



Capstone: Attribution

Learn SQL from Scratch

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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? Which source is used for each campaign?

```
1 SELECT COUNT(DISTINCT utm_campaign) AS campaign_count
2 FROM page_visits;
3
4 SELECT COUNT(DISTINCT utm_source) AS source_count
5 FROM page_visits;
6
7 SELECT DISTINCT utm_source, utm_campaign
8 FROM page_visits;
```

campaign_count	source_count
8	6

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

- CoolTShirts ran 8 campaigns on 6 different sources
- A campaign is a marketing message published on selected source(s) that tries to convert the target audience into customers. For example, a retargeting ad would be an ad shown to users who have been pre-exposed to the company in hopes that they would become customers.
- A source is where the campaign(s) live(s) on or the form of communication that the campaign is ran on. A source can come in many forms such as social media and search engines.
- A source can have multiple campaigns and the same campaign can be ran on multiple sources. Although CoolTShirts did not do the latter.

1.2 What pages are on the CoolTShirts website?

```
1 SELECT DISTINCT page_name
2 FROM page_visits;
```

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

- There are 4 pages on CoolTShirts. Realistically, most websites would have more pages.
- The landing page would be where the visitors land when they click on the campaign

2. What is the user journey?

2.1 How many *first* touches is each campaign responsible for?

```
1  WITH first_touch AS (  
2    SELECT user_id,  
3           MIN(timestamp) AS first_touch_at  
4    FROM page_visits  
5    GROUP BY 1),  
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  SELECT utm_source,  
16         utm_campaign,  
17         COUNT(*) AS ft_count  
18  FROM ft_attr  
19  GROUP BY 2  
20  ORDER BY 3 DESC;
```

Source	Campaign	ft_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

- Out of the 8 campaigns, there are 4 campaigns that are responsible for first touches.
- It is no surprise that a search for cool tshirts would be responsible for first touches as the user is intentionally looking for cool tshirts. However, It is interesting how articles would attract more first time users than searches.

2.2 How many *last* touches is each campaign responsible for?

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

Source	Campaign	lt_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

- All 8 campaigns are responsible for last touches.
- Note that the top 3 campaigns that are responsible for first touches are not the top 3 campaigns that are responsible for last touches.

2.3 How many visitors make a purchase?

```
1 SELECT COUNT(DISTINCT user_id) AS user_count
2 FROM page_visits
3 WHERE page_name = '4 - purchase';
```

user_count
361

- There are 361 visitors out of the 1979 distinct visitors that make a purchase, equating to 18% of visitors.

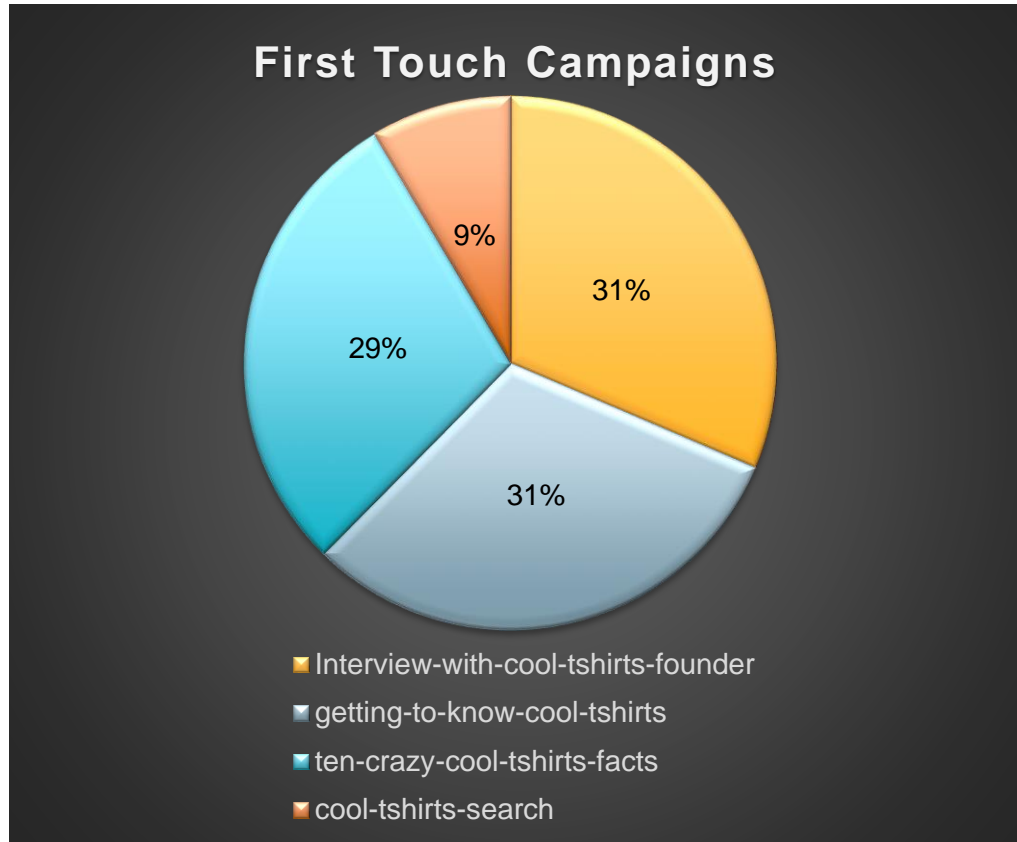
2.4 How many last touches on the purchase page is each campaign responsible for?

```
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 1),  
7  lt_attr AS (  
8    SELECT lt.user_id,  
9           lt.last_touch_at,  
10          pv.utm_source,  
11          pv.utm_campaign  
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  SELECT utm_source,  
17         utm_campaign,  
18         COUNT(*) AS lt_count  
19  FROM lt_attr  
20  GROUP BY 2  
21  ORDER BY 3 DESC;
```

