

Programming Lab 4

W i n t e r 2 0 2 3

Email Service

P R E P A R E D B Y

A h m e d H e s h a m

M o h a m e d A m i n

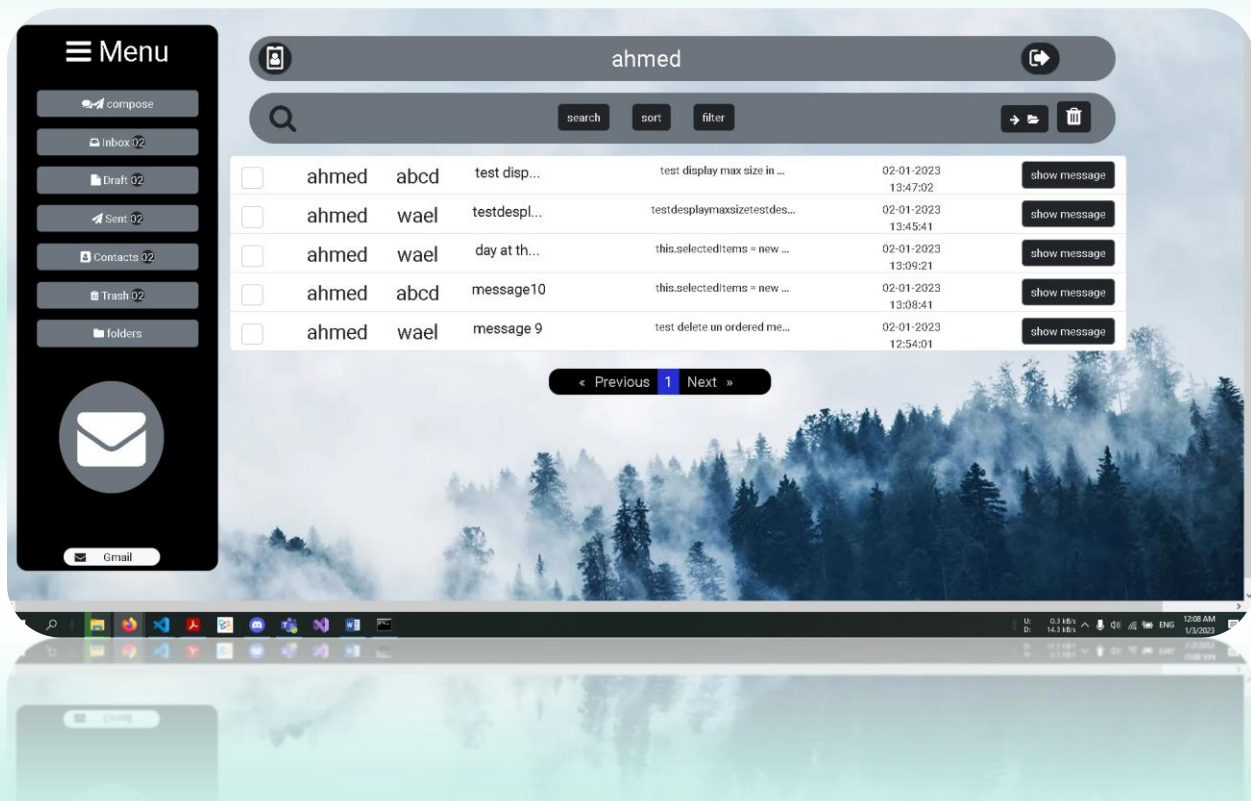
A b d e l r a h m a n W a e l

A b d e l r a h m a n A b d e l m o t e l b

1

Overview

Manage your emails with our Web-based email service application



➤ Functionalities

- Attach files with your message
- Draft messages to finish later
- Save, Edit and Delete your contacts
- Search for message or contact
- Pagination
- Trash for unimportant messages
- Group messages in folders
- Lexicographic sorting for contacts
- Five levels for message priority
- Message filtering

