Learn SQL from Scratch

First- and Last-Touch Attribution with CoolTShirts.com

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code cademy

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1. Get familiar with CoolTShirts

utm_campaign - 8 campaigns used for their marketing

Defines the marketing campaigns they are using to generate site traffic and conversions (purchases).

utm_source - Using 6 different platforms

Defines the platform that they are leveraging for executing these campaigns. It defines through which platform a user has interacted with multiple campaigns.

They are running 2 email campaigns and 2 Google search campaigns.

utm_source	utm_campaign
buzzfeed	ten-crazy-cool-tshirts-facts
email	retargetting-campaign
email	weekly-newsletter
facebook	retargetting-ad
google	cool-tshirts-search
google	paid-search
medium	interview-with-cool-tshirts-founder
nytimes	getting-to-know-cool-tshirts

The website has these 4 pages which also describe the purchase funnel from landing on the site including other touch points until purchase:

1 - landing_page

2 - shopping_cart

3 - checkout

4 - purchase

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

2. What is the user journey?

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

```sql
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_campaign AS
campaign_name,
        COUNT(*)AS first_touches
FROM ft_attr
GROUP BY 1
ORDER BY 2 DESC;
```

First Touches by Campaign – First user visit to the website triggered by a specific campaign

campaign_name	last_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

```sql
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
  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_campaign AS
campaign_name,
      COUNT(*)AS last_touches
FROM lt_attr
GROUP BY 1
ORDER BY 2 DESC;
```

Last Touches (All Pages) by Campaign – Last user visit to the website triggered by a specific campaign

Out of 1979 total unique visitors to the website; 361 made a purchase.

```sql
/*
All Unique Visitors to the Website
*/
SELECT COUNT(DISTINCT user_id)
FROM page_visits;
/*
Visitors that Purchased
*/
SELECT COUNT(DISTINCT user_id)
FROM page_visits
WHERE page_name = '4 - purchase';
```

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

I was looking at the individual user in order to see which user_id has been passed through the purchase_page while interacting with a specific campaign. In order to do that I looked at each purchase and the utm_campaign related to that (last touch) timestamp for that user. Essentially the last campaign to serve to that user prior to their purchase.

campaign_name	last_touches
weekly-newsletter	115
retargetting-ad	113
retargetting-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

```sql
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
  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_campaign AS
campaign_name,
        COUNT(*)AS last_touches
FROM lt_attr
GROUP BY 1
ORDER BY 2 DESC;
```

Last Touches (on Purchase Page) by Campaign – Last user interaction triggered on purchase page

user_id	page_name	timestamp	utm_campaign	utm_source
10162	1 - landing_page	2018-01-29 21:37:10 First Touch	getting-to-know-cool-tshirts	nytimes
10162	2 - shopping_cart	2018-01-29 22:11:10	ten-crazy-cool-tshirts-fact	buzzfeed
10162	3 - checkout	2018-02-01 04:15:10	weekly-newsletter	email
10162	4 - purchase	2018-02-01 04:26:10 Last Touch	weekly-newsletter	email

Looking at the typical user journey - I looked at individual user_ids e.g. 10162 - I identified their first and last touch points. Interesting was that most people would initiate a purchase when being "touched" by a retargeting campaign (email, google or facebook campaign). First touch points were mainly driven through prospecting campaigns (contextual sources such as nytimes & buzzfeed).

Typical User Journey, Touch Points Until Purchase – Showing interaction history for user_id 10162

3. Budget Optimization

What campaigns should they invest in?

1. Which and how many touch points are there per unique user per campaign?
   - Which campaign drives which traffic?

2. Identify which marketing campaigns are the most successful ones (assuming generating sales is the main marketing goal)
   - Success is defined in how many user_ids have landed on site and then gone to the purchase page (4 - purchase).

```sql
SELECT utm_campaign,
    page_name,
    COUNT(DISTINCT user_id) AS unique_users
FROM page_visits
GROUP BY 1,2
ORDER BY 1,2;
```

What campaigns should they invest in?

