CoolTShirts

Learn SQL from Scratch
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1. Get familiar with CoolTShirts

1.1 Campaign, Source, and Webpages

How many campaigns and sources does CoolTShirts use and how are they related?
- utm_campaign count = 8
- utm_source count = 6

Campaigns are the advertising strategy used for the end users, and the source identifies which campaign used to reach them.

The difference between utm_campaign and utm_source.
- utm_campaign - Identifies the specific ad or email blast (e.g. retargetting-ad or weekly-newsletter)
- utm_source - Identifies which touchpoint sent the traffic (e.g. google, email, or facebook)

What pages are on their website?
- There are 4 distinct (page_name) web pages that user visits the website which we could identify their activity.

utm_campaign	utm_source	page_name
getting-to-know-cool-tshirts	nytimes	1 - landing_page
weekly-newsletter	email	2 - shopping_cart
ten-crazy-cool-tshirts-facts	buzzfeed	3 - checkout
retargetting-campaign	facebook	4 - purchase
retargetting-ad	medium	
interview-with-cool-tshirts-founder	google	
paid-search		
cool-tshirts-search		

```sql
-- Show unique utm_campaigns
SELECT DISTINCT utm_campaign
FROM page_visits;

-- Show unique utm_sources
SELECT DISTINCT utm_source
FROM page_visits;

-- Show unique webpages on the website
SELECT DISTINCT page_name
FROM page_visits;
```

2. What is the user journey?

2.1 First Touches

How many first touches is each campaign responsible for?

- First Touch — is the first time that each campaign was exposed to CoolTShirts.com that is attributed to source.

- To determine the First Touch is by selecting each user with the minimum timestamp from visited pages.

- The query results would show that there are only 4 campaigns were successful to lead to the first touch. If you sum up the Count table row, we have 1979 unique visitors in total.

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

```
--Create temporary query table for First
Touch and attributes

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;
```

2.2 Last Touches

How many last touches is each campaign responsible for?

- Last Touch — attribution only considers the last lt_attr.utm_source for each customer. This is a good way of knowing how visitors are drawn back to a website, especially for making a final purchase.

- To determine the Last Touch is by selecting each user with the maximum timestamp from visited pages.

- The query result shows what campaigns were more successful to lead to the last touch compared to first touch.

lt_attr.utm_source	lt_attr.utm_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

```
--Create temporary query table for Last
Touch and attributes

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;
```

2.3 Visitor and Last Touch Purchase

How many visitors make a purchase?

- From the First Touch, we have 1979 unique visitors, and 361 made purchases. Conversion rate is about 18% (361/1979 * 100).

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

- Using the MAX timestamp and grouping with user_id and filter by purchase page, we can identify which campaign has more successfull conversion.

Visitor Purchases		
361		
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

```sql
--Create temporary query table for Visitor
and Last Touch Purchase

SELECT COUNT(DISTINCT user_id) AS 'Visitor
Purchases'
FROM page_visits
WHERE page_name = "4 - 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;
```
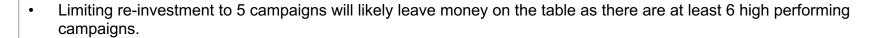
2.4 Typical User Journey

- 91% of users first come to the site via one of these 'story' campaigns:
  - Interview with CoolTShirts Founder
  - Getting to Know CoolTShirts
  - Ten Crazy CoolTShirts Facts

- 31% of users that came to site via a 'story' campaign don't return and 'story' campaigns only account for 6% of purchases

- 68% of purchases were generated via email newsletter, email retargeting, or Facebook retargeting ads.

3. Optimize the campaign budget

3.1 . Optimize the campaign budget

- Limiting re-investment to 5 campaigns will likely leave money on the table as there are at least 6 high performing campaigns.

- If CoolTShirts can only invest in 5 data recommends that all 3 'story' campaigns highlighted in blue are exceptional at generating interest, they should be continued