Project Report

Social Media Analytics Backend

Abstract

This project focuses on building a SQL-based backend system for analyzing social media engagement. The database is designed to handle users, posts, likes, and comments, and generate insights such as top-performing posts, engagement scores, and user activity rankings. SQL views, window functions, and triggers are used to make the system dynamic and efficient. The project also includes exporting reports for visualization.

Introduction

In today's world, social media platforms rely heavily on data analytics to understand user engagement. This project simulates a small-scale version of such a system using SQL.

The goal is to:

- Track posts created by users
- Count likes and comments on each post
- Identify top posts and most engaged users
- Automatically update engagement counts using triggers
- Generate reports for further analysis

Tools Used

- **Database:** MySQL
- **Management Tool:** MySQL Workbench

Steps Involved

1. **Database & Tables Creation**
    - Defined schema for Users, Posts, Likes, and Comments.
2. **Data Population**
    - Inserted sample users, posts, likes, and comments.
3. **Views Creation**

- TopPosts view to identify posts with the highest likes and comments.

4. **Window Functions**
   - Used RANK() to rank posts by engagement.
5. **Triggers**
   - Created trigger increment_like_count to auto-update Posts.like_count when a new like is inserted.
6. **Report Generation**
   - Exported TopPosts and Rankings into CSV format for visualization in Excel/Sheets.

Conclusion

The Social Media Analytics Backend successfully simulates how social media platforms analyze engagement. With the help of SQL queries, views, window functions, and triggers, the project can dynamically track post popularity and user activity. The exported reports provide insights that can be visualized in charts for better understanding.

This project demonstrates the power of SQL in backend analytics and can be extended to larger datasets with additional features such as shares, hashtags, and user activity timelines.