



First- and Last-Touch Attribution

Learn SQL from Scratch

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Table of Contents

1. Get familiar with CoolTShirts

- How many campaigns and sources does CoolTShirts use and how are they related?
- What pages are on their website?

2. What is the user journey?

- How many first touches is each campaign responsible for?
- How many last touches is each campaign responsible for?
- How many visitors make a purchase?
- How many last touches on the purchase page is each campaign responsible for?
- What is the typical user journey?

3. Optimize the campaign budget

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

1. Get familiar with CoolTShirts

1.1 How many campaigns and sources does CoolTShirts use and how are they related?

- CoolTShirts uses eight campaigns and six sources.
- **Campaign** is a specific ad or message used to give information to a targeted audience in order to lead them to a potential purchase. Some campaigns are interviews, informational articles, and ads.
- **Source** is the channel or touchpoint used to deliver the campaign to the targeted audience, such as an email, Google search, and Facebook ad.
- A source can deliver multiple campaigns. For example, Google is used to deliver 'paid search' (advertising within the Google search engine) and 'cool tshirt search' (searches specific to the company).

```
SELECT COUNT(DISTINCT utm_campaign) AS 'Campaign'  
FROM page_visits;  
  
SELECT COUNT(DISTINCT utm_source) AS 'Sources'  
FROM page_visits;  
  
SELECT DISTINCT utm_campaign AS Campaign,  
FROM page_visits;
```

| Campaign | Sources |
|----------|---------|
| 8 | 6 |

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

1.2 What pages are on their website?

- There are four pages on the CoolTShirts website (listed on the table to the right).
- Each page name indicates the page that a visitor can navigate and take an action after following a link from one of the eight campaigns (listed on the previous slide).
- The action taken will vary depending on the page. For example, a visitor would have reached the 'shopping cart' page after selecting one or more items from the 'landing page' that they are interested in purchasing.

```
SELECT DISTINCT page_name AS 'Page Name'  
FROM page_visits;
```

| Page Name |
|-------------------|
| 1 - landing_page |
| 2 - shopping_cart |
| 3 - checkout |
| 4 - purchase |

2. What is the user journey?

2.1 How many first touches is each campaign responsible for?

- To determine how many visitors navigated to the website for the first time, the MIN() command is used on the timestamps of each user to isolate the first-touch dates.
- This shows that out of the eight campaigns, only four of them were primarily responsible for all the first touches.
- In addition, out of those four primary campaigns, three of them accounted for **91.5%** of all first touches.

| Source | Campaign | Count |
|----------|-------------------------------------|--------------|
| medium | interview-with-cool-tshirts-founder | 622 |
| nytimes | getting-to-know-cool-tshirts | 612 |
| buzzfeed | ten-crazy-cool-tshirts-facts | 576 |
| google | cool-tshirts-search | 169 |
| | Total | 1,979 |

```
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_source AS Source,  
       ft_attr.utm_campaign AS Campaign,  
       COUNT(*) AS Count  
FROM ft_attr  
GROUP BY 1, 2  
ORDER BY 3 DESC;
```

2.2 How many last touches is each campaign responsible for?

- To determine how many visitors were drawn back to the website for the last time, the MAX() command is used on the timestamps of each user to isolate the last-touch dates.
- This shows that the campaigns with the most last touches were retargeting and weekly newsletter campaigns, (accounting for **57%** of all last touches), while the four primary first-touch campaigns only accounted for **34%** of all last touches.

| Source | Campaign | Count |
|----------|-------------------------------------|-------|
| email | weekly-newsletter | 447 |
| facebook | retargeting-ad | 443 |
| email | retargeting-campaign | 245 |
| nytimes | getting-to-know-cool-tshirts | 232 |
| buzzfeed | ten-crazy-cool-tshirts-facts | 190 |
| medium | interview-with-cool-tshirts-founder | 184 |
| google | paid-search | 178 |
| google | cool-tshirts-search | 60 |
| Total | | 1,979 |

```
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_source AS Source,  
       lt_attr.utm_campaign AS Campaign,  
       COUNT(*) AS Count  
FROM lt_attr  
GROUP BY 1, 2  
ORDER BY 3 DESC;
```


2.3 How many visitors make a purchase? How many last touches on the purchase page is each campaign responsible for?

- Out of the total 1,979 visitors, 361 visitors made a purchase.
- To determine the number of last touches on the 'purchase page' each campaign is responsible for, the MAX() command is used on the timestamps of each user to isolate the last-touch dates on the 'purchase page'.
- The majority of purchases were attributed by weekly newsletter and retargeting ads/campaigns (**78%** out of the total purchases).

