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Collage of Computer
Engineering and Science



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Project:

Instagram application

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1–Feasibility study & project Proposal

1.1–Introduction.

In a world shaped by connectivity, communication stands as the linchpin of human interaction. However, distance barriers and constraints on expression often hinder seamless connection, highlighting the importance of innovative solutions for a truly connected experience like Instagram application.

1.2–problems.

The problem are the limitation posed by distance barriers in traditional communication and the need for personal expression and creativity, which often constrained in other communication form

1.3–Background about Meta Company.

Instagram was founded in 2010 by Kevin Systrom and Mike Krieger. It gained popularity for its focus on photo sharing and filters. In 2012, Meta (previously Facebook) acquired Instagram for \$1 billion. Meta owns major platforms, including Facebook, and WhatsApp, since then, Instagram has continued to evolve.

1.4– Proposed solutions.

The solution is an application, provides a platform for instant content sharing. Through features like posts, stories, comments, likes, and direct messaging, it enables users to connect across distances, express creativity, and foster community building, which overcoming communication constrains

1.5-Work plan.

We chose the **incremental model** and **agile methodology** because it's a social media app and they provide flexibility, allow iterative improvements based on user feedback, and facilitate quick adaptations to the evolving needs of the app

Before we start we will define the goals, scope, features and stakeholders

Phase1	Specification	Write the requirements in detail and verify their implementation (sing up, log in, create a profile, editing the profile)
	Implementation	Create a user interface and develop the basic functionality (sing up, log in, create a profile, editing the profile)
	Validation	Verifying that the implementation meets requirements – searching for errors and correcting them – testing the system
	Evolution	Modifying the system based on the validation and user feedback
Phase2	Specification	Collect user comments then write the requirements in detail, and verify their implementation (share Photo, like photo, follow/unfollow user, explore page)
	Implementation	Developing the new features and modifying the user interface to suit them
	Validation	Verifying that the implementation meets requirements – searching for errors and correcting them – testing the system in small group, Ensure the system works well with new features
	Evolution	Modifying the system based on user feedback

Phase3	Specification	Collect user feedback, write the requirements in detail, and verify their implementation (share video, like/comment video, post stories)
	Implementation	Developing the new features and modifying the user interface to suit them
	Validation	Verifying that the implementation meets requirements – searching for errors and correcting them – testing the system in small group, Ensure the system works well with new features
	Evolution	Modifying the system based on user feedback
Phase 4	Specification	Collect user comments write the requirements in detail, and verify their implementation (add editing tools, filters, direct messages, search button)
	Implementation	Developing the new features and modifying the user interface to suit them
	Validation	Verifying that the implementation meets requirements – searching for errors and correcting them – testing the system–Ensure the system works well with new features
	Evolution	Modifying the system based on user feedback
Phase 5	Specification	Collect user comments write the requirements in detail, and verify their implementation (Improved user interface – added security and privacy measures)
	Implementation	Developing the new features
	Validation	Conduct comprehensive tests–verifying that the implementation meets requirements – searching for errors and correcting them
	Evolution	Modifying the system based on user feedback

- Before launching the application we will collect feedback from the internal team, beta testers (recruiting a group to test the app in identical conditions), family and friends.
- After launch: Monitor user feedback and address issues immediately, regularly updates and maintains based on user feedback and emerging trends.

