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1. Get familiar with the CoolTShirts

- 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?

1.1 How many campaigns and sources does CoolTShirts use and how are they related? Explain the difference between `utm_campaign` and `utm_source`.

- There are 8 distinct campaigns and 6 distinct sources.
- utm_campaign is the name of marketing campaign
- utm_source is the web source of where the marketing campaign is running.
- nytimes is the source for running the getting-to-know-cool-tshirts campaign
- email is the source for running the weekly-newsletter and retargetting-campaign campaigns.
- buzzfeed is the source for running the ten-crazy-cooltshirts-facts campaign
- facebook is the source for running the retargetting-ad campaign.
- medium is the source for running the interview-with-cool-tshirts-founder campaign.
- google is the source for running the paid-search and cool-tshirts-search campaigns.

Query Results	
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
retargetting-campaign	email
retargetting-ad	facebook
interview-with-cool-tshirts-founder	medium
paid-search	google
cool-tshirts-search	google

```
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;
```

1.2 What pages are on their website?

There are 4 distict pages on their website:
- 1 - landing_page
- 2 - shopping_cart
- 3 - checkout
- 4 - purchase

Query Results

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

```
SELECT DISTINCT page_name
FROM page_visits;
```

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?

2.1 How many first touches is each campaign responsible for?

- interview-with-cool-tshirts-founder has 622 first touches
- getting-to-know-cool-tshirts has 612 first touches
- ten-crazy-cool-tshirts-facts has 576 first touches
- cool-tshirts-search has 169 first touches

Query Results		
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

```
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 How many last touches is each campaign responsible for?

- weekly-newsletter has 447 last touches
- retargetting-ad has 443 last touches
- retargetting -campaign has 245 last touches
- getting-to-know-cool-tshirts has 232 last touches
- ten-crazy-cool-tshirts-facts has 190 last touches
- interview-with-cool-tshirts-founder has 184 last touches
- paid-search has 178 last touches
- cool-tshirts-search has 60 last touches

Query Results		
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

```
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 How many visitors make a purchase?

- 361 distinct visitors made a purchase

```
SELECT COUNT (DISTINCT  user_id)
FROM page_visits
WHERE page_name='4 - purchase';
```

Query Results
count(distinct user_id)
361

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

On the purchase page,
- weekly-newsletter has 115 last touches
- retargetting-ad has 113 last touches
- retargetting -campaign has 54 last touches
- paid-search has 52 last touches
- ten-crazy-cool-tshirts-facts has 9 last touches
- getting-to-know-cool-tshirts has 9 last touches
- interview-with-cool-tshirts-founder has 7 last touches
- cool-tshirts-search has 2 last touches

Query Results		
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

```
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;
```

2.5 What is the typical user journey?

- Out of the 1979 last touches, 361 managed to get past the purchase page (18.2%).
- Out of the 361 purchases, 169 were from email (46.8%).
- Out of the 361 purchases, 113 were from facebook (31.3%).
- Email and facebook are the best sources to capture purchase probably because of the frequency of exposure through retargetting campaigns and weekly newsletter which in turn increased the purchase.

Query Results

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

Query Results

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

3. Optimize the campaign budget

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

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

CootTShirts should re-invest in:
- weekly-newsletter
- retargetting-ad
- retargetting-campaign
- paid-search
- ten-crazy-cool-tshirts

because the main objective of the campaigns is to drive purchases. These campaigns has the highest count of users that manage to reach 4 - purchase page.

Query Results		
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