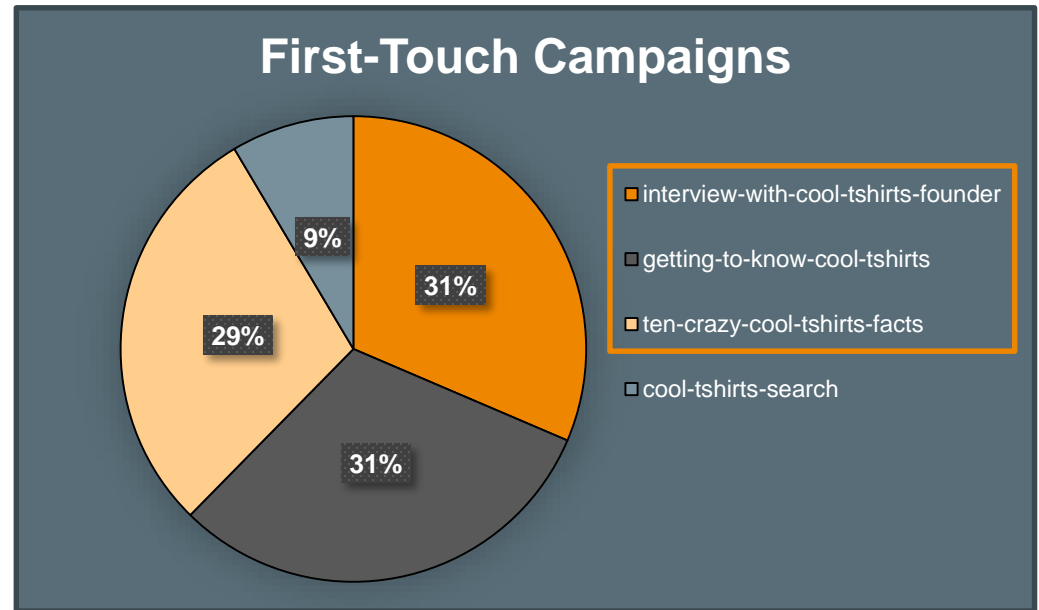
| Visitors that Purchase | | |
|------------------------|-------------------------------------|-------|
| 361 | | |
| Source | Campaign | Count |
| email | weekly-newsletter | 115 |
| facebook | retargeting-ad | 113 |
| email | retargeting-campaign | 54 |
| google | paid-search | 52 |
| buzzfeed | ten-crazy-cool-tshirts-facts | 9 |
| nytimes | getting-to-know-cool-tshirts | 9 |
| medium | interview-with-cool-tshirts-founder | 7 |
| google | cool-tshirts-search | 2 |
| Total | | 361 |

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

```
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_source AS Source,
       lt_attr.utm_campaign AS Campaign,
       COUNT(*) AS Count
FROM lt_attr
GROUP BY 1, 2
ORDER BY 3 DESC;
```

2.4 What is the typical user journey?

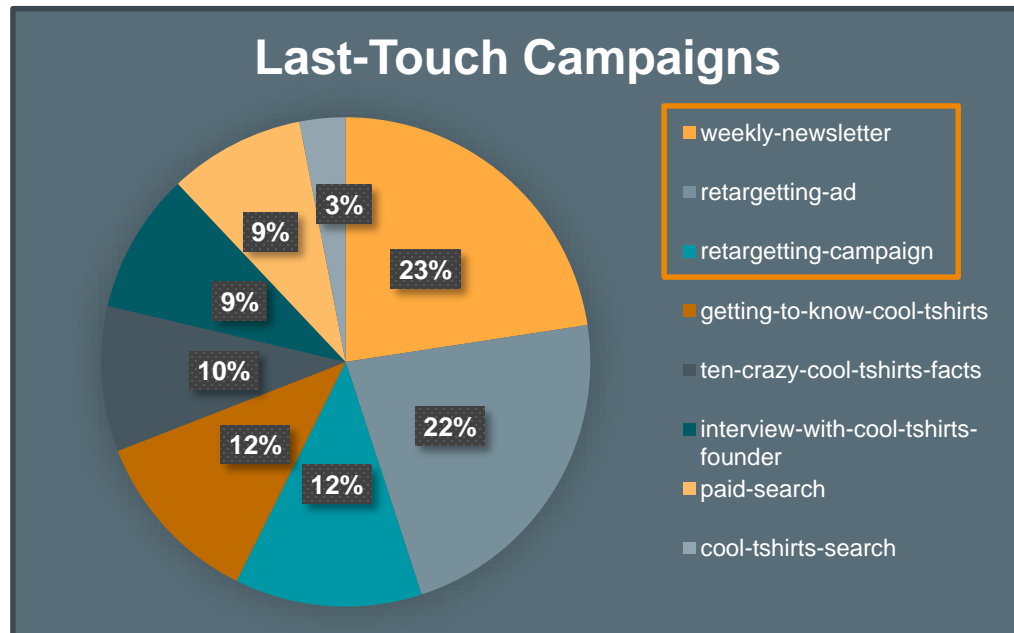
- Out of the four campaigns responsible for attracting users to the website, the following three article campaigns accounted for **91.5%** of all first time user visits:
 - Interview with CoolTShirts Founder
 - Getting to know CoolTShirts
 - Ten Crazy CoolTShirts Facts



