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1. Get familiar with CoolTShirts

1.1 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'.

- CoolTShirts runs 8 strategic campaigns ('utm_campaign').
- CoolTShirts uses 6 distinct sources which sent the traffic ('utm_source').
- Please refer to the table on the right hand side to see the relation between the different campaigns ('utm_campaign') and sources ('utm_source').

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

1.2 What pages are on their website?

There are four distinct values ('page_name's) on their website:
- Please refer to the table on the right hand side for a list of the four different pages on the CoolTShirts website.

page_name
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?

Please refer to the table below to extract how many first touches ('COUNT(utm_campaign)') each campaign ('utm_campaign') is responsible for.

utm_campaign	COUNT(utm_campaign)
interview-with-cool-tshirts-founder	622
getting-to-know-cool-tshirts	612
ten-crazy-cool-tshirts-facts	576
cool-tshirts-search	169

```
WITH first_touch AS (
    SELECT user_id, MIN(timestamp) as
first_touch_at
    FROM page_visits
    GROUP BY user_id)
SELECT ft.user_id, ft.first_touch_at,
pv.utm_source, pv.utm_campaign,
COUNT(utm_campaign)
FROM first_touch ft
JOIN page_visits pv
    ON ft.user_id = pv.user_id
    AND ft.first_touch_at = pv.timestamp
GROUP BY utm_campaign
ORDER BY 5 DESC;
```

2.2 How many last touches is each campaign responsible for?

Please refer to the table below to extract how many last touches ('COUNT(utm_campaign)') each campaign ('utm_campaign') is responsible for.

utm_campaign	COUNT(utm_campaign)
weekly-newsletter	447
retargetting-ad	443
retargetting-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

```
WITH last_touch AS (
    SELECT user_id, MAX(timestamp) as
last_touch_at
    FROM page_visits
    GROUP BY user_id)
SELECT lt.user_id, lt.last_touch_at,
pv.utm_source, pv.utm_campaign,
COUNT(utm_campaign)
FROM last_touch lt
JOIN page_visits pv
    ON lt.user_id = pv.user_id
    AND lt.last_touch_at = pv.timestamp
GROUP BY utm_campaign
ORDER BY 5 DESC;
```

2.3 How many visitors make a purchase?

361 visitors made a purchase.

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

COUNT(DISTINCT user_id)
361

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

Please refer to the table below to extract how many last touches on the purchase page ('COUNT(utm_campaign)') each campaign ('utm_campaign') is responsible for.

utm_campaign	COUNT(utm_campaign)
weekly-newsletter	115
retargetting-ad	113
retargetting-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

```
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)
SELECT lt.user_id, lt.last_touch_at,
pv.utm_source, pv.utm_campaign,
COUNT(utm_campaign)
FROM last_touch lt
JOIN page_visits pv
    ON lt.user_id = pv.user_id
    AND lt.last_touch_at = pv.timestamp
GROUP BY utm_campaign
ORDER BY 5 DESC;
```

2.5 What is the typical user journey?

A typical user journey looks as follows:

First touches
- 91.5% of total first touches are generated through campaigns run on publishing platforms (medium), newspaper (nytimes) and digital media (buzzfeed). However, only 7.5% of the traffic from those sources results in a purchase.
- Most people that end up purchasing a product are not initially landing on the CoolTShirts page through the listed marketing campaigns.

Last touches
- 45% of last touches are generated through weekly newsletters (email) and retargeting ads (facebook). 25.6% of these last touches continued to purchases completed.
- 24% of last touches are generated through retargetting campaigns (email) and paid searches (google). 22.2% of these last touches continued to purchases completed.

Purchases
- 63.2% of total purchases are generated through campaigns run on e-mail (newsletter) and facebook (retargeting ad).
- 29% of total purchases are generated through retargeting campaigns (email) and paid searches (google).

2.5 What is the typical user journey?

Overview table:

utm_campaign	utm_source	first-touches	last-touches	purchases completed
weekly-newsletter	email		447	115
retargetting-ad	facebook		443	113
retargetting-campaign	email		245	54
paid-search	google		232	52
getting-to-know-cool-tshirts	nytimes	612	190	9
ten-crazy-cool-tshirts-facts	buzzfeed	576	184	9
interview-with-cool-tshirts-founder	medium	622	178	7
cool-tshirts-search	google	169	60	2

3. Optimize the campaign budget

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

Variables to consider
This question is dependent on two key variables:
1. What are the matrixes that CoolTShirts has set to meet with these campaigns? These matrixes could vary e.g. brand awareness, purchases, amount of total sales.
2. A second interesting variable to take into consideration is the costs for each of this campaigns as the cost effectiveness of running these campaigns could be a deciding factor as well i.e. the 'retargetting' campaign (email) will have different costs compared to a 'paid-search' (google).

Assumptions
Ad 1. I am deciding to choose the key matrix of purchases completed.
Ad 2. As there is no information provided with regards to costs per campaign I do not include it in the option appraisal.
I am deciding to choose the key matrix of purchases completed.

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

Decision
In order to drive purchases I recommend CoolTShirts to re-invest in the following 5 campaigns:

utm_campaign	utm_source	first-touches	last-touches	purchases completed
weekly-newsletter	email		447	115
retargetting-ad	facebook		443	113
retargetting-campaign	email		245	54
paid-search	google		232	52
getting-to-know-cool-tshirts	nytimes	612	190	9

Rationale
As the matrix of the marketing campaigns is to drive sales I am recommending to re-invest in the 5 campaigns that have generated 95% of total completed purchases.