



Capstone: Attribution

Learn SQL from Scratch

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1. CoolTShirts 101

1.1 How many campaigns and sources does CoolTShirts use and how are they related?

The CoolTShirts website has 8 different campaigns for 6 different sources. Campaigns and Sources go hand in hand because you must have a campaign model in order to advertise it on the different sources. Typically there will be more campaigns than sources as campaigns can be advertised on multiple sources.

- Campaigns are the different marketing tools, materials and displays in order to attract a users attention.
- Sources are the mediums used to display the campaigns.

```
SELECT COUNT(DISTINCT utm_campaign) AS 'Number of  
Campaigns'  
FROM page_visits;
```

```
SELECT COUNT(DISTINCT utm_source) AS 'Number of  
Sources'  
FROM page_visits;
```

```
SELECT DISTINCT utm_campaign AS 'Campaign',  
                utm_source AS 'Source'  
FROM page_visits;
```

Number of Campaigns	
8	
Number of Sources	
6	
Campaign	Source
getting-to-know-cool-tshirts	nytimes
weekly-newsletter	email
ten-crazy-cool-tshirts-facts	buzzfeed
retargeting-campaign	email
retargeting-ad	facebook
interview-with-cool-tshirts-founder	medium
paid-search	google
cool-tshirts-search	google

1.2 What pages are on the CoolTShirts website?

There are 4 main pages within the CoolTShirts website. Each page takes you through a different process of the CoolTShirts experience.

The 4 pages are:

1. Landing Page
2. Shopping Cart
3. Checkout
4. Purchase

Page Name
1 - landing_page
2 - shopping_cart
3 - checkout
4 - purchase

```
SELECT DISTINCT page_name AS 'Page Name'  
FROM page_visits;
```

2. The users journey

2.1 How many first touches is each campaign responsible for?

There are four campaigns that are affected by first touches. First touches indicate the first click that a user makes to enter the CoolTShirts website. The top 3 first touches were all extremely close, with Interview-with-cool-tshirts-founder coming in at 622, followed by Getting-to-know-cool-tshirts with 612, Ten-crazy-cool-tshirts-facts with 576, and lastly Cool-tshirts-search rounding in at 169. Of the 8 campaigns, only 4 experienced first touches.

Source	Campaign	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

```
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 AS 'Source',  
       ft_attr.utm_campaign AS 'Campaign',  
       COUNT(*) AS 'First Touches'  
FROM ft_attr  
GROUP BY 1, 2  
ORDER BY 3 DESC;
```

2.2 How many last touches is each campaign responsible for?

Below we see the 8 campaign methods. Some methods have been extremely effective while other campaigns have not seen nearly as many last touches. The most popular campaign for last touches is Weekly-Newsletter at 447, and was closely followed by Retargetting-ad with 443. As you may have noticed from the previous slide, some of the lower last touches from this data are actually some of the higher first touch campaigns.

Source	Campaign	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

```
WITH last_touch AS (  
  SELECT user_id,  
         MAX(timestamp) as 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,  
         pv.page_name  
  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 AS 'Source',  
       lt_attr.utm_campaign AS 'Campaign',  
       COUNT(*) AS 'Last Touches'  
FROM lt_attr  
GROUP BY 1, 2  
ORDER BY 3 DESC;
```


2.3 How many visitors make a purchase?

Of the 1,979 first/last touches the site sees, there were **361** purchases made from CoolTShirts during the time of this marketing campaign. These purchases came from all 8 different campaign methods, and all 6 sources.

Purchases
361

```
SELECT COUNT(DISTINCT user_id) AS 'Purchases'  
FROM page_visits  
WHERE page_name = '4 - purchase';
```

2.4 How many last touches *on the purchase page* is each campaign responsible for?

As mentioned on the last slide, all 8 campaigns contributed to last touches. Our highest campaign was Weekly-Newsletter with 115 purchases, followed closely by Retargeting-ad with 113 purchases. These were followed by Retargeting-campaign and Paid-search with 54 and 52 respectively. The rest of the campaigns did not receive nearly as many purchases with Ten-crazy-cool-tshirts-facts and Getting-to-know-cool-tshirts each coming in at 9 purchases. Interview-with-cool-tshirts-founder produced 7 purchases while cool-tshirts-search only had 2.