2

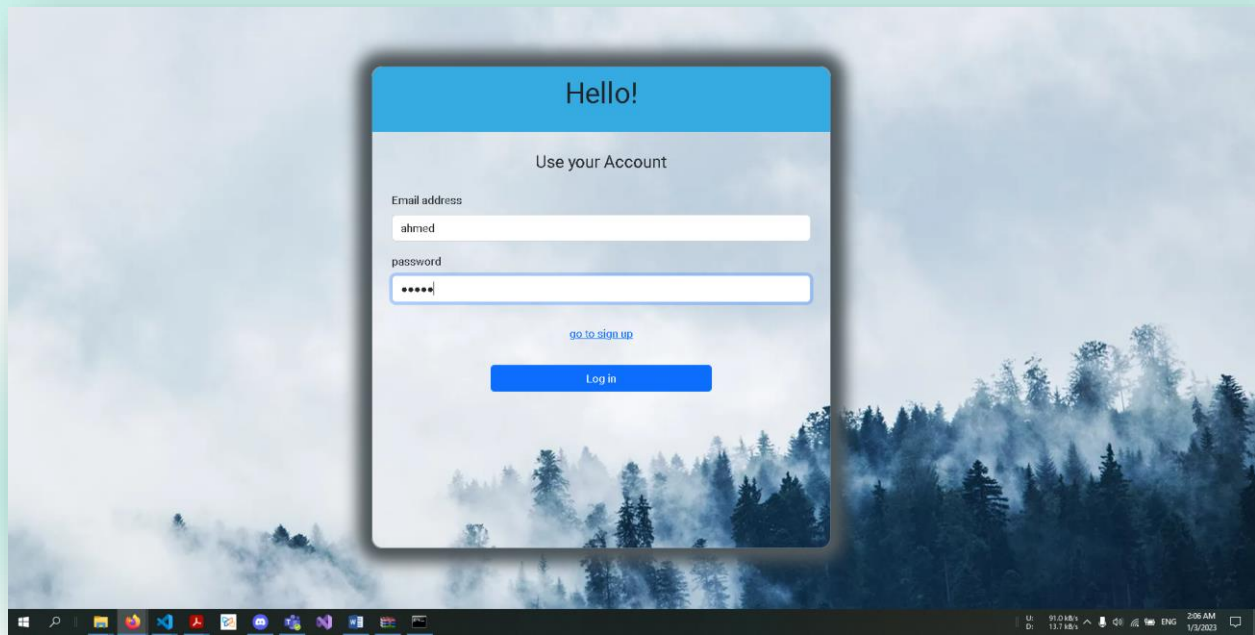
How to run

1. Run **npm install** on your terminal
2. Install the import npm install ngx-pagination
3. Also install **npm i bootstrap-icons**
4. Finally run the app using **ng serve**

3

How to use

1. Log in your account



A screenshot of a web application's login page. The page has a light blue header with the text "Hello!". Below the header, the text "Use your Account" is centered. There are two input fields: "Email address" with the value "ahmed" and "password" with masked characters "*****". A blue button labeled "Log in" is positioned below the password field. A link "go to sign up" is located above the "Log in" button. The background of the page is a misty forest scene. The Windows taskbar is visible at the bottom.

Hello!

Use your Account

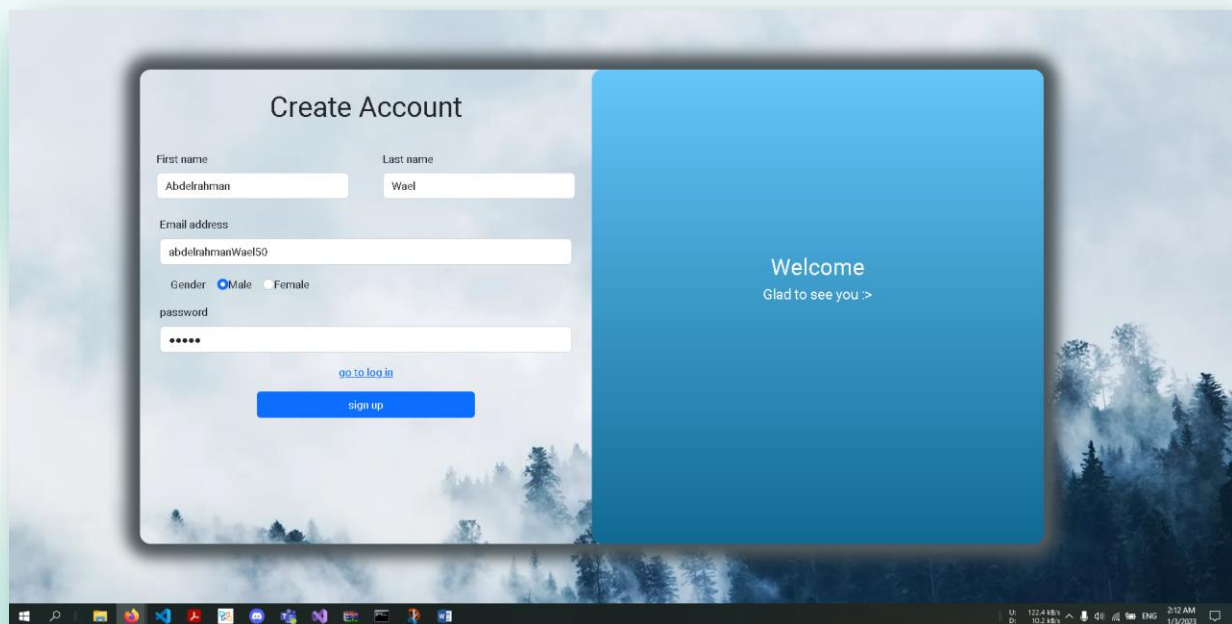
Email address
ahmed

password

[go to sign up](#)

Log in

2. Sign up if you are new



A screenshot of a web application's sign-up page. The page has a light blue header with the text "Create Account". Below the header, there are four input fields: "First name" with the value "Abdelrahman", "Last name" with the value "Wael", "Email address" with the value "abdelrahmanWael50", and "password" with masked characters "*****". There are two radio buttons for "Gender": "Male" (selected) and "Female". A blue button labeled "sign up" is positioned below the password field. A link "go to log in" is located above the "sign up" button. On the right side of the page, there is a large blue box with the text "Welcome" and "Glad to see you >". The background of the page is a misty forest scene. The Windows taskbar is visible at the bottom.

