

Social Media Platform – ER Diagram

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This database design represents a **social media platform** like Instagram / Facebook.

At a high level, the system supports:

- Users creating content (posts, comments)
- Users interacting (likes, follows, messages)
- Community features (groups & events)
- Monetization (advertisements & performance tracking)

1. User

A registered person on the platform.

- Create posts and comments
- Like posts and comments
- Follow other users
- Send private messages
- Join groups
- Create or attend events

Important fields:

- `user_id` – Unique identifier
- `username, email` – Identity
- `profile_photo` – Profile media
- `privacy_option` – Controls visibility

2. Follows

Allows users to follow other users.

- A user can follow many users
- A user can be followed by many users

This is a **self-referencing many-to-many relationship**.

Important fields:

Follows

- follower_id → who follows
- following_id → who is being followed

3. Posts

Stores all user-generated posts.

- Each post is created by **one user**
- A user can create **many posts**

Important fields:

- content – Text of the post
- media – Image / video
- created_at – Post timestamp

4. Comments

Allows users to comment on posts.

Supports **threaded replies**.

- parent_comment_id points to another comment
- If NULL → top-level comment
- One post → many comments
- One user → many comments

5. Likes

Tracks likes on posts and comments.

A like can belong to:

- A post
- A comment

How it works:

- `liked_entity` → Post or Comment
- `entity_id` → ID of post/comment

6. Messages

Supports one-to-one private chat between users.

- Sender and receiver tracking
- Message status (Read / Unread)
- One user can send many messages
- One user can receive many messages

7. Groups and Group Members

Groups:

Represents communities (e.g., Coding Club, Football Fans).

Group Members:

A **junction table** that manages membership.

group_members tracks:

- Which user joined which group

- When they joined (`joined_at`)

8. Events and RSVP

Events:

User-created activities (meetups, launches, matches).

- Created by a user
- Can belong to a group OR an individual

RSVP:

Tracks user responses:

- Going
- Maybe
- Not Going

9. Advertisements

Stores paid promotional content.

Key features:

- Targeted audience
- Budget control

10. Advertisement Stats

Tracks ad performance.

- Impressions – how many times shown
- Clicks – how many times clicked

How Everything Connects

User

- creates **Posts**
- receives **Comments & Likes**
- joins **Groups**
- participates in **Events**
- communicates via **Messages**
- sees **Advertisements**

ER Diagram:

