Question

You will define a UML-defined class hierarchy using the following concepts related to the idea of a social network app:

Person, User, Connection, Group, Post, Media, Follower, Share, Reaction, Like.
(Let the names of these concepts reflect their real-world connotations within the application domain specified - that of a social network app.)

Note that the connections between concepts in this hierarchy do not necessarily have to be all of the same kind, nor must they all be inheritance relations. However, each concept can just be one, and only one, of the following: a class, an abstract class or an interface.
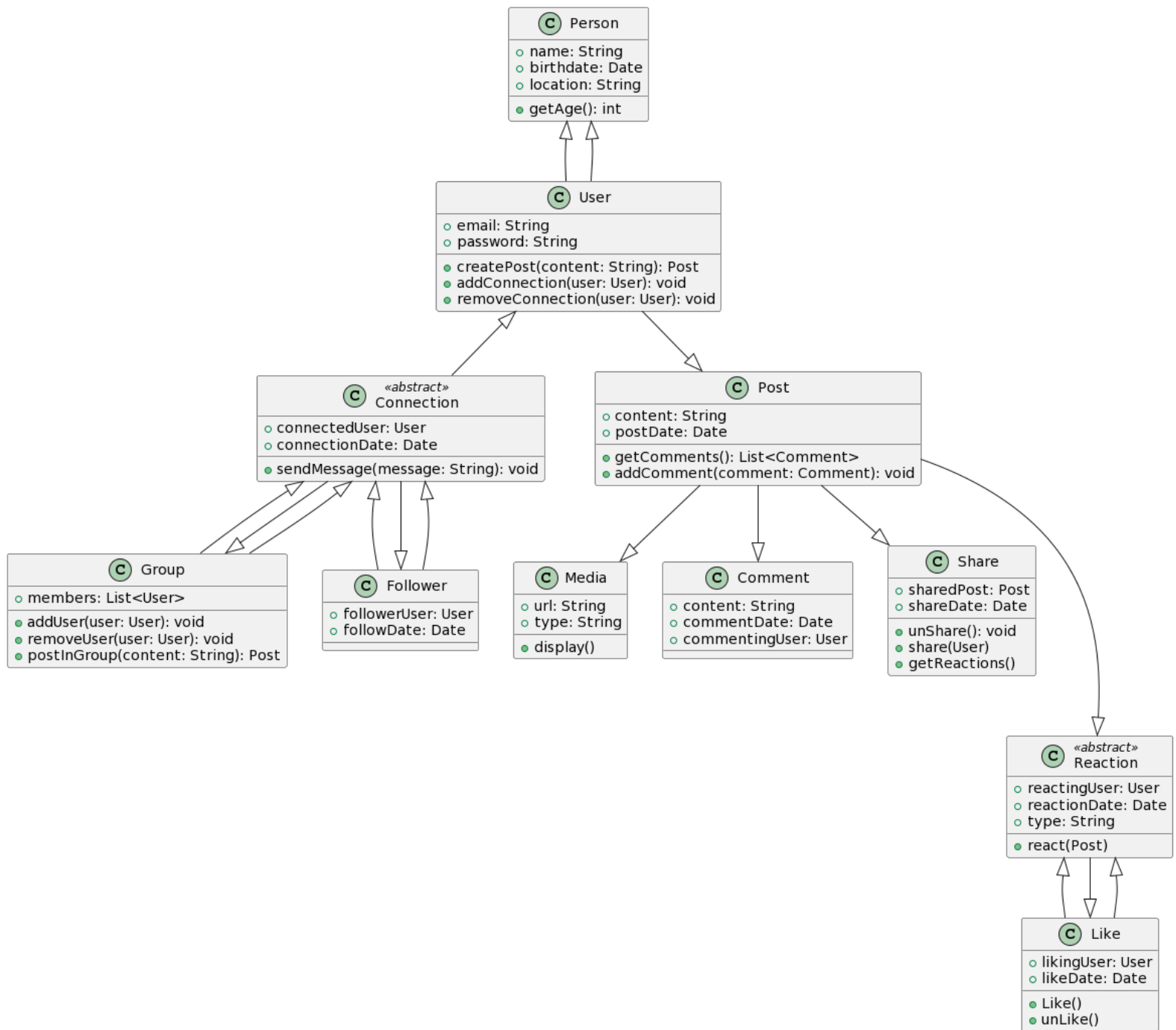
Your tasks are as follows:

1. Draw up a UML class diagram describing this hierarchy. Show ALL properties, and up to 5 relevant methods. Do not include any getter OR setter methods.
2. Explain, in detail, your choices in defining this hierarchy, using a tabular form, as follows:

S/No.	Concept A	Concept B	Relationship	Explanation
...	...	...	...	...

Response

1.

Person
- name: String
- birthdate: Date
- location: String
- getAge(): int

User
- email: String
- password: String
- createPost(content: String): Post
- addConnection(user: User): void
- removeConnection(user: User): void

«abstract» Connection
- connectedUser: User
- connectionDate: Date
- sendMessage(message: String): void

Post
- content: String
- postDate: Date
- getComments(): List<Comment>
- addComment(comment: Comment): void

Group
- members: List<User>
- addUser(user: User): void
- removeUser(user: User): void
- postInGroup(content: String): Post

Follower
- followerUser: User
- followDate: Date

Media
- url: String
- type: String
- display()

Comment
- content: String
- commentDate: Date
- commentingUser: User

Share
- sharedPost: Post
- shareDate: Date
- unShare(): void
- share(User)
- getReactions()

«abstract» Reaction
- reactingUser: User
- reactionDate: Date
- type: String
- react(Post)

Like
- likingUser: User
- likeDate: Date
- Like()
- unLike()

2.

S/No.	Concept A	Concept B	Relationship	Explanation
1	User	Person	Inheritance	A User is a specific type of Person with additional functionalities related to social interaction (email, password, creating posts, managing connections).
2	Connection	Abstract	-	Represents a general concept of connection between users, specific types like Follower and Group inherit from it. Enforces a common structure for different connection types.
3	Group	Connection	Inheritance	A Group is a type of Connection where multiple Users can be connected. Provides a unified way to manage different connection types.
4	Follower	Connection	Inheritance	A Follower is a type of Connection representing a one-directional following relationship between Users. Leverages the connection structure for follower management.
5	Post	User	Association	A User creates a Post. Establishes ownership of content within the social network.
6	Post	Media	Association	A Post can contain multimedia content like images or videos. Enriches post content with various media formats.
7	Post	Comment	Association	A Post can have comments from Users. Enables user interaction and discussion on posts.
8	Post	Share	Association	A Post can be shared by Users. Allows for content propagation within the network.
9	Post	Reaction	Association	A Post can receive reactions from Users. Enables users to express their feelings towards posts (abstract for specific reactions like Like).
10	Reaction	Abstract	-	Represents a general concept of a reaction to a Post, specific types like Like inherit from it. Provides a base structure for different reaction types.
11	Like	Reaction	Inheritance	A Like is a specific type of Reaction expressing positivity towards a Post. Extends the Reaction concept to represent a specific sentiment.