Create Account

First name
Abdelrahman

Last name
Wael

Email address
abdelrahmanWael50

Gender ☒ Male ☐ Female

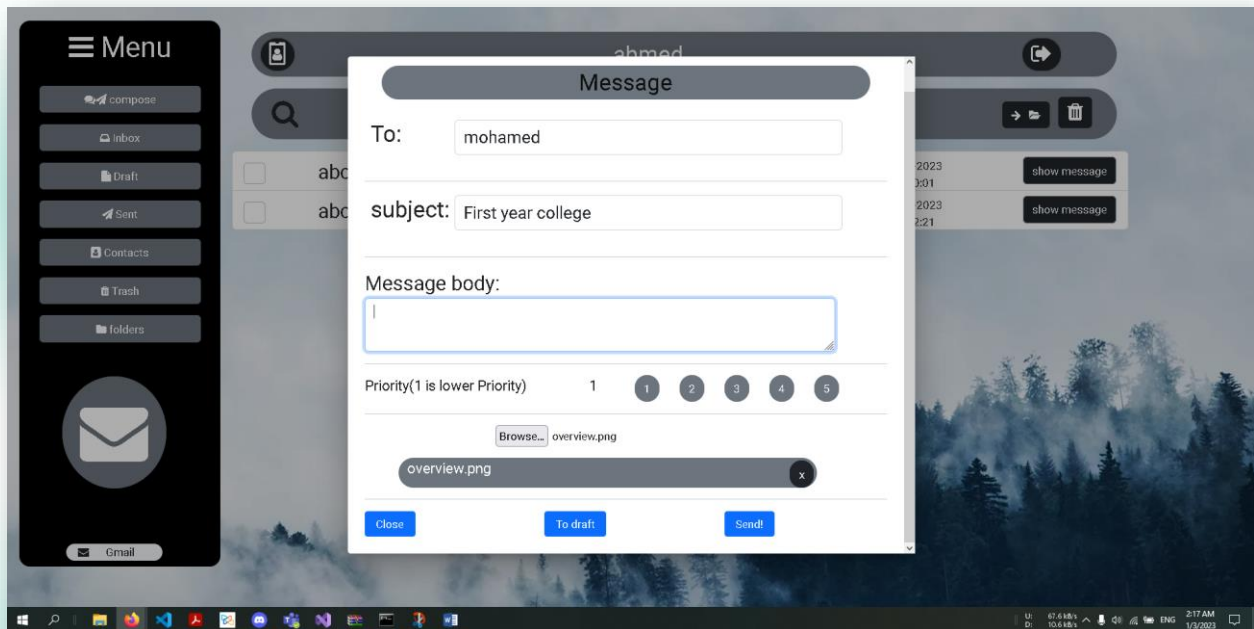
password

[go to log in](#)

