

# Дослідження деталей рекламних кампаній Google і Facebook і підготовка даних про події користувачів

Гамова Катерина

## ДАНІ ТА ІНСТРУМЕНТИ

**ads\_analysis\_goit\_course**

**DBeaver** аналітика про щоденну ефективність рекламних кампаній на платформах Facebook і Google

**публічний датасет GA4 в Google BigQuery** робота з подієвими даними інтернет-магазину

**Завдання з даними**  
ads\_analysis\_goit\_course у DBeaver

- Знайти середнє, максимум та мінімум spend окремо для платформ Google та Facebook в одній таблиці
- Знайти 5 днів з найбільшим загальним ROMI, враховуючи дані з платформ Google та Facebook разом
- Знайти кампанію з найвищим рівнем загального тижневого value
- Знайти кампанію з найбільшим приростом охоплення (reach) місяць-до-місяця, обчислений як абсолютна різниця між охопленням поточного та попереднього місяця.
- Знайти найдовший безперервний (щоденний) показ adset\_name (разом з Google та Facebook)

- Середнє, максимум та мінімум spend окремо для платформ Google та Facebook в одній таблиці

```

@with Facebook_Google_ads as(
    select fabd.ad_date,
    'Facebook' as media_source,
    fc.campaign_name,
    fa.adset_name,
    fabd.spend,
    fabd.impressions,
    fabd.reach,
    fabd.clicks,
    fabd.leads,
    fabd.value
    from facebook_ads_basic_daily fabd
    left join facebook_campaign fc
    on fc.campaign_id = fabd.campaign_id
    left join facebook_adset fa
    on fa.adset_id = fabd.adset_id
    union all
    select
    ad_date,
    'Google' as media_source,
    campaign_name,
    adset_name,
    spend,
    impressions,
    reach,
    clicks,
    leads,
    value
    from google_ads_basic_daily)
    select ad_date, media_source,
    avg(spend) as avg_spend,
    min(spend) as min_spend,
    max(spend) as max_spend
    from Facebook_Google_ads
    where ad_date is not null
    group by 1,2
    order by ad_date;
  
```

	ad_date	media_source	avg_spend	min_spend	max_spend
1	2020-11-11	Facebook		189	189
2	2020-11-12	Facebook	1,150	34	2,266
3	2020-11-12	Google	199	66	332
4	2020-11-13	Google	1,054	1,054	1,054
5	2020-11-13	Facebook	318	14	622
6	2020-11-14	Facebook	727	727	727
7	2020-11-14	Google	1	1	1
8	2020-11-15	Google	682	682	682
9	2020-11-15	Facebook	698	698	698
10	2020-11-16	Facebook	4,167	4,167	4,167
11	2020-11-16	Google	2,760	2,760	2,760
12	2020-11-17	Facebook	1,261	1,261	1,261
13	2020-11-18	Facebook	3,330	3,330	3,330
14	2020-11-18	Google	372	372	372
15	2020-11-19	Facebook	1,083	1,083	1,083
16	2020-11-20	Google	2,433	2,433	2,433
17	2020-11-20	Facebook	1,684	1,684	1,684
18	2020-11-21	Facebook	1,819	1,819	1,819
19	2020-11-21	Google	2,137	2,137	2,137
20	2020-11-22	Facebook	3,646	3,646	3,646
21	2020-11-23	Google	2,762	2,762	2,762
22	2020-11-23	Facebook	1,456	1,456	1,456
23	2020-11-24	Facebook	3,700	3,700	3,700
24	2020-11-24	Google	2,402	2,402	2,402
25	2020-11-25	Facebook	3,995	3,995	3,995
26	2020-11-25	Google	398	398	398
27	2020-11-26	Facebook	1,423	1,423	1,423
28	2020-11-27	Facebook	771	771	771
29	2020-11-27	Google	1,827	1,827	1,827
30	2020-11-28	Google	422	422	422

- 5 днів з найбільшим загальним ROMI, враховуючи дані з платформ Google та Facebook разом

```
with Facebook_Google_ads as(
    select
        fabd.ad_date,
        'Facebook' as media_source,
        fc.campaign_name,
        fa.adset_name,
        fabd.spend,
        fabd.impressions,
        fabd.reach,
        fabd.clicks,
        fabd.leads,
        fabd.value
    from facebook_ads_basic_daily fabd
    left join facebook_campaign fc
    on fc.campaign_id=fabd.campaign_id
    left join facebook_adset fa
    on fa.adset_id=fabd.adset_id
    union all
    select
        ad_date,
        'Google' as media_source,
        campaign_name,
        adset_name,
        spend,
        impressions,
        reach,
        clicks,
        leads,
        value
    from google_ads_basic_daily)
    select ad_date,
    media_source,
    case
        when sum(spend)=0
        then '0'
        else round(cast((sum(value))as numeric)/cast(sum(spend) as numeric),1)
    end as romi
    from Facebook_Google_ads
    where ad_date is not null
    group by 1,2
    order by romi desc
    limit 5;
```

