



# First and last touch

Learn SQL from Scratch

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# **1. Getting familiar with CoolTShirts**

# 1.1 Campaigns

CoolTShirts has many online advertising campaigns that lead people to their website. These campaigns consist of an object such as an email, advertisement or post and a link to send people to their website and record information about that visit in a table in their database. The links provide the information recorded in the database, such as the campaign that sent the visit, with “UTM parameters” embedded in them. CoolTShirts records the campaign as the “utm\_campaign” in a page\_visits table in their database and we can query that table to see they use eight campaigns.

Total Campaigns
8

## 1.2 Sources

The links and the UTM parameters can provide much more information about the traffic sent to the CoolTShirts website. Another piece of information that can be very valuable is the point of origin, such as a social website or email, where the link was clicked to send the traffic to the CoolTShirts website. CoolTShirts records this point of origin or source as the `utm_source` in their database's `page_visits` table. We can also query this table to show that their advertising campaigns are distributed among six of these “sources”.

Total Sources
6

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

## 1.3 Campaigns and sources relationships

This same table can also give us the relationship between the campaign and the source. With another query we can determine the location of the link for each campaign or the source the campaign is using.

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

```
SELECT DISTINCT utm_campaign AS Campaigns,  
utm_source As 'Campaign Source'  
FROM page_visits  
GROUP BY Campaigns;
```

## 1.4 CoolTShirts website pages

Each campaign and its link may also target different pages on the CoolTShirts website. The page the traffic is sent to by the link can also be recorded in the database tables. For CoolTShirts the page is recorded in the page\_visits table as the “page\_name” and we can query the table to determine the pages the traffic is sent to. The CoolTShirts website has four pages being used.

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

```
SELECT DISTINCT page_name AS Pages
FROM page_visits;
```

## **2. The user journey**



## 1.5 First touch attribution

When someone visits the website for the first time an identifier and a timestamp or “first touch” for that visitor is recorded in the page\_visits table along with the other information discussed. We can then use that information to determine which campaign and source first sent that visitor to the website and in turn identify which campaigns are the most productive to send a visitor to the website for the first time.

First Touch Campaigns	Total First Touches
cool-tshirts-search	169
getting-to-know-cool-tshirts	612
interview-with-cool-tshirts-founder	622
ten-crazy-cool-tshirts-facts	576

```
WITH first_touch AS (  
  SELECT user_id,  
         MIN(timestamp) as first_touch_at  
  FROM page_visits  
  GROUP BY user_id)  
SELECT pv.utm_campaign AS 'First Touch Campaigns',  
       COUNT(ft.first_touch_at) AS 'Total First Touches'  
FROM first_touch ft  
JOIN page_visits pv  
  ON ft.user_id = pv.user_id  
  AND ft.first_touch_at = pv.timestamp  
GROUP BY utm_campaign;
```

## 2.1 Last touch attribution

In addition to the “first touch” timestamp one is recorded each time a visitor returns to the website, including the “last touch”, which along with other data, helps us determine which campaigns are most productive drawing visitors back.

Last Touch Campaigns	Total Last Touches
cool-tshirts-search	60
getting-to-know-cool-tshirts	232
interview-with-cool-tshirts-founder	184
paid-search	178
retargeting-ad	443
retargeting-campaign	245
ten-crazy-cool-tshirts-facts	190
weekly-newsletter	447

```
WITH last_touch AS (  
    SELECT user_id,  
           MAX(timestamp) AS last_touch_at  
    FROM page_visits  
    GROUP BY user_id)  
SELECT pv.utm_campaign AS 'Last Touch  
Campaigns',  
       COUNT(lt.last_touch_at) AS 'Total Last  
Touches'  
FROM last_touch lt  
JOIN page_visits pv  
    ON lt.user_id = pv.user_id  
   AND lt.last_touch_at = pv.timestamp  
GROUP BY utm_campaign;
```

## 2.2 Total Purchasers

All this information recorded, including the page visited, can help determine how many initial visitors end up making a purchase.

Total Purchasers
361

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

## 2.3 Purchases by each campaign

More importantly, the information can be used to determine which campaigns are the most productive in drawing visitors back to make a purchase on their last touch.

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

```
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)  
SELECT COUNT(pv.page_name) AS 'Campaign Purchases',  
       pv.utm_campaign AS Campaign  
  
FROM last_touch lt  
JOIN page_visits pv  
  ON lt.user_id = pv.user_id  
  AND lt.last_touch_at = pv.timestamp  
GROUP BY utm_campaign;
```

# 2.4 Typical user journey

From this information we can see the number of touches each campaign is responsible for, how visitors are first led to the website, how they are led back for a return visit and which campaigns and sources account for which type of visit. Here we see online articles appear to account for the majority of the first visits while the majority of return visits and purchases come from retargeting.

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

### **3. Campaign budget optimization**

## 3.1 Campaign Budget

CoolTShirts can reinvest in five campaigns and those that result in the most visits are highlighted below. The top three overwhelmingly account for the majority of the first touches and the next two account for the majority of the final touches as well as the majority of purchases. These are the campaigns CoolTShirts should reinvest in.

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