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First- and Last-Touch Attribution with CoolTShirts.com

Learn SQL from Scratch

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1. Getting Familiar with CoolTShirts

Campaigns and sources that CoolTShirts.com uses

Campaigns (utm_campaign) identify the specific ad or email blast sent out to potential customers (e.g., weekly newsletter) – there are **8 distinct campaigns**.

Sources (utm_source) identify which site sent the traffic; in other words, how potential customers got to the campaign (e.g. Google, email) – there are **6 distinct sources**.

Each campaign has a corresponding source that drives the traffic to it, but a source may lead to more than one campaign.

Campaign	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

Number of distinct campaigns

```
1  SELECT COUNT(DISTINCT utm_campaign) AS 'Distinct Campaigns'
2  FROM page_visits;
```

Query Results

Distinct Campaigns
8

Number of distinct sources

```
1  SELECT COUNT(DISTINCT utm_source) AS 'Distinct Sources'
2  FROM page_visits;
```

Query Results

Distinct Sources
6

Relationship between campaigns and sources

```
1  SELECT DISTINCT utm_campaign AS 'Campaign',
2      utm_source AS 'Source'
3  FROM page_visits;
```

Pages on the CoolTShirts.com website

Pages (page_name) identify the title of the section of the page that was visited – they are broken out by stage (e.g., shopping cart, purchase) of the shopping journey.

For CoolTShirts.com, there are **4 distinct pages:**
- Landing page
- Shopping cart
- Checkout
- Purchase

I used a SELECT DISTINCT query to collect this information.

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

Distinct page names

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

2. The User Journey

First Touch Attribution

Customers' <u>first touch</u> (the original point of contact for each customer) was divided into **4 sources (out of 6 total) and 4 campaigns (out of 8 total)**.

First touch is determined by using the earliest time [MIN(timestamp)] listed for each user.

"CoolTShirts search" had considerably fewer first touches than the other three campaigns.

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

First touch attribution

```sql
1   WITH first_touch AS (
2     SELECT user_id,
3            MIN(timestamp) as first_touch_at
4       FROM page_visits
5       GROUP BY user_id),
6   ft_attr AS (
7     SELECT ft.user_id,
8            ft.first_touch_at,
9            pv.utm_source,
10           pv.utm_campaign
11     FROM first_touch ft
12     JOIN page_visits pv
13       ON ft.user_id = pv.user_id
14       AND ft.first_touch_at = pv.timestamp
15   )
16   SELECT ft_attr.utm_source as source,
17          ft_attr.utm_campaign as campaign,
18          COUNT(*) as count
19   FROM ft_attr
20   GROUP BY 1, 2
21   ORDER BY 3 DESC;
```

Last Touch Attribution

Customers' last touch (the final stop for each customer) was divided into **6 sources and 8 campaigns,** with the weekly newsletter and the retargeting ad generating the most last touches.

First touch is determined by using the latest time [MAX(timestamp)] listed for each user.

It is important to note that there is a steep drop-off after the weekly newsletter and retargeting ad campaigns.

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

Last touch attribution

```
1   WITH last_touch AS (
2   SELECT user_id,
3          MAX(timestamp) AS 'last_touch_at'
4      FROM page_visits
5      GROUP BY user_id),
6   lt_attr AS (
7     SELECT lt.user_id,
8            lt.last_touch_at,
9            pv.utm_source,
10           pv.utm_campaign,
11           pv.page_name
12    FROM last_touch lt
13    JOIN page_visits pv
14      ON lt.user_id = pv.user_id
15      AND lt.last_touch_at = pv.timestamp
16   )
17   SELECT lt_attr.utm_source as source,
18          lt_attr.utm_campaign as campaign,
19          COUNT(*) as count
20   FROM lt_attr
21   GROUP BY 1, 2
22   ORDER BY 3 DESC;
```

Visitors that made a purchase

Out of the 2000 people that went to the landing page, nearly all (1900/2000 = 95.0%) went to the shopping cart page.

More than three-quarter (1431/1900 = 75.3%) of those that went to the shopping cart went to the checkout page.

The largest drop-off came between the checkout page and the purchase page (361/1431 = 25.2%). Only 18.1% of those that went a landing page went to the purchase page (361/2000 = 18.1%).

page	count
1 – landing page	2000
2 – shopping cart	1900
3- checkout	1431
4 - purchase	361

Number of visitors that made a purchase

```
1  SELECT page_name as page,
2    COUNT(*) as count
3  FROM page_visits
4  WHERE page_name = '4 - purchase'
5  GROUP BY page;
```

Query Results

page	count
4 - purchase	361

Number of visitors per page

```
1  SELECT page_name as page,
2    COUNT(*) as count
3  FROM page_visits
4  GROUP BY page;
```

Last touches on the purchase page that each campaign is responsible for

The weekly newsletter (via email) and the retargeting ad (from Facebook) are the campaigns that are responsible for the most <u>last touches</u> (determined by (timestamp) on the purchase page) on the purchase page.