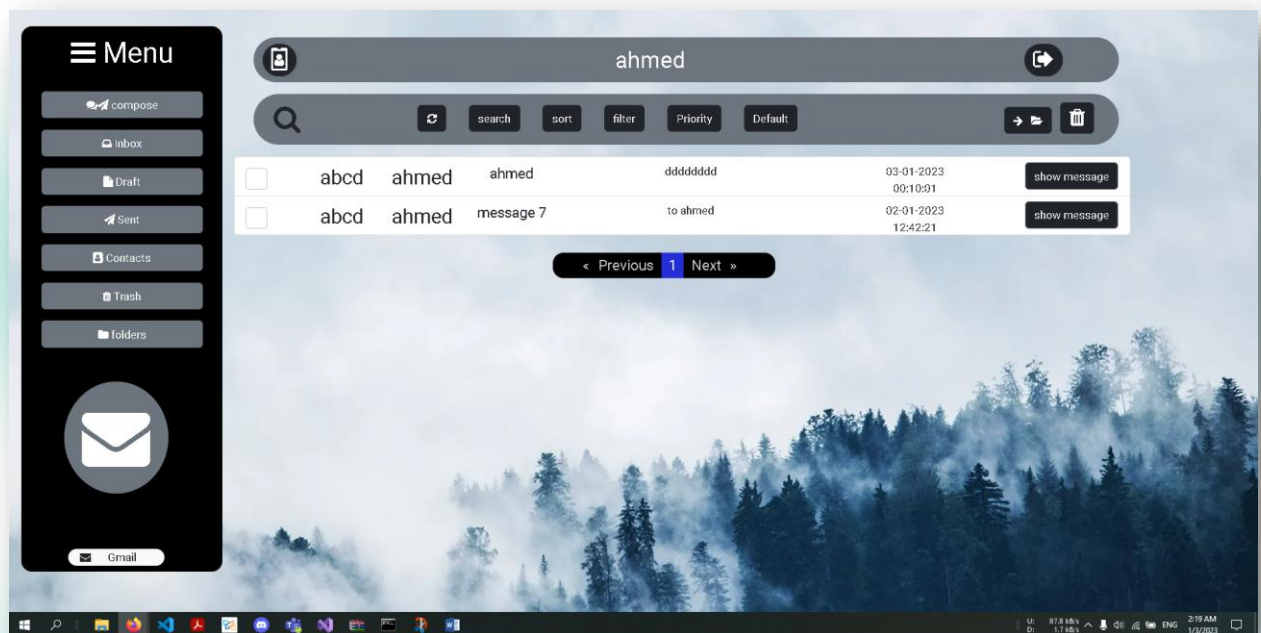
sign up

Welcome
Glad to see you >

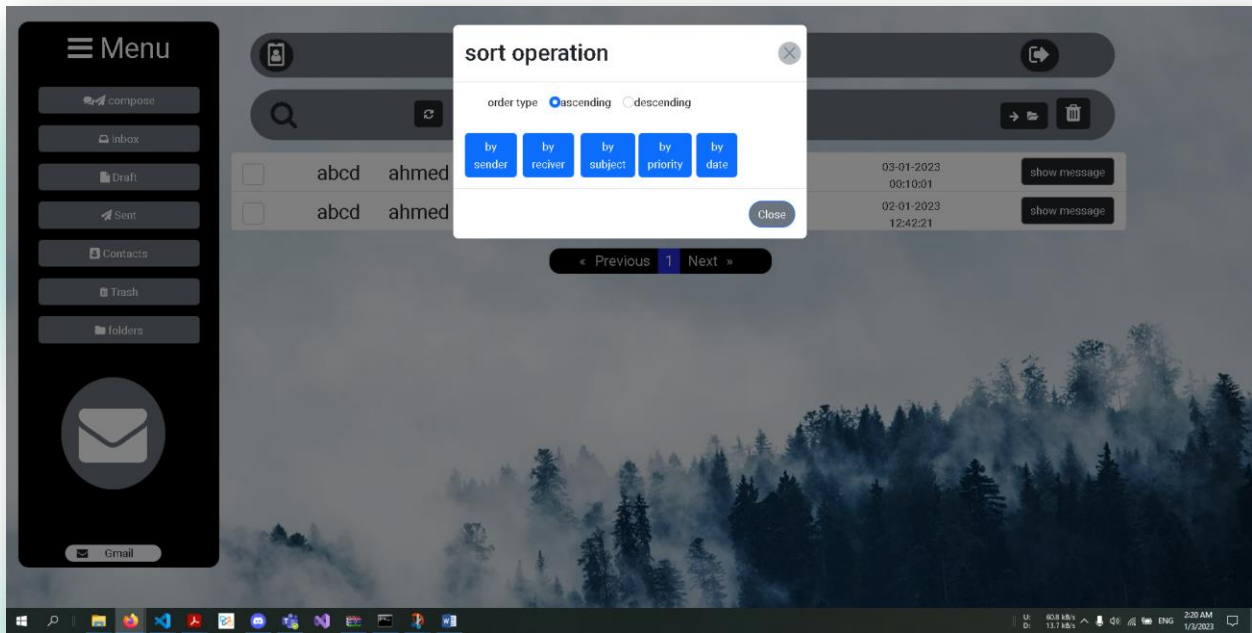
3. Send a message using Compose button



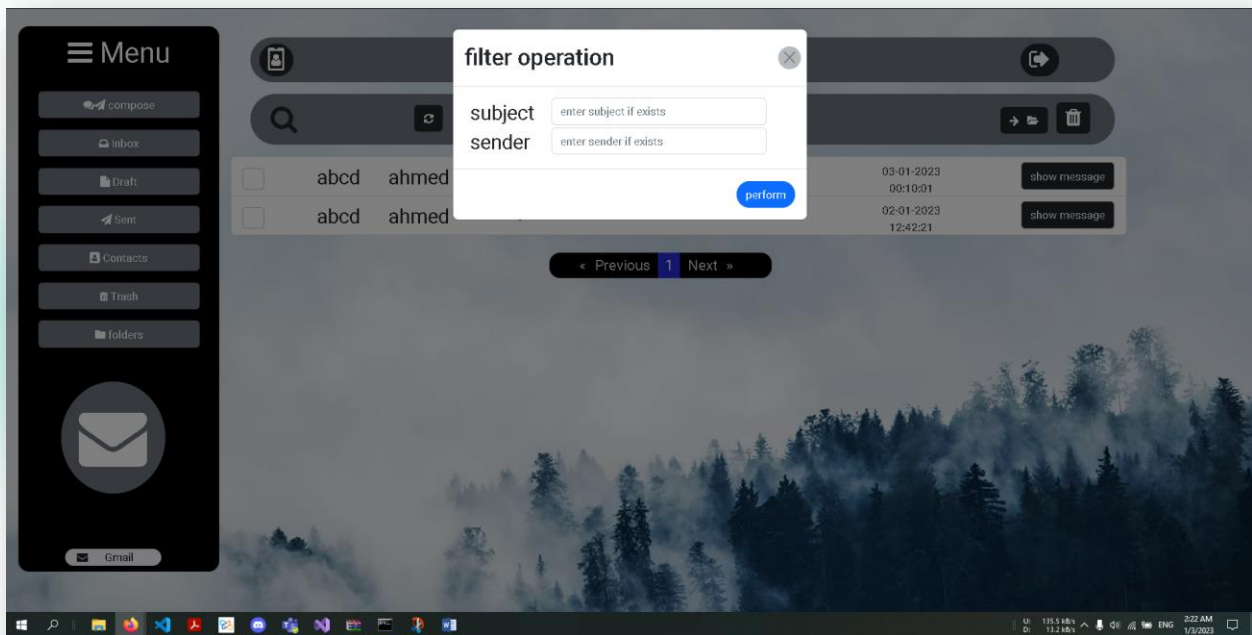
4. Your inbox



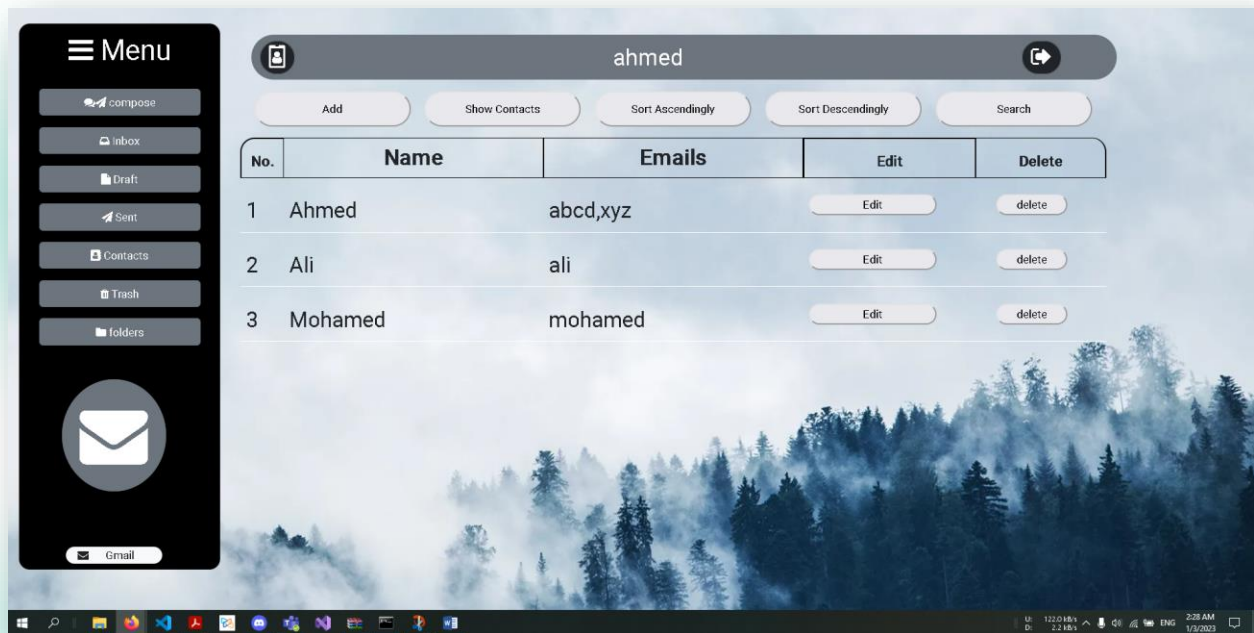
5. You can sort the messages



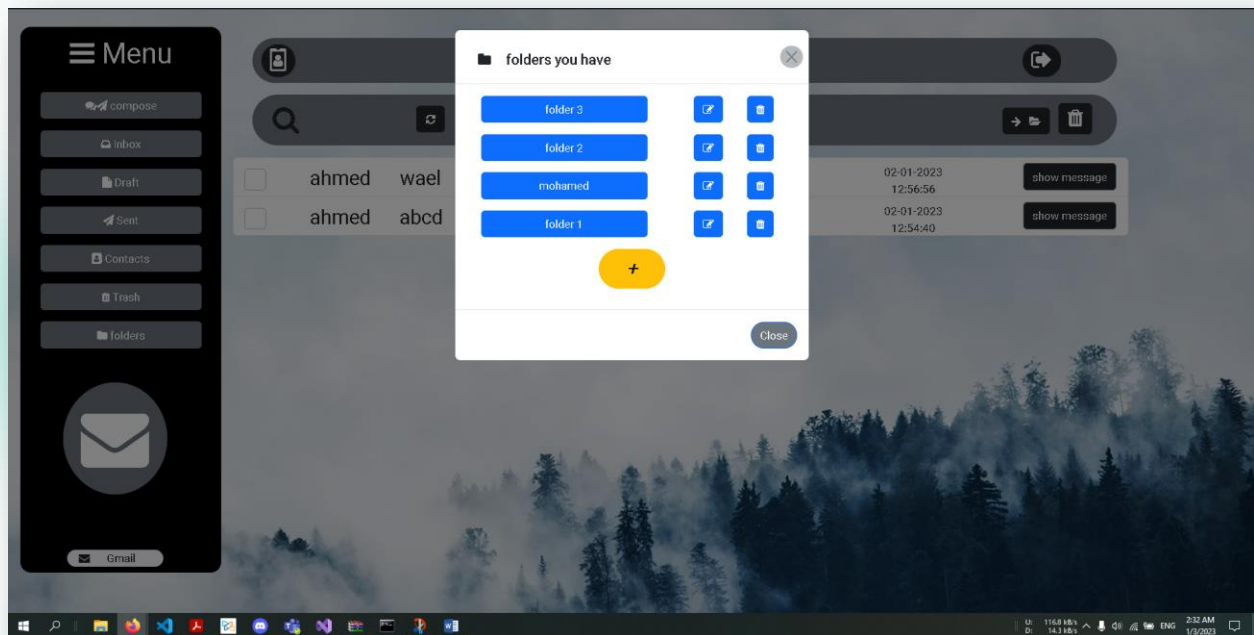
6. Filter



7. Here are your Contacts



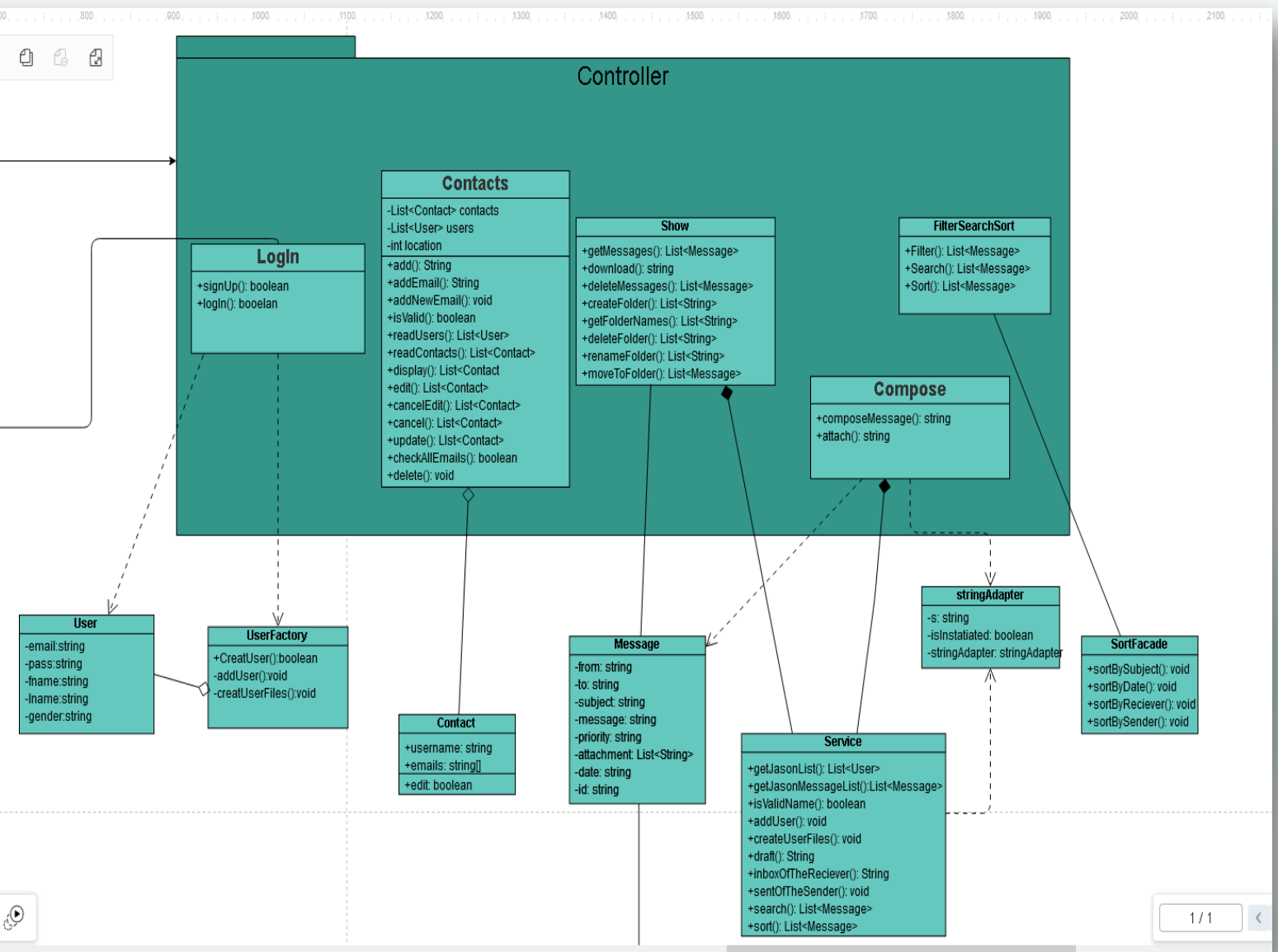