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

```
WITH last_touch AS (  
    SELECT user_id,  
           MAX(timestamp) as 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,  
           pv.page_name  
    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 AS 'Source',  
       lt_attr.utm_campaign AS 'Campaign',  
       COUNT(*) AS 'Purchases'  
FROM lt_attr  
GROUP BY 1, 2  
ORDER BY 3 DESC;
```

2.5 What is the typical user journey?

After looking through the different data produced, the journey can vary based on user, but there are common trends along the way. They will visit CoolTShirts for the first time using the sources of Medium, Nytimes, Buzzfeed, and Google. The Interview-with-cool-tshirts-founder and Getting-to-know-cool-tshirts were the most affective. After looking at the site, users likely receive follow-up emails (weekly-newsletter), Facebook Retargetting-ads, along with a Retargetting-campaign emails, and advertising on NYTimes with Getting-to-know-cool-tshirts. After these follow-up campaigns are sent, the Weekly-newsletter email and Facebook Retargetting-ad are by far the most successful. The Retargetting-campaign through email is also a fairly affective way to see purchases. Though paid-search did not receive many last touches, it is the 4th most affective campaign to produce purchases.

Source	Campaign	First Touches	Source	Campaign	Last Touches	Source	Campaign	Purchases
medium	interview-with-cool-tshirts-founder	622	email	weekly-newsletter	447	email	weekly-newsletter	115
nytimes	getting-to-know-cool-tshirts	612	facebook	retargetting-ad	443	facebook	retargetting-ad	113
buzzfeed	ten-crazy-cool-tshirts-facts	576	email	retargetting-campaign	245	email	retargetting-campaign	54
google	cool-tshirts-search	169	nytimes	getting-to-know-cool-tshirts	232	google	paid-search	52
			buzzfeed	ten-crazy-cool-tshirts-facts	190	buzzfeed	ten-crazy-cool-tshirts-facts	9
			medium	interview-with-cool-tshirts-founder	184	nytimes	getting-to-know-cool-tshirts	9
			google	paid-search	178	medium	interview-with-cool-tshirts-founder	7
			google	cool-tshirts-search	60	google	cool-tshirts-search	2

3. What's next?

3.1 Optimizing the campaign budget

- The top 3 campaigns were fairly easy to select. Weekly-newsletter, Re-targeting ad, and Re-targeting campaign were all in the top 3 for Last Touches and Purchases. The only kicker is that none of them are in the First Touch chart since they are either re-targeting after someone has visited the site, or a weekly-newsletter that you sign up for when you're on the site for the first time. The NYTimes and BuzzFeed campaigns of Getting-to-know-cool-tshirts and Ten-crazy-cool-tshirts-facts are 2 of the 3 highest first touch campaigns. By selecting these 2 campaigns, they generate 60.03% of the traffic from the 8 campaigns tested regarding First Touch. By selecting these 5 campaigns, we would hit 78.68% of the Last Touch volume and 94.88% of Purchases. Even though BuzzFeed and NYTimes have very low purchase percentage, they need to be used in order to generate the re-targeting campaigns, which then equates to better purchase percentages. By selecting these 5 campaigns, I believe CoolTShirts will see the highest purchase potential out of the 8 campaigns that were tested.

Source	Campaign	% of First Touch	% of Last Touch	% of Purchases
Email	Weekly-newsletter	0	22.59%	36.39%
Facebook	Re-targeting ad	0	22.39%	35.76%
Email	Re-targeting campaign	0	12.38%	17.09%
NYTimes	Getting-to-know-cool-tshirts	30.92%	11.72%	2.85%
Buzzfeed	Ten-crazy-cool-tshirts-facts	29.11%	9.60%	2.85%