2– Project requirements

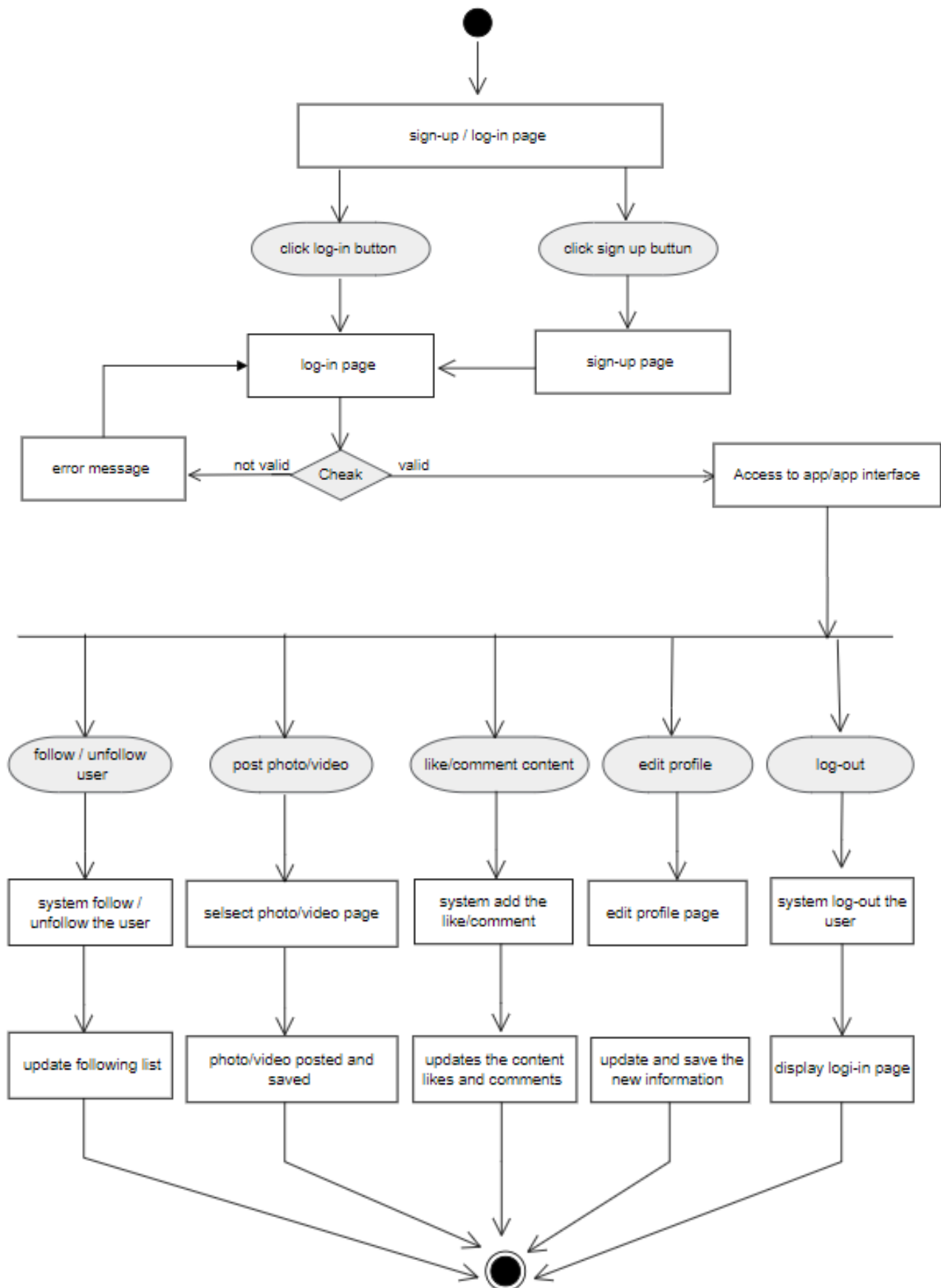
2.1– Functional requirements:

	System requirements	User requirements
1	Users can sing up and login to the app via email and password, or phone number and password, or Facebook account, or Google account, or the Apple ID.	Users can sing up and log in to the app.
2	Users should be able to create, edit, and delete their profiles, including adding personal information, profile pictures, and bio details.	Users can create, edit and delete profiles.
3	The ability to post various types of content such as photos, videos, stories with options for adding captions, tags, and location information. With ability to add filters, and editing content using editing tools	Users can post photos, videos and stories.
4	Users should be able to add like on the shared photos, videos, stories and remove it, add comment and remove it, and share it	Users can like, share and comment the content
5	users should be able to reply to another comment also can add like and remove it	Users can replay and like other comments
6	Users can follow and unfollow others users with notifications for new followers	Users can follow and unfollow others
7	Users can send and receive private messages, including text, photos, and videos, they can delete and copy the message	Users can send and receive private messages
8	Users should be able to search for other users, hashtags, or locations via search button	Users can search via search button

