

Analysis of CoolTShirt's Marketing Attribution

Analyzing Touch Attribution with SQL

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Data provided by **codecademy**

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1. Overview

Project Overview

The purpose of this project is to analyze marketing attributions at CoolTShirts (CTS). Throughout the process, I utilize SQL, UTM parameters, & first- and last-touch attributions to gather insight for the company, and conclude with recommendations based on analyses conducted.

Company Background:

CoolTShirts, is an innovative e-commerce shirt shop running a number of marketing campaigns to increase website visits and purchases.

The marketing team is interested in analyzing their customers' journey (from initial visit to purchase) to optimize their marketing campaign budget.

Dataset provided in this project:

1 SQL table called 'page_visits'

- Contains 5,692 record
- 5 columns:
 - `page_name` – the title of the sections of the page that was visited
 - `timestamp` – the time at which the visitor came to the page
 - `user_id` – a unique id for each visitor
 - `utm_campaign` – identity of the specific ad or email blast
 - `utm_source` – identity of which touchpoint sent the traffic
(e.g. google, email, fb, etc)

2. Inspect the Data

Inspect the Data

CTS has four main pages on their website.

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

The company is using eight distinct campaigns and six distinct sources.

To the right, the last query indicates which source is used for each campaign.

Example: marketing campaign ‘getting-to-know-cool-shirts’ was clicked on by a user who was previously on the nytimes website.

This example indicates that the *first touch* – the first time a user was exposed to CoolTShirts.com - was attributed to the nytimes as the source.

```
SELECT *
FROM page_visits
LIMIT 20;
SELECT COUNT(*)
FROM page_visits;

SELECT COUNT(DISTINCT page_name) AS num_pages
FROM page_visits;

SELECT COUNT(DISTINCT utm_campaign) AS num_campaigns
FROM page_visits;

SELECT COUNT(DISTINCT utm_source) AS num_sources
FROM page_visits;

SELECT DISTINCT utm_campaign, utm_source
FROM page_visits;
```

| num_pages |
|---------------|
| 4 |
| num_campaigns |
| 8 |
| num_sources |
| 6 |

| 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 |

| page_name | timestamp | user_id | utm_campaign | utm_source |
|-------------------|---------------------|---------|------------------------------|------------|
| 1 - landing_page | 2018-01-24 03:12:16 | 10006 | getting-to-know-cool-tshirts | nytimes |
| 2 - shopping_cart | 2018-01-24 04:04:16 | 10006 | getting-to-know-cool-tshirts | nytimes |
| 3 - checkout | 2018-01-25 23:10:16 | 10006 | weekly-newsletter | email |
| 1 - landing_page | 2018-01-25 20:32:02 | 10030 | ten-crazy-cool-tshirts-facts | buzzfeed |
| 2 - shopping_cart | 2018-01-25 23:05:02 | 10030 | ten-crazy-cool-tshirts-facts | buzzfeed |
| 3 - checkout | 2018-01-28 13:26:02 | 10030 | retargetting-campaign | email |
| 4 - purchase | 2018-01-28 13:38:02 | 10030 | retargetting-campaign | email |

3. What is the User Journey?

3.1 What is the User Journey?

Aggregate the number of touch attributes each campaign is responsible for:

The *first touch* queries the number of users who were the first time exposed to CTS.com.

- Utm campaigns with the most first touches:
 1. 'interview-with-cool...'
 2. 'getting-to-know...'
 3. 'ten-crazy-cool...'

The *last touch* queries the number of users who – after the exposure to CTS.com - made a purchase.

- Utm campaigns with the most last touches:
 1. 'weekly-newsletter'
 2. 'retargeting-ad'
 3. 'retargeting-campaign'
 4. 'getting-to-know-cool...'