- Кампанія з найвищим рівнем загального тижневого value

```
④ with Facebook_Google_ads as(
  select
    fabd.ad_date,
    'Facebook' as media_source,
    fc.campaign_name,
    fa.adset_name,
    fabd.spend,
    fabd.impressions,
    fabd.reach,
    fabd.clicks,
    fabd.leads,
    fabd.value
  from facebook_ads_basic_daily fabd
  left join facebook_campaign fc
  on fc.campaign_id = fabd.campaign_id
  left join facebook_adset fa
  on fa.adset_id = fabd.adset_id
  union all
  select
    ad_date,
    'Google' as media_source,
    campaign_name,
    adset_name,
    spend,
    impressions,
    reach,
    clicks,
    leads,
    value
  from google_ads_basic_daily)
select
  date(date_trunc('week', ad_date)) as media_source,
  campaign_name,
  sum(value) as total_value
from Facebook_Google_ads
where ad_date is not null
group by 1,2,3
order by total_value desc
limit 1;
```

	week_start	media_source	campaign_name	total_value
1	2022-04-11	Facebook	Expansion	1,254,027

- Кампанія з найбільшим приростом охоплення (reach) місяць-до-місяця, обчислений як абсолютна різниця між охопленням поточного та попереднього місяця.

```
with Facebook_Google_ads as
select
fabd.ad_date,
'Facebook' as media_source,
fc.campaign_name,
fa.adset_name,
fabd.spend,
fabd.impressions,
fabd.reach,
fabd.clicks,
fabd.leads,
fabd.value
from facebook_ads_basic_daily fabd
left join facebook_campaign fc on fc.campaign_id=fabd.campaign_id
left join facebook_adset fa on fa.adset_id=fabd.adset_id
union all
select
ad_date,
'Google' as media_source,
campaign_name,
adset_name,
spend,
impressions,
reach,
clicks,
leads,
value
from google_ads_basic_daily),
monthly_reach as(
select
to_char(ad_date,'YYYY-MM-01') as ad_month,
campaign_name,sum(reach) as total_reach
from Facebook_Google_ads
group by 1,2),
prev_month_reach as (
select
ad_month,
campaign_name,
total_reach,
lag(total_reach,1) over(partition by campaign_name order by ad_month) as prev_month_reach
from monthly_reach)
select
ad_month,
campaign_name,
total_reach,
prev_month_reach,
round((total_reach::numeric-prev_month_reach::numeric),2) as growth_reach
from prev_month_reach
where ad_month is not null
order by growth_reach desc nulls last
limit 1;
```

- Найдовший безперервний (щоденний) показ adset\_name (разом з Google та Facebook)

```
with Facebook_Google_ads as(
    select
        fabd.ad_date, 'Facebook' as media_source,
        fc.campaign_name,
        fa.adset_name,
        fabd.spend,
        fabd.impressions,
        fabd.reach,
        fabd.clicks,
        fabd.leads,
        fabd.value
    from facebook_ads_basic_daily fabd
    left join facebook_campaign fc on fc.campaign_id=fabd.campaign_id
    left join facebook_adset fa on fa.adset_id=fabd.adset_id
    union all
    select
        ad_date,
        'Google' as media_source,
        campaign_name,
        adset_name,
        spend,
        impressions,
        reach,
        clicks,
        leads,
        value
    from google_ads_basic_daily),
    numbered_date as(select adset_name,ad_date::date,
    row_number() over (partition by adset_name order by ad_date) as date_number
    from Facebook_Google_ads
    where ad_date is not null
    group by 1,2),
    grouped_number as(
    select adset_name,ad_date::date,
    ad_date::date - date_number * interval '1 day' as grouped_number
    from numbered_date),
    intervals as(
    select
        adset_name,
        min(ad_date::date) as start_date,
        max(ad_date::date) as end_date,
        count(*) as duration_ad
    from grouped_number
    group by adset_name, grouped_number
    order by adset_name, start_date)
    select *
    from intervals
    order by duration_ad desc
    limit 1;
```

