



COMP132 : Advanced Programming Programming Project Report

Photo Cloud Application

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Spring2023

Part 1

List of Users Information:

User Name	Password	Type	Info
RauzeNNN	134	Administrator	4 post, 1 profile photo
freeGuy	000	Free	1 post, default profile photo
freeGuy2	0101	Free	1 post, 1 profile photo
xxKralTRxx	toxicguy	Free	1 post, 1 profile photo
LinuxPenguin	kali	Free	1 post, 1 profile photo
hobbyMonster	hobbyist	Hobbyist	1 post, 1 profile photo
funny	funisfun42	Hobbyist	1 post, 1 profile photo
sunny	light	Hobbyist	1 post, 1 profile photo
S_Jobs	apple	Professional	1 post, 1 profile photo
B_Gates	microsoft	Professional	1 post, 1 profile photo
J_Bezos	amazon	Professional	4 post, 1 profile photo
E_Musk	tesla	Professional	1 post, 1 profile photo

Guide:

At startup: (Log in and Sign in page)

Log In
Text your User Name and Password.

User Name:

Password:

Don't have an account?

Redirects to sign up page.

Sign In
Discards all the changes and goes back to log in page.

User Name:

E-Mail:

Password:

Name:

Surname:

Age:

Photo:

Select a user type.

If all the info is valid creates a new user.

If the user does not upload any photo, automatically default user photo assigns as profile photo.

Main Hub:

RauzeNNN

Profile photo and the user name of the user.

Goes to profile page which allows changing some user information and delete posts.

Goes to new post page which is for uploading an image, applying filters and share.

Goes to admin panel which allows deleting all existing posts. (visible for only admin users)

Logs out and returns to the log in page.

My Profile
Goes to users profile.

Discovery
Opens discovery page.

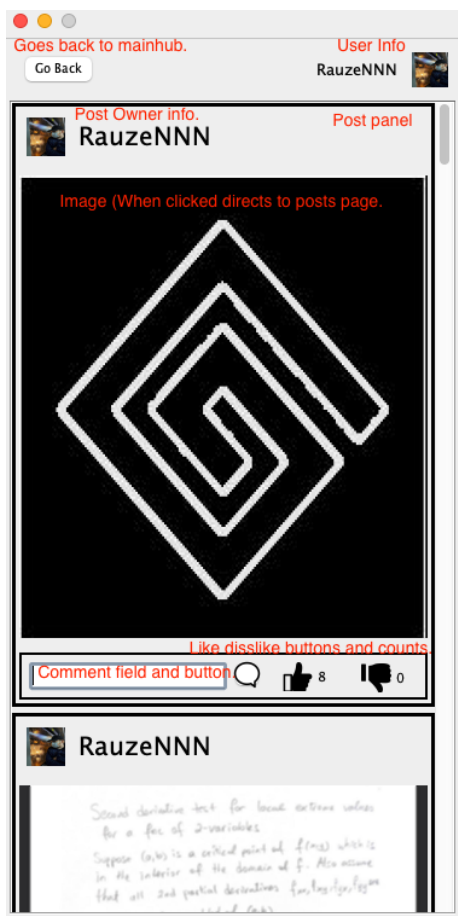
Profiles
Goes to profiles page which contains all profile list.

The screenshot shows the 'freeGuy' app interface. At the top, there's a 'Go Back' button and a user profile 'RauzeNNN'. Below is a list of profiles:

- freeGuy**: Profile picture is a grey silhouette. A red bracket on the right side of this profile is labeled 'Profile panel'. Below the name is a 'View Profile' button.
- freeGuy2**: Profile picture is a blue cloud icon. This profile is circled in red, and a red arrow points from the circle to the name 'freeGuy2'. Below the name is a 'View Profile' button.
- xxKralTRxx**: Profile picture is a man in a suit. Below the name is a 'View Profile' button with a red arrow pointing to it, labeled 'Goes to that profile.'
- hobbyMonster**: Profile picture is a stack of books. Below the name is a 'View Profile' button.
- funny**: Profile picture is a laughing emoji. Below the name is a 'View Profile' button.
- LinuxPenguin**: Profile picture is a penguin on a brick wall. Below the name is a 'View Profile' button.
- sunny**: Profile picture is a bright sun. Below the name is a 'View Profile' button.
- S lobs**: Profile picture is partially visible at the bottom.

This page contains all users which exist.

Discovery page:



Every shared post displays here as sorted according to share date and naturally post id.

Post page: (When a photo is clicked on the discovery page.)

Second derivative test for local extrema values for a func of 2-variables

Suppose (a,b) is a critical point of $f(x,y)$ which is in the interior of the domain of f . Also assume that all 2nd partial derivatives $f_{xx}, f_{xy}, f_{yx}, f_{yy}$ are continuous in a nbhd of (a,b) .

let $\Delta f = f_{xx}f_{yy} - f_{xy}^2 = \begin{vmatrix} f_{xx} & f_{xy} \\ f_{yx} & f_{yy} \end{vmatrix}$

discriminant of f Hessian matrix

(a) $f_{xx} < 0$ and $\Delta f > 0$ at $(a,b) \Rightarrow f$ has a local max at (a,b)

(b) $f_{xx} > 0$ and $\Delta f > 0$ at $(a,b) \Rightarrow f$ has a local min at (a,b)

(c) $\Delta f < 0$ at $(a,b) \Rightarrow f$ has a saddle point at (a,b)

(d) $\Delta f = 0$ at $(a,b) \Rightarrow$ no conclusion!
 f may have a local min or a local max or a saddle point at (a,b)

Comments and description.

