



# CoolTShirts Attribution

Learn SQL from Scratch

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**1. Get familiar with the company**

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

A campaign is a message or content communicated to potential customers with the intention of promoting or selling a product or service.

A source is the way in which the campaign is communicated to the customers or potential customers.

CoolTShirts uses:

- 8 campaigns
- 6 sources

CoolTShirts have run two campaigns on each of Google and Email whilst all other sources have run just one campaign.

distinct_campaigns
8

distinct_sources
6

```
1 SELECT COUNT(DISTINCT utm_campaign) AS
   'distinct_campaigns'
2 FROM page_visits;
```

```
1 SELECT COUNT(DISTINCT utm_source) AS
   'distinct_sources'
2 FROM page_visits;
```

```
1 SELECT DISTINCT utm_campaign, utm_source
2 FROM page_visits;
```

utm_campaign	utm_source
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

# 1.2 What pages are on their website?

There are four distinct pages in the dataset provided, as shown in the table opposite.

However there must also be further pages on the website to enable the customer to browse products and access information such as delivery options, FAQs, contact details, etc. These pages must be excluded from the dataset as they are less relevant to first/last touch attribution; they would be more relevant when analysing the conversion funnel.

```
1 SELECT DISTINCT page_name
2 FROM page_visits;
```

page_name
1 - landing_page
2 - shopping_cart
3 - checkout
4 - purchase

## **2. What is the user journey?**

# 2.1 How many first touches is each campaign responsible for?

First touch is defined as the first time a unique user visited CoolTShirts' site.

This can be calculated by identifying the minimum timestamp and grouping by user\_id.

This shows that the "interview-with-cool-tshirts-founder" campaign drove the most first touches to the site, i.e. could be considered the most effective at acquiring new users.

Only 4 of the 8 campaigns drove first touches. This is unsurprising for the two retargeting campaigns and the weekly newsletter as these would require CoolTShirts to already have customer details.

It is perhaps surprising that the paid-search campaign didn't generate any first touches, but may indicate that they were bidding on brand terms such as "CoolTShirts" to capture customers who had already visited, rather than more generic non-brand terms such as "tshirt".

```
1  WITH first_touch AS (  
2      SELECT user_id,  
3             MIN(timestamp) as first_touch_at  
4      FROM page_visits  
5      GROUP BY user_id)  
6  SELECT pv.utm_campaign,  
7         COUNT(*) AS 'first_touches'  
8  FROM first_touch AS 'ft'  
9  JOIN page_visits AS 'pv'  
10     ON ft.user_id = pv.user_id  
11     AND ft.first_touch_at = pv.timestamp  
12  GROUP BY 1  
13  ORDER BY 2 DESC;
```

utm_campaign	first_touches
interview-with-cool-tshirts-founder	622
getting-to-know-cool-tshirts	612
ten-crazy-cool-tshirts-facts	576
cool-tshirts-search	169

## 2.2 How many last touches is each campaign responsible for?

utm_campaign	last_touches
weekly-newsletter	447
retargeting-ad	443
retargeting-campaign	245
getting-to-know-cool-tshirts	232
ten-crazy-cool-tshirts-facts	190
interview-with-cool-tshirts-founder	184
paid-search	178
cool-tshirts-search	60

```
1  WITH last_touch AS (  
2      SELECT user_id,  
3             MAX(timestamp) as last_touch_at  
4      FROM page_visits  
5      GROUP BY user_id)  
6  SELECT pv.utm_campaign,  
7         COUNT(*) AS 'last_touches'  
8  FROM last_touch AS 'lt'  
9  JOIN page_visits AS 'pv'  
10     ON lt.user_id = pv.user_id  
11     AND lt.last_touch_at = pv.timestamp  
12  GROUP BY 1  
13  ORDER BY 2 DESC;
```

Last touch is defined as the last time a unique user visited CoolTShirts' site and can be calculated by identifying the maximum timestamp and grouping by user\_id.

All campaigns have at least some last touches, although it is the retargeting campaigns and weekly newsletter which dominate, which is again unsurprising given that the content of these campaigns can be tailored to the customer and what products they have browsed on site and shown an interest in.



## 2.3 How many visitors make a purchase?

361 unique users have purchased from CoolTShirts during the time period this dataset covers.

Interesting to note that the total number of purchases is also 361 (see second query not specifically asked for) so during this period CoolTShirts has had no repeat purchases from individual customers.

