



First And Last Attribution

Learn SQL from Scratch

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1. Get Familiar With CoolTShirts

A. How many campaigns and sources does CoolTShirts use? Which source is used for each campaign?

- To answer these questions, first we must explain what UTM parameters are.
- UTM parameters make it easy for web developers, online marketers, and analysts to view incoming and outgoing traffic to through their websites then help decide what campaign or source will help them succeed in the future.
- UTM parameters are a way of tracking visits to a website. We can use them to capture information like time, attribution source, and attribution medium for each user visit.

Query Results	
Campaign Count	
8	
Source Count	
6	
Campaigns	Sources
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

1.1 How Many Sources?

How many sources does CoolTShirts Use?

- To simply put, looking at our picture, CoolTShirts uses 6 sources.
- A source could be an email newsletter, a website page or a ad on a page that can redirect the customer to a specific product or service.
- utm_source is tracking the type of communication of which a source is shared with customers. For CoolTShirts we can see our sources promote CoolTShirts on 'nytimes (website), email, google, facebook, buzzfeed and medium.

Query Results	
Campaign Count	
8	
Source Count	
6	
Campaigns	Sources
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

```
/* Number of Distinct Campaigns */

SELECT
COUNT(DISTINCT utm_campaign) AS 'Campaign Count'
FROM page_visits;

SELECT
COUNT(DISTINCT utm_source) AS 'Source Count'
FROM page_visits;

SELECT
DISTINCT utm_campaign AS 'Campaigns',
          utm_source AS 'Sources'
FROM page_visits;
```

1.2 How Many Campaigns?

How many campaigns does CoolTShirts Use?

- To simply put, looking at our picture, CoolTShirts uses 8 sources.
- A campaign is a specific response from a specific target. A campaign could be an ad, a newsletter, or a paid search that puts that product or service at the top of the search.
- utm_campaign is tracking the type of communication of which a campaign is shared with customers. For CoolTShirts we can see the our campaigns vary from weekly newsletter, paid searches, ads, and articles.

Query Results	
Campaign Count	
8	
Source Count	
6	
Campaigns	Sources
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

```
/* Number of Distinct Campaigns */

SELECT
COUNT(DISTINCT utm_campaign) AS 'Campaign Count'
FROM page_visits;

SELECT
COUNT(DISTINCT utm_source) AS 'Source Count'
FROM page_visits;

SELECT
DISTINCT utm_campaign AS 'Campaigns',
          utm_source AS 'Sources'
FROM page_visits;
```

1.3 Sources Use Which Campaign?

Which source is used for each campaign?

- Below we can see that the campaigns are side by side and indicates that the 'getting-to-know-cool-tshirts' campaign ran on nytimes. 'retargeting-ad' ran on facebook and so on.

Query Results	
Campaign Count	
8	
Source Count	
6	
Campaigns	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

```
/* Number of Distinct Campaigns */

SELECT
COUNT(DISTINCT utm_campaign) AS 'Campaign Count'
FROM page_visits;

SELECT
COUNT(DISTINCT utm_source) AS 'Source Count'
FROM page_visits;

SELECT
DISTINCT utm_campaign AS 'Campaigns',
          utm_source AS 'Sources'
FROM page_visits;
```

1.4 What pages are on CoolTshirts?

What pages are on the CoolTShirts website?

- As shown in the output below, cooltshirts has 4 pages that we are tracking. A landing page, shopping cart, checkout, and purchasing page.

Query Results
Page Name
1 - landing_page
2 - shopping_cart
3 - checkout
4 - purchase

```
/*  
What pages are on the CoolTShirts website?  
*/  
  
SELECT DISTINCT page_name AS 'Page Name'  
FROM page_visits;
```

2. What Is User Journey?

User journey is a someone's experience during one session of using a website or app, consisting of the series of actions performed to achieve a particular goal. For instance, a person is online shopping and will need to pick a website of their liking, navigate through the website to find what they are looking for, and check out. Although these steps seem linear, it can be performed in various ways.

Now we will explore the many ways a user can interact with a website.

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

2.1 First Touches

How many first touches is each campaign responsible for?

- To determine how many first touches each campaign is responsible for we used the first-touch attribution.
- First-touch attribution only considers the first source for each customer. This shows us how visitors initially discover a website.
- As seen from our output below, visitors have most frequently visited cooltshirts.com via medium through the interview-with-cool-tshirts-founder campaign which earned 622 first visitation touches to the website.