	AZ adset_name	⌚ start_date	⌚ end_date	123 duration_ad
1	Narrow	2021-05-17	2021-09-01	108
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# Завдання з даними GA4 в Google BigQuery

- 
- Дістати інформацію про події, користувачів та сесії в GA4
  - Дістати інформацію про конверсії від початку сесії до покупки
  - Порахувати конверсію між різними посадковими сторінками
  - Порахувати кореляцію між залученістю користувачів та здійсненням покупок

## ● Інформація про події, користувачів та сесії в GA4

```
1 SELECT event_date, timestamp_micros(event_timestamp) as event_timestemp, user_pseudo_id, event_name, (select ee.value.int_value from e.event_params ee where ee.key = 'ga_session_id') as session_id,
2 geo.country as country, device.category, traffic_source.name as campaign, traffic_source.source as source, traffic_source.medium as
medium
3 FROM `bigquery-public-data.ga4_obfuscated_sample_ecommerce.events_*` e
4 where _table_SUFFIX >= '20210101' and _table_SUFFIX <= '20211231' and
5 event_name in ('session_start', 'view_item', 'add_to_cart', 'begin_checkout', 'add_shipping_info', 'add_payment_info', 'purchase');
```

✓ Query completed

Using on-demand processing quota

### Query results

[Save results](#) [Open in](#)

Job information [Results](#) Visualization JSON Execution details Execution graph

Row	event_date	event_timestemp	user_pseudo_id	event_name	session_id	country	category	campaign	source	medium
1	20210101	2021-01-01 14:00:00.000000	1026409.15518609...	session_start	32813...	United St...	mobile	(data deleted)	(data delet...	(data del...
2	20210101	2021-01-01 17:00:00.000000	1211099.82475632...	session_start	58484...	Israel	desktop	(data deleted)	(data delet...	(data del...
3	20210101	2021-01-01 17:00:00.000000	1211099.82475632...	view_item	58484...	Israel	desktop	(data deleted)	(data delet...	(data del...
4	20210101	2021-01-01 17:00:00.000000	1211099.82475632...	view_item	58484...	Israel	desktop	(data deleted)	(data delet...	(data del...
5	20210101	2021-01-01 13:00:00.000000	1620024.89668709...	session_start	83656...	South Afr...	desktop	(data deleted)	(data delet...	(data del...
6	20210101	2021-01-01 16:00:00.000000	1677450.91170178...	session_start	39586...	Japan	desktop	(data deleted)	(data delet...	(data del...
7	20210101	2021-01-01 19:00:00.000000	1684301.41091527...	session_start	15376...	Poland	desktop	(data deleted)	(data delet...	(data del...
8	20210101	2021-01-01 10:00:00.000000	1846974.03161750...	session_start	10317...	Brazil	mobile	(data deleted)	(data delet...	(data del...
9	20210101	2021-01-01 04:00:00.000000	2007362.21493275...	session_start	73398...	Australia	desktop	(data deleted)	(data delet...	(data del...
10	20210101	2021-01-01 15:00:00.000000	2539661.00244354...	session_start	38730...	United St...	mobile	(data deleted)	(data delet...	(data del...

## ● Інформація про конверсії від початку сесії до покупки

```

1 with user_session_id_info as (SELECT timestamp_micros(event.timestamp) as event_timestamp,
2 user_pseudo_id || (select ee.value.int_value from e.event_params ee where ee.key = 'ga_session_id')
3 as user_session_id, event_name,
4 traffic_source.name as campaign, traffic_source.source as source, traffic_source.medium as medium
5 FROM `bigquery-public-data.ga4_obfuscated_sample_ecommerce.events_*` e
6 where event_name in ('session_start', 'add_to_cart', 'begin_checkout', 'purchase'),
7 users_count as (select date(event_timestamp) as event_date,source,medium,campaign,
8 count (distinct case when event_name ='session_start' then user_session_id
9 end) as count_session_start,
10 count (distinct case when event_name ='add_to_cart' then user_session_id
11 end) as count_add_to_cart,
12 count (distinct case when event_name ='begin_checkout' then user_session_id
13 end) as count_begin_checkout,
14 count (distinct case when event_name ='purchase' then user_session_id
15 end) as count_purchase
16 from user_session_id_info
17 group by 1,2,3,4)
18 select event_date,source,medium,campaign, count_session_start,
19 round(count_add_to_cart/count_session_start,2) as visit_to_cart,
20 round(count_begin_checkout/count_session_start,2) as visit_to_checkout,
21 round(count_purchase/count_session_start,2) as visit_to_purchase
22 from users_count;

