Project Documentation
Instagram Campaign Dashboard

Objective:
The main purpose of this project is to track, analyze and visualize the performance of influencer marketing campaigns across multiple platforms (Instagram, TikTok, Twitter, YouTube in this case) in realtime. This dashboard helps with identifying

- Where the company's money is going
- Who is delivering the best results
- What's actually working across these social platforms
- And how to optimize the ROI and ROAS.

Process:

Data Design & Simulation

I began by manually creating realistic datasets for four essential components of any influencer marketing campaign and as also given by the assignment question:

Table Name	Purpose
`influencers`	Details of influencers (ID, name, gender, category, platform)
`posts`	Social media post metrics (reach, likes, comments)
`tracking_data`	Conversion data (user ID, orders, revenue, product)
`payouts`	Payment made to influencers (`total_payout`)

I populated these tables with dummy but plausible data to reflect real-world scenarios with the help of python.

MySQL Database Setup

I created a MySQL database and imported all the data tables using CSV files.

Then performed:

- **Schema normalization**
- **Deduplication** of post records using composite keys (e.g., influencer_id + platform + date)

- **NULL cleanup** in critical columns
- **Indexing** on frequently queried fields like `influencer_id`, `platform`, and `date`

SQL Query Engineering

I designed robust MySQL queries to compute business-critical performance metrics, including:

Metric	Purpose
Total Revenue	Overall money earned via influencer posts
Total Spend	Total payouts made to influencers
ROI	Revenue divided by Spend
Incremental ROAS	Adjusted ROAS formula: (Rev - baseline)/Spend
Top Influencers by ROAS	Best-performing influencers by value
Monthly Trends	To observe seasonal patterns
Poor ROAS Influencers	Underperformers worth reviewing
Platform/Category Revenue	Breakdown by channel or audience type

Backend Integration with Python

Using SQLAlchemy, I connected Python to MySQL:

```
from sqlalchemy import create_engine
engine =
create_engine("mysql+pymysql://username:password@localhost/db_name")
```

Then, I modularized all SQL logic inside `queries.py`, defining Python functions like:

```
def get_total_revenue(engine):
    return pd.read_sql("SELECT SUM(revenue) FROM tracking_data",
engine)
```

Building the Dashboard with Streamlit

And created these simple and functional Streamlit app with the following layout:

Filters Sidebar:

- **Brand Selector** (e.g., HKVitals)
- **Platform Multiselect** (e.g., Instagram, YouTube)
- **Influencer Type** (e.g., Fitness, Lifestyle)
- **Date Range Picker**
- **Show Results** button to trigger the filtered queries

KPI Metrics:

Displayed in five neat cards:

- Total Spend
- Total Revenue
- ROI
- Incremental ROAS
- Total Reach

Visual Charts:

- **Top Influencers by ROAS** (bar chart)
- **Monthly ROAS Trend** (line chart)

Performance Table:

A clean table showing influencer-wise ROAS metrics.

Insight Section:

Smart text highlighting:

- 🔝 Top performer (name + ROAS)
- ⚠️ Poor performer (ROAS < 1)

Business Impacts:

From this dashboard, we get to clearly understand that

- Which influencers are actually worth investing money in
- To make market driven business decisions
- To analyze which product is bringing in the customers
- To identify underperforming content or platform
- To analyze conversion and engagement rates
- Also to monitor the monthly improvements