



Learn SQL from Scratch

Capstone Project

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

Section 1:

Get Familiar with CoolTShirts

Section 1: Get Familiar with CoolTShirts

[Campaigns and Sources]

CoolTShirts uses six sources to drive sales to their website: The New York Times, email, Buzzfeed, Facebook, medium, and Google. Sources identify the vehicle by which a potential client navigates to the site.

Eight campaigns are currently being used within the six vehicles. Campaigns are specific marketing initiatives that can be paired with a single source or can span multiple sources.

Query Results	
Campaigns	
8	
Sources	
6	
Campaign List	Source List
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

```
--How many campaigns and sources does CoolTShirts use?  
Which source is used for each campaign? Use three queries:  
one for the number of distinct campaigns, one for the  
number of distinct sources, one to find how they are  
related:|
```

```
select count (distinct utm_campaign) 'Campaigns'  
from page_visits;
```

```
select count (distinct utm_source) 'Sources'  
from page_visits;
```

```
select distinct utm_campaign as 'Campaign List',  
               utm_source as 'Source List'  
from page_visits;
```

Section 1: Get Familiar with CoolTShirts

[Site Pages]

The CoolTShirts website is comprised of four pages users navigate through in the process of purchasing shirts.

```
--What pages are on the CoolTShirts website? Find the distinct values of  
the page_name column  
  
select distinct page_name  
from page_visits;
```

1. Landing Page



2. Shopping Cart



3. Checkout



4. Purchase

Section 2: The User Journey

Section 2: The User Experience

[First Touches by Campaign]

Using the minimum timestamp value for each user, their first visit to the website and the campaign driving them to the landing page can be calculated.

Eight campaigns currently exist in the CoolTShirts marketing plan, but only four drive users to their website.

Campaign Name	Total First Touches
interview-with-cool-tshirts-founder	622
getting-to-know-cool-tshirts	612
ten-crazy-cool-tshirts-facts	576
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_at
   from page_visits
   group by user_id),
first_touch_expanded 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 first_touch_expanded.utm_campaign as 'Campaign Name',
       count (*) as 'Total First Touches'
from first_touch_expanded
group by utm_campaign
order by 2 desc;
```

Section 2: The User Experience

[Last Touches by Campaign]

The maximum timestamp value for each user indicates their final visit to the website and the campaign triggering that action.

While only four campaigns successful bring 1st time users to the CoolTShirts site, all eight campaigns are generating subsequent site clicks.

Campaign Name	Total Last Touches
weekly-newsletter	447
retargeting-ad	443
retargeting-campaign	245
getting-to-know-cool-tshirts	232
ten-crazy-cool-tshirts-facts	190
interview-with-cool-tshirts-founder	184
paid-search	178
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_at
   from page_visits
   group by user_id),
last_touch_expanded 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 last_touch_expanded.utm_campaign as 'Campaign Name',
       count (*) as 'Total Last Touches'
from last_touch_expanded
group by utm_campaign
order by 2 desc;
```


Section 2: The User Experience

[Purchases]

Exactly 1,979 distinct individuals have visited the CoolTShirts site, however only 18% of those users have purchased shirts.

361

distinct users purchases

```
--How many visitors make a purchase?  
select count(distinct user_id) as 'Distinct User Purchases'  
from page_visits  
where page_name is '4 - purchase';
```

Section 2: The User Experience

[Last Touch Purchases by Campaign]

Of the 361 distinct users who purchased shirts, 72% of transactions resulted from the Weekly Newsletter email and Facebook retargeting ad. Neither of the leading campaigns associated with last touch purchases generated first touches for the CoolTshirts site.