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

```
/* How many first touches is each campaign
responsible for? */
WITH first_touch AS (
  SELECT user_id,
         MIN (timestamp) AS 'first_touch_time'
  FROM page_visits
  GROUP BY user_id),

  ft_count AS (
  SELECT ft.user_id,
         ft.first_touch_time,
         pv.utm_source,
         pv.utm_campaign
  FROM first_touch AS 'ft'
  JOIN page_visits AS 'pv'
    ON ft.user_id = pv.user_id
  AND ft.first_touch_time = pv.timestamp
  )

SELECT ft_count.utm_source AS Source,
       ft_count.utm_campaign AS Campaign,
       COUNT (*) AS COUNT
FROM ft_count
GROUP BY 1,2
ORDER BY 3 DESC;
```

2.2 Last Touches

How many last touches is each campaign responsible for?

- To determine how many first touches is each campaign responsible for we used the last-touch attribution.
- Last-touch attribution only considers the last source for each customer. This shows us how visitors are drawn back to the website, especially for making a final purchase.
- We can see from our output below that visitors have most frequently are reminded of cooltshirts.com via email through the weekly-newsletter campaign which earned 447 last visitation touches to the website.

Source	Campaign	COUNT
email	weekly-newsletter	447
facebook	retargetting-ad	443
email	retargetting-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

```
/* How many last touches is each campaign responsible
for? */
WITH last_touch AS (
  SELECT user_id,
  MAX(timestamp) AS 'last_touch_time'
  FROM page_visits
  GROUP BY user_id),

  lt_count AS (
  SELECT lt.user_id,
        lt.last_touch_time,
        pv.utm_source,
        pv.utm_campaign
  FROM last_touch AS 'lt'
  JOIN page_visits AS 'pv'
    ON lt.user_id = pv.user_id
  AND lt.last_touch_time = pv.timestamp
  )

SELECT lt_count.utm_source AS Source,
       lt_count.utm_campaign AS Campaign,
       COUNT (*) AS COUNT
FROM lt_count
GROUP BY 1,2
ORDER BY 3 DESC;
```

CoolTShirts?

How many visitors make a purchase from cooltshirts?

- As evidenced below from our output, it is 361 visitors. We can do a simple equation to find out that out of 1,979 total visitors only about 18% make a purchase.

Visitors Who Purchased
361

Visitors In Total
1979

```
/*
How many visitors make a purchase?
*/

SELECT COUNT (DISTINCT user_id) AS 'Visitors Who
Purchased'
FROM page_visits
WHERE page_name = '4 - purchase';

/*
How many total visitors?
*/

SELECT COUNT (DISTINCT user_id) AS 'Visitors In Total'
FROM page_visits;
```

2.4 How Many Campaigns?

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

- By knowing what our last touches are on the purchase page for each campaign we can see which campaign have been the most successful. We can see that the weekly newsletter is the most successful at bringing back customers.

Source	Campaign	COUNT
email	weekly-newsletter	115
facebook	retargetting-ad	113
email	retargetting-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

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

```
WITH last_touch AS (
  SELECT user_id,
         MAX (timestamp) AS 'last_touch_time'
  FROM page_visits
  WHERE page_name = '4 - purchase'
  GROUP BY user_id),
```

```
lt_count AS (
  SELECT lt.user_id,
         lt.last_touch_time,
         pv.utm_source,
         pv.utm_campaign
  FROM last_touch AS 'lt'
  JOIN page_visits AS 'pv'
    ON lt.user_id = pv.user_id
  AND lt.last_touch_time = pv.timestamp
)
```

```
SELECT (
  lt_count.utm_source AS Source,
  lt_count.utm_campaign AS Campaign,
  COUNT (*) AS COUNT
  FROM lt_count
  GROUP BY 1,2
  ORDER BY 3 DESC;
```