1. Different campaigns drive to different pages along the funnel
   - 4 campaigns show touch points with all pages; main traffic being driven to pages 1 - landing_page & 2 - shopping_cart resulting however in low purchase numbers (=prospecting campaigns)
   - 4 campaigns show touch points only at page level 3 - checkout & 4 - purchase (=retargeting campaigns)

utm_campaign	page_name	unique_users
cool-tshirts-search	1 - landing_page	171
cool-tshirts-search	2 - shopping_cart	133
cool-tshirts-search	3 - checkout	7
cool-tshirts-search	4 - purchase	2
getting-to-know-cool-tshirts	1 - landing_page	616
getting-to-know-cool-tshirts	2 - shopping_cart	680
getting-to-know-cool-tshirts	3 - checkout	41
getting-to-know-cool-tshirts	4 - purchase	9
interview-with-cool-tshirts-founder	1 - landing_page	625
interview-with-cool-tshirts-founder	2 - shopping_cart	515
interview-with-cool-tshirts-founder	3 - checkout	31
interview-with-cool-tshirts-founder	4 - purchase	7
paid-search	3 - checkout	179
paid-search	4 - purchase	52
retargetting-ad	3 - checkout	445
retargetting-ad	4 - purchase	113
retargetting-campaign	3 - checkout	246
retargetting-campaign	4 - purchase	54
ten-crazy-cool-tshirts-facts	1 - landing_page	582
ten-crazy-cool-tshirts-facts	2 - shopping_cart	566
ten-crazy-cool-tshirts-facts	3 - checkout	32
ten-crazy-cool-tshirts-facts	4 - purchase	9
weekly-newsletter	3 - checkout	450
weekly-newsletter	4 - purchase	115

What campaigns should they invest in?

2. The campaigns with the highest purchases are the retargeting campaigns , whereas the prospecting campaigns are the ones with the highest landing page hits

My recommendation is to keep investing into the 4 RTG campaigns:

- Weekly-newsletter
- Retargetting-ad
- Retargetting-campaign
- paid-search

(They also show a good platform mix with email, Facebook & Google).

```sql
SELECT utm_source,
    utm_campaign,
    page_name,
    COUNT(DISTINCT user_id) AS unique_users
FROM page_visits
WHERE page_name = '4 - purchase'
GROUP BY 1,2
ORDER BY 4 DESC;
```

utm_source	utm_campaign	page_name	unique_users
email	weekly-newsletter	4 - purchase	115
facebook	retargetting-ad	4 - purchase	113
email	retargetting-campaign	4 - purchase	54
google	paid-search	4 - purchase	52
buzzfeed	ten-crazy-cool-tshirts-facts	4 - purchase	9
nytimes	getting-to-know-cool-tshirts	4 - purchase	9
medium	interview-with-cool-tshirts-founder	4 - purchase	7
google	cool-tshirts-search	4 - purchase	2

What campaigns should they invest in?

2. In addition, I would invest in a campaign that drives a high number of visitors to the landing page (contextual, prospecting campaign) which can help feed into the retargeting campaigns. For this one I would allocate the lowest budget as it generates very little purchases.
   ○ interview-with-cool-tshirts-founder

```sql
SELECT utm_source,
    utm_campaign,
    page_name,
    COUNT(DISTINCT user_id) AS unique_users
FROM page_visits
WHERE page_name = '1 - landing_page'
GROUP BY 1,2
ORDER BY 4 DESC;
```

utm_source	utm_campaign	page_name	unique_users
medium	interview-with-cool-tshirts-founder	1 - landing_page	625
nytimes	getting-to-know-cool-tshirts	1 - landing_page	616
buzzfeed	ten-crazy-cool-tshirts-facts	1 - landing_page	582
google	cool-tshirts-search	1 - landing_page	171

THANKS

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