

TASK ANALYSIS DOCUMENT

INSTAGRAM

Main Features and Functionalities

- User Registration
- Photo Uploads

- Likes and Comments
- User Profiles
- News Feed
- Notification
- Stories
- Direct Messaging
- Followers and Following
- Explore Page
- Settings and Privacy

User Registration

- Input: User provides email, username, and password.
- Action: User submits registration form.
- System Response:
 - Validate input data (unique email/username, password strength).
 - Create a new user account in the database.
- Error Scenarios:
 - Email/username is already taken.
 - Weak password.

Photo Uploads

- Input: User selects a photo to upload.
- Action: User confirms upload.
- System Response:
 - Store the photo in the designated folder structure.
 - Create a new photo entry in the database, linked to the user.
- Likes:

- **Input:** User clicks the "like" button on a photo.
 - **Action:** System records the like action.
- **System Response:**
 - Increment the like count for the photo in the database.

Comments

- **Input:** User types a comment on a photo.
- **Action:** User submits the comment.
- **System Response:**
 - Store the comment in the database, linked to the photo and user.

Likes and Comments

- **Liking Posts:**
 - User clicks the "Like" button on a post.
 - System increments the like count and updates UI.
- **Commenting on Posts:**
 - User enters a comment and clicks the "Comment" button.
 - System adds the comment to the post and updates UI.

User Profiles

- **Input:** User views/edit their profile.
- **Action:** User updates profile information.
- **System Response:**
 - Update the user's profile information in the database.

News Feed

- **Scrolling Through Feed:**
 - User navigates to the news feed.
 - The system displays a scrollable feed of posts from followed users.
- **Interacting with Posts:**
 - User likes or comments on a post by clicking respective buttons.

- System updates like and comment counts in real-time.

Direct Messaging

- Starting Conversations:
 - User clicks on a user's profile and selects "Message."
 - System opens a chat window for private messaging.
- Sending Messages:
 - User types a message and clicks "Send."
 - System adds the message to the chat history and updates the chat window.

Stories

- Viewing Stories:
 - User clicks on a user's story profile picture.
 - System displays the user's current story, which auto-advances.
- Adding to Story:
 - User clicks "Add to Story" and uploads a photo or video.
 - The system adds the media to the user's story for 24 hours.

Explore Page

- Exploring Recommended Content:
 - User navigates to the Explore page.
 - The system displays recommended posts, users, and hashtags.
- Searching for Content:
 - User enters a search query in the search bar.
 - System provides search results for users, posts, and hashtags.

Notifications

- Receiving Notifications:
 - User receives notifications for likes, comments, follows, and mentions.
 - System displays notifications in the notifications panel.
- Interacting with Notifications:
 - User clicks on a notification to view the related content.
 - System marks notifications as read when viewed.

