



# CoolTShirts Project

Learn SQL from Scratch

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

# 1. Get familiar with the company



## 1.1a) How many campaigns and sources does CoolTShirts use?

- CoolTShirts uses **8** campaigns from **6** unique sources.
- The **campaigns** represent the different advertising messages used to communicate with their target audiences
- The **sources** are the different advertising mediums used to distribute the various campaigns.

## 1.1b) Which source is used for each campaign?

- CoolTShirts use a combination of email, search engine (Google), social media (facebook) and news website campaigns (Buzzfeed and NYTimes) to communicate with their target audience.

```
1  -- Count unique campaigns
2  SELECT COUNT (DISTINCT utm_campaign) AS 'Campaigns'
3  FROM page_visits;
4
5  -- Count unique sources
6  SELECT COUNT (DISTINCT utm_source) AS 'Sources'
7  FROM page_visits;
8
9  -- Show relationships
10 SELECT utm_campaign AS 'Campaign',
11         utm_source AS 'Source',
12         count (*) AS 'Count'
13        FROM page_visits
14 GROUP BY Campaign
15 ORDER BY Source;
```

Query Results		
Campaigns		
8		
Sources		
6		
Campaign	Source	Count
ten-crazy-cool-tshirts-facts	buzzfeed	1198
retargetting-campaign	email	300
weekly-newsletter	email	565
retargetting-ad	facebook	558
cool-tshirts-search	google	313
paid-search	google	231
interview-with-cool-tshirts-founder	medium	1178
getting-to-know-cool-tshirts	nytimes	1349

## 1.2 How many pages are on their website?

- CoolTShirts has 4 different landing pages that each represent different stages of their customers' progression through the purchasing process:
  1. landing\_page
  2. shopping\_cart
  3. checkout
  4. purchase
- Most people do not visit every page. In fact, only 7% of CoolTShirts' visitors saw all 4 pages (note that some of these visited the landing\_page and shopping\_cart twice).

```
1 -- Find all unique pages
2 SELECT DISTINCT page_name AS 'Page Names'
3 FROM page_visits;
```

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

## 2. What is the user journey?



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

- Of the 8 CoolTShirts campaigns, 4 generated 'first touches':
  - The *'interview-with-cool-tshirts-founder'* generated the most 'first touches' (622 in total).
  - This was closely followed by *'getting-to-know-cool-tshirts'* featured in the NYTimes (612).
  - Buzzfeed generated 576 'first touches' with the *'ten-crazy-cool-tshirts-facts'*.
  - Google added an additional 169 'first touches' with the *'cool-tshirts-search'*.
- The remaining campaigns were the re-targeting ads, the paid search and newsletter which were aimed at people who had previously visited the site.



Query Results		
Source	Campaign	Total
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

```
1  |-- Find first touches for all Campaigns
2  WITH first_touch AS (
3      SELECT user_id,
4             MIN(timestamp) as first_touch_at
5      FROM page_visits
6      GROUP BY user_id),
7  ft_attr AS (
8      SELECT ft.user_id,
9             ft.first_touch_at,
10            pv.utm_source,
11            pv.utm_campaign
12      FROM first_touch ft
13      JOIN page_visits pv
14        ON ft.user_id = pv.user_id
15        AND ft.first_touch_at = pv.timestamp
16  )
17  SELECT ft_attr.utm_source AS 'Source',
18         ft_attr.utm_campaign AS 'Campaign',
19         COUNT(*) AS 'Total'
20  FROM ft_attr
21  GROUP BY 1, 2
22  ORDER BY 3 DESC;
```

## 2.1 How many last touches is each campaign responsible for?

- Email campaigns were responsible for more than a third of all last touches (692).
- Google campaigns returned the lowest number of last touches (238 or only 12%).
- Campaigns that are traditionally focussed on targeting customers with an existing relationship (i.e. email newsletters, retargeting ads) produced the majority of last touches (1135 or 57% of all last touches).
- News-style campaigns (through BuzzFeed, NYTimes and the interview with the founder) generated less than a third of last touches.

Query Results		
Source	Campaign	Total
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

```
1 -- Find last touches for all Campaigns
2 WITH last_touch AS (
3     SELECT user_id,
4           MAX(timestamp) as last_touch_at
5     FROM page_visits
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 'Total'
21 FROM lt_attr
22 GROUP BY 1, 2
23 ORDER BY 3 DESC;
```



## 2.3 How many visitors make a purchase?

- 361 customers purchased from the CoolTShirts website.
- This represents 18% of all visitors to the site.
- This is a good result considering that average website conversion rates in the retail industry are less than 5%. (Source: <https://www.statista.com/statistics/439558/us-online-shopper-conversion-rate/>)