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

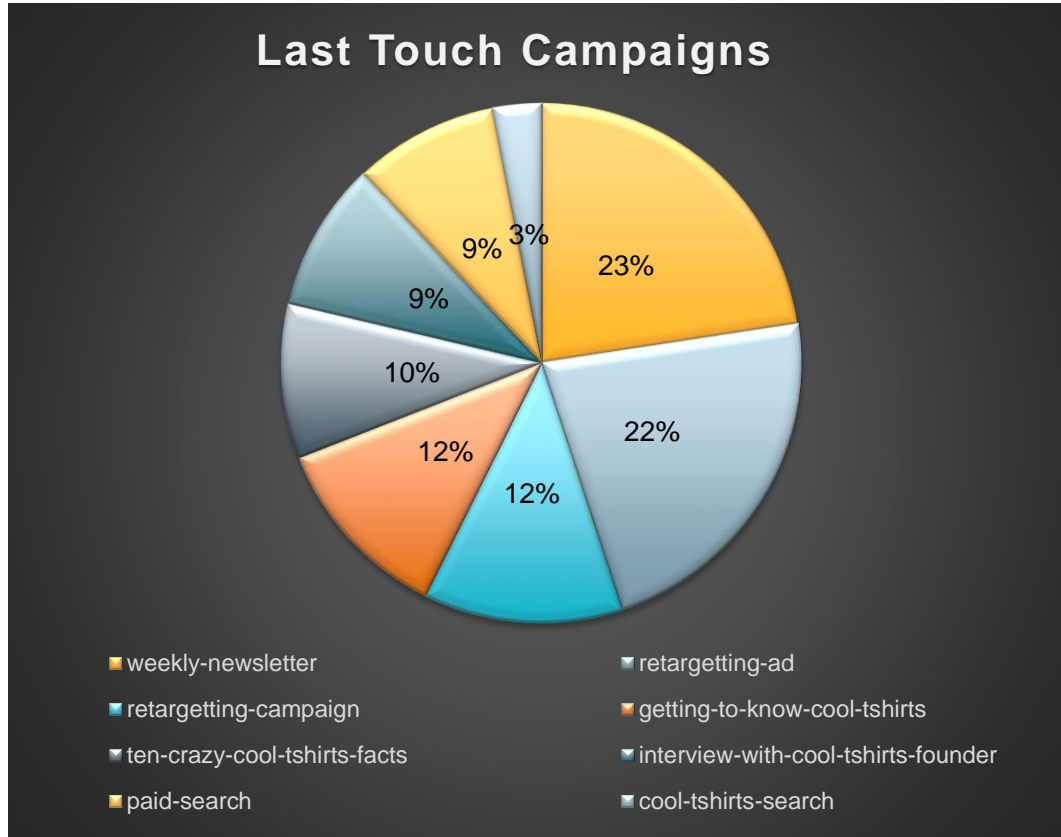
- Weekly-newsletter and retargeting ad dominate in responsibility for last touches on the purchase page
- The campaigns that are responsible for first touches are not as effective in converting visitors into purchasing customers

2.5 What is the typical user journey? – First Touch



- Most of the visitors, 91%, come to the site via an article that talks about cool tshirts
- The other 9% comes from searching cool tshirts.

2.5 What is the typical user journey? (cont) – Last Touch



- Most of the users, 57%, end their journey via weekly newsletter or one of the two retargeting campaigns.
- Visitors need a reoccurring campaign to remind them of CoolTShirts

2.5 What is the typical user journey? (cont) – Purchase



- The same top 3 campaigns that are responsible for last touches are also effective for purchases. 78% of visitors end their journey as customers when given weekly ad or one of the two retargeting campaigns.
- This indicates that with a reoccurring campaign that reminds them of CoolTShirts, visitors are more likely to become customers.

3. Optimize the campaign budget

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

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

- If I am part of the CoolTShirts Marketing team, the 5 campaigns I would recommend to re-invest in would be the top 3 campaigns that are responsible for first touches and the top 2 campaigns that are responsible for purchases.
- It is important to make a good impression and I think the three articles did a great job in getting visitors interested in CoolTshirts. Their first touches % are within 1% of each other. They should drop any investment in cool-tshirt search as their search ranking (SEO) should also improve as the company becomes more known through other campaigns.
- After making a first impression, they would want to convert visitors into customers. The weekly-newsletter and retargeting-ad are both very effective in encouraging purchases. Also both their last touches % and purchase % are within 1% of each other.
- With these 5 campaigns, I am confident that CoolTShirts will have great success.