



CoolTShirts Analysis

(First & Last Touch Attribution)

Learn SQL from Scratch

Ryan Sullivan

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1. Get Familiar with the CoolTShirts

1.1 Getting Familiar, Overview

CoolTShirts is a company that sells T-shirts with funky designs, original art, and sported as fashionable streetwear. One of the reasons the company has become profitable over the course of the previous year is due to their online marketing campaigns that drives users to the freshly updated website. Analysts use data sourced in the process to drive insight and create actionable business decisions to be made by management.

To get further familiar with CoolTShirts and understand their ad campaign, we will take look at their data, specifically around their page visit data.

- In the page visit data, there are sources. These sources identify which touchpoint send the traffic (think what was I using to get to this site, was it email, google search, social media, etc.)
- Also, in the page visit data, we can see the ad campaign attributed to the users that reach the CoolTShirts website. The campaign identifies the specific ad/email blast that was used for each visit.
- There are other attributes in the dataset that are applicable when analyzing occurs, such as page name, user ID, timestamps, etc.

1.2 Getting Familiar, Campaigns, Sources & Pages

To the right, we can see the list of campaigns and sources that are used when analyzing the page visits data set and understand the relationship between the two. You'll see that a campaign can be run through some of the same sources that a user would use. This data set gives us some insight to what users are doing to reach CoolTShirts website

- Users are using one of **6** sources to reach the website (nytimes, email, buzzfeed, facebook, medium, google)
- Also, there are a total of **8** ad campaigns being used, from newsletters, searches, and targeting ads
- From these campaigns and sources, users who are making a purchase would go through **4** pages. The pages are: **1 – Landing Page, 2 –Shopping Cart, 3 – Checkout, 4 – Purchase**

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

2. What is the User's Journey

2.1 User's Journey, First Touch

First, let's investigate first touches. A first touch is the beginning of the user journey and shows the source, campaign, and time for when a unique user visits CoolTShirts website. This gives us insight to how users initially discover the website. A few observations:

- Using temporary tables, we can see the very first time in which a user sees the website and the sources/campaign along with it (see code to the right)
- From here, we can sort the highest amount of source and campaigns that attribute to a user's first touch
- Below, we see the list of first touches each campaign is responsible for, the highest being an interview with founder (most useful discovery campaign)

Source	Campaign	User First Touch
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

```
WITH first_touch AS (  
  SELECT user_id,  
         MIN(timestamp) as first_touch_at  
  FROM page_visits  
  GROUP BY user_id),  
ft_attr AS (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;
```

2.2 User's Journey, Last Touch

Next, let's investigate last touches. A last touch is the end of the user journey and shows the source, campaign, and time for when a unique user visits CoolTShirts website. This gives us insight to re-engagement to the site which can lead to how the user ultimately made the final purchase. A few observations:

- Using temporary tables, we can see the very last time in which a user sees the website and the sources/campaign along with it (see code to the right)
- From here, we can sort the highest amount of source and campaigns that attribute to a user's last touch
- Below, we see the list of last touches each campaign is responsible for, the highest being a weekly newsletter (most useful re-discovery campaign)

Source	Campaign	User Last Touch
email	weekly-newsletter	447
facebook	retargeting-ad	443
email	retargeting-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

```
WITH last_touch AS (  
  SELECT user_id,  
         MAX(timestamp) last_touch_at  
  FROM page_visits  
  GROUP BY user_id),  
  lt_attr AS (SELECT lt.user_id,  
                    lt.last_touch_at,  
                    pv.utm_source,  
                    pv.utm_campaign  
  FROM last_touch lt  
  JOIN page_visits pv  
  ON lt.user_id = pv.user_id  
  AND lt.last_touch_at = pv.timestamp  
)  
SELECT lt_attr.utm_source,  
       lt_attr.utm_campaign,  
       COUNT(*)  
FROM lt_attr  
GROUP BY 1, 2  
ORDER BY 3 DESC;
```


2.3 User's Journey, Purchases

We can use the page visit data set to investigate how many purchases are actually made and the campaigns responsible for the last touch

- The code to the right is straight forward enough to give us some insight to the total amount of purchases, followed by the code to attribute campaigns and sources to the purchases
- Below, we can see that in total 361 users made it to the purchase page on the website
- We also see that the ad campaign responsible for the most amount of last touches on the purchase page is the weekly newsletter

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

```
select page_name,
count (distinct user_id) as 'Visitor Purchases'
from page_visits
where page_name = '4 - purchase'
group by page_name;
```

```
WITH last_touch AS (
  SELECT user_id,
         MAX(timestamp) last_touch_at
  FROM page_visits
  where page_name = '4 - purchase'
  GROUP BY user_id),
lt_attr AS (SELECT lt.user_id,
                  lt.last_touch_at,
                  pv.utm_source,
                  pv.utm_campaign
  FROM last_touch lt
  JOIN page_visits pv
  ON lt.user_id = pv.user_id
  AND lt.last_touch_at = pv.timestamp
)
SELECT lt_attr.utm_source,
       lt_attr.utm_campaign,
       COUNT(*)
FROM lt_attr
GROUP BY 1, 2
ORDER BY 3 DESC;
```

2.4 User's Journey, Summary

Looking at the First Touch, Last Touch, and Purchases, we can summarize the typical user's journey:

- The first touch is most likely going to be through Medium while users are reading the interview with the CoolTShirts Founder. Very close is first touch percent is also through NYTimes and BuzzFeed through the campaigns Getting to Know CoolTShirts and Ten Crazy CoolTShirts Facts, respectively (90% of all first touches are through these 3 campaigns)
- The last touch is most likely through the Weekly Newsletter Email or a Retargeting Ad through Facebook, over 400 users are last touch attributed for each campaign (roughly 45% of all last touches)
- For the final purchases, over 63% were attributed to the Weekly Newsletter Email or a Retargeting Ad through Facebook

3. Optimize the Campaign Budget

3.1 Optimizing the Budget, Conclusion

We have a budget to re-invest in 5 campaigns, here are the 5 that I would suggest after analyzing the data :

- First would be the Weekly Newsletter via Email, it was the highest for last touch and purchases with 447 and 115 users, respectively (about 22.5% of all last touches and 32% of purchases)
- Second, would be the Retargeting Ad through Facebook. Again, had a high number of last touches and purchases. The purchases is a very important part of understanding what to re-invest in.
- Third, the Interview with CoolTShirts Founder through Medium. Responsible for most amount of first touches at 622
- Forth, the Getting to Know CoolTShirts, again very high on the discovery list
- Last, the Ten Crazy CoolTShirts Facts via BuzzFeed.
- The first two campaigns are integral for having a high last touch percent and purchase percent (25% of users whose last touch are these two campaigns, make a purchase)
- The last three campaigns are important for discovery of the site which drive your customer base to begin with (over 90% of users discover the website through these 3 campaigns)