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

| utm_campaign | num_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 |

```
/*How many first-touches is each campaign responsible for?*/  
WITH first_touch AS (  
    SELECT user_id,  
           MIN(timestamp) as first_touch_at  
    FROM page_visits  
    GROUP BY user_id)  
SELECT  
    pv.utm_campaign,  
    COUNT(utm_campaign) as num_first_touches  
FROM first_touch AS ft  
JOIN page_visits AS pv  
    ON ft.user_id = pv.user_id  
    AND ft.first_touch_at = pv.timestamp  
GROUP BY utm_campaign  
ORDER BY count(utm_campaign) DESC;
```

```
/*How many last-touches is each campaign responsible for?*/  
WITH last_touch AS (  
    SELECT user_id,  
           MAX(timestamp) as last_touch_at  
    FROM page_visits  
    GROUP BY user_id)  
SELECT  
    pv.utm_campaign,  
    count(utm_campaign) as num_last_touches  
FROM last_touch as lt  
JOIN page_visits as pv  
    ON lt.user_id = pv.user_id AND  
    lt.last_touch_at = pv.timestamp  
GROUP BY utm_campaign  
ORDER BY count(utm_campaign) DESC;
```


3.2 What is the User Journey?

How many visitors make a purchase?

What does the overall purchase funnel look like for each unique visitor that makes it to the landing page and eventually makes a purchase on CTS.com?

| page_name | num_visitor | overall_funnel_% |
|-------------------|-------------|------------------|
| 1 - landing_page | 1979 | 100.0 |
| 2 - shopping_cart | 1881 | 95.0 |
| 3 - checkout | 1431 | 72.0 |
| 4 - purchase | 361 | 18.0 |

Key Findings:

It begins with 1,979 unique visitors making it to the landing page. Of those 1,979 visitors it funnels down to only 361 visitors who make it to the purchase page to finalize a purchase.

18% of the original unique visitors decided to make a purchase.

```
/*How many visitors make a purchase?*/
▼ SELECT
    page_name,
    COUNT(DISTINCT user_id) AS 'num_visitor'
FROM page_visits
GROUP BY page_name;

/*How many visitors make a purchase in the form of an
overall Funnel percentage?*/
▼ WITH page_visit_total AS (
    SELECT
        page_name,
        COUNT(DISTINCT user_id) AS 'num_visitor'
    FROM page_visits
    GROUP BY page_name
)
▼ SELECT page_name, num_visitor,
    ROUND(100*(CAST(num_visitor AS REAL)/1979)) AS
    'overall_funnel_%'
FROM page_visit_total
GROUP BY page_name;
```

3.3 What is the User Journey?

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

| utm_campaign | page_name | num_campaigns |
|-------------------------------------|--------------|---------------|
| weekly-newsletter | 4 - purchase | 115 |
| retargeting-ad | 4 - purchase | 113 |
| retargeting-campaign | 4 - purchase | 54 |
| paid-search | 4 - purchase | 52 |
| ten-crazy-cool-tshirts-facts | 4 - purchase | 9 |
| getting-to-know-cool-tshirts | 4 - purchase | 9 |
| interview-with-cool-tshirts-founder | 4 - purchase | 7 |
| cool-tshirts-search | 4 - purchase | 2 |

Key Findings:

Query results show the top three campaigns that lead visitors back to CTS.com (from elsewhere) to finalize their purchase (from where they left off on the purchase page) were:

1. 'weekly-newsletter'
2. 'retargeting-ad'
3. 'retargeting-campaign'

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



4. Recommendations



Recommendations

To optimize the campaign budget CoolTShirts can re-invest in 5 campaigns.

It is recommended that CTS.com select these five campaigns:

1. interview-with-cool-tshirts-founder. (*first-touch*)
2. getting-to-know-cool-tshirts (*first-touch*)
3. ten-crazy-cool-tshirts-facts (*first-touch*)
4. weekly-newsletter. (*last-touch*)
5. retargeting-ad. (*last-touch*)

Based on the queries aggregating last-touches, campaigns 1,2, & 3 lead to the most exposure.

For last-touches, campaigns 4 & 5 showed the highest results in bringing visitors back to CTS.com to finalize their purchases.