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Ministry of Education

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وزارة التعليم

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Project
X Application

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Introduction:

In this report, we will talk about the application X, and the importance of this research lies in studying the application X by applying software engineering principles to it and exploring its objectives and development process.

Problems:

Difficulty of circulating social and international news, the difficulty of communication between members of different societies, and the spread of rumours due to the lack of audio and video documentation.

Purpose Solution:

Make an app that allows people to communicate with each other despite the great distance, and to convey the voice of the oppressed quickly by documenting the event with pictures.

Background:

Twitter was created in 2006 by its founder "Jack Dorsey" and has achieved great success over the years and in 2022 Following "Elon Musk's" takeover of the app, it has been renamed from 'Twitter' to 'X' and other related changes were implemented.

Work plan

	Methodology: Incremental development	
1	**Planning**	Market study, specify the goal of the application, specify the scope of the product, calculate the cost and budget, product development time, product potential risk, product the size of the project and the team size,and determine the programming language.
2	**Specification**	Defining what the system should do functionally and non-functionally, covering all the needs of the user and what is truly expected from the system, make a use case diagram.
3	**Design**	Designing a software structure that meets the specification, and it contains: wire-framing, user stories, data flow diagram, technical design, user interface.
4	**Implementation**	Installing the design into an existing program, setting up software components and orienting users.
5	**Validation**	Checking it satisfied user expectations and needs, stakeholders must see the reports to check if an application works as expected.
6	**Testing**	Identify the testing goals and the test input, write test scenarios for a given feature and compute the expected scenarios with the selected input values, turn the test scenario into a test case then run and execute the test case, finally compare actual outcomes against expected results
7	**Evolution**	Add more features based on the stakeholders needs.
8	**Maintenance**	It is a continuous process for bug fixing or improving existing features and this process must be done every month due to the large size of the app.

Project requirements

Functional requirements:

1- Account:

The premium and registered user should be able to create an account to access to the application using:

    a. Phone number or email address
    b. Password
    c. Unique Username
    d. Date of birth

and users must receive a confirmation code through the specified method to confirm that the information entered belongs to them.

Users can update their account's information such as username, bio and profile picture.

in addition, they can control whether to make it a public account or private account.

    - Admin/Support can link the user's account with the number or email.
    - Admin/Support can update user information.
    -Admin/support can:

- send reports to the user who violated the rules and terms of X.
- receive reports from users reporting on users who have violated the policy.

2- Deletion:

The premium and register user should be able to delete and remove their account after registration.

    - Admin/Support the only one who can delete another user's account.

3- Posting:

The premium and registered users should be able to post, quote post, mention, comment, and it may include text, images, videos, GIF and audio recordings.

And users should be able to delete posts, reposts, replies and quotes posts at any time.

They can also share their posts or others posts.

- Register users can post texts that contain a maximum of 280 characters (the number of characters is reduced to 257 characters when adding links)
- Premium users can post longer posts that may reach 25,000 characters, and everyone will be able to read it, but only verified users can create them, in addition they can upload a clip of up to 3 hours long and not only that, but they can also edit and format the post, unlike registered users.
- Admin/Support can delete user's posts.
- Admin/Support can link post with user's account.

4- Follow - Unfollow:

The premium and registered user should be able to follow other users' accounts or unfollow them, and they can follow them by their unique username, every account has a followers list and a following list.

If they have a private account, they can receive following requests and they can accept or reject them.

- Admin/Support can link the followers and the following with the user's account.
- Admin/Support can link followers request with user's account.
- Admin/Support can add new features.

5- Search:

The premium and registered user should be able to search for other users' accounts by their unique username, or posts, using the search bar, and they can search multiple times.

- Admin/support can link the user's account/user posts with the database so anyone who searches can find it.

