

Project Title: Social Media Analytics Backend

Introduction:

The Social Media Analytics Backend project focuses on designing and implementing a SQL-based system to analyze social media engagement. The database stores and tracks users, posts, likes, and comments while generating insights into engagement levels and content performance. This project simulates a real-world analytics engine similar to platforms like Instagram or Twitter.

Abstract:

This project builds a relational database using PostgreSQL to store and analyze user activity data. It demonstrates the use of SQL features such as table relationships, views, triggers, and analytical queries. The main objective is to calculate post engagement metrics, identify top-performing content, and rank users based on total activity. The project showcases data normalization, query optimization, and the creation of reusable SQL views for analytical reporting.

Tools Used:

- PostgreSQL
- DBeaver / pgAdmin
- SQL (DDL, DML, and DQL statements)
- GitHub for version control

Steps Involved in Building the Project:

1. Designed the database schema including Users, Posts, Likes, and Comments tables.
2. Established primary and foreign key relationships for referential integrity.
3. Populated the database with sample user and post data.
4. Created SQL views to summarize engagement per post and user.
5. Wrote analytical queries using GROUP BY and ORDER BY for engagement ranking.
6. Implemented triggers to update post activity upon new likes or comments.
7. Exported results and reports for top posts and active users.
8. Uploaded all scripts and documentation to GitHub.

Conclusion:

The Social Media Analytics SQL project effectively demonstrates the integration of database design and analytical reporting. It highlights the power of SQL in extracting valuable insights from relational data. This project enhances understanding of normalization, joins, triggers, and query optimization — key skills required for data analytics and backend development roles.