

Google Analytics ecommerce

[Google Merchandise Store](#) is an online store that sells Google-branded merchandise. The site uses Google Analytics's standard web [ecommerce implementation](#) along with [enhanced measurement](#). The [ga4_obfuscated_sample_ecommerce_dataset](#) available through the BigQuery Public Datasets program contains a sample of obfuscated BigQuery event export data for three months from 2020-11-01 to 2021-01-31.

1. "Using the GA4 sample ecommerce dataset, write a SQL query to find the total number of events, the total number of unique users, and the total number of unique days recorded in the dataset."

```
SELECT
  COUNT(*) AS event_count,
  COUNT(DISTINCT user_pseudo_id) AS user_count,
  COUNT(DISTINCT event_date) AS day_count
FROM `bigquery-public-data.ga4_obfuscated_sample_ecommerce.events_`
```

event_count	user_count	day_count
4295584	270154	92

2. "Using the GA4 sample ecommerce dataset, write a SQL query to analyze the e-commerce conversion funnel. Specifically, find the number

of users who performed each of the following steps: viewed an item, added an item to cart, began checkout, and completed a purchase. Also report the total number of users in the dataset."

```
WITH funnel AS (  
  SELECT  
    user_pseudo_id,  
    MAX(CASE WHEN event_name = 'view_item' THEN event_timestamp END) AS view_item_time,  
    MAX(CASE WHEN event_name = 'add_to_cart' THEN event_timestamp END) AS add_to_cart_time,  
    MAX(CASE WHEN event_name = 'begin_checkout' THEN event_timestamp END) AS begin_checkout_time,  
    MAX(CASE WHEN event_name = 'purchase' THEN event_timestamp END) AS purchase_time  
  FROM `bigquery-public-data.ga4_obfuscated_sample_ecommerce.events_*`  
  group by 1)
```

```
select  
  count(distinct user_pseudo_id) as user_count,  
  count(distinct case when view_item_time is not null then user_pseudo_id end) as view_item_users,  
  count(distinct case when add_to_cart_time is not null then user_pseudo_id end) as add_cart_users,  
  count(distinct case when begin_checkout_time is not null then user_pseudo_id end) as begin_checkout_users,  
  count(distinct case when purchase_time is not null then user_pseudo_id end) as purchase_time  
from funnel
```

user_count	view_item_users	add_cart_users	begin_checkout_users	purchase_time
270154	61252	12545	9715	4419

3."Using the GA4 sample ecommerce dataset, write a SQL query to analyze the Top 10 items added to cart by most users".

```
SELECT item_id,  
       item_name,  
       count(distinct user_pseudo_id) as total_users  
from `bigquery-public-data.ga4_obfuscated_sample_ecommerce.events_*`, UNNEST(items)  
where event_name='add_to_cart'  
group by item_id, item_name  
order by total_users desc  
limit 10
```

item_id	item_name	total_users
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GGOEGAPH161899	Google Land & Sea Cotton Cap	3567
GGOEGXXX1344	Google Navy Speckled Tee	3526
GGOEGXXX1109	Google Zip Hoodie F/C	3519
GGOEGXXX1613	Super G Unisex Joggers	3247
GGOEYHPB121110	YouTube Leather Strap Hat Black	3190
GGOEGXXX1193	Google Campus Bike Eco Tee Navy	3061
GGOEGAEC134910	Google Speckled Beanie Navy	3057
GGOEGXXX1181	Google Women's Striped L/S	3023
GGOEGAED134810	Google Heathered Pom Beanie	2925
GGOEGHPC120810	Google Leather Strap Hat Blue	2924

4. "Using the GA4 sample ecommerce dataset, write a SQL query to analyze the Average number of pageviews by purchaser type” ?

```
with page_data as(
select user_pseudo_id,
       countif(event_name = "page_view") as total_page_views,
       countif((event_name IN ('in_app_purchase','purchase')))) as purchase_event_count
from `bigquery-public-data.ga4_obfuscated_sample_ecommerce.events_*`
group by 1)

select (purchase_event_count > 0) as purchaser,
       count(*) as total_users,
       sum(total_page_views) / count(*) as avg_page_views
from page_data
group by 1
```

purchaser	total_users	avg_page_views
FALSE	265735	4.222627806
TRUE	4419	51.66960851