Campaign Name	Purchases From Last Touches
weekly-newsletter	115
retargeting-ad	113
retargeting-campaign	54
paid-search	52
getting-to-know-cool-tshirts	9
ten-crazy-cool-tshirts-facts	9
interview-with-cool-tshirts-founder	7
cool-tshirts-search	2

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

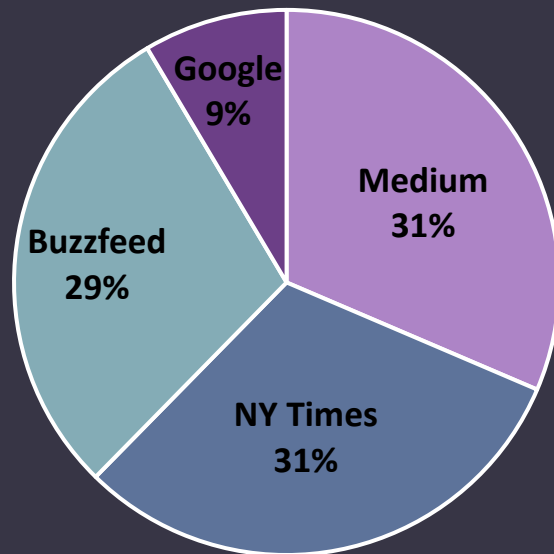
with last_touch as
  (select user_id,
         MAX(timestamp) as last_touch_at
   from page_visits
   where page_name is '4 - purchase'
   group by user_id),
last_touch_expanded as
  (select lt.user_id,
         lt.last_touch_at,
         pv.utm_source,
         pv.utm_campaign
   from last_touch lt
   join page_visits pv
     on lt.user_id = pv.user_id
     and lt.last_touch_at = pv.timestamp)
select last_touch_expanded.utm_campaign as 'Campaign Name',
       count (*) as 'Purchases From Last Touches'
from last_touch_expanded
group by utm_campaign
order by 2 desc;
```

Section 2: The User Experience

[Typical User Journey]