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

Query Results	
Customers	
361	



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

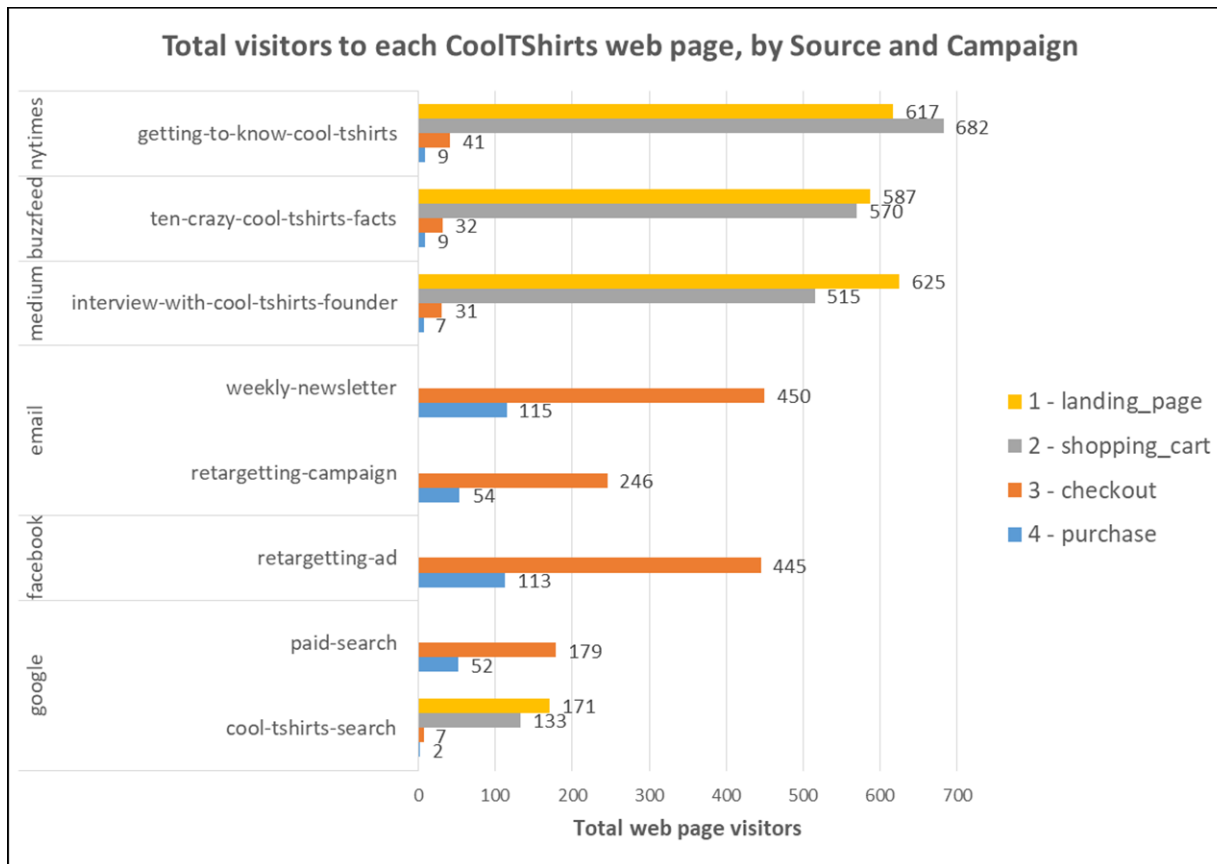
The weekly newsletter, retargeting ads (on Facebook and email) and the paid Google search, resulted in significantly more purchases than the remaining campaigns (334 or 93% of all purchases).

The totals for each campaign are shown below:

Query Results		
Source	Campaign	Total
email	weekly-newsletter	115
facebook	retargeting-ad	113
email	retargeting-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

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

## 2.5 What is the typical user journey?



Most visitors are initially driven to the CoolTShirts website through their interactions with the campaigns run in:

- **NYTimes** (getting to know CoolTShirts);
- **BuzzFeed** (ten crazy cool tshirts facts); and
- **Medium** (the interview with the Cool TShirts founder).

However, the retargetting ads are more successful at motivating visitors to purchase from the CoolTShirts website. These include:

- Weekly newsletter and retargetting **emails** and
- **Facebook** retargetting ad.

The **Google** paid search results in an impressive conversion rate (29%) because these visitors are actively searching for the product and are more likely to have an intention to purchase from the outset.

## 2.5 What is the typical user journey?



### Retargetting is key:

Although the “mass media” campaigns are successful in attracting visitors to the CoolTShirts website, most visitors need exposure to a follow-up retargeting campaign in order to be persuaded to purchase. Of the 361 purchasers:

- Only 8% (or 28) are exposed to only 1 campaign
- 79% (or 284) are exposed to 2 different campaigns
- 14% (or 49) are exposed to 3 different campaigns.