2.4 What is the typical user journey? – Cont'd

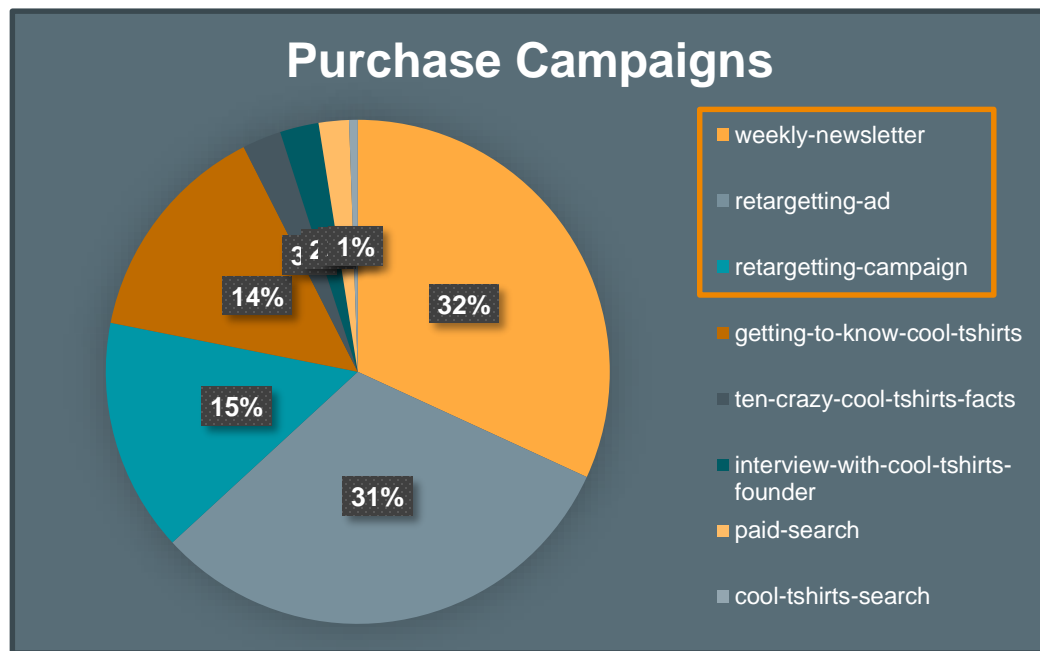
- Out of the eight available campaigns, the following three were responsible for bringing users back to the website and they accounted for **57.4%** of all returning users:

- Weekly newsletter
- Retargeting ad
- Retargeting campaign



2.4 What is the typical user journey? – Cont'd

- Out of the eight available campaigns, the following three led to the majority of purchases made by visitors and accounted for **78.1%** of all purchases:
 - Weekly newsletter
 - Retargeting ad
 - Retargeting campaign



3. Optimize the campaign budget

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

- Based on the data, in terms of first-touch attributions, CoolTShirts should continue investing in the three campaigns boxed in the orange squares. These campaigns have shown to be great at attracting first-time visitors to the website and spiking their interest.
- Additionally, in terms of last-touch attributions and purchases made, CoolTShirts should also continue investing in the two campaigns boxed in the green squares. These campaigns have shown the best results in bringing back visitors to the website, as well as convincing visitors to make a purchase.

| Campaign | First Touch | % First Touch | Last Touch | % Last Touch | Purchases | % Purchases |
|-------------------------------------|-------------|---------------|------------|--------------|-----------|-------------|
| cool-tshirts-search | 169 | 8.5% | 60 | 3.0% | 2 | 0.6% |
| getting-to-know-cool-tshirts | 612 | 30.9% | 232 | 11.7% | 52 | 14.4% |
| interview-with-cool-tshirts-founder | 622 | 31.4% | 184 | 9.3% | 9 | 2.5% |
| paid-search | 0 | 0.0% | 178 | 9.0% | 7 | 1.9% |
| retargetting-ad | 0 | 0.0% | 443 | 22.4% | 113 | 31.3% |
| retargetting-campaign | 0 | 0.0% | 245 | 12.4% | 54 | 15.0% |
| ten-crazy-cool-tshirts-facts | 576 | 29.1% | 190 | 9.6% | 9 | 2.5% |
| weekly-newsletter | 0 | 0.0% | 447 | 22.6% | 115 | 31.9% |