6- Interaction:

The premium and registered user should be able to interact with other users (e.g.: likes, repost, mention, or comment)
- Admin/Support can link the like post with user's account.
- Admin/Support can link the user's likes with the posts' likes.
- Admin/Support can link the repost with user's account.
- Admin/Support can link the user's repost with post's reposts.
- Admin/Support can link the repost with user's account.
- Admin/Support can link the user comment to the post.
- Admin/Support can link the comment to the user account.
- Admin/Support can link the user's mention to the post.
- Admin/Support can link the mention to the user's account.

7- Bookmark:

The premium and registered user should be able to bookmark posts to access them privately.
- Admin/Support can link the bookmark to the user's account.

8- Direct Messages:

Users should have message options to use, such as text, photo, video, GIF, and voice recording.
Premium & registered users should be able to control the direct message requests.
from either:
- Premium users
- Everyone
- No one

and should be able to send direct messages according to the same conditions above, but it will be by default from premium user.
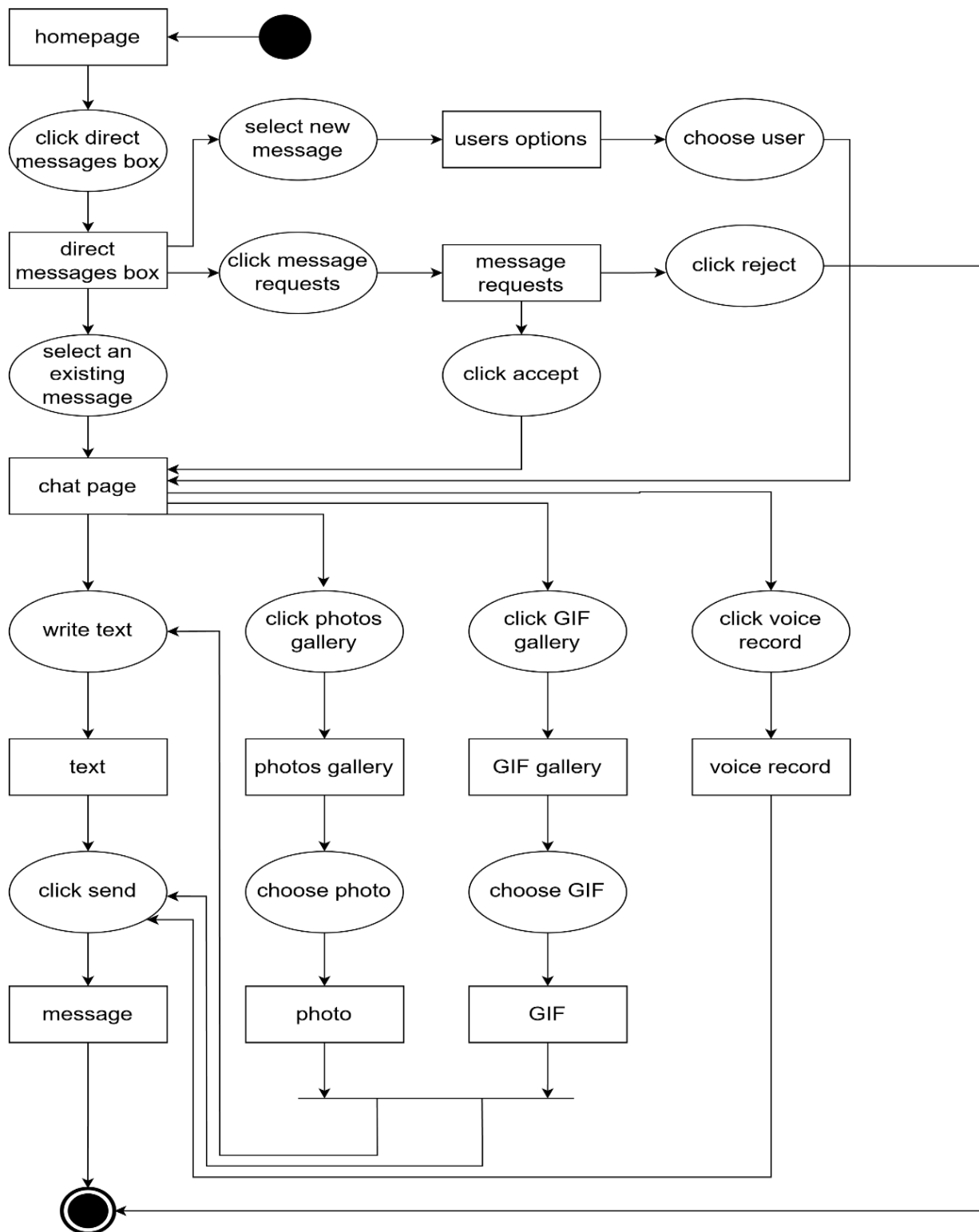Furthermore, users can delete messages easily and they have search box to make it easier to reach the user's chat they're looking for.
- Admin/Support can link direct messages to the user's account.

