

Ad Campaign KPIs for Greenweez

Tools for Data Analysis: BigQuery



Introduction

🔍 **Greenweez** is a leading online e-commerce platform.

👤 It specializes in selling organic, ecological, and sustainable products directly to consumers (B2C), focusing on responsible consumption and healthier lifestyles.

🌐 Operating exclusively through its website, online advertising is essential and falls under the responsibility of the media team.

objective

Establish a monitoring report for daily turnover to:

- Optimize client acquisition across various channels.
- Ensure ad campaigns generate maximum value for every cent spent.

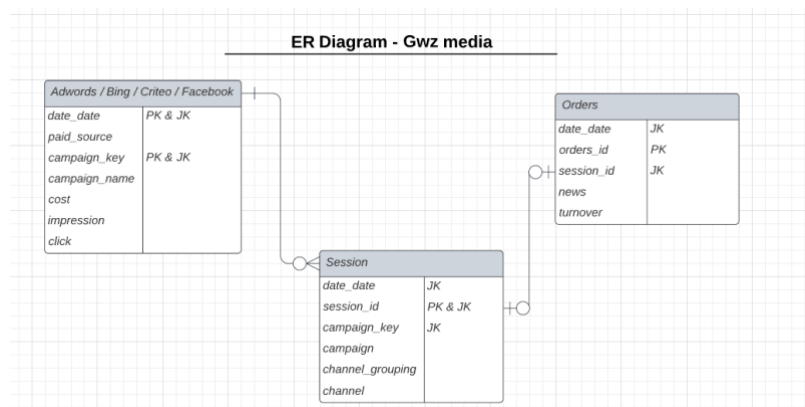


Table Transformation and Analysis

Session and Orders tables Join

The purpose is to add information to each order about their corresponding campaign to ultimately calculate KPIs for the different ad campaigns and save the results in a gz_orders_ga table.

```
2 SELECT
3   -- orders_info --
4   o.date_date
5   ,o.orders_id
6   ,o.turnover
7   ,o.news
8   -- session info --
9   ,IFNULL(se.session_id,o.session_id) AS session_id
10  ,se.campaign_key
11  ,se.campaign
12 FROM `alpine-beacon-414008.course16.gz_orders` AS o
13 FULL OUTER JOIN `alpine-beacon-414008.course16.gz_sessions` AS se USING (session_id)
```

Query results

JOB INFORMATION		RESULTS	CHART	JSON	EXECUTION DETAILS	EXECUTION GRAPH
Row	date_date	orders_id	turnover	news	session_id	campaign_key
1	2021-08-14	960253	49.88	0	782456465690825728116289...	Direct
2	2021-08-14	960340	null	0	null	null
3	2021-06-01	893118	114.41	0	159038823585717145061622...	1568687993
4	2021-06-01	893244	80.45	0	206484530057169848216225...	Direct
5	2021-06-01	893338	26.71	0	209469560245177557316225...	25175647
6	2021-06-01	894234	43.73	0	301400797746651376116225...	25175647

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Campaign Aggregation

The campaign information is distributed across 4 different tables according to different data sources: gz_adwords, gz_bing, gz_criteo, gz_facebook. The 4 tables follow the same structure. However, for our analysis it would be better to put all the campaign information together in a single gz_campaign table.

```
15 SELECT
16 *
17 FROM `alpine-beacon-414008.course16.gz_adwords`
18 UNION ALL (SELECT * FROM `alpine-beacon-414008.course16.gz_bing` )
19 UNION ALL (SELECT * FROM `alpine-beacon-414008.course16.gz_criteo` )
20 UNION ALL (SELECT * FROM `alpine-beacon-414008.course16.gz_facebook` )
```

