UML: Use case

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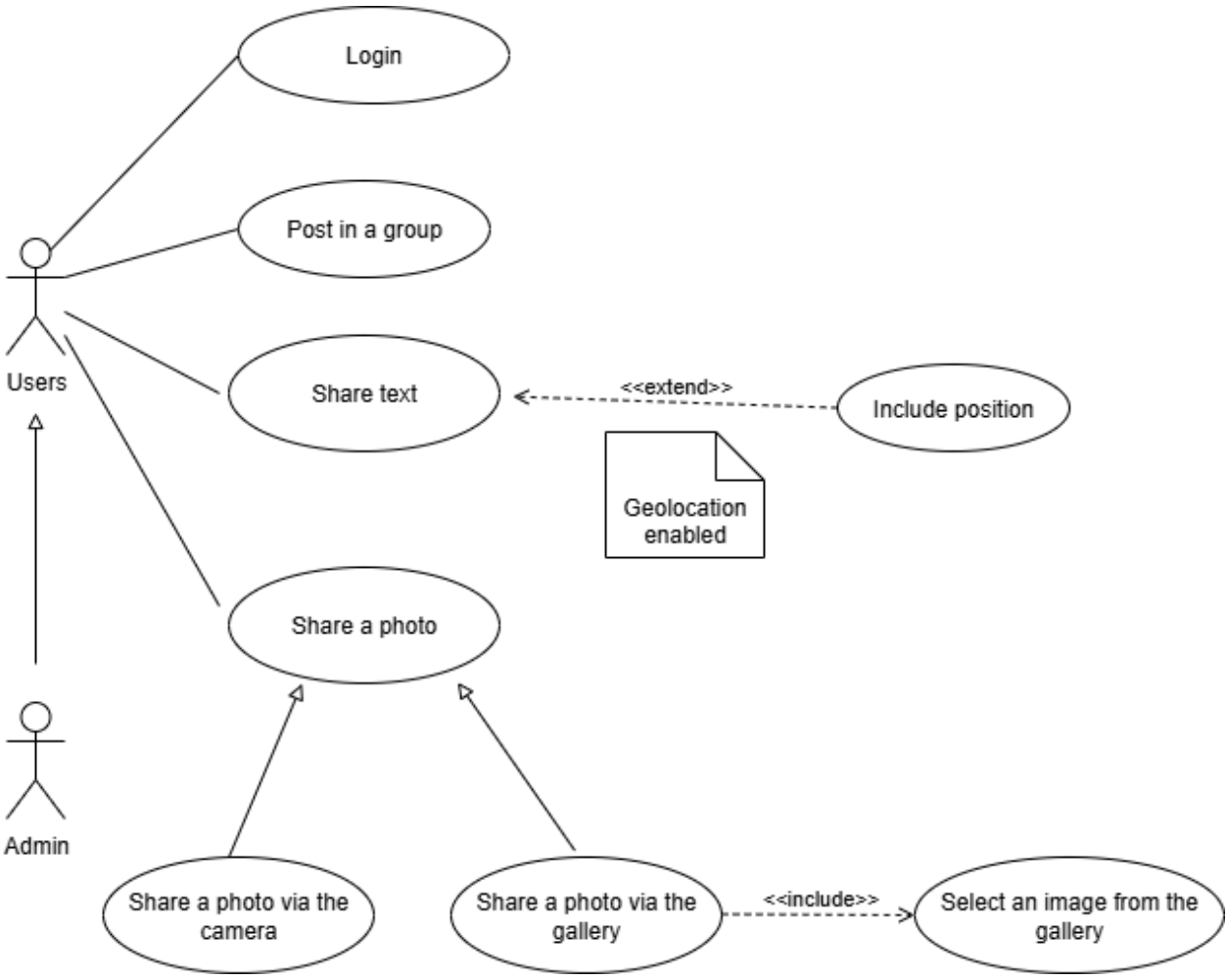
Exercise 1 (Warming up)

As part of the development of a social network, the team of analysts has created the following use case diagram:



Part 1 – Questions In your opinion, which of the following statements are correct? Correct any incorrect statements.

- A user can only share a photo if they select an image from the gallery.
- An administrator can include their location in a post if geolocation is enabled.
- Actors must be logged in before performing other actions.
- A user can share a photo directly via the device (camera).

- When geolocation is disabled, the user cannot share text.

Part 2 – Review

The diagram provided previously contains several anomalies. Identify them and justify your answers.

Exercise 2

A development team wants to build a messaging system inspired by Gmail. For the first version of the software, the system must provide the classic messaging features: composing an email, sending an email, replying to an email (to an individual or to all), forwarding an email, attaching files, and selecting recipients. To enhance security, the system performs an antivirus scan on all attachments in a message before it is sent.

- Using the appropriate relationships (specialization, include, extend), provide the system's use case diagram (do not model the authentication use case).
- Document the system's use case: Send Email

Exercise 3

The Hospital Reception System supports key functions of a hospital. The receptionist schedules patient appointments and hospital admissions, collects patient information during the scheduling of appointments and admissions if possible, and/or upon the patient's arrival at the hospital.

Upon arrival, patient registration must be completed before admission. Depending on their situation, a patient can have either outpatient or inpatient admission.

For patients who will stay in the hospital (inpatients), a bed must be assigned in a ward. Receptionists may also file insurance claims and medical reports upon request.

- Draw the use case diagram of the system

Exercise 4

A start-up plans to develop a hotel management application that can be used both on the web and on mobile devices. The goal of this system is to assist hotel staff and customers in managing reservations, stays, billing, and room maintenance efficiently.

A hotel client can make a reservation either by phone, through the web interface, or via the mobile app. When the estimated amount of the reservation exceeds 5000 DH, the client is required to make an online payment of at least 10% of the reservation amount using a CIB bank card. This payment is verified and validated by the client's bank server, with all communications secured through SSL.

Upon the client's arrival, the receptionist uses the application to search for available rooms that meet the client's preferences. The receptionist can also verify an existing reservation. Once a suitable room is identified, the receptionist performs the check-in operation: the room status changes from "available" to "occupied." At the same time, a stay record is created for the client.

The receptionist generates an invoice for the duration of the stay. During the stay, the client may request additional services such as breakfast, lunch, or dinner. The cashiers record these consumptions in the system, and the billing module automatically adds the corresponding charges to the client's invoice.

At the end of the stay, the receptionist performs the check-out procedure using the application. Closes the client's stay and completes the invoice after receiving payment. Once the client leaves, the room status changes to "dirty free."

Next, the housekeeping staff clean all rooms marked as "dirty free." After cleaning, they update the room's status to "clean awaiting." The floor manager then inspects the rooms to ensure they are properly cleaned. If everything is satisfactory, the manager changes the room status to "available."

However, if a room has any problems (such as a broken air conditioner or water leak), the floor manager marks the room as "unavailable." The room remains unavailable until maintenance staff carry out the necessary repairs, after which it becomes available again.

1. Based on the text, identify the **actors** of the system.
2. Identify the **actions that occur outside the system**.
3. If we wanted to decompose the system into boundaries, what would these boundaries be?
4. Draw the **use case diagram** of the system with functional boundaries (modules).