



# Attribution Queries

Learn SQL from Scratch

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# **1. Getting familiar with CoolTShirts**

# 1.1 Getting Familiar: Campaigns and Sources

How many campaigns and sources does CoolTShirts use?

- By using the first and the second queries, we identified that CoolTShirts uses 8 campaigns and 6 sources.

Which source is used for each campaign?

- By using the third query, we were able to retrieve the results that can be seen on the table below.

| 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     |



## -- First Query

```
SELECT COUNT(DISTINCT utm_campaign)
FROM page_visits;
```

## -- Second Query

```
SELECT COUNT(DISTINCT utm_source)
FROM page_visits;
```

## -- Third Query

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

### *The difference between **utm\_campaign** and **utm\_source**:*

In general UTM parameters are used to evaluate effectiveness of digital marketing **campaigns** across different traffic **sources** (e.g. specific media channel or site).

A multi-channel digital marketing campaign might have a multiple UTM source parameters related to it (e.g. Paid Search campaign with Google and Bing sources). In our exercise, we identified that each campaign has only one unique source related to it.

## 1.2 Getting Familiar: Pages

What pages are on the CoolTShirts website?

- CoolTShirts website has 4 types of pages: landing page, shopping cart, checkout and purchase (confirmation) page.

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

-- **The Query**

```
SELECT DISTINCT page_name  
FROM page_visits;
```

## **2. User Journey**

## 2.1 User Journey: First Touches

How many first touches is each campaign responsible for?

- With the help of the first-touch query, we created an “attribution\_ft” table that includes the campaigns used by CoolTShirts and the total number of the first touches that can be attributed to respective campaigns. The results can be seen below.

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

### -- The Query

```
WITH first_touch AS (  
    SELECT user_id,  
           MIN(timestamp) as first_touch_at  
    FROM page_visits  
    GROUP BY user_id),  
attribution_ft 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 attribution_ft.utm_campaign AS 'campaign_name',  
       COUNT(*) AS 'first_touches'  
FROM attribution_ft  
GROUP BY 1  
ORDER BY 2 DESC;
```

## 2.2 User Journey: Last Touches

How many last touches is each campaign responsible for?

- With the help of the last-touch query, we created an “attribution\_lt” table that includes the campaigns used by CoolTShirts and the total number of the last touches that can be attributed to respective campaigns. The results can be seen below.

| campaign_name                       | 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           |

### -- The Query

```
WITH last_touch AS (  
  SELECT user_id,  
         MAX(timestamp) as last_touch_at  
  FROM page_visits  
  GROUP BY user_id),  
attribution_lt 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 attribution_lt.utm_campaign AS 'campaign_name',  
       COUNT(*) AS 'last_touches'  
FROM attribution_lt  
GROUP BY 1  
ORDER BY 2 DESC;
```



## 2.2 User Journey: Purchases

How many visitors make a purchase?

- 361 visitors have made a purchase according to the “page\_visits” table. We have used the first query (see on the right) to retrieve this result.

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

- We have modified the last-touch query by adding the WHERE clause (highlighted in the code on the right). This allowed us to filter results for the purchase (confirmation) pages only. The full query results can be seen on the table below.

| campaign_name                       | last_touches |
|-------------------------------------|--------------|
| 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            |

### -- First Query

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

### -- Second Query

```
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),
attribution_lt 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 attribution_lt.utm_campaign AS 'campaign_name',
       COUNT(*) AS 'last_touches'
FROM attribution_lt
GROUP BY 1
ORDER BY 2 DESC;
```

## 2.2 User Journey: User Journey

What is the typical user journey?

- Analyzing the results from the previous three queries, we are able to identify two types of campaigns:
  - Campaigns that are generating awareness and driving traffic to the website. These campaigns are responsible for the majority of the first touches: “Interview with CoolTShirts founder”, “Getting to know CoolTShirts” and “Ten crazy CoolTShirts facts”. See the first table “First Touch – All Pages”.
  - Campaigns that are generating purchases. The majority of the last touches are attributed to this type of campaigns – see the second and third tables below “Last Touch – All Pages” & “Last Touch – Purchase Page”.
- A typical user journey can be described in the following way: visitors land on the site through awareness-generating campaigns (or organic search), some of the users as they travel down the marketing funnel exit the site and return to complete the purchase via retargeting campaigns, newsletter or paid search (consideration or purchase intent funnel campaigns).

**First Touch – All Pages**

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

**Last Touch – All Pages**

| campaign_name                       | last_touches |
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| weekly-newsletter                   | 447          |
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**Last Touch – Purchase Page**

| campaign_name                       | last_touches |
|-------------------------------------|--------------|
| weekly-newsletter                   | 115          |
| retargeting-ad                      | 113          |
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| 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            |

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

## 3.1 Campaign Budget Optimization

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

- A well-balanced digital marketing strategy includes a combination of the top performing campaigns supporting both **awareness** and **purchase intent** marketing funnels.
- Based on the results we got (see below), we are able to select the top performers within both clusters. The budget should be re-invested in “Interview with CoolTShirts founder”, “Getting to know CoolTShirts”, “Ten crazy CoolTShirts facts”, “Weekly newsletter” and “Retargeting ads”. The first three campaigns are generating web traffic while the latter two are capturing the users bounced off the site (retargeting ads) and focusing on the customers that might already have a CoolTShirts account (weekly newsletter).

**First Touch – All Pages**

| campaign_name                       | first_touches |
|-------------------------------------|---------------|
| interview-with-cool-tshirts-founder | 622           |
| getting-to-know-cool-tshirts        | 612           |
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**Last Touch – All Pages**

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**Last Touch – Purchase Page**

| campaign_name                       | last_touches |
|-------------------------------------|--------------|
| weekly-newsletter                   | 115          |
| retargeting-ad                      | 113          |
| retargeting-campaign                | 54           |
| paid-search                         | 52           |
| getting-to-know-cool-tshirts        | 9            |
| ten-crazy-cool-tshirts-facts        | 9            |
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| cool-tshirts-search                 | 2            |