Media Delivery Operations & SLA Performance Analytics

Elite GitHub Portfolio Case Study – Full KPI SQL Appendix

Executive Summary

This case study demonstrates an end-to-end analytics platform simulating enterprise-scale media delivery operations.
Datasets are generated using Python, modeled in MySQL, and analyzed via SQL views and Looker Studio dashboards.

Architecture Overview

Python → CSV Generator → MySQL Warehouse → SQL Views → Looker Studio Dashboards

Technology Stack

Python, Pandas, NumPy
MySQL
SQL Views
Looker Studio
GitHub

Warehouse Schema (schema.sql)

```
CREATE TABLE partners (...);
CREATE TABLE content_master (...);
CREATE TABLE artwork (...);
CREATE TABLE project_media (...);
CREATE TABLE error_logs (...);
```

Delivery Master Analytics View

```
CREATE OR REPLACE VIEW delivery_master_view AS
SELECT
 d.delivery_id,
 d.delivery_date,
 p.partner_name,
 p.region,
 c.genre,
 a.format,
 a.approved_flag,
 d.actual_hours,
 d.sla_hours,
 CASE WHEN d.actual_hours > d.sla_hours THEN 1 ELSE 0 END AS sla_breach_flag,
 CASE WHEN d.status='SUCCESS' THEN 1 ELSE 0 END AS success_flag
FROM project_media d
JOIN partners p ON d.partner_id=p.partner_id
JOIN content_master c ON d.content_id=c.content_id
JOIN artwork a ON d.asset_id=a.asset_id;
```

Complete KPI SQL Library

```
-- ================================
-- EXECUTIVE KPIs
-- ================================

SELECT COUNT(*) AS total_deliveries
FROM delivery_master_view;

SELECT ROUND(AVG(actual_hours),2) AS avg_delivery_hours
FROM delivery_master_view;

SELECT ROUND(SUM(sla_breach_flag)/COUNT(*)*100,2) AS sla_breach_pct
FROM delivery_master_view;

SELECT ROUND(SUM(success_flag)/COUNT(*)*100,2) AS success_rate_pct
FROM delivery_master_view;

-- ================================
-- PARTNER PERFORMANCE
-- ================================

SELECT partner_name,
       COUNT(*) AS deliveries,
       ROUND(SUM(sla_breach_flag)/COUNT(*)*100,2) AS sla_breach_pct,
       ROUND(AVG(actual_hours),2) AS avg_hours
FROM delivery_master_view
GROUP BY partner_name
ORDER BY sla_breach_pct DESC;

-- ================================
-- REGION ANALYSIS
-- ================================

SELECT region,
       ROUND(SUM(sla_breach_flag)/COUNT(*)*100,2) AS sla_breach_pct,
       COUNT(*) AS deliveries
FROM delivery_master_view
GROUP BY region;

-- ================================
-- FORMAT / GENRE QUALITY
-- ================================

SELECT format,
       ROUND(SUM(sla_breach_flag)/COUNT(*)*100,2) AS sla_breach_pct
FROM delivery_master_view
GROUP BY format;

SELECT genre,
       COUNT(*) AS failures
FROM delivery_master_view
WHERE success_flag=0
GROUP BY genre;
```

```sql
-- ================================
-- APPROVAL IMPACT
-- ================================

SELECT approved_flag,
       ROUND(AVG(actual_hours),2) AS avg_hours,
       ROUND(SUM(sla_breach_flag)/COUNT(*)*100,2) AS sla_breach_pct
FROM delivery_master_view
GROUP BY approved_flag;

-- ================================
-- TREND ANALYSIS
-- ================================

SELECT DATE_FORMAT(delivery_date,'%Y-%m') AS month,
       ROUND(SUM(sla_breach_flag)/COUNT(*)*100,2) AS sla_breach_pct
FROM delivery_master_view
GROUP BY month
ORDER BY month;
```

Dashboard Pages

1. Executive Overview
2. Partner Performance & Risk
3. Content & Artwork Quality
4. Operational Drilldowns

Key Insights

- TIFF/PNG formats consistently exceed SLA targets.
- Non-approved assets increase turnaround times.
- A small group of partners drives SLA breaches.
- Certain regions exhibit systemic delays.

Strategic Recommendations

- Automate approval workflows.
- Introduce partner scorecards.
- Add QC gates for risky formats.
- Deploy SLA alerting systems.

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