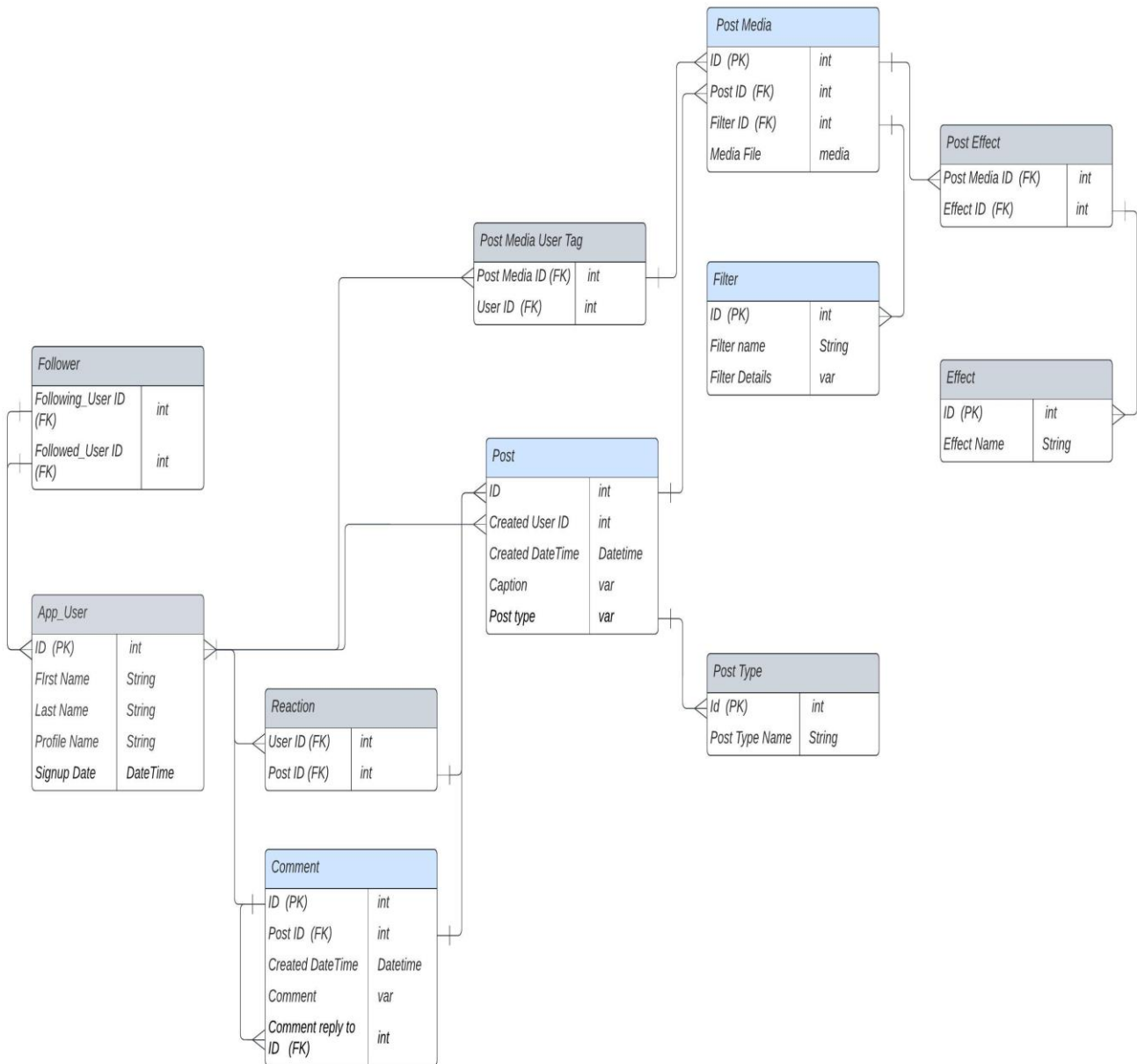
Settings and Privacy

- Accessing Settings:
 - User clicks on their profile and selects "Settings."
 - System opens the settings page.
- Adjusting Privacy Settings:
 - User updates privacy settings, such as account visibility and notification preferences.

Media Storage

- Store media files (photos, etc.) on the device in a designated folder structure(e.g., /user_photos/username/photo1.jpg). In the database, store the file path (PhotoPath) to reference the corresponding media files.

Instagram ER Diagram Model:



Tables and Fields:

User:

- UserID (Primary Key)
- Username
- Email
- Password

- Profile Picture (File path to profile picture in the device).

Post:

- PostID (Primary Key)
- UserID (Foreign Key referencing User table)
- Caption
- ImagePath (File path to the post image in the device)
- CreationDate

Creating Posts:

- Upload Photo/Video Button
- Caption Textbox
- Location Tagging (via map search or markers)
- Tag Users Button

Comment:

- CommentID (Primary Key)
- PostID (Foreign Key referencing Post table)
- UserID (Foreign Key referencing User table)
- Text
- CreationDate

Like:

- LikeID (Primary Key)
- PostID (Foreign Key referencing Post table)
- UserID (Foreign Key referencing User table)
- CreationDate

Mention:

- MentionID (Primary Key)
- PostID (Foreign Key referencing Post table)
- MentionedUserID (Foreign Key referencing User table)
- MentionDateTime

Hashtag:

- HashtagID (Primary Key)
- TagName (The actual hashtag, e.g., #summer)
- PostID (Foreign Key referencing Post table)
- UsageCount (Number of times the hashtag is used)