Non-functional requirements:

1- Services must be reliable (e.g., when a posting is successful, it should not be lost).

2- The service should be highly available at any time, so users can send and see posts without interruption.

3- The system should be scalable and accommodate increased load (e.g., an increase in users and postings).

4- The system should implement the provisions for violating the privacy policy or application laws for users as set out by the user's country.
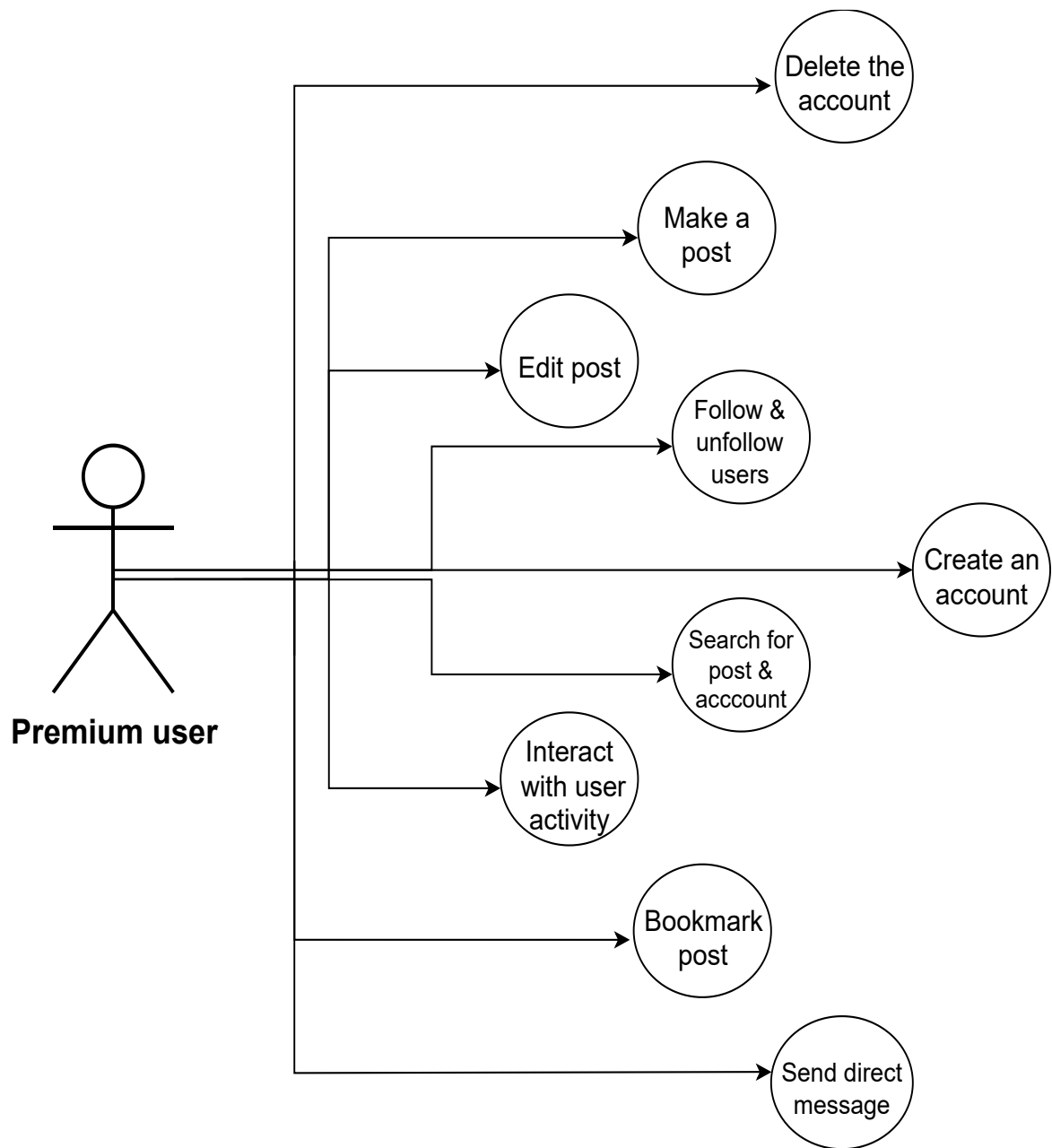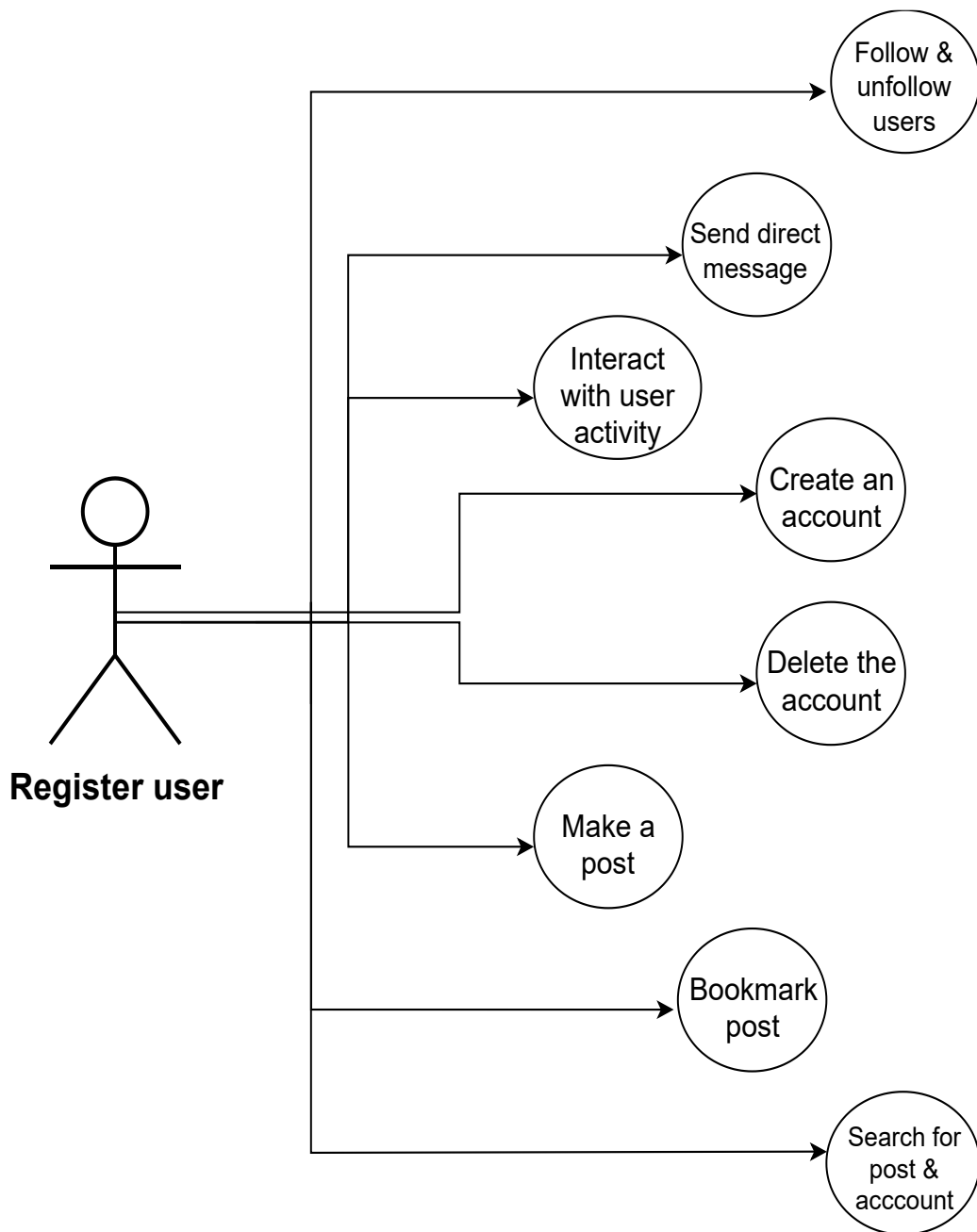
Activity Diagram