2.2– Non–functional requirements:

	System requirements	User requirements
1	Performance: The system should be able to deliver quick response times, ensuring that actions such as image loading, scrolling, and interactions occur swiftly, contributing to a seamless user experience	The system should load fast and respond quickly
2	Reliability: The system should be able to maintain high availability, minimizing downtime and ensuring that features like posting, messaging, and content discovery are consistently reliable for users	The system should always be available and reliable
3	Security: The system should be able to implement robust security measures, including encryption and secure authentication processes, to protect user data and ensure the confidentiality of personal information	The system should keep the data safe
4	Usability: The system should be able to provide a user–friendly interface, incorporating intuitive design elements, straightforward navigation, and clear instructions to enhance overall usability and encourage user engagement	The system should be easy to use.

3- Activity diagram



4– Use case modelling

Actors	Roles
General users	Log in Create/delete profiles Update profile info. Follow/unfollow users post photo-video-story like/comment content explore content using search button send private message
Business owners	Create business profile Can set up a shop Can tag products in posts Create and manage advertisement Have a verification blue badge Can access to insights
Influencers and celebrities	View insights and analytics Create and manage advertisement Have a verification blue badge Interact with followers
Organizations	Create and promote events Have a verification blue badge Create and manage advertisement
Administrators	Handle users reports Moderate content Manage user accounts Provide support
Guests	view publicly available content view public profiles

