
15         ON lt.user_id = pv.user_id
16         AND lt.last_touch_at = pv.timestamp)
17 SELECT lt_attr.utm_source AS Source,
18        lt_attr.utm_campaign AS Campaign,
19        | COUNT(*) AS 'Number of last touches'
20 FROM lt_attr
21 GROUP BY 1, 2
22 ORDER BY 3 DESC;
```


2.3 Purchase

- 361 distinct visitors made a purchase on CoolTShirts.
- “Weekly-newsletter” campaign led to the most number of purchase.
- The four campaigns which were responsible for first touch seem not as effective as the other four with total purchase count of 72.

Source	Campaign	Number_of_purchase
email	weekly-newsletter	115
facebook	retargeting-ad	113
email	retargeting-campaign	54
nytimes	getting-to-know-cool-tshirts	52
buzzfeed	ten-crazy-cool-tshirts-facts	9
medium	interview-with-cool-tshirts-founder	9
google	paid-search	7
google	cool-tshirts-search	2

```
1  --Get Number of Purchase
2  select count(distinct user_id)
3  from page_visits
4  where page_name = '4 - purchase';
5
6  --Get number of last touches led to a purchase
7  WITH last_touch AS (
8      SELECT user_id,
9             max(timestamp) as last_touch_at
10     FROM page_visits
11     WHERE page_name = '4 - purchase'
12     GROUP BY user_id),
13  lt_attr AS (
14      SELECT lt.user_id,
15             lt.last_touch_at,
16             pv.utm_source,
17             pv.utm_campaign,
18             pv.page_name
19     FROM last_touch lt
20     JOIN page_visits pv
21     ON lt.user_id = pv.user_id
22     AND lt.last_touch_at = pv.timestamp)
23  SELECT lt_attr.utm_source AS Source,
24         lt_attr.utm_campaign AS Campaign,
25         COUNT(*) AS 'Number of purchase'
26  FROM lt_attr
27  GROUP BY 1, 2
28  ORDER BY 3 DESC;
```

2.4 Typical Journey

- Using user ID 10030 as an example, the first time the user was exposed to CoolTShirts.com is attributed to buzzfeed. The user visited the landing page at 20:32:02 and the shopping cart at 23:05:02. Three days later, CoolTShirts.com ran a retargeting campaign via email. The user followed the email campaign back to CoolTshirts.com. The user visited the checkout page at 13:26:02, which led to a final purchase (last touch) at 13:38:02.
- User stopped at the shopping cart on the first visit and needed a reminder to complete the purchase.

Page Name	Timestamp	User ID	Campaign	Source
1 – landing_page	2018-01-25 20:32:02	10030	ten-crazy-cool-tshirts-facts	buzzfeed
2 – shopping_cart	2018-01-25 23:05:02	10030	ten-crazy-cool-tshirts-facts	buzzfeed
3 - checkout	2018-01-28 13:26:02	10030	retargetting-campaign	email
4 - purchase	2018-01-28 13:38:02	10030	retargetting-campaign	email

```
1  --Get an User Journey Example
2  select page_name as 'Page Name',
   timestamp as Timestamp, user_id as
   'User ID', utm_campaign as
   'Campaign', utm_source as 'Source'
3  from page_visits
4  where user_id = 10030;
```

2.4 Typical Journey – Cont'd

- 91% of users discovered CoolTShirts website via nytimes, buzzfeed and medium.
- The four campaigns which drew users to discover CoolTShirts website led to 31 % of the last touch (highlighted in blue) and less than 20% of the final purchase (highlighted in yellow).
- 57% of the last touches and 78% of purchases were led by the “reminder” campaigns namely “weekly-newsletter”, “retargetting-ad” and “retargetting-campaign” (highlighted in orange).

Source	Campaign	Number of first touches	%	Number of last touches	%	Number of purchase	%
email	weekly-newsletter	0	0	447	23%	115	32%
facebook	retargetting-ad	0	0	443	22%	113	31%
email	retargetting-campaign	0	0	245	12%	54	15%
nytimes	getting-to-know-cool-tshirts	612	31%	232	12%	52	14%
buzzfeed	ten-crazy-cool-tshirts-facts	576	29%	190	10%	9	2.5%
medium	interview-with-cool-tshirts-founder	622	31%	184	9%	9	2.5%
google	paid-search	0	0	178	9%	7	2%
google	cool-tshirts-search	169	9%	60	3%	2	0.5%

3. Optimize the campaign budget

3. Re-invest in 5 Campaigns

- Based on the findings in previous slides, the first touch wasn't effective in leading the user for final purchase. Users need a reminder campaign to complete the purchase. Therefore, by combining the best performed campaigns from both the first touch and last touch, it will optimize the re-investment.
- The five campaigns can be re-invested in are “*weekly-newsletter*”, “*retargeting-ad*”, “*retargeting-campaign*”, “*getting-to-know-cool-tshirts*” and “*interview-with-cool-tshirts-founder*”. Conversion rate = no. of purchase / no. of last touch.

Source	Campaign	Number of last touches	Number of purchases	Conversion Rate
email	weekly-newsletter	447	115	25.7%
facebook	retargeting-ad	443	113	25.5%
email	retargeting-campaign	245	54	22.0%
nytimes	getting-to-know-cool-tshirts	232	52	22.4%
buzzfeed	ten-crazy-cool-tshirts-facts	190	9	4.7%
medium	interview-with-cool-tshirts-founder	184	9	4.9%
google	paid-search	178	7	3.9%
google	cool-tshirts-search	60	2	3.3%