Use Case Modelling

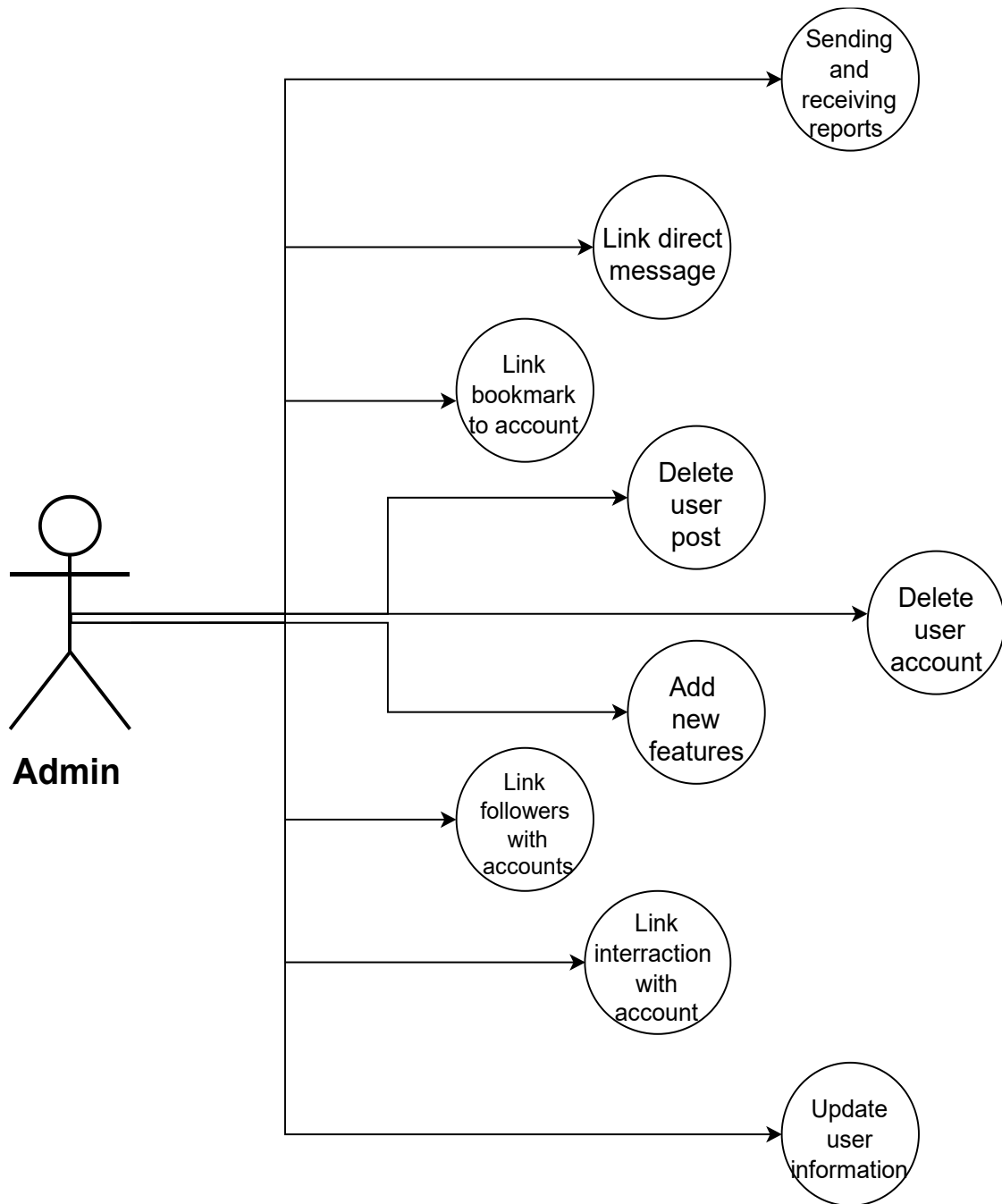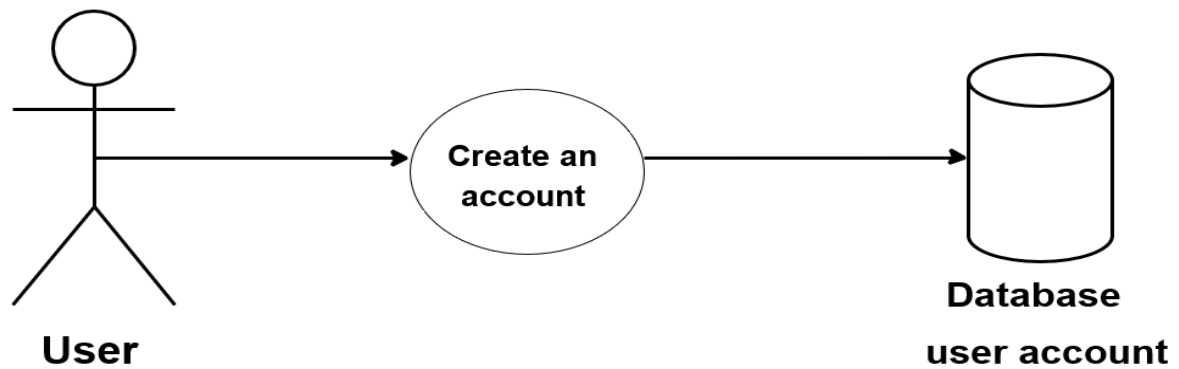| Actors	Rules
Premium user	1-can create an account 2- can delete the account 3-can make a post 4- can edit post 5- can follow and unfollow users 6- can search for user's account and posts 7-can interact with other user's activity 8-can bookmark posts 9- can send a direct message to user
Register user	1-can create an account 2- can delete the account 3-can make a post 4- can follow and unfollow users 5- can search for user's account and posts 6-can interact with other user's activity 7-can bookmark post 8- can send a direct message to user
Admin	1-can delete user's account 2-can delete user's post 3- can add new features 4- can link users' interaction with their accounts 5- can link the followers with the user's account 6- can link the bookmark to the user's account 7- can link direct messages to the account 8-can update user's information 9-can send and receive reports