News Feed:

- Scrollable Feed of Posts
- Each Post:
 - Image/Video
 - Username and Profile Picture

- Caption
- Like and Comment Icons
- Timestamp
- Geolocation Tag (optional)
- Like and Comment Count

Direct Messaging:

- List of Chats/Conversations
- Each Chat:
- User Profile Picture
- Last Message Preview
- Timestamp
- Text, Image, and Video Messaging
- Message Input Box

Sponsor:

- SponsorID (Primary Key)
- SponsorName
- SponsorLogo (File path or URL)
- SponsorLink
- SponsorDescription

Follower Connection:

- FollowerID (Primary Key, Foreign Key referencing User table)
- FollowedUserID (Primary Key, Foreign Key referencing User table)
- FollowDateTime.

Media:

- MediaID (Primary Key)
- MediaType (Image, Video, etc.)
- MediaPath (File path or URL)

Stories:

- Carousel of Stories
- Each Story:
- Image/Video
- Username and Profile Picture
- Timestamp Countdown
- Add to Story Button

Explore Page:

- Recommended Posts, Users, and Hashtags
- Search Bar

Search Functionality:

- Search Bar with Autocomplete Suggestions

- Search Results for Users, Posts, and Hashtags

Notifications:

- List of Notifications
- Each Notification:
- Icon (like, comment, follower, mention)
- Notification Text
- Timestamp

Settings and Privacy:

- List of Settings and Preferences
- Privacy Settings
- App Preferences

Geolocation and Tagging:

- Map Integration for Location Tagging
- Geolocation-Based Features (e.g., nearby posts)

Explore and Discover:

- Explore Nearby Posts
- Popular Hashtags

Security and Moderation:

- Report/Block Buttons for Inappropriate Content
- Spam and Abuse Prevention Measures

Stories Highlights and Archives:

- List of Saved Stories Highlights
- Archived Posts Section

Folder Structure for Media:

Storing media files (pictures, videos, etc.) on the device's local storage, we use a structure like this:

- **/AppMediaRoot**
 - **/ProfilePictures**
 - user1_profile.jpg
 - user2_profile.jpg
 - ...
- **/PostImages**
 - post1_image.jpg
 - post2_image.jpg
 - ...
- **/PostVideos**
 - post1_video.mp4
 - post2_video.mp4
 - ...

Database Tables:

- The **User** table is connected to the **Post**, **Comment**, **Like**, **Mention**, and **FollowerConnection** tables through the **UserID** field.
- The **User** table is connected to itself in the **FollowerConnection** table through **FollowerID** and **FollowedUserID** fields to represent the follower-following relationship.

Post Table Connections:

- The **Post** table is connected to the **User** table through the **UserID** field to establish the relationship between posts and users.
- The **Post** table is connected to the **Comment**, **Like**, **Mention**, and **HashtagPost** tables through the **PostID** field.

Comment Table Connections:

- The **Comment** table is connected to the **User** table through the **UserID** field to associate comments with users.
- The **Comment** table is connected to the **Post** table through the **PostID** field to link comments to specific posts.

•

Like Table Connections:

- The **Like** table is connected to the **User** table through the **UserID** field to relate likes to users.
- The **Like** table is connected to the **Post** table through the **PostID** field to link likes to specific posts.

Mention Table Connections:

- The **Mention** table is connected to the **User** table through the **MentionedUserID** field to identify mentioned users.
- The **Mention** table is connected to the **Post** table through the **PostID** field to associate mentions with posts.

Hashtag Table Connections:

- The **Hashtag** table is connected to the **HashtagPost** table through the **HashtagID** field to associate hashtags with specific posts.

HashtagPost Table Connections:

- The **HashtagPost** table is connected to the **Hashtag** table through the **HashtagID** field to link posts with hashtags.
- The **HashtagPost** table is connected to the **Post** table through the **PostID** field to connect posts with hashtags.

Sponsor Table Connections:

- The **Sponsor** table is not directly connected to other tables based on the information provided. It might be connected to other entities in your application, depending on how sponsorships are implemented.