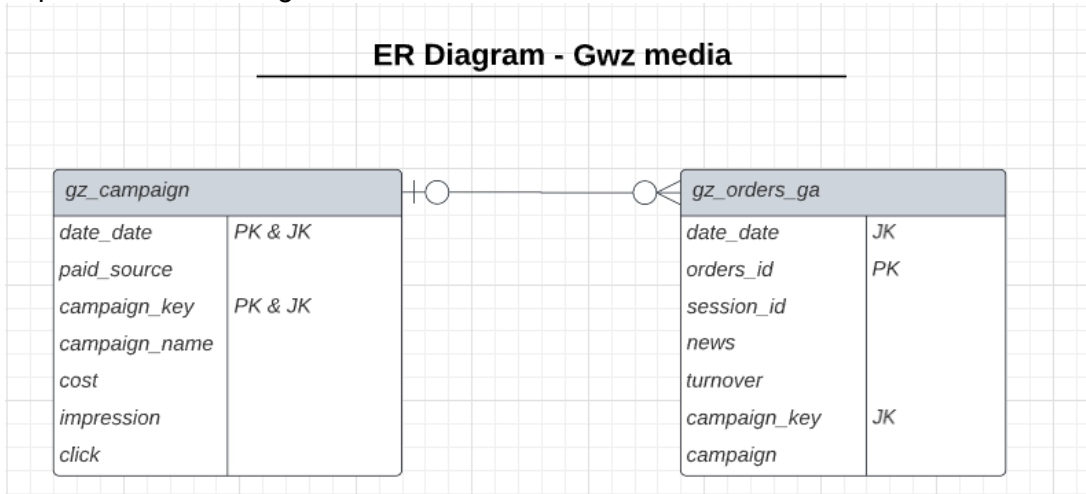
Query results

JOB INFORMATION		RESULTS	CHART	JSON	EXECUTION DETAILS	EXECUTION GRAPH
Row	date_date	paid_source	campaign_key	campaign_name	cost	impression
1	2021-07-31	Facebook	6194131626575	IA - COM - [PUR - ACQ] - ex IDF ...	134.0	34
2	2021-08-03	Facebook	6194131626575	IA - COM - [PUR - ACQ] - ex IDF ...	42.0	12
3	2021-08-02	Facebook	6194131626575	IA - COM - [PUR - ACQ] - ex IDF ...	120.0	40
4	2021-07-28	Facebook	6194131626575	IA - COM - [PUR - ACQ] - ex IDF ...	120.0	40

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Orders and Campaign Join

We have updated the ER Diagram with the two new tables



This is a 1:N relationship, as many orders may share the same date_date and campaign_key values. When joining these two tables, the result may contain numerous duplicate values that are not reliable or usable for analysis.

First, group the orders by the date_date and campaign_id columns. This will change the relationship from 1:N to 1:1, allowing us to perform the join without any issues. Save the result as gz_campaign_orders

```
25 SELECT
26   ## Key ##
27   date_date
28   ,campaign_key
29   #####
30   -- orders metrics --
31   ,COUNT(DISTINCT orders_id) AS nb_transactions
32   ,SUM(turnover) AS turnover
33   ,SUM(news) AS news
34 FROM 'alpine-beacon-414008.course16.gz_orders_ga'
35 GROUP BY
36   date_date
37   ,campaign_key;
38
```

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Query results [SAVE RESULTS](#) [EXPLORE DATA](#)

JOB INFORMATION		RESULTS	CHART	JSON	EXECUTION DETAILS		EXECUTION GRAPH	
Row	date_date	campaign_key		nb_transactions	turnover	news		
1	2021-08-20	63850117		1	71.2	1		
2	2021-08-20	13568665881		1	51.1	1		
3	2021-08-20	13572333097		2	2636.43	1		
4	2021-08-20	email-admin		1	33.17	0		

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Primary key test for gz_campaign_orders table

```
42 SELECT
43   ## Key ##
44   date_date
45   , campaign_key
46   , COUNT(*) AS nb
47 FROM `alpine-beacon-414008.course16.gz_campaign_orders`
48 GROUP BY
49   date_date
50   , campaign_key
51 HAVING nb >= 2
52 ORDER BY nb DESC;
```

Query results

JOB INFORMATION RESULTS CHART JSON EXECUTION DETAILS EXECUTION GRAPH

There is no data to display.

Results per page: 50 1 - 0 of 0

When joining the gz_campaign and gz_campaign_orders tables using a LEFT JOIN, we notice some NULL values in the turnover and nb_transaction columns. This occurs when a campaign incurred costs but did not generate any orders.

To address this, we use the IFNULL() function to replace NULL values with 0.

```
65 SELECT
66   ## Key ##
67   c.date_date
68   , c.campaign_key
69   , c.paid_source
70   , c.campaign_name
71   , c.cost
72   , c.click
73   , c.impression
74   , IFNULL(NU_orders, 0) AS NU_orders
75   , IFNULL(Revenue, 0) AS Revenue
76   , IFNULL(N_new_customers, 0) AS N_new_customers
77 FROM `alpine-beacon-414008.course16.gz_campaign` c
78 LEFT JOIN `alpine-beacon-414008.course16.gz_campaign_orders` o
79 ON c.date_date = o.date_date
80 AND c.campaign_key = o.campaign_key
```

Query results

JOB INFORMATION RESULTS CHART JSON EXECUTION DETAILS EXECUTION GRAPH

Row	date_date	campaign_key	paid_source	campaign_name	cost	click	impression	NU_orders
1	2021-07-31	6194131626575	Facebook	IA - COM - [PUR - ACQ] - ex IDF ...	134.0	502.0	34940.0	0
2	2021-08-03	6194131626575	Facebook	IA - COM - [PUR - ACQ] - ex IDF ...	42.0	163.0	12238.0	0
3	2021-08-02	6194131626575	Facebook	IA - COM - [PUR - ACQ] - ex IDF ...	120.0	378.0	40864.0	0

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Aggregation & Performance Analysis

For our final report, the metrics to be calculated for each paid_source and each campaign are:

