

Social Media Analytics Backend

Introduction:

The *Social Media Analytics* project aims to simulate the backend of a social media platform using MySQL. The system manages essential entities such as users, posts, likes, and comments. It provides detailed insights into user activity, content engagement, and platform dynamics by implementing SQL queries, views, stored procedures, triggers, and functions.

Abstract:

This project develops a SQL-based backend for tracking and analysing social media activity. It includes automatic engagement tracking using triggers, analytics through complex queries, and procedural operations for common backend tasks. This backend helps visualize how social platforms quantify content engagement and user interaction, enabling better design and data analysis for real-world systems.

Tools Used:

- *MySQL Workbench* – for schema design and SQL execution
- *SQL (DDL, DML, DCL)* – to define, manipulate, and control the database
- *Stored Procedures and Triggers* – for automation and logic
- *GitHub* – for code versioning and final project publishing

Steps Involved:

- **Database Schema Design**
 - Defined core tables: Users, Posts, Likes, Comments
 - Set up foreign keys and constraints to ensure data integrity
- **Data Population**
 - Used stored procedures to generate: 1000 users, 2000+ posts, 3000 likes, 1500 comments
- **Triggers & Functions**
 - Triggers to auto-update like_count and comment_count in Posts
 - Function fn_post_engagement() to return total engagement (likes + comments)
- **Analytics and Views**
 - Analytical queries: Top 10 users by posts, Most liked/commented posts, Inactive content (no likes/comments), Most active users
 - Views created for reusable reporting dashboards
- **Stored Procedures**
 - Procedures for deleting a post (with its likes/comments)
 - Getting top posts by engagement
 - Refreshing like/comment counts
 - Updating user email
 - Fetching user activity summary
- **Testing & Validation**
 - Manually inserted/deleted likes and comments

- Verified post metrics auto-updated correctly via triggers

Conclusion:

This project demonstrates the power of SQL in backend systems by simulating a real-world social media backend. It covers data modelling, automation through triggers, procedural logic, and analytical reporting. The experience enhances SQL fluency.

Repository:

All project files are available on GitHub:

GitHub Repo: <https://github.com/BhoomikaJain21/Social-Media-Analytics-SQL>