The **email** campaigns (i.e. newsletter and retargeting campaign) direct visitors straight to the checkout page.

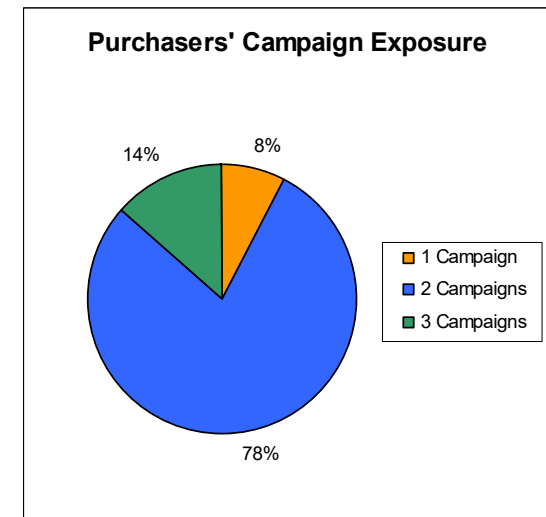
- 22% of visitors exposed to the retargeting campaign, subsequently make a purchase.
- 26% of the weekly newsletter readers are influenced to make a purchase.

The **facebook** retargeting ad directs visitors straight to the checkout page.

- 25% of visitors to the checkout page, originating from facebook, ultimately make a purchase.

The **Google** paid search also directs visitors straight to the checkout page.

- 29% of these visitors make a purchase.



### 3. Optimize the campaign budget





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

Assuming the main objective of the CoolTShirts marketing campaign is to drive sales, the most successful campaigns were:

1. Weekly newsletter email (115 purchases)
2. Facebook retargeting ad (113 purchases)
3. Retargeting campaign email (54 purchases)
4. Paid Google search (52 purchases)

However, all of these visitors had initially been exposed to another campaign (as we can see that none of the retargeting campaigns generated any 'first touches'). So these ads are only successful in conjunction with one of the 'brand awareness' campaigns.

Although the remaining ads did not have a significant influence on sales, they did generate a lot of traffic to the landing page and shopping cart. If CoolTShirts are also aiming to increase brand awareness, the article in the NYTimes resulted in the largest number of unique visitors to the website (747 in total) (see code and query below), while Buzzfeed added an additional 648 unique visitors and Medium added 625.

```
1 --Find Unique visitors by campaign source
2 SELECT utm_source AS "Source",
3        utm_campaign AS 'Campaign',
4        COUNT (DISTINCT user_id) as "Unique visitors"
5 FROM page_visits
6 GROUP BY utm_source
7 ORDER BY 3 DESC;
```

Query Results		
Source	Campaign	Unique visitors
nytimes	getting-to-know-cool-tshirts	747
email	retargeting-campaign	696
buzzfeed	ten-crazy-cool-tshirts-facts	648
medium	interview-with-cool-tshirts-founder	625
facebook	retargeting-ad	445
google	cool-tshirts-search	339

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

- The email campaigns are likely to have the lowest cost, so they also represent the best return on investment. However the newsletter is more successful than the retargeting email, so if we are limited to one choice, it would be best to cut the retargeting email. Relevant content (such as the interview with the CoolTShirts founder) could easily be included in the email newsletter to maintain customer engagement and reduce advertising costs associated with placing this content in mass media.
- Greater investment in Facebook retargeting ads is recommended as they generate the most sales of all the paid campaigns. Facebook also allows for very specific targeting of desired demographic groups.
- As the retargeting campaigns are only successful after an initial pool of potential customers has been identified, we need to continue with the brand awareness campaigns. NYTimes and BuzzFeed attract both the most 'first-touches' AND 'purchasers' of these campaigns, and it is recommended that they continue, to ensure that existing customers are not fatigued with over-exposure to retargeting campaigns (e.g. excessive emails may be perceived as 'spam').

**In summary, the 5 recommended campaigns are:**

1. Weekly newsletter email
2. Facebook retargeting ad
3. Paid Google search
4. NYTimes article
5. BuzzFeed article



## 4.1 Bibliography

1. Naveen Gudigantala, Pelin Bicen, Mike (Tae-in) Eom, (2016) "[An examination of antecedents of conversion rates of e-commerce retailers](https://doi-org.ezproxy.uow.edu.au/10.1108/MRR-05-2014-0112)", Management Research Review, Vol. 39 Issue: 1, pp.82-114, <https://doi-org.ezproxy.uow.edu.au/10.1108/MRR-05-2014-0112>
2. Conversion rate of online shoppers in the United States as of 1st quarter 2018, <https://www.statista.com/statistics/439558/us-online-shopper-conversion-rate/> (Mar 2018).
3. CodeCademy.com, Learn SQL from Scratch, Week 4 Lesson: 'First- and Last-Touch Attribution'.