- Turnover generated
- Number of orders
- Number of new orders (news)
- Cost
- Impressions
- Clicks
- Associated KPIs:
 - ROAS (Return on Ad Spend)
 - CAC (Customer Acquisition Cost)
 - CPM (Cost Per Mille)
 - CPC (Cost Per Click)
 - CTR (Click Through Rate)

```
84 WITH gz_campaign_ps AS (  
85 SELECT  
86 paid_source  
87 ,EXTRACT(month FROM date_date ) AS month  
88 ,ROUND(SUM(Revenue),1) AS total_turnover  
89 ,SUM(NU_orders) AS NU_orders  
90 ,SUM(cost) AS N_cost  
91 ,SUM(impression) AS N_impression  
92 ,SUM(click) AS N_click  
93 ,SUM(N_new_customers) AS N_new_customers  
94 FROM `alpine-beacon-414008.course16.gz_campaign_join`  
95 GROUP BY paid_source,  
96 month)  
97  
98 SELECT  
99 paid_source  
100 ,month  
101 ,total_turnover  
102 ,NU_orders  
103 ,N_cost  
104 ,N_impression  
105 ,N_click  
106 ,N_new_customers  
107 ,ROUND(SAFE_DIVIDE(total_turnover,N_cost),2) AS ROAS  
108 ,ROUND(SAFE_DIVIDE(N_cost,N_new_customers),2) AS CAC_new  
109 ,ROUND(SAFE_DIVIDE(N_cost,NU_orders),2) AS CAC_orders  
110 ,ROUND(SAFE_DIVIDE(N_cost,N_impression*1000),2) AS CPM  
111 ,ROUND(SAFE_DIVIDE(N_cost,N_click),2) AS CPC  
112 ,ROUND(SAFE_DIVIDE(N_click,N_impression),2) AS CTR  
113 FROM gz_campaign_ps  
114 ORDER BY paid_source,month;  
115
```

Query results

SAVE RESULTS

OPEN IN

JOB INFORMATION			RESULTS	CHART	JSON	EXECUTION DETAILS			EXECUTION GRAPH						
Row	paid_source	month	total_turnover	NU_order	N_cost	N_impression	N_click	N_new_customers	ROAS	CAC_new	CAC_orders	CPM	CPC	CTR	
1	Adwords	6	486300.5	7335	76984.0	25637038.0	267976.0	3735	6.32	20.61	10.5	0.0	0.29	0.01	
2	Adwords	7	444490.0	6818	85039.0	25983197.0	265399.0	3380	5.23	25.16	12.47	0.0	0.32	0.01	
3	Adwords	8	444967.3	6774	87652.0	30055634.0	294423.0	3357	5.08	26.11	12.94	0.0	0.3	0.01	
4	Adwords	9	466138.6	6914	98411.0	31929086.0	323901.0	3457	4.74	28.47	14.23	0.0	0.3	0.01	
5	Bing	6	39038.6	540	5009.0	3256279.0	28032.0	272	7.79	18.42	9.28	0.0	0.18	0.01	
6	Bing	7	35095.4	490	4902.0	2636538.0	26147.0	240	7.16	20.43	10.0	0.0	0.19	0.01	
7	Bing	8	36661.9	526	5023.0	2732450.0	30974.0	270	7.3	18.6	9.55	0.0	0.16	0.01	
8	Bing	9	38978.8	547	7407.0	3481255.0	38819.0	284	5.26	26.08	13.54	0.0	0.19	0.01	
9	Criteo	6	8321.2	121	4475.0	3922392.0	7019.0	57	1.86	78.51	36.98	0.0	0.64	0.0	
10	Criteo	7	9351.8	136	4607.0	3698149.0	8964.0	67	2.03	68.76	33.88	0.0	0.51	0.0	
11	Criteo	8	10188.0	160	6515.0	5267500.0	12676.0	77	1.56	84.61	40.72	0.0	0.51	0.0	
12	Criteo	9	11863.8	182	6442.0	5815145.0	15625.0	100	1.84	64.42	35.4	0.0	0.41	0.0	
13	Facebook	6	4797.7	92	14859.0	3194066.0	41598.0	35	0.32	424.54	161.51	0.0	0.36	0.01	
14	Facebook	7	8653.6	155	23769.0	4777614.0	87784.0	77	0.36	308.69	153.35	0.0	0.27	0.02	
15	Facebook	8	6453.1	128	23486.0	5619562.0	106445.0	56	0.27	419.39	183.48	0.0	0.22	0.02	
16	Facebook	9	6179.5	112	24785.0	4691869.0	83611.0	55	0.25	450.64	221.29	0.0	0.3	0.02	

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Final Insights

For Bing and Ads, turnover decreased in July and August following a higher sales period in June. Although there was a slight increase in September, it was not sufficient to offset the rising ad costs. As a result, ROAS and CAC values have considerably diminished for these two paid sources, indicating the need for closer monitoring.

On the other hand, for Criteo and Facebook, while costs have increased, turnover has also risen, making the situation less concerning. ROAS and CAC remain relatively stable in this case.