



Learn SQL from Scratch

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'Capstone Project

'Marketing Campaign Optimization'

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1. Get familiar with the company.

- 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?



Get familiar with CoolTShirts



What is the user journey?



Optimize the campaign budget



Get Familiar with CoolTShirts

1.1 UTM Campaigns and UTM sources

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

- CoolTShirt uses 8 different campaigns and distributes them through 6 different sources (bottom right table)
- Each campaign uses different source as a channel but sources can have multiple different campaigns attached to one (e.g., Google → 'paid – search' and 'cool-tshirts-search')

```
select count(distinct utm_campaign)
```

```
from page_visits;
```

```
select count(distinct utm_source)
```

```
from page_visits;
```

```
select distinct utm_campaign, utm_source
```

```
from page_visits;
```

count(distinct utm_campaign)	
8	
count(distinct utm_source)	
6	
utm_campaign	utm_source
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 Page Names

What pages are on the CoolTshirts website?

- There are four pages on the CoolTShirts website that the user can go through – Landing Page, Shopping Cart, Checkout, Purchase
- Each page is attached to a number showing the chronological step of user's journey
- Landing page represents the first page a user sees after being directed through the campaign on one of the sources
- Shopping cart and checkout are showing further progress of a user, while purchase page is only reached by a user if they bought something

```
select distinct page_name  
from page_visits;
```

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



What is the user journey?

2.1 First Touch

```
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,  
       ft_attr.utm_campaign,  
       count(*)  
from ft_attr  
group by 1,2  
order by 3 desc;
```

How many first touches is each campaign responsible for?

- First touch represents customers first contact with the website
- Each first touch is attributed to a marketing campaign that initially led the user to visit the website
- Below we can see the success of our campaigns in leading to first touches can be mostly attributed to 'medium', 'nytimes', and 'buzzfeed' sources
- When it comes to campaigns the most successful ones were 'interview-with-cool-tshirts-founder', 'getting-to-know-cool-shirts', and 'ten-crazy-cool-tshirt-facts'

ft_attr.utm_source	ft_attr.utm_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

2.2 Last Touch

```
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,  
       lt_attr.utm_campaign,  
       count(*)  
from lt_attr  
group by 1,2  
order by 3 desc;
```

How many last touches is each campaign responsible for?

- Last touch represents customers last contact with the website
- Each last touch is attributed to a marketing campaign and source that led the user to visit the website
- Below we can see the success of our campaigns in leading to last touches can be mostly attributed to 'email' and 'facebook' sources with 'weekly-newsletter' and 'retargeting-ad' campaign

lt_attr.utm_source	lt_attr.utm_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

2.3 Purchase

How many visitors make a purchase?

By calculating how many users reached the purchase page we can find that 361 users bought something on CoolTShirts website

```
select count(distinct user_id) as '# of Users',  
page_name  
from page_visits  
where page_name = '4 - purchase';
```

# of Users	page_name
361	4 - purchase

2.4 Last Touch Purchase

```
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),  
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,  
       lt_attr.utm_campaign,  
       count(*)  
from lt_attr  
group by 1,2  
order by 3 desc;
```

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

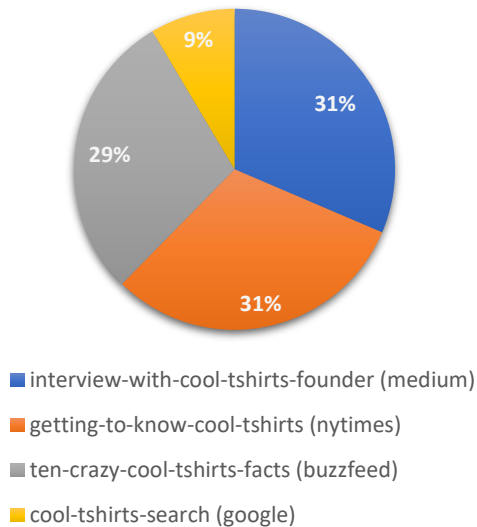
- This query gives a more profit oriented result rather than just showing last touch as in the slide 8
- The pattern continues as 'email', 'facebook', 'weekly-newsletter', and 'retargetting-ad' sources and campaigns are still among most successful
- However, it is interesting that Google emerges with highest purchase success rate – 29%

lt_attr.utm_source	lt_attr.utm_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

2.5 Typical User Journey

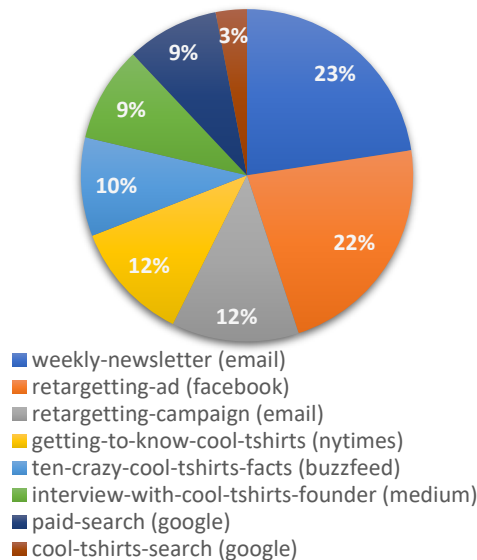
What is the user journey?

First Touch



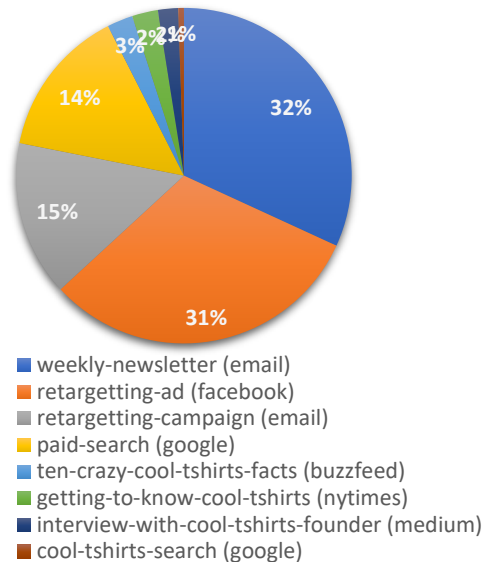
91% users have initial interaction with the website through interview-with-cool-tshirts-founder (source: medium), getting-to-know-cool-tshirts (source: nytimes), and ten-crazy-cool-tshirts-facts (source: buzzfeed) campaigns.

Last Touch



45% users have last interaction with the website through weekly-newsletter received via , and retargeting-ad on facebook. Every other campaign draws back similar amount of users except for the least successful google cool-tshirts-search.

Last Touch Purchase



Best conversion rate from last touch to purchase can be attributed to weekly-newsletter (email), retargeting-ad (facebook), retargeting-campaign (email), and paid-search (google) campaigns. These four campaigns account for 92% of purchases.



Optimizing the Campaign Budget

3.1 5 Campaigns for reinvestment

Optimizing the campaign budget

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

First Touch

When looking for successful campaigns, the first step is to find the ones that raise the awareness about the website. We can clearly state from the pie chart on slide 11 the following candidates for reinvestment:

- 1. interview-with-cool-tshirts-founder via medium**
- 2. getting-to-know-cool-tshirts via nytimes**
- 3. ten-crazy-cool-tshirts-facts via buzzfeed**

Last Touch Purchase

The next logical step is to look at the last touches, but only the ones that is profitable (leading to purchase). In that area two campaigns stand out:

- 4. weekly-newsletter via email**
- 5. retargeting-ad on facebook**