By using the minimum timestamp date for each distinct user to identify their first interaction with the CoolTShirts website, the initial source that drove the user to the website can be isolated. The CoolTshirts potential client journey for 62% of the websites users begins with by clicking through to the website from medium or the New York Times. Facebook has not generated any direct clicks to the website.

Website Traffic by Source



Medium and the New York Times are sources that are each associated with a single campaign:

→ 622 users first touch (sourced from Medium) were generated from the “Getting to Know CoolTShirst” campaign

→ 612 users first touch (sourced from the NY Times) were clicks to site generated from the “Interview with the CoolTShirts Found” campaign

Section 2: The User Experience

[Typical User Journey]

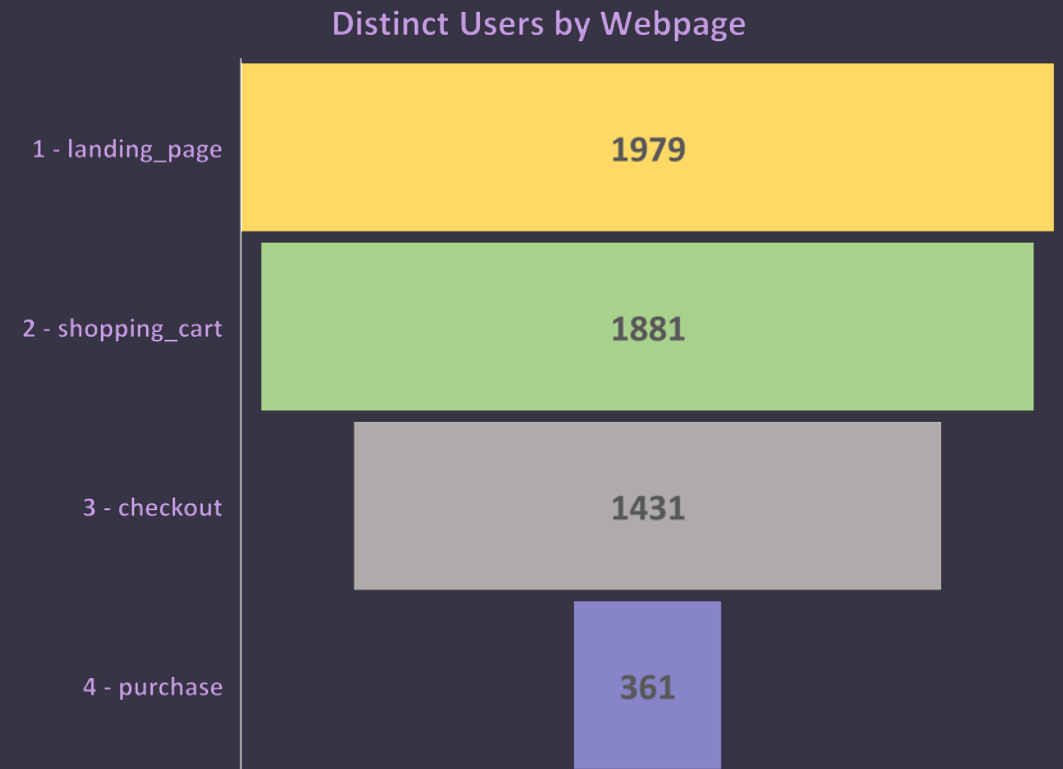
Nearly 2,000 users have visited the CoolTShirts site, yet less than 20% of those users make a purchase a result of their initial click (first touch) to the website.

→ by step 2 (Shopping Card), 5% of visitors have left the site

→ by step 3 (Checkout), 28% of the original visitors have abandoned the site

→ by step 4 (Purchase), 82% of the original visitors have left