3. Optimize Campaign Budget

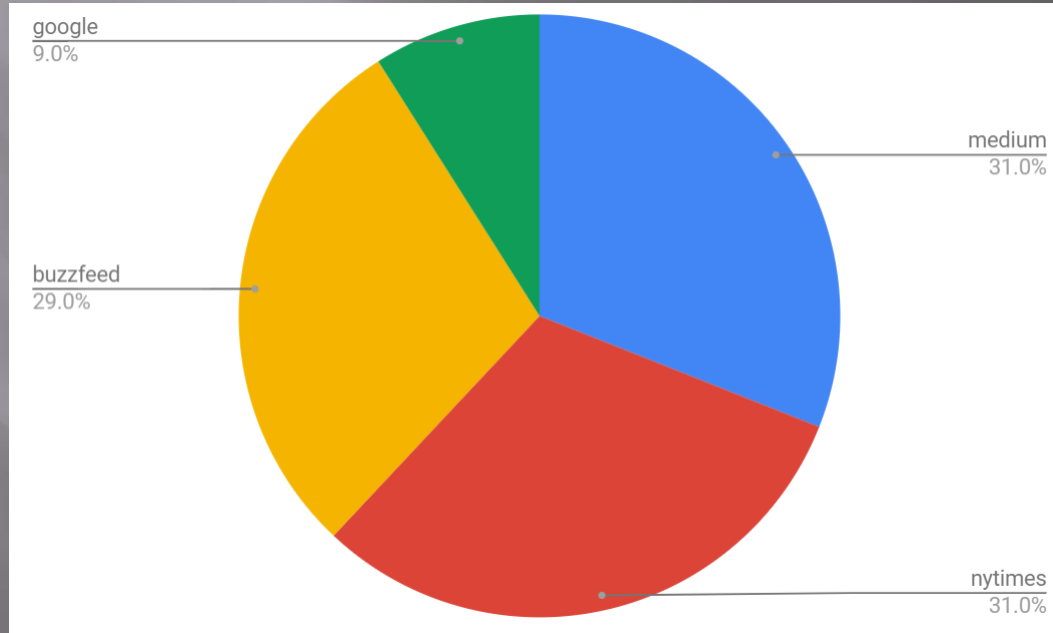
Now that we have collected all of our data, we need to view our data to see what best fits the company. Since cooltshirts is very motivated to sell their tshirts, we need to pick campaigns and sources that generate the most interest so we can target those sales.

We will need to look at the typical user journey to figure out what campaign to choose.

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

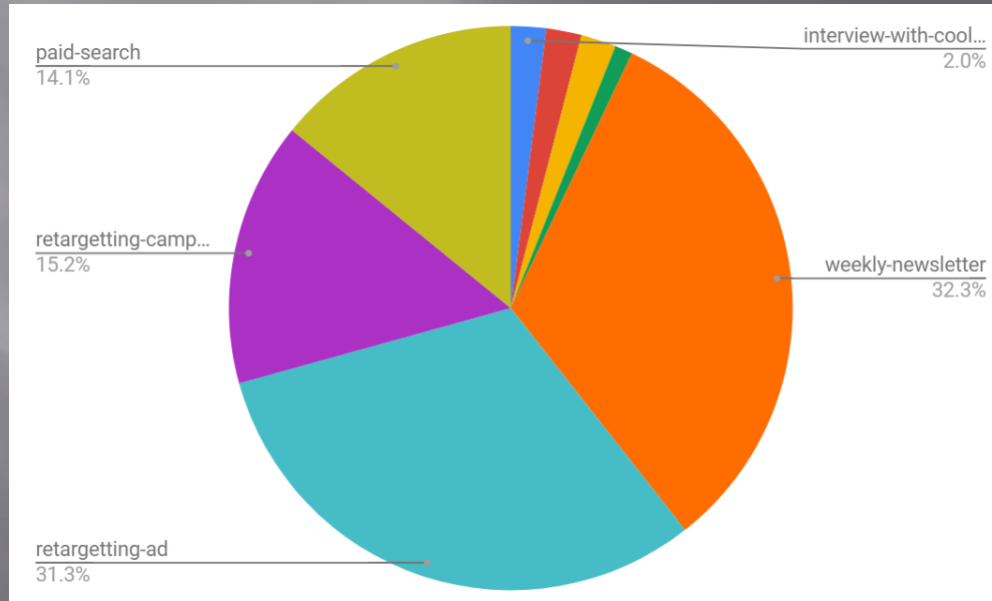
3. Optimize Campaign Budget

From our data we can see that nytimes, medium, and buzzfeed give cooltshirts the most first touch responses percentage. (facebook is not listed since the percentage was 0).



3. Optimize Campaign Budget

From our chart, we can visually see that the campaigns that are the most successful are retargeting-ad, retargeting-campaign, and weekly newsletter.



3. Optimize Campaign Budget

To optimize the campaign budget and sales, it is best to run the campaigns weekly-newsletter, retargeting-ad, and retargeting-campaign. As we have found, it is also best to keep promoting through medium, nytimes, and buzzfeed based on the data collected which indicated the highest percentage.

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