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Capstone Project

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Learn SQL from Scratch

Attribution Queries

CoolTShirts

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CoolTShirts

The Company

CoolTShirts

Current marketing strategies

- CoolTShirts make good use of a number of campaigns and sources.
- Campaigns are used effectively to promote or sell a product. CoolTShirts engage in 8 different marketing campaigns.
- The source is the medium by which the campaigns are communicated to the public. CoolTShirts engage 6 different sources to promote their marketing campaigns.
- Each campaign relates to a source. The table provided illustrates the relationship between campaign and source. My code illustrates frequency of source.

Query Results	
COUNT(DISTINCT utm_campaign)	8
COUNT(DISTINCT utm_source)	6

campaign	source
ten-crazy-cool-tshirts-facts	buzzfeed
weekly-newsletter	email
retargetting-campaign	email
retargetting-ad	facebook
paid-search	google
cool-tshirts-search	google
interview-with-cool-tshirts-founder	medium
getting-to-know-cool-tshirts	nytimes

```
1  --Count of distinct campaigns
2  SELECT COUNT(DISTINCT utm_campaign)
3  FROM page_visits;
4
5
6  --Count of distinct sources
7  SELECT COUNT(DISTINCT utm_source)
8  FROM page_visits;
9
10
11 --Source used for each campaign
12 SELECT DISTINCT utm_campaign AS campaign, utm_source AS
   source
13 FROM page_visits
14 ORDER BY 2;
```

About the Website

The website contains 4 pages.

1. Landing Page
2. Shopping Cart
3. Checkout
4. Purchase

While these website pages are the only ones applicable to this attribution analysis, there could be additional pages that exist outside of this data set, such as company information, FAQs, etc.

Query Results
CTS Website Pages
1 - landing_page
2 - shopping_cart
3 - checkout
4 - purchase



test.sqlite

```
1  --Query for distinct website pages
2  SELECT DISTINCT page_name AS 'CTS Website Pages'
3  FROM page_visits;
```

CoolTShirts

What is the User Journey?

Customer User Journey – First Touch

First touch indicates the first time a potential customer was exposed to CoolTShirts.

- Only considers the first source per customer.
- Insight into how a visitor initially discovered the website.
- Temporary tables are used in the query to identify first touch by user, and then to join that data with source and campaign information from the original data set.

How many first touches is each campaign responsible for?

- From the 8 campaigns only 4 are responsible for the first touch.

Query Results		
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

```
test.sqlite
1  --3.Temp table of first touches by user_id
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  --3a.Temp table joining first_touch with page_visits
8  ft_attr AS (
9      SELECT ft.user_id,
10             ft.first_touch_at,
11             pv.utm_source,
12             pv.utm_campaign
13      FROM first_touch ft
14      JOIN page_visits pv
15           ON ft.user_id = pv.user_id
16           AND ft.first_touch_at = pv.timestamp
17  )
18  --3b.Count of first touches by campaign
19  SELECT ft_attr.utm_source AS 'Source',
20         ft_attr.utm_campaign AS 'Campaign',
21         COUNT(*) AS 'Count'
22  FROM ft_attr
23  GROUP BY 1, 2
```

Customer User Journey – Second Touch

Last touch indicates a visitor's last exposure to CoolTShirts.

- Insight into how a potential customer is drawn back to a website for making a final purchase.
- The existing first touch query is modified for max timestamp values per user to yield last touch data by campaign.

How many last touches is each campaign responsible for?

- Sites that drove first touches are low on the list for the last touches.

Query Results		
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

```
test.sqlite
1  ---4.Last touches attributed to each campaign
2  --4a.Temp table of last touches by user_id
3  WITH last_touch AS (
4      SELECT user_id,
5             MAX(timestamp) AS last_touch_at
6      FROM page_visits
7      GROUP BY user_id),
8  --4b.Temp table joining last_touch with page_visits
9  lt_attr AS (
10     SELECT lt.user_id,
11            lt.last_touch_at,
12            pv.utm_source,
13            pv.utm_campaign
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 --4c.Count of last touches by campaign
20 SELECT lt_attr.utm_source AS 'Source',
21        lt_attr.utm_campaign AS 'Campaign',
22        COUNT(*) AS 'Count'
23 FROM lt_attr
24 GROUP BY 1, 2
25 ORDER BY 3 DESC;
```


Customer User Journey – Purchasing

How many visitors made a purchase?