```
--distinct users by page
select count (distinct user_id) as 'User Total',
       page_name as 'Page'
from page_visits
group by page_name
order by 1 desc;
```



Section 2: The User Experience

[Typical User Journey]

Interestingly, the total number of first touch visits and the total number of last touch visits to the CoolTShirts website are identical. (1,979). From January 1, 2018 through February 4th, 2018 each user who abandoned the website was replaced by a new user acquired to the website.

Earliest Visit
2018-01-01 00:58:13
Most Recent Visit
2018-02-04 11:09:47

While only 18% of users who visited the site made a purchase, there was no true visitor attrition between first touch and last touch

```
--earliest & latest visit to CoolTShirts website

select min(timestamp) as 'Earliest Visit'
from page_visits;

select max(timestamp) as 'Most Recent Visit'
from page_visits;
```

Section 3:

Optimizing the Campaign Budget

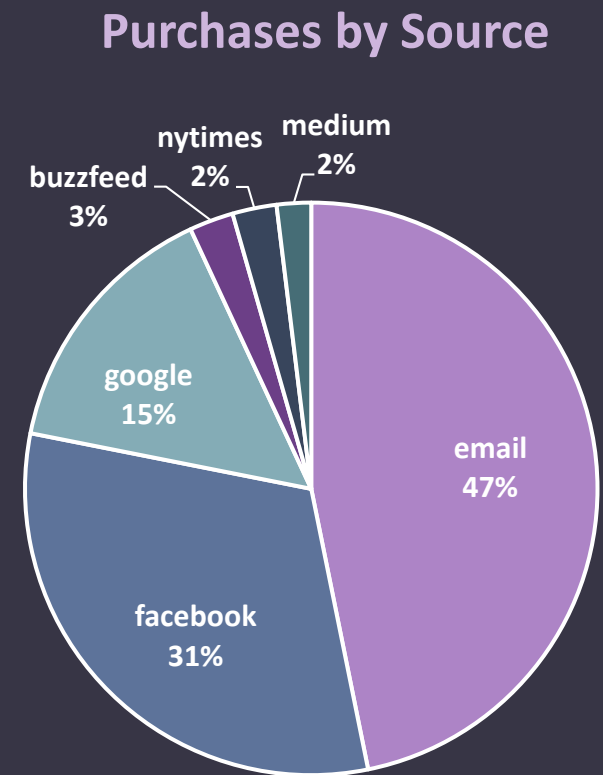
Section 3: Optimizing the Campaign Budget

[Purchases by Source]

Looking at CoolTShirt purchases by source, the combination of email, Facebook and Google account for 93% of the total sales, regardless of first or last touch.

Investing in the campaigns driving the highest performing channels will maximize the return on investment.

Source Name	Purchases	% Purchases
email	169	47%
facebook	113	31%
google	54	15%
buzzfeed	9	2%
nytimes	9	2%
medium	7	2%



Section 3: Optimizing the Campaign Budget

[Comparing First & Last Touch]

Comparing campaigns their success in first and last touch, only four campaigns worked to aquire first-time visitors to the site, while all eight campaigns played a role in drawing users back to the site for their final visit.

The interview with the founder, 'getting to know CoolTShirts' NY Times campaign, '10 Crazy Cool Tshirt Facts via google, and CoolTShirts search account for 100% of all first touches.

Campaign Name	First Touches	% First Touches
interview-with-cool-tshirts-founder	622	31%
getting-to-know-cool-tshirts	612	31%
ten-crazy-cool-tshirts-facts	576	29%
cool-tshirts-search	169	9%
retargeting-campaign	0	0%
weekly-newsletter	0	0%
retargeting-ad	0	0%
paid-search	0	0%

The weekly newsletter, retargeting ad, retargeting campaign, and 'getting to know cool tshirts' NY Times campaign account for 69% of all last touches.

Campaign Name	Last Touches	% Last Touches
weekly-newsletter	447	23%
retargeting-ad	443	22%
retargeting-campaign	245	12%
getting-to-know-cool-tshirts	232	12%
ten-crazy-cool-tshirts-facts	190	10%
interview-with-cool-tshirts-founder	184	9%
paid-search	178	9%
cool-tshirts-search	60	3%

Section 3: Optimizing the Campaign Budget

[Comparing First & Last Touch]

Even though some campaigns were much more successful at generating first time visits or subsequent visits, when comparing the purchases associated with first touches and last touches, the number of constituents completing the four-step process to purchase a t-shirt is identical. Therefore, the touch order had no ultimate correlation with the occurrence of a purchase.

```
--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_at
   from page_visits
   where page_name is '4 - purchase'
   group by user_id),
last_touch_expanded 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 last_touch_expanded.utm_campaign as 'Campaign Name',
       count (*) as 'Purchases From Last Touches'
from last_touch_expanded
group by utm_campaign
order by 2 desc;
```

```
--How many first touches on the purchase page is each campaign responsible for?
```

