



Capstone: Attribution

Learn SQL from Scratch

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13.08.2018

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1. Campaigns and Sources

1.1 Campaigns and Sources

In total there are eight campaigns and six sources.

The **source** is defined as the origin of the traffic, i.e. google, nytimes or facebook.

The **campaign** paramter defines a specific marketing action taken, i.e. paid advertising campaign, a specific email campaign, ..

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

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

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

Campaign	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 Pages

There are four different pages of the CoolShirt website recorded in the database.

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

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

2. User Journey

2.1 First Touches

First touches describe the campaigns that initially drove the traffic to the website.

```
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 'campaign',  
       COUNT(ft.first_touch_at) as 'count'  
FROM first_touch ft  
JOIN page_visits pv  
  ON ft.user_id = pv.user_id  
  AND ft.first_touch_at = pv.timestamp  
GROUP BY pv.utm_campaign  
ORDER BY COUNT(ft.first_touch_at) DESC;
```

Campaign	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 Last Touches

Last touches describe the campaigns that are the last touchpoint of a customer with a given website.

```
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 'campaign',  
       COUNT(lt.last_touch_at) as 'count'  
FROM last_touch lt  
JOIN page_visits pv  
  ON lt.user_id = pv.user_id  
  AND lt.last_touch_at = pv.timestamp  
GROUP BY pv.utm_campaign  
ORDER BY COUNT(lt.last_touch_at) DESC;
```

Campaign	Touches
weekly-newsletter	447
retargetting-ad	443
retargetting-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

2.3 Purchases

In total there are 361 purchases. The last touch campaign weekly newsletter is the most successful, followed by retargeting ad and campaign.

```
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 'campaign',  
       COUNT(lt.last_touch_at) as 'count'  
FROM last_touch lt  
JOIN page_visits pv  
  ON lt.user_id = pv.user_id  
  AND lt.last_touch_at = pv.timestamp  
WHERE pv.page_name = '4 - purchase'  
GROUP BY pv.utm_campaign  
ORDER BY COUNT(lt.last_touch_at) DESC;
```

Last Touch Campaign	Purchases
weekly-newsletter	114
retargeting-ad	112
retargeting-campaign	53
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

2.4 What is the typical User Journey

Out of 1979 users, who initially start their journey on a landing page, 361, or 18% make a purchase.

```
SELECT page_name AS 'page',  
       COUNT (DISTINCT user_id) AS 'Unique Users'  
FROM page_visits  
GROUP BY 1;
```

Page	Unique Users
1 - landing_page	1979
2 - shopping_cart	1881
3 - checkout	1431
4 - purchase	361

2.4 What is the typical User Journey

```
WITH last_touch_purchase AS
(
    SELECT user_id,
           utm_campaign,
           timestamp
    FROM page_visits
    WHERE page_name = '4 - purchase'
),
first_touch_campaign AS
(
    SELECT user_id,
           utm_campaign,
           timestamp
    FROM page_visits
    WHERE page_name = '1 - landing_page'
)
SELECT COUNT(DISTINCT first.user_id) AS 'Unique
Users with single touchpoint'
FROM last_touch_purchase AS last
LEFT JOIN first_touch_campaign AS first
    ON last.user_id = first.user_id
    AND last.utm_campaign = first.utm_campaign

LEFT JOIN page_visits AS pv
    ON last.user_id = pv.user_id
    AND last.utm_campaign = pv.utm_campaign
WHERE first.user_id IS NOT NULL;
```

Only 25 users (or 7%) were exposed to a single touchpoint / campaign before making a purchase.

The remaining 93% of the users needed activation through more than one campaign.

2.4 What is the typical User Journey

The results of 2.1 show, that content based campaigns drive the most initial traffic. In comparison the analysis of the last touch points (2.2) show that newsletter and retargeting drive the purchases.

3. Campaign Optimization

3 Optimize the campaign budget

Derived from our work in 2.x and given that CoolTShirts can re-invest in five campaigns, the invest should go to the first three first touch campaigns. The top two last touch campaigns are newsletter and retargeting ads. Both last touch campaigns need exposure of users before they can work, i.e. subscription to a newsletter or cookie for retargeting. In total CoolTShirts should benefit most from investing in these five campaigns .

Campaign	Touches
interview-with-cool-tshirts-founder	622
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Campaign	Touches
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