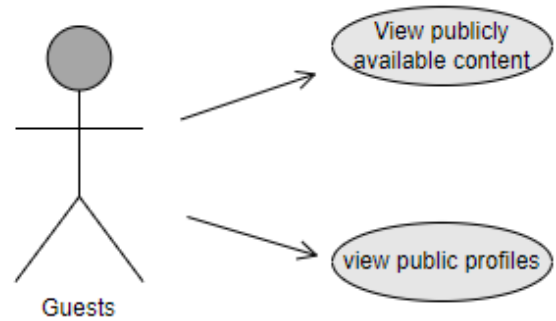
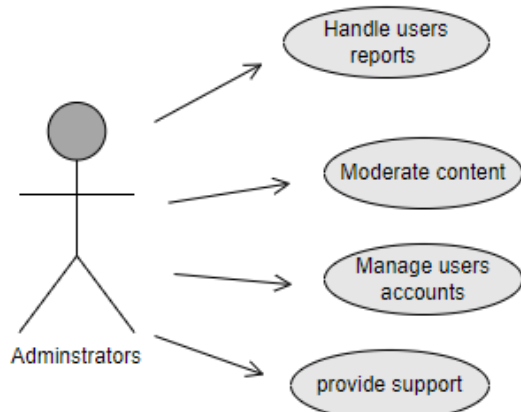
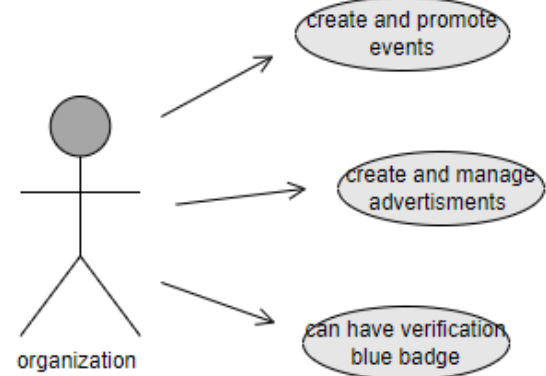
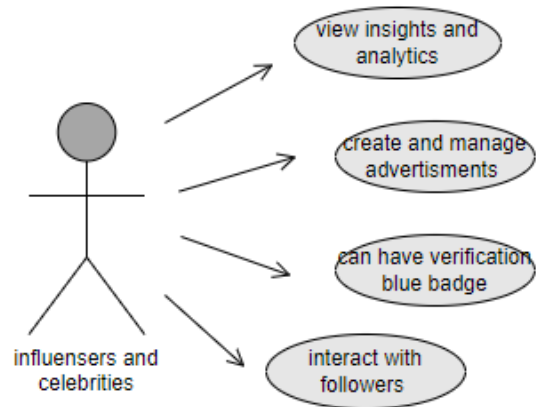
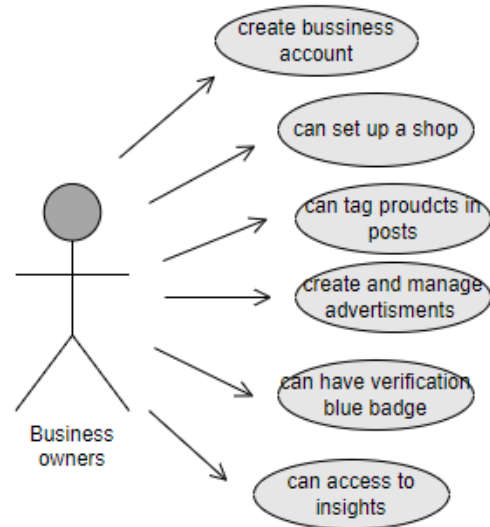
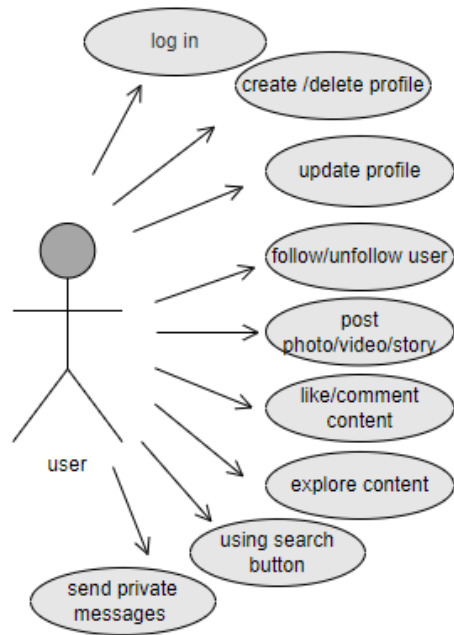
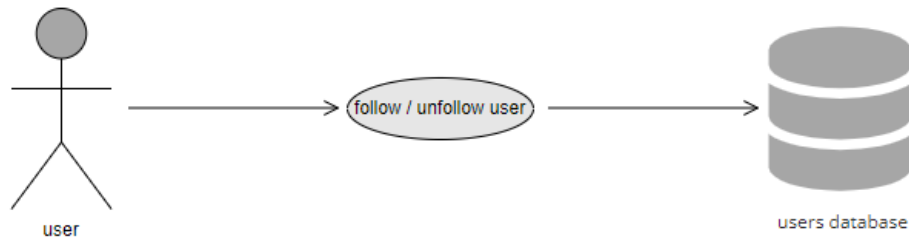


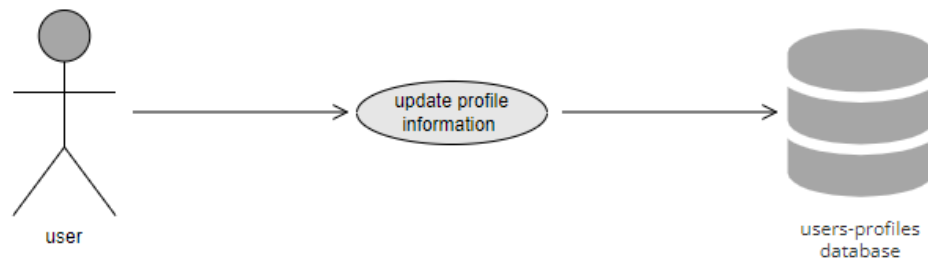
Table 1:



Users Follow/unfollow users

Actor	User and users database
Description	This show the interaction between the user who wants to follow or unfollow another users and users database
Data	User id – followed user id/unfollowed user id
stimulus	The User wants to follow or unfollow another user
Response	The other user followed or unfollowed and the following list updated (increased or decreased)

