



Attribution Queries

Learn SQL from Scratch

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1. Get familiar with CoolTShirts

- How many campaigns and sources does CoolTShirts use and how are they related? Be sure to explain the difference between `utm_campaign` and `utm_source`.
- 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 DISTINCT Campaigns, Sources, AND Relationships

There are eight distinct campaigns run by CoolTShirts which are run through six different sources.

Sources are either an ad on a website or in an email.

Campaigns are messages designed to invoke a response from the viewer.

```
--Number of distinct sources
SELECT COUNT(DISTINCT utm_source)
      AS 'Number of Sources'
FROM page_visits;

--Number of distinct campaigns
SELECT COUNT(DISTINCT utm_campaign)
      AS 'Number of Campaigns'
FROM page_visits;

--Relation between campaigns and sources
SELECT DISTINCT utm_source AS 'Source',
               utm_campaign AS 'Campaign'
FROM page_visits;
```

Number of Source	Number of Campaigns
6	8

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

1.2 DISTINCT Pages

There are four pages for the CoolTShirts website: the landing page, the shopping cart, checkout, and purchase.

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

```
--Distinct page_names  
SELECT DISTINCT page_name AS 'Distinct Pages'  
FROM page_visits;
```

2. What is the user journey

2.1 Campaign First Touches

Campaign	First Touch Count
interview-with-cool-tshirts-founder	622
getting-to-know-cool-tshirts	612
ten-crazy-cool-tshirts-facts	576
cool-tshirts-search	169

The number of first touches each campaign is responsible for. Using the MIN function, you can find the time when the user first accessed the site and by which campaign.

```
--First touch each campaign is 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 AS 'Campaign',
       COUNT(*) AS 'First Touch 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 utm_campaign
ORDER BY 2 DESC;
```

2.2 Campaign Last Touches

The number of last touches each campaign is responsible for. Using the MAX function, you can find the time when the user last accessed the site and by which campaign.

```
--Last touch each campaign is 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 AS 'Campaign',
       COUNT(*) AS 'Last Touch Count'
FROM last_touch lt
JOIN page_visits pv
  ON lt.user_id = pv.user_id
  AND lt.first_touch_at = pv.timestamp
GROUP BY utm_campaign
ORDER BY 2 DESC;
```

Campaign	Last Touch Count
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

2.3 Purchases

Distinct User IDs
361

Campaign	Last Touch Count
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 total number of visitors who made a purchase was 361. Using the last touch statement along with a WHERE to choose only the purchase page we can find which campaign helped the visitor in deciding to actually make a purchase.

```
--Number of visitors who made a purchase
SELECT COUNT(DISTINCT user_id) AS 'Distinct User IDs'
FROM page_visits
WHERE page_name = '4 - purchase';

--Last touch purchase each campaign is responsible for
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 AS 'Campaign',
       COUNT(*) AS 'Last Touch Count'
FROM last_touch lt
JOIN page_visits pv
  ON lt.user_id = pv.user_id
  AND lt.first_touch_at = pv.timestamp
GROUP BY utm_campaign;
```

2.4 Typical User Journey

91% of users come to CoolTShirts via:

- Interview with CoolTShirts Founder
- Getting to Know CoolTShirts
- Ten Crazy CoolTShirts Facts

The other 9% come from web searches

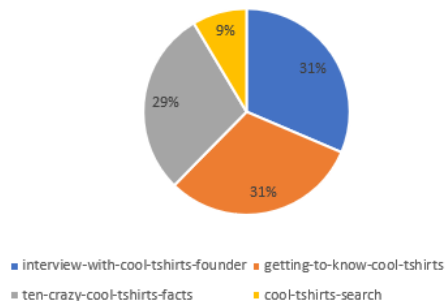
57% of visitors require a second reminder before they make a purchase, either by use of:

- Weekly Newsletter
- Retargeting Ad
- Retargeting Campaign

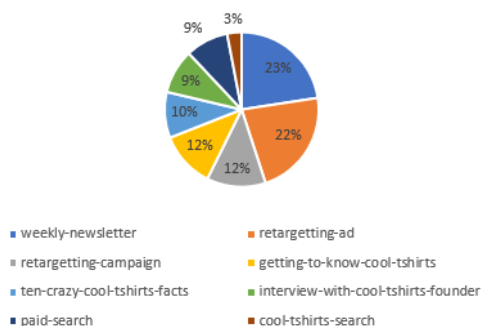
These reminders generate 78% of the revenue. These reminders are sent out through:

- E-mail
- Facebook

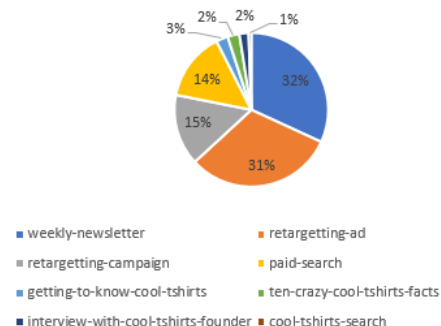
First Touch Count



Last Touch Count



Purchase Last Touch Count



3. Optimize the campaign budget

3.1 Optimizing the Budget

The highest amount of first touches came from BuzzFeed, Medium, and the New York Times, but the highest number of actual purchases came from the weekly newsletters and the retargeting ads. The first touches give a look into what the site is about, leading them to possible sign up for the newsletter and ads. When they receive these ads, especially if there is a promotion, they will be more likely to make a purchase.

Campaign	First Touch	% First Touch	Last Touch	% Last Touch	Purchases	% Purchases
interview-with-cool-tshirts-founder	622	31%	184	9%	7	2%
getting-to-know-cool-tshirts	612	31%	232	12%	9	2%
ten-crazy-cool-tshirts-facts	576	29%	190	10%	9	2%
cool-tshirts-search	169	9%	60	3%	2	1%
weekly-newsletter	0	0%	447	23%	115	32%
retargeting-ad	0	0%	443	22%	113	31%
retargeting-campaign	0	0%	245	12%	54	15%
paid-search	0	0%	178	9%	52	14%