Visitors convert to customers at the rate of 18%.

361 of 1,979 visitors completed a purchase.

Query Results
Purchasing Customers
361

```
test.sqlite
1  --5.How many visitors make a purchase?
2  --Count of distinct users that visited the
   purchase page
3  SELECT COUNT(DISTINCT user_id) AS "Purchasing
   Customers"
4  FROM page_visits
5  WHERE page_name = '4 - purchase';
```

Customer User Journey – Last Touches

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

To assess the effectiveness of CoolTShirt's marketing campaigns we need to know first and last touches, but we also need to know which of the campaigns led to people making a purchase. The table below shows which campaigns are responsible for how many purchases.

Query Results		
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

```
test.sqlite

1  ---6.How many purchase page last touches is each campaign
2  responsible for?
3  --6a.Temp table of last touches by user_id
4  WITH last_touch AS (
5      SELECT user_id,
6             MAX(timestamp) AS last_touch_at
7      FROM page_visits
8      WHERE page_name = '4 - purchase'
9      GROUP BY user_id),
10 --6b.Temp table joining last_touch with page_visits
11 lt_attr AS (
12     SELECT lt.user_id,
13            lt.last_touch_at,
14            pv.utm_source,
15            pv.utm_campaign
16     FROM last_touch lt
17     JOIN page_visits pv
18         ON lt.user_id = pv.user_id
19         AND lt.last_touch_at = pv.timestamp
20 )
21 --c.Count of last touches by campaign
22 SELECT lt_attr.utm_source AS 'Source',
23        lt_attr.utm_campaign AS 'campaign',
24        COUNT(*) AS 'count'
25 FROM lt_attr
26 GROUP BY 1, 2
27 ORDER BY 3 DESC;
```

Customer User Journey – Average User Journey

- Visitors come to CoolTShirts through targeted email, medium or media website campaigns that sends the user to the landing page.
- The average visitor leaves CoolTShirt before making a purchase and then returns after encountering one of the 8 CoolTShirt campaigns.
- Over 70% of visitors explore the CoolTShirt site and place items in their shopping cart. Then they begin the checkout process.
- 75% of potential customers leave the checkout process before they complete their purchase.

Query Results	
# of Users	page_name
1979	1 - landing_page
1881	2 - shopping_cart
1431	3 - checkout
361	4 - purchase

```
test.sqlite
1 --Count distinct users that went to each of the 4 site pages in the
  data set
2 SELECT COUNT(DISTINCT user_id) AS '# of Users', page_name
3 FROM page_visits
4 GROUP BY page_name
5 ORDER by 2 ASC;
```

Optimizing The Campaign Budget

The queries I have executed in our previous slides present us with some very useful information.

1. We can explore the schema of the CoolTShirts database table “page visits”.
2. We can identify and quantify users that made purchases to research their online journey.
3. We can evaluate the effectiveness of the CoolTShirts’ ad campaigns.
4. Our first-touch attribution results only consider the initial utm source for each customer and demonstrate how the user discovered the website.
5. Our last-touch attribution results are limited to considering the last utm source per customer and reveal insight on their final purchase.
6. Both first and last touch must be evaluated to make an informed decision on where to re-invest funds.

Optimizing The Campaign Budget

Recommendations For Re-Investment

CoolTShirts should focus their energy into the following campaigns in order as below.

- 1)The **'interview-with-cool-tshirts-founder'** campaign. My results from the first touch queries indicate that the most first touches (622) are attributed to this ad through the 'medium' source.
- 2)The **'getting-to-know-cool-tshirts'** campaign in the 'nytimes' source is an easy decision as the campaign is second with marginally fewer first touches (612).
- 3)The **'ten-crazy-cool-tshirts'** campaign hosted by 'buzzfeed' is not very far behind (576) and is clearly competing for the lead while the 'cool-t-shirts-search' campaign (do not re-invest) that follows attributes a small portion (169) of first touches. These three ad campaigns are proficient in creating both initial traffic to the CoolTShirts website and potential customers.
- 4)The **'weekly-newsletter'** campaign through "email" which is responsible for the most (115) last touches on the purchase page.
- 5)The **'retargeting-ad'** on 'facebook' because it attributes 113 last touches on the purchase page and is worth the investment. These last two ad campaigns show the most promise in facilitating users to reach the purchase point. The two latter campaigns are also both responsible for the most last touches.