



Q3 - Business Intelligence & Data Visualization

With the Current Dataset

Using the **dashboard_design** table without making any modifications, we can calculate and analyze the following metrics:

Metrics Based on Selected Period, Country, or Operating System:

- **General Metrics:**

- **Total User:** Total number of unique users.
- **Total App Launch:** Total number of app launches.
- **Free-Trial Start:** Total number of users who started a free trial.
- **Subscribe:** Total number of users who subscribed.
- **Renewal:** Total number of subscription renewals.
- **Revenue:** Total revenue generated.
- **Paywall Screen:** Total paywall views.

- **Paywall Conversion Metrics:**

- **Paywall per Launch:** Number of paywall views per app launch.
 - **CR - Paywall to Free-Trial:** Conversion rate from paywall views to free-trial starts.
 - **CR - Paywall to Subscribe:** Conversion rate from paywall views to subscriptions.
 - **Cancellation Metrics:**
 - **Auto Renew Off:** Total number of users who turned off auto-renewal.
 - **Revenue Per User:**
 - **ARPU:** Average Revenue Per User.
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Engagement and Activity Metrics:

- **Active Users:**
 - **Daily Active Users (DAU):** Number of users active daily.
 - **Weekly Active Users (WAU):** Number of users active weekly.
 - **Monthly Active Users (MAU):** Number of users active monthly.
 - **Yearly Active Users (YAU):** Number of users active yearly.
 - **Revenue Trends:**
 - **Avg. Daily Revenue:** Average revenue generated per day.
 - **Avg. Weekly Revenue:** Average revenue generated per week.
 - **Avg. Monthly Revenue:** Average revenue generated per month.
 - **Avg. Yearly Revenue:** Average revenue generated per year.
 - **User Activity Breakdown:**
 - **By UTC Hours:** User activity distributed across different hours of the day.
 - **By Weekdays:** User activity distributed across different days of the week.
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Use Cases for These Metrics

- 1. Performance Tracking:** Monitor how different countries, operating systems, or time periods contribute to app performance.
- 2. User Behavior Analysis:** Understand how users interact with paywalls and subscriptions to identify opportunities for increasing conversion rates.
- 3. Revenue Optimization:** Analyze revenue trends and ARPU to focus efforts on high-performing segments.
- 4. Engagement Insights:** Identify peak user activity times and optimize notifications or promotions accordingly.

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We Can Also Create a Funnel by Adjusting the Data

This funnel analyzes key user behaviors within the app, such as **starting a free trial, subscribing, canceling subscriptions, and renewing subscriptions**.

Objectives

1. Understand User Behavior:

- Analyze how users progress through each step of the funnel.
- Identify problem areas (e.g., high cancellation rates or low conversion rates).

2. Segmentation:

- Break down the funnel by **platform** (iOS vs. Android) and **country** to uncover behavioral differences among user groups.
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Funnel Steps

Each step is analyzed based on the **timestamp** when users trigger the corresponding event:

- **Free Trial Start:** When users first interact with the app and initiate a free trial.
 - **Subscription Start:** Users who complete a subscription after the trial or directly.
 - **Subscription Cancellation:** Users who cancel their subscriptions at any point.
 - **Renewal:** Users who successfully renew their subscriptions after the initial period.
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How This Funnel Helps

- **Pinpointing Bottlenecks:** For example, if a significant number of users start a free trial but fail to subscribe, you can investigate and optimize the paywall experience.
- **Platform-Based Optimization:** Comparing iOS and Android behaviors can reveal platform-specific issues or opportunities.
- **Region-Based Strategy:** Analyzing country-level differences helps identify where to focus marketing or operational improvements.

```
WITH user_funnel AS (
  SELECT
    user_id,
    operating_system,
    country,
    MIN(CASE WHEN event_name = 'free_trial' THEN event_time END) as trial_start_time,
    MIN(CASE WHEN event_name = 'subscribe' THEN event_time END) as subscribe_time,
    MIN(CASE WHEN event_name = 'renewal' THEN event_time END)
```

```

        as renewal_time,
        MIN(CASE WHEN event_name = 'auto_renew_off' THEN event_time END) as cancel_time,
        MIN(CASE WHEN event_name = 'free_trial' THEN product_identifier END) as trial_product,
        MIN(CASE WHEN event_name = 'subscribe' THEN product_identifier END) as sub_product
    FROM `data-science-for-business-imp.app_analytics.dashboard_design`
    GROUP BY user_id, operating_system, country
),

user_journey_analysis AS (
    SELECT
        operating_system,
        country,
        COUNT(DISTINCT user_id) as total_users,

        COUNT(DISTINCT CASE
            WHEN trial_start_time IS NOT NULL
            THEN user_id
        END) as total_trial,

        COUNT(DISTINCT CASE
            WHEN subscribe_time IS NOT NULL
            THEN user_id
        END) as total_subs,

        COUNT(DISTINCT CASE
            WHEN trial_start_time IS NOT NULL AND subscribe_time > trial_start_time
            THEN user_id
        END) as trial_to_paid,

        COUNT(DISTINCT CASE
            WHEN trial_start_time IS NOT NULL

```

```

        AND cancel_time IS NOT NULL
        AND (subscribe_time IS NULL OR cancel_time < subscribe_
time)
        THEN user_id
    END) as trial_to_cancel,

    COUNT(DISTINCT CASE
        WHEN subscribe_time IS NOT NULL
        AND cancel_time > subscribe_time
        THEN user_id
    END) as sub_to_cancel,

    COUNT(DISTINCT CASE
        WHEN renewal_time IS NOT NULL
        THEN user_id
    END) as renewed_users
FROM user_funnel
GROUP BY operating_system, country
)

SELECT
    operating_system,
    country,
    total_users,
    total_trial,
    total_subs,
    trial_to_paid,
    trial_to_cancel,
    sub_to_cancel,
    renewed_users,

    ROUND(trial_to_paid / NULLIF(total_trial, 0), 2) as trial_t
o_paid_rate,
    ROUND(trial_to_cancel / NULLIF(total_trial, 0), 2) as trial
_cancel_rate,
    ROUND(sub_to_cancel / NULLIF(trial_to_paid, 0), 2) as paid_

```

```
cancel_rate,  
    ROUND(renewed_users / NULLIF(trial_to_paid, 0), 2) as renew  
al_rate  
  
FROM user_journey_analysis  
ORDER BY total_users DESC;
```

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