The "10 Crazy CoolTShirts Facts" (from Buzzfeed), "Getting To Know CoolTShirts" (from the New York Times), the interview with the CoolTShirts founder (from Medium), and a CoolTShirts search are only responsible for 7.5% of last touches on the purchase page <u>combined</u>.

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

Last touch on purchase page for each campaign

```
1   WITH last_touch AS (
2   SELECT user_id,
3           MAX(timestamp) AS 'last_touch_at'
4       FROM page_visits
5       WHERE page_name = '4 - purchase'
6       GROUP BY user_id),
7   lt_attr AS (
8     SELECT lt.user_id,
9             lt.last_touch_at,
10            pv.utm_source,
11            pv.utm_campaign,
12            pv.page_name
13    FROM last_touch lt
14    JOIN page_visits pv
15      ON lt.user_id = pv.user_id
16      AND lt.last_touch_at = pv.timestamp
17  )
18  SELECT lt_attr.utm_source as source,
19         lt_attr.utm_campaign as campaign,
20         COUNT(*) as count
21  FROM lt_attr
22  GROUP BY 1, 2
23  ORDER BY 3 DESC;
```

The typical user journey

To track the typical user journey, I started by selecting everything from the page_visits table ordered by user_id (with a limit of 100) to get a general sense of a pattern.

After users get to the landing page, nearly all of them go to the shopping cart page shortly thereafter (often within a few minutes).

Of those that get to the checkout stage, there is usually a several day gap between when they get to the shopping cart page and when they get to the checkout stage.

As mentioned earlier, the steepest drop-off is between those that get to the checkout stage and those that get to the purchase page. However, for those that do end up purchasing a product, it is usually done soon after they get to the checkout page (usually within a few minutes).

Tracking the typical user journey

```
1   SELECT *
2   FROM page_visits
3   ORDER BY user_id ASC
4   LIMIT 100;
```

This could be because they are taking their time shopping on the website, or potentially comparing prices and styles with competitor websites.

Some users need to be engaged a second time with a campaign to remind them to complete the purchase.

3. Optimizing the Campaign Budget

The 5 campaigns that CoolTShirts.com should re-invest in

I broke out this analysis into two pieces – first touch prowess and last touch prowess.

First Touch Prowess

There are three campaigns that perform well on first touch (highlighted in blue below):
- Interview with CoolTShirts founder (from Medium)
- Getting to know CoolTshirts (from NY Times)
- Ten crazy CoolTshirts facts (from Buzzfeed)

These are vitally important because they draw potential customers into the site – and customers can't make purchases if they are not on the website in the first place.

High first touch

Source	Campaign	First touches	% of all first touches
medium	interview-with-cool-tshirts-founder	622	31.4%
nytimes	getting-to-know-cool-tshirts	612	30.9%
buzzfeed	ten-crazy-cool-tshirts-facts	576	29.1%
google	cool-tshirts-search	169	8.5%

The 5 campaigns that CoolTShirts.com should re-invest in (ctd.)

Last Touch Prowess

There are two campaigns that perform well on last touch (highlighted in blue below):
- Weekly newsletter (from email)
- Retargeting ad (from Facebook)

Re-investing in both of these campaigns, along with the three mentioned in the previous slide would diversify CoolTShirts' investments across five different sources (email, Facebook, NY Times, Buzzfeed, and Medium), giving them each a distinct chance succeed by reaching different potential customers.

High last touch

High first touch

Source	Campaign	Last touches	% of all last touches
email	weekly-newsletter	447	22.6%
facebook	retargetting-ad	443	22.4%
email	retargetting-campaign	245	12.4%
nytimes	getting-to-know-cool-tshirts	232	11.7%
buzzfeed	ten-crazy-cool-tshirts-facts	190	9.6%
medium	interview-with-cool-tshirts-founder	184	9.3%
google	paid-search	178	9.0%
google	cool-tshirts-search	60	3.0%

The 5 campaigns that CoolTShirts.com should re-invest in (ctd.)

Final Recommendation

In short, CoolTShirts.com should re-invest in the following five campaigns:

Weekly newsletter (email)
Retargeting ad (Facebook)
Interview with CoolTShirts founder (Medium)
Getting to know CoolTShirts (New York Times)
Ten crazy CoolTShirts facts (Buzzfeed)