A follow up to this work could be to look over a longer time period to determine what campaigns are best for customer retention and encouraging repeat purchases.

```
1 SELECT COUNT(DISTINCT user_id) AS  
   'distinct_users_purchased'  
2 FROM page_visits  
3 WHERE page_name = '4 - purchase';
```

distinct\_users\_purchased

361

```
1 SELECT COUNT(*) AS 'total_purchases'  
2 FROM page_visits  
3 WHERE page_name = '4 - purchase';
```

total\_purchases

361

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

utm_campaign	last_touches_on_purchase_page
weekly-newsletter	115
retargeting-ad	113
retargeting-campaign	54
paid-search	52
getting-to-know-cool-tshirts	9
ten-crazy-cool-tshirts-facts	9
interview-with-cool-tshirts-founder	7
cool-tshirts-search	2

```
1  WITH last_touch AS (  
2      SELECT user_id,  
3             MAX(timestamp) as last_touch_at  
4      FROM page_visits  
5      WHERE page_name = '4 - purchase'  
6      GROUP BY user_id)  
7  SELECT pv.utm_campaign,  
8         COUNT(*) AS 'last_touches_on_purchase_page'  
9  FROM last_touch AS 'lt'  
10 JOIN page_visits AS 'pv'  
11     ON lt.user_id = pv.user_id  
12     AND lt.last_touch_at = pv.timestamp  
13 GROUP BY 1  
14 ORDER BY 2 DESC;
```


The weekly newsletter and the retargeting ad are the last touch points for customer journeys that result in a purchase.

Interesting to note that the highest ranking first touch campaigns rarely feature as a last touch resulting in a purchase, indicating that they are successful at drawing the customer in but not necessarily converting them.

## 2.5 What is the typical user journey?


The majority of users discover CoolTShirts through articles on the following sources: Medium, NY Times and Buzzfeed. If these sources are working as Affiliates then it is likely that CoolTShirts pays a fee to these sites for them to post stories to catch the attention of potential customers.

The remaining users first visit the site via a CoolTShirts search on Google. This indicates that CoolTShirts has some kind of non-digital marketing campaign in addition to the campaigns included in this data, such as TV or Out Of Home which has prompted users to search for the brand on Google.



As with most e-commerce businesses, CoolTShirts must cast the net wide in an attempt to acquire customers; out of the 1,979 users that visit the site, only 361 (18.2%) go on to make a purchase. And 98 (5.0%) never even come back again.

Of the 361 purchases, only 27 (7.5%) have a last touch campaign that was also responsible for a first touch, indicating that further engagement with customers is necessary to encourage them to purchase.



This additional engagement with customers is done via a weekly newsletters and retargeting campaigns (for which CoolTShirts must have captured the user's email address), retargeting ads on Facebook and Paid Search (also known as PPC) on Facebook.

By opening up these extra methods of communication with users, CoolTShirts encourages them to purchase, with 334 of the 361 purchases (92.5%) having one of these campaigns as its last touch.

### **3. Optimize the campaign budget**

### 3.1 CoolTShirts can re-invest in 5 campaigns. Which should they pick and why?

utm_campaign	utm_source	first_touches	last_touches	last_touches_on_purchase_page	first_touches_resulting_in_a_purchase
getting-to-know-cool-tshirts	nytimes	612	232	9	103
weekly-newsletter	email	0	447	115	0
ten-crazy-cool-tshirts-facts	buzzfeed	576	190	9	109
retargetting-campaign	email	0	245	54	0
retargetting-ad	facebook	0	443	113	0
interview-with-cool-tshirts-founder	medium	622	184	7	118
paid-search	google	0	178	52	0
cool-tshirts-search	google	169	60	2	31

# 3.1 CoolTShirts can re-invest in 5 campaigns. Which should they pick and why? (continued)

Recommended campaigns to reinvest in are:

- interview-with-cool-tshirts-founder: This drove the most first touches as well as the most first touches that eventually resulted in a purchase. Therefore as well as generating the most interest amongst new users, 19% of these users also eventually became customers.
- getting-to-know-cool-tshirts: Only slightly less effective than interview-with-cool-tshirts-founder.
- ten-crazy-cool-tshirts-facts: Whilst this drove less first touches than both the above campaigns, the users it drove to site actually purchased more often than those who first visited via getting-to-know-cool-tshirts. This could imply that BuzzFeed is more aligned to CoolTShirt's target market meaning readers of the article are more engaged with the brand.
- weekly-newsletter: This drove the most last touches and the most last touches resulting in a purchase. This shows the importance of engaging with the customer with relevant content after they've visited the site, although does require CoolTShirts to capture their email address and the customer to opt in to email communications when they visit the site.
- retargeting-ad: Only slightly less effective than weekly-newsletter and ability to also reach users who haven't provided their email address.

# 3.1 CoolTShirts can re-invest in 5 campaigns. Which should they pick and why? (continued)

Other considerations:

- **Cost:** A key metric not included in the data is the cost of each campaign. This is essential for making a balanced decision on what campaign to reinvest in. For example I have not recommended that paid-search is reinvested in, however if this campaign is significantly cheaper than others then the ROI (Return on Investment) could actually be higher, therefore by investing the same amount of money in this it could actually drive higher sales than other channels.
- **GDPR:** The recent introduction of GDPR (General Data Protection Regulation) could severely impact CoolTShirts' ability to send email communications to their potential customers and even customers who have already shopped. Customers may need to give their consent to be sent email communications which would impact the effectiveness of weekly-newsletter and retargeting-campaign.