```
with first_touch as
  (select user_id,
    MIN(timestamp) as first_touch_at
   from page_visits
   where page_name is '4 - purchase'
   group by user_id),
first_touch_expanded 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 first_touch_expanded.utm_campaign as 'Campaign Name',
       first_touch_expanded.utm_source as 'Source Name',
       count (*) as 'Purchases from First Touch'
from first_touch_expanded
group by utm_campaign
order by 2 desc;
```

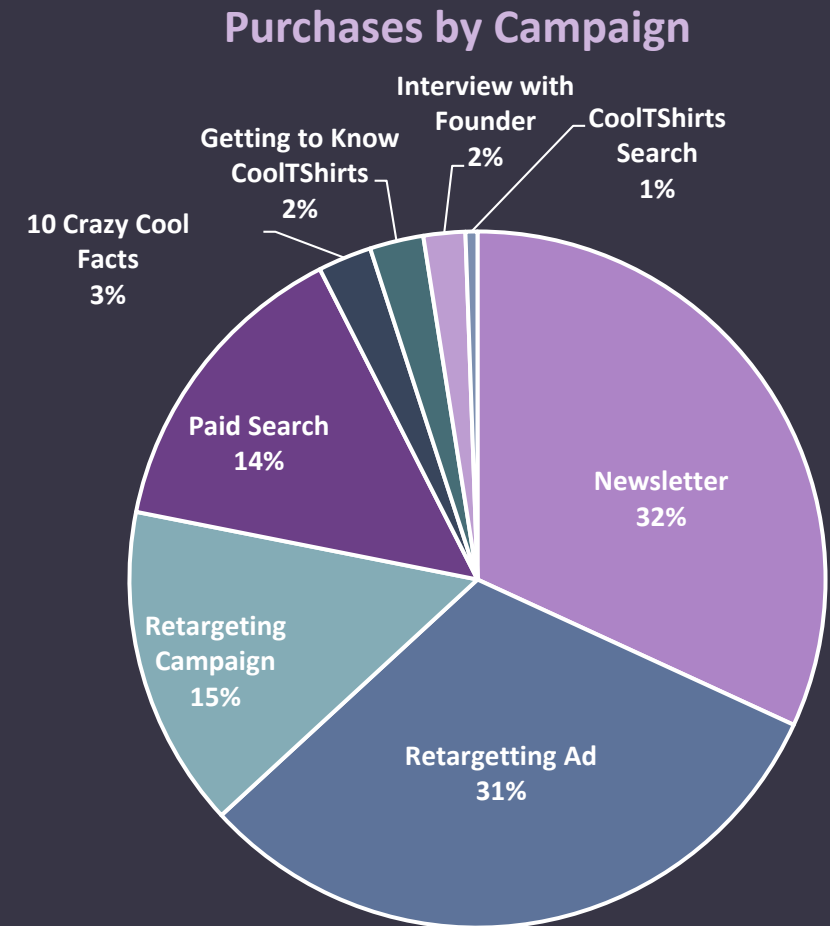
Section 3: Optimizing the Campaign Budget

[Campaigns by Purchases]

Four campaigns resulted in 93% of the total purchases for CoolTShirts:

- Newsletter (email)
- Retargeting Ad (Facebook)
- Retargeting Campaign (email)
- Paid Search (google)

Reinvesting in these four campaigns solidifies the revenue stream for CoolTshirts.



Section 3: Optimizing the Campaign Budget

[Campaigns by First & Last Touch]

In addition to the four campaigns driving the highest purchase rates, the “Getting to know CoolTShirts” New York Times campaign prompted 31% of first touches, 12% of last touches, and is the fifth highest contribution to purchases. Reinvesting in that campaign would gift CoolTShirts a marketing portfolio responsible for 95% of the revenue and 31% of the first touches.

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

Section 3: Optimizing the Campaign Budget

[Campaigns by First & Last Touch]

Another area of opportunity for CoolTShirts is return customers. The number of distinct users (calculated by user id) and the number of distinct transactions (calculated by time stamp, as it's statistically unlikely with time stamps extending to the second that two purchasers would have the exact same time stamp) are identical.

None of the users on the CoolTShirts website have ever returned to site and make an additional purchase.

```
--How many total purchases are made (not distinct customers, total purchases)

select count(distinct timestamp) as 'Total Purchases'
from page_visits
where page_name is '4 - purchase';
```

Total Purchases
361

```
--How many distinct visitors make a purchase?

select count(distinct user_id) as 'Distinct User Purchases'
from page_visits
where page_name is '4 - purchase';
```

Distinct User Purchases
361

Section 3: Optimizing the Campaign Budget

[Reinvestment in Campaigns]

CoolTShirts should reinvest in:

- Newsletter (email)
- Retargeting Ad (Facebook)
- Retargeting Campaign (email)
- Paid Search (google)
- Getting to Know CoolTShirts (NY Times)

The greatest opportunity to optimize their budget and their business is to invest in the campaigns with the biggest impact on purchases, and to continue to improve the rate of first touches that become purchases. The addition of the “Getting to know CoolTShirts” to the reinvested budget’s marketing strategy gives the company the opportunity to significantly increase sales by improving their site and process to keep more users engaged through purchase. Because two retargeting campaigns are also included, the ability to generate subsequent visits from that campaign as a leader in first-visit generation should be supported. All of the campaigns proposed for reinvestment could boost returning customer sales as well.

Link: The Details

[SQL Code File]

All SQL code used in this presentation or to populate charts in this presentation can be found @:

<https://gist.github.com/54ed7e8289238bf199deb27bde10385a>

Questions?
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