5."Using the GA4 sample ecommerce dataset, write a SQL query to analyze the Average number of transactions per purchaser.

```
select count(*) as total_transactions,
       count(distinct user_pseudo_id) as unique_customers,
       round(count(*)/count(distinct user_pseudo_id),2) as average_per_person
from `bigquery-public-data.ga4_obfuscated_sample_ecommerce.events_*`
where event_name IN ('in_app_purchase','purchase')
```

total_transactions	unique_customers	average_per_person
5692	4419	1.29

6. "Using the GA4 sample ecommerce dataset, write a SQL query to get the 'Total User' count and 'New User' count" ?

```
with new_user as(
SELECT user_pseudo_id,
MAX(IF(event_name IN ('first_visit', 'first_open'), 1, 0)) AS is_new_user
FROM `bigquery-public-data.ga4_obfuscated_sample_ecommerce.events_*`
WHERE _TABLE_SUFFIX BETWEEN '20201101' AND '20201130'
group by 1)
```

```
select count(*) as total_users,
       sum(is_new_user) as new_users
from new_user
```

total_users	new_users
79421	71734

Key Inferences:

1. *User Engagement Scale*

- Dataset covers *4.29M events* across *270K+ users* over 92 days.
- Indicates a moderately large user base with significant activity.

2. *Conversion Funnel Drop-off*

- *61K users viewed items* → only *12.5K added to cart* → *9.7K began checkout* → just *4.4K completed purchase*.

- This means *only ~7% of viewers added to cart, and **just 7% of those who began checkout purchased*.
- Overall purchase conversion rate: *1.6% of item viewers*.

3. *Popular Products (Cart Adds)*

- Top items added to cart include *Google Cotton Cap, Speckled Tee, Zip Hoodie, Joggers*.
- Indicates strong demand for *fashion/apparel* rather than tech merchandise.

4. *Purchaser Behavior*

- Purchasers average *51 page views per person* compared to only *4.2 for non-purchasers*.
- Suggests *higher browsing intensity strongly correlates with purchase likelihood*.

5. *Transactions per Purchaser*

- *5,692 total transactions* across *4,419 customers* → *average 1.29 transactions each*.
- Most customers are *one-time buyers*, with very limited repeat purchase activity.

6. *New vs Returning Users (November Sample)*

- Out of ~79K users in Nov, *71.7K were new (~90%)*.
- Indicates *heavy acquisition but low retention*.

□ **Conclusions**

- The Google Merchandise Store *attracts a lot of new visitors, but **conversion rates are weak* and *repeat purchases are rare*.
- Apparel dominates user interest, while other categories show lower engagement.

- Purchasers demonstrate *much deeper engagement (page views, interactions)* compared to non-purchasers.
- Funnel analysis shows *critical drop-offs between viewing → adding to cart → checkout → purchase*.

□ **Recommendations**

1. *Improve Conversion Funnel*

- Simplify checkout flow (reduce clicks, offer guest checkout, multiple payment options).
- Provide *cart reminders* (email/app notifications).
- Add *incentives* like free shipping thresholds or first-time purchase discounts.

2. *Enhance Retention*

- Introduce *loyalty programs* or Google-branded perks for repeat buyers.
- Targeted *re-engagement campaigns* for users who purchased once but never returned.

3. *Optimize Product Strategy*

- Focus marketing on *top-selling apparel items* (caps, tees, hoodies).
- Experiment with *bundles* (e.g., hoodie + cap) to increase average order value.

4. *Personalized Experiences*

- Use browsing history to *recommend similar/related products*.
- Deploy *dynamic retargeting ads* for abandoned carts and high-interest item views.

5. *Retention Analytics*

- Monitor *repeat purchase rate* month-over-month.

- Segment users into cohorts (new vs. returning, apparel vs. other categories) to design more effective campaigns.