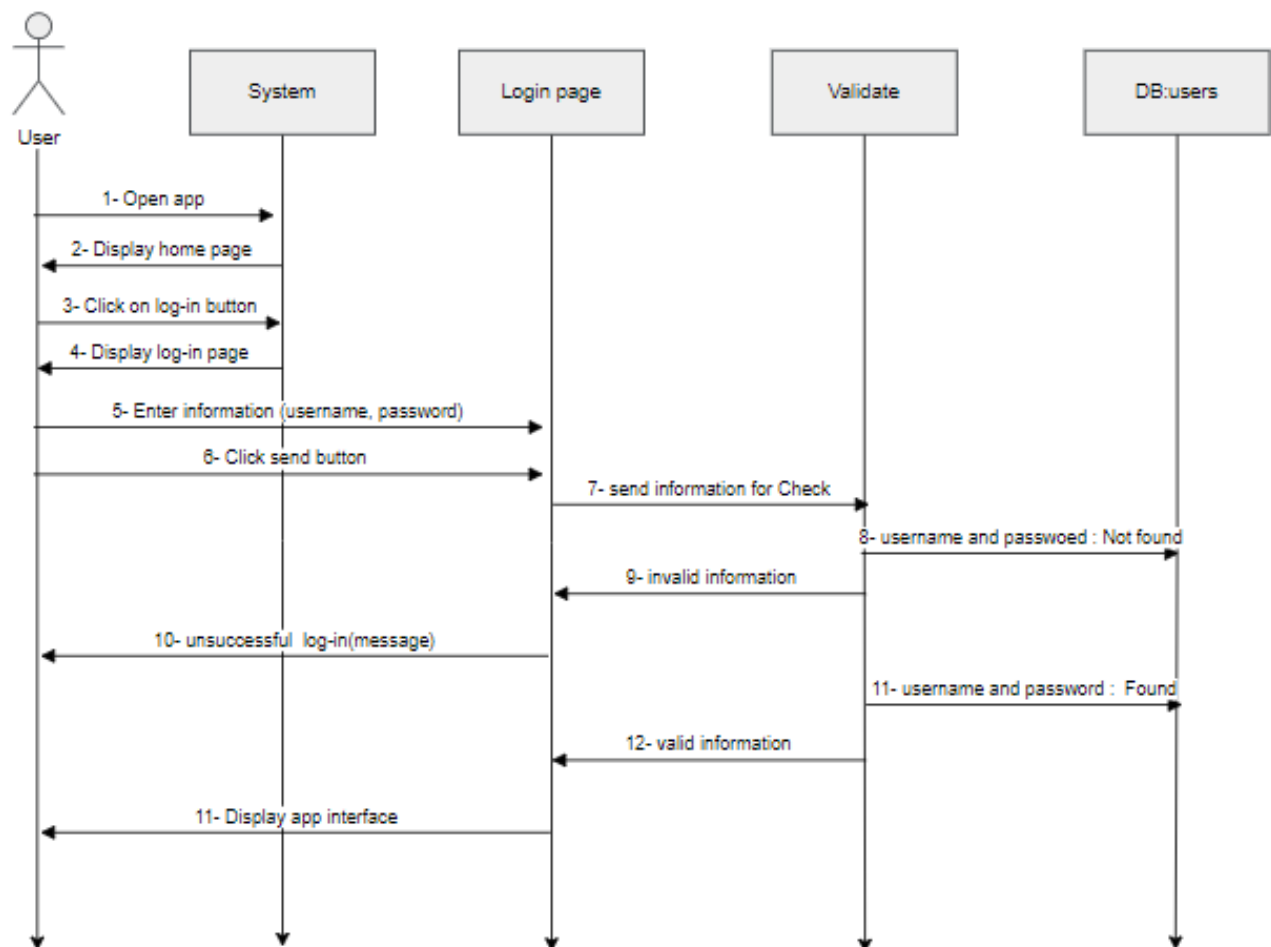
Table 2:



User Update profile information.