Delete the account

Make a post

Edit post

Follow & unfollow users

Create an account

Search for post & acccount

Interact with user activity

Bookmark post

Send direct message

Premium user

Register user

Follow & unfollow users

Send direct message

Interact with user activity

Create an account

Delete the account

Make a post

Bookmark post

Search for post & acccount

Sending and receiving reports

Link direct message

Link bookmark to account

Delete user post

Delete user account

Add new features

Link followers with accounts

Link interraction with account

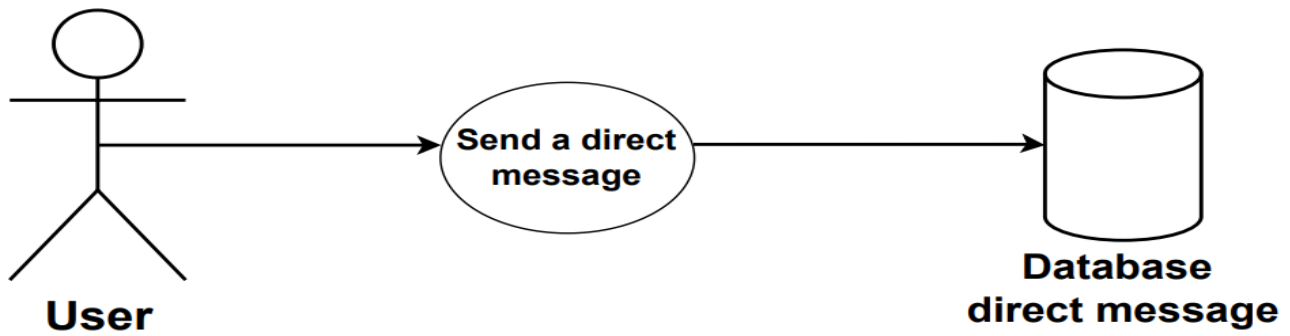Update user information

Admin

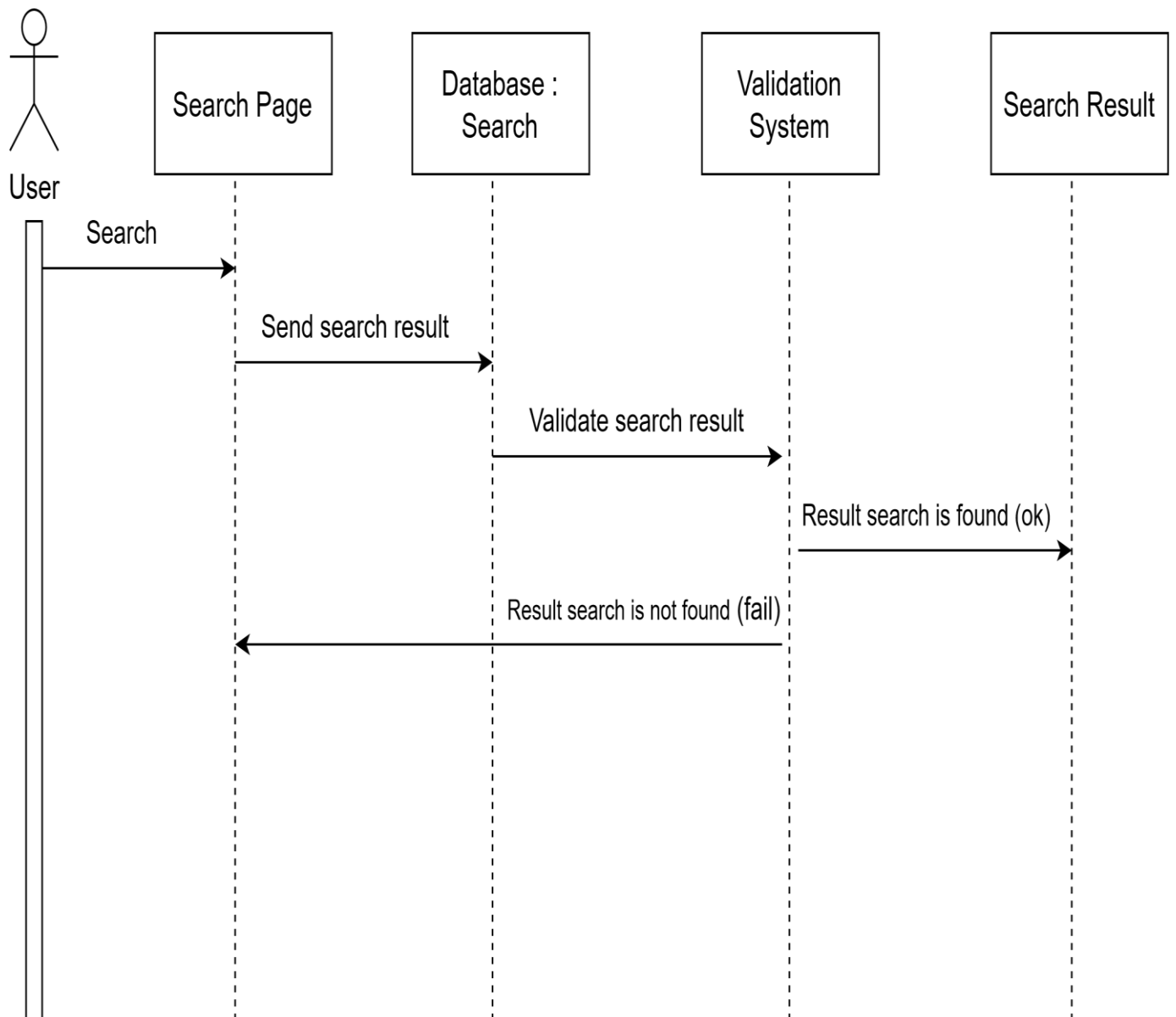| User: create an account	
Actors	Users and databases of user accounts.
Description	This shows the interaction between people who wants to make an account on the X platform.
Data	Phone number or email, Password, Username, date of birth.
Stimulus	People wants to create an account.
Response	Existing account.
comments	The account name mustn't be repeated, and user must be logged in to be able to access the features of the application.