8. Create folders



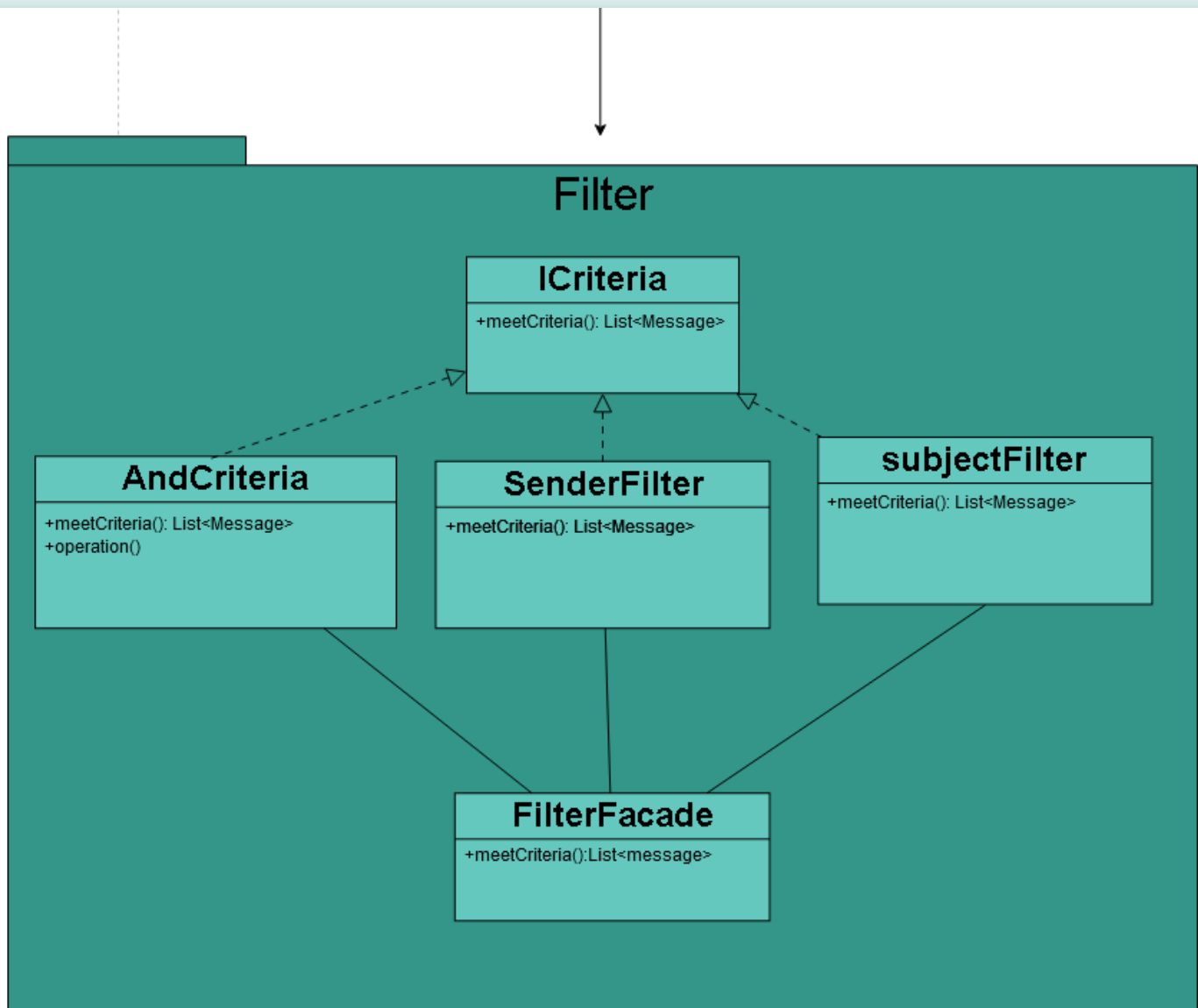
4

UML

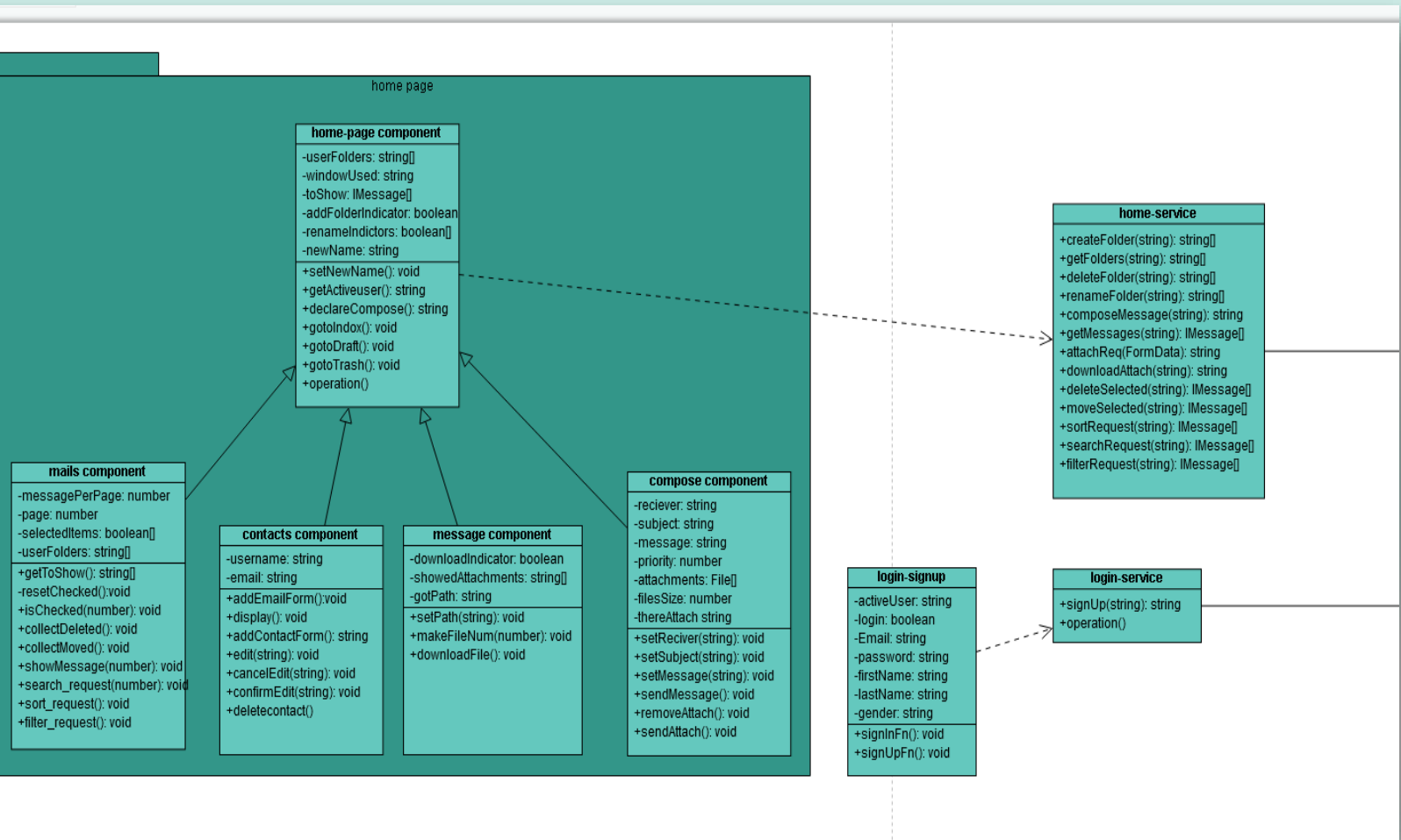
Backend



..Backend Filter



Front end



UML Link:

https://drive.google.com/file/d/1MuuQV_Ub4P2HBO4QYNaqj1w1z0YR-Kri/view?usp=sharing

5

Design Patterns

1. Builder

A message builder for constructing complex object (message). So the client isn't exposed to the details of object creation.

```
public static class messageBuilder {  
    public Message build() {  
        return new Message(this);  
    }  
    private String from;  
    private String to;
```

2. Singleton

Assuring that only one instance of a class is created. Any object that deals with the class will be the same instance.

3. Adapter

Used to convert all incoming strings for the class to List of objects

4. Filter

Implemented the criteria pattern to filter message details. Using the “AndCriteria” to filter sender and subject concurrently

```
public class SenderFilter implements ICriteria{

    @Override
    public List<Message> meetCriteria(List<Message> messages,String sender) {
        List<Message> target = new ArrayList<Message>();
        for(Message message : messages){
            if(message.getFrom().contains(sender)){
                target.add(message);
            }
        }
    }
}
```

5. Façade

To simplify the access to all related objects by providing a single object to communicate with the set.

6. Factory

Create User object without exposing the creation logic to the client and refer to newly created object where the user is created with its required attributes and initial files.