Actor	user and users-profiles database
Description	This show the interaction between the user who wants to update profile information (Bio – picture – name – username) and users-profiles database
Data	User id-the information user want to update –the new information
stimulus	The user wants to update profile information
Response	The profile is updated and the new information added

5- Sequence diagram

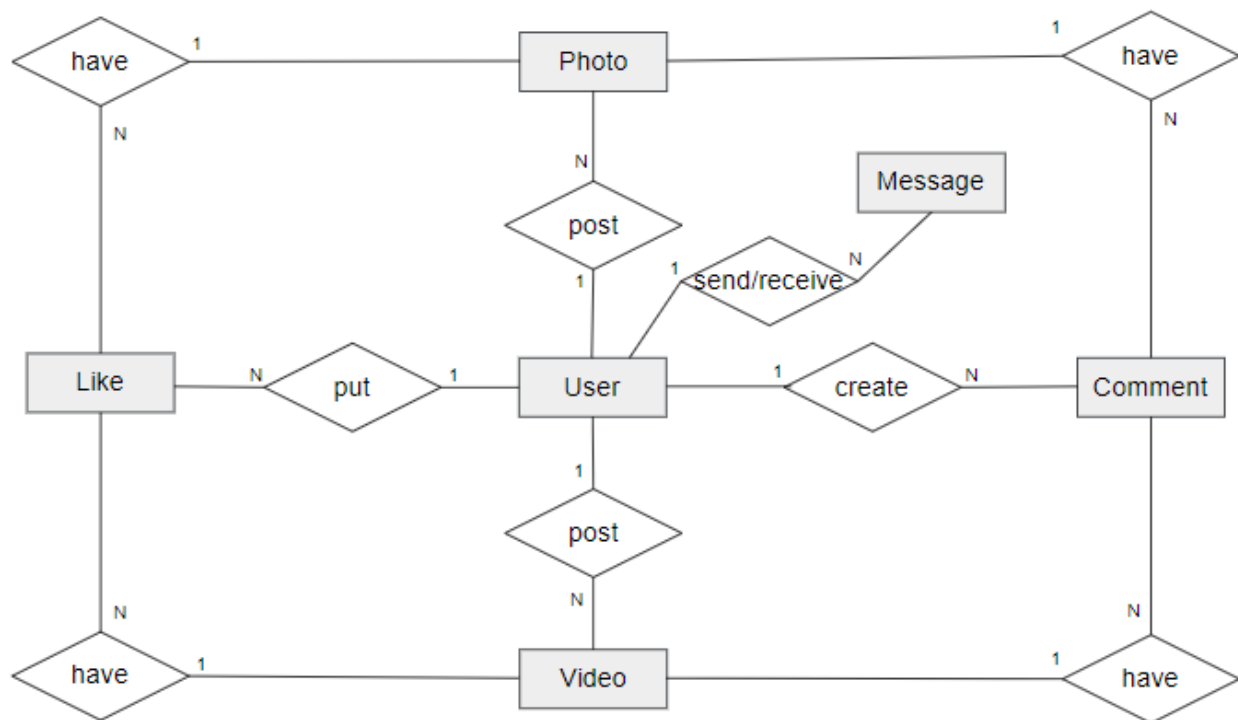


6- Class diagram

Classes:

User class User ID – int Username – string Email – string Password – string Followers – int list Following – int list Signup() Login() Follow-user() Unfollow-user() Post-photo() Post-video() Like() Comment() Send-message()	Photo class Photo ID – int Photo – image Caption – string Posted Date -date Likes – int Comments – string list Comments NO – int Update-caption() Delete-Photo()	video class video ID – int video – video Caption – string Posted Date -date Likes – int Comments – string list Comments NO – int Update-caption() Delete-video()
message class MessageID-int MeassgeText –string Message Sender ID-int Message Receiver ID – int Send-message() Delete-message()	like class LikeID – int User ID – int Photo ID-int Video ID-int Add-like() Remove-like()	comment class CommentID- int Comment Text – int User ID – int Photo ID-int Video ID-int Add-comment() Delete-comment ()

Associations:



- One user can post many photos
- One user can post many videos
- One user can create many comments
- One user can put many likes
- One user can send and receive many messages
- One photo can have many comments
- One photo can have many likes
- One video can have many comments
- One video can have many likes

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