User: send a direct message	
Actors	Users and databases of direct messages.
Description	This shows the interaction between users who wants to send a direct message to a specific account user.
Data	Username.
Stimulus	Users wants to send a direct message.
Response	Chat page.
comments	The user can specify in the settings who will be able to send the direct message; either from premium user or everyone or no one, but it will be by default from premium.

Sequence Diagrams

User

Search Page

Database : Search

Validation System

Search Result

Search

Send search result

Validate search result

Result search is found (ok)

Result search is not found (fail)

Class Diagram

User class

Username (String)
E-mail (String)
Phone_Number (int)
Password (String)
Date_Of_Birth (String)
Confirmation_Code (int)

Change_Username()
Change_Bio()
Change_ProfilePicture()
Private_Account()
Public_Account()
Premium_Account()
Post()
Repost()
Quote_Post()
Delete_Post()
Like_Post()
Bookmark()
Follow()
Unfollow()
Send_DirectMessage()
Mention()
Search()

Direct Message class

Text (String)
Image (Image)
Video (Video)
Voice_Record (Voice)
GIF (GIF)

Send_Message()
Search_Direct_messages()
Delete_Message()
Check_Message_Requests()
Control_Message_requests()

Post Class

Text (String)
Image (Image)
Video (Video)
Voice_Record (Voice)
Gif (Gif)

Create_Post ()
Delete_Post ()
Reply ()
Repost ()
Quote_post ()
Like_Post ()
Bookmark ()
Share_Post ()
Report_Post ()

Follow Class

Username (String)

Follow ()
Unfollow ()
Search ()
Following_List ()
Followers_List ()
Request_List ()
Following_Request ()

Search Class

Search_Text (String)

Check_Search ()
Search ()
Search_Multiple_Time ()

Realationship