```

Row	event_date	source	medium	campaign	count_session_st...	visit_to_cart	visit_to_checkout	visit_to_purchase
1	2021-01-30	google	organic	(organic)	863	0.03	0.02	0.01
2	2021-01-30	(direct)	(none)	(direct)	664	0.05	0.02	0.01
3	2021-01-30	<Other>	referral	(referral)	276	0.03	0.01	0.01
4	2021-01-30	shop.googl...	referral	(referral)	213	0.06	0.04	0.03
5	2021-01-30	<Other>	<Other>	<Other>	413	0.03	0.01	0.0
6	2021-01-30	google	cpc	<Other>	129	0.03	0.0	0.0
7	2021-01-30	(data delet...)	(data deleted)	(data deleted)	153	0.07	0.05	0.03
8	2021-01-30	<Other>	organic	(organic)	94	0.02	0.0	0.0
9	2021-01-01	google	organic	(organic)	746	0.03	0.01	0.0
10	2021-01-01	(direct)	(none)	(direct)	564	0.04	0.02	0.01

## ● Конверсія між різними посадковими сторінками

```

with user_sessions as (select user_pseudo_id,
cast((select value.int_value from unnest(event_params) where key = 'ga_session_id') as string) as session_id,
regexp_extract((select value.string_value from unnest(event_params) where key = 'page_location'),
r'(?:(\w+:\//)?[^/\?#]+\/([^\?#]*))' as page_path,
(select value.string_value from unnest(event_params) where key = 'page_location') as page_location
from `bigquery-public-data.ga4_obfuscated_sample_ecommerce.events_*` e
where _table_suffix between '20200101' and '20201231'
and event_name = 'session_start'),
purchases as (
select user_pseudo_id,
cast((select value.int_value from e.event_params where key = 'ga_session_id') as string)
as session_id
from `bigquery-public-data.ga4_obfuscated_sample_ecommerce.events_*` e
where _table_suffix between '20200101' and '20201231'
and event_name = 'purchase'),
count_unic_purchase as (select page_path,
count(distinct us.user_pseudo_id || us.session_id) as unic_user_sessions,
count(distinct p.user_pseudo_id||p.session_id) as purchases
from user_sessions us
left join purchases p
on us.user_pseudo_id = p.user_pseudo_id
and us.session_id = p.session_id
group by 1)
select page_path,unic_user_sessions,purchases,
round(purchases/unic_user_sessions,2) as conversion
from count_unic_purchase
group by 1,2,3
order by conversion desc;

```

Row	page_path	unic_user_sessions	purchases	conversion
1	Google+Redesign/Apparel/Google+Kirkland+Campus+Unisex+Tee	1	1	1.0
2	Google+Redesign/Accessories/Google+Large+Pet+Leash+Blue+Green	1	1	1.0
3	Google+Redesign/Apparel/Google+Chicago+Campus+Unisex+Tee	2	2	1.0
4	Google+Redesign/Apparel/Google+Cambridge+Campus+Ladies+Tee	1	1	1.0
5	Google+Redesign/Accessories/Google+Felt+Strap+Keyring	2	1	0.5
6	Google+Redesign/Apparel/Google+Toddler+Hero+Tee+Black	2	1	0.5
7	Gooale+Redesign/Campus+Collection/Gooale+Sunnvrale+Campus+La	2	1	0.5

## • Кореляція між залученістю користувачів та здійсненням покупок

```
with user_session_id_info as (SELECT
user_pseudo_id || (select ee.value.int_value from e.event_params ee where ee.key = 'ga_session_id') as user_session_id,
sum(coalesce((select ee.value.int_value from e.event_params ee where ee.key = 'engagement_time_msec'),0)) as user_eng_time,
max(coalesce((select ee.value.int_value from e.event_params ee where ee.key = 'session_engaged')),
safe_cast ((select ee.value.string_value from e.event_params ee where ee.key = 'session_engaged')as integer),0)) as
session_engaged,
max(case
when event_name='purchase' then 1 else 0 end) as purchase_check
FROM `bigquery-public-data.ga4_obfuscated_sample_ecommerce.events_*` e
group by 1)
select
corr (user_eng_time, purchase_check) as corr_eng_time_purchase,
corr(session_engaged,purchase_check) as corr_engaged_purchase
from user_session_id_info;
```

Row	corr_eng_time_purchase	corr_engaged_purchase
1	0.31798788665534389	0.041310862178407105

# Дякую за увагу!