RauzeNNN: it seems nice :D

freeGuy: wow thats seems gorgeous

freeGuy2: wow ...

xxKralTRxx: dsadsa

xxKralTRxx: dsadsa

hobbyMonster: good

funny: dsa

sunny: dsadasdas

S_Jobs: Apple is perfect!

J_Bezos: Amazon best!

RauzeNNN: Edge Detected second Derivative Test

Like and dislike counts. Closes this page.

8 0 Go Back

This page is just for view. Any user cannot like, dislike or comment on the post from here.

Edit profile page:

User Name: RauzeNNN
Name: Update
Surname: Update
Age: Update
Update Profile Photo

User information can be changed from here.

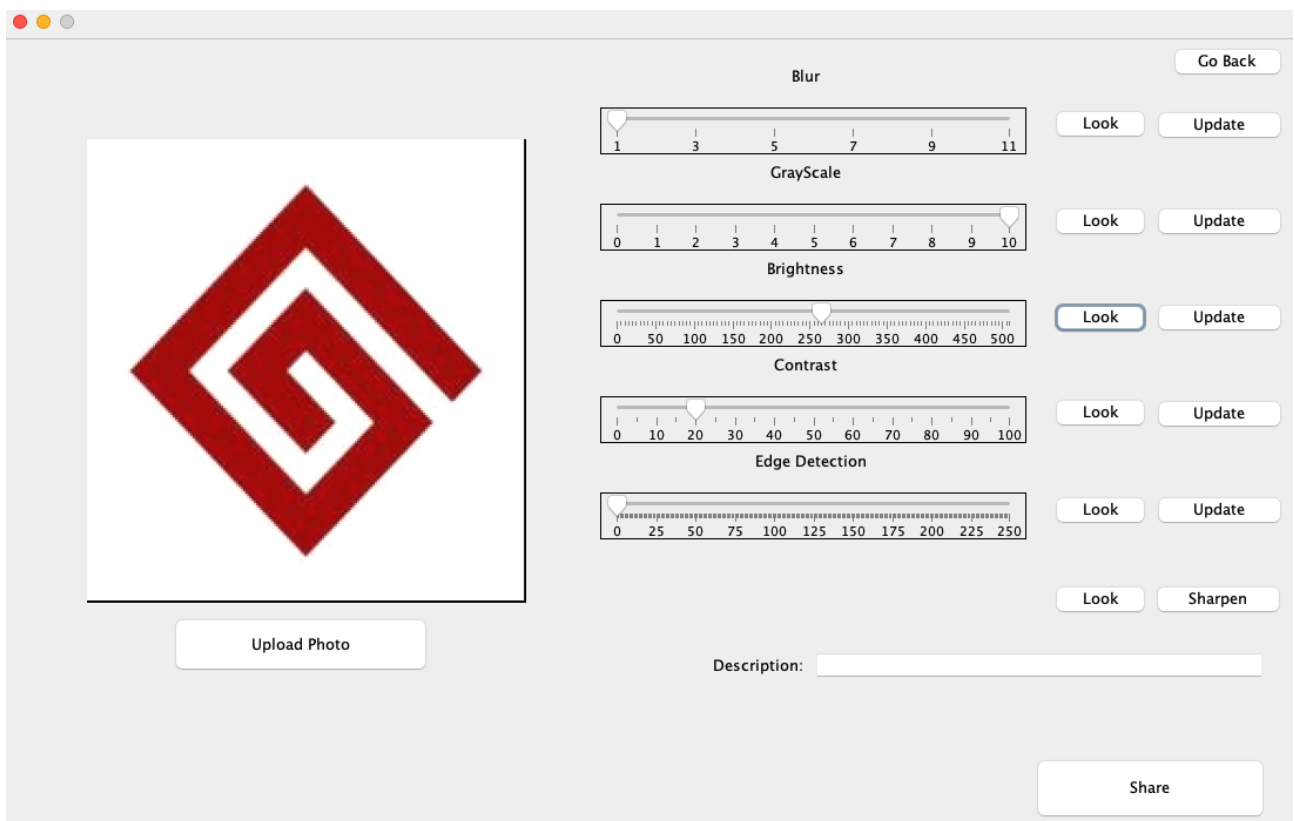
Go Back
Goes back to mainhub.

Click on the post for deleting.

Infinite scroll bar. (in case if there is so many posts here.)

If you click on one of these posts, the clicked one will be deleted.

New post page:



The interface for creating a new post features a central photo upload area on the left, displaying a red geometric pattern. Below the photo is an "Upload Photo" button. To the right of the photo are five filter sliders, each with a "Look" button and an "Update" button:

- Blur:** Range 1 to 11.
- Grayscale:** Range 0 to 10.
- Brightness:** Range 0 to 500.
- Contrast:** Range 0 to 100.
- Edge Detection:** Range 0 to 250.

At the bottom right, there is a "Sharpen" button. A "Go Back" button is located at the top right. A "Description:" text input field is positioned at the bottom center, and a "Share" button is at the bottom right.

When you upload a photo, it displays the photo (Only known image types are valid). You can adjust filter values by sliders, and you can see the change without applying, with look buttons (According to user type, non-available filters' sliders and buttons are disabled). If you want to apply a filter on the image you can press the update button. (Details about filters will be explained below) Description can be added by typing in the description field. When everything is ready, posts can be shared via pressing the share button and then it directs back to the main hub.

Filters:

Blur filter: Makes image blurry. When you increase the value of blur filter, it makes the image blurrier.

Grayscale filter: It makes image shades of grey. Default value is 10 but if you decrease the value, it gives a darker image.

Brightness filter: Adjusts the brightness of the photo. More value means a brighter image. Min value gives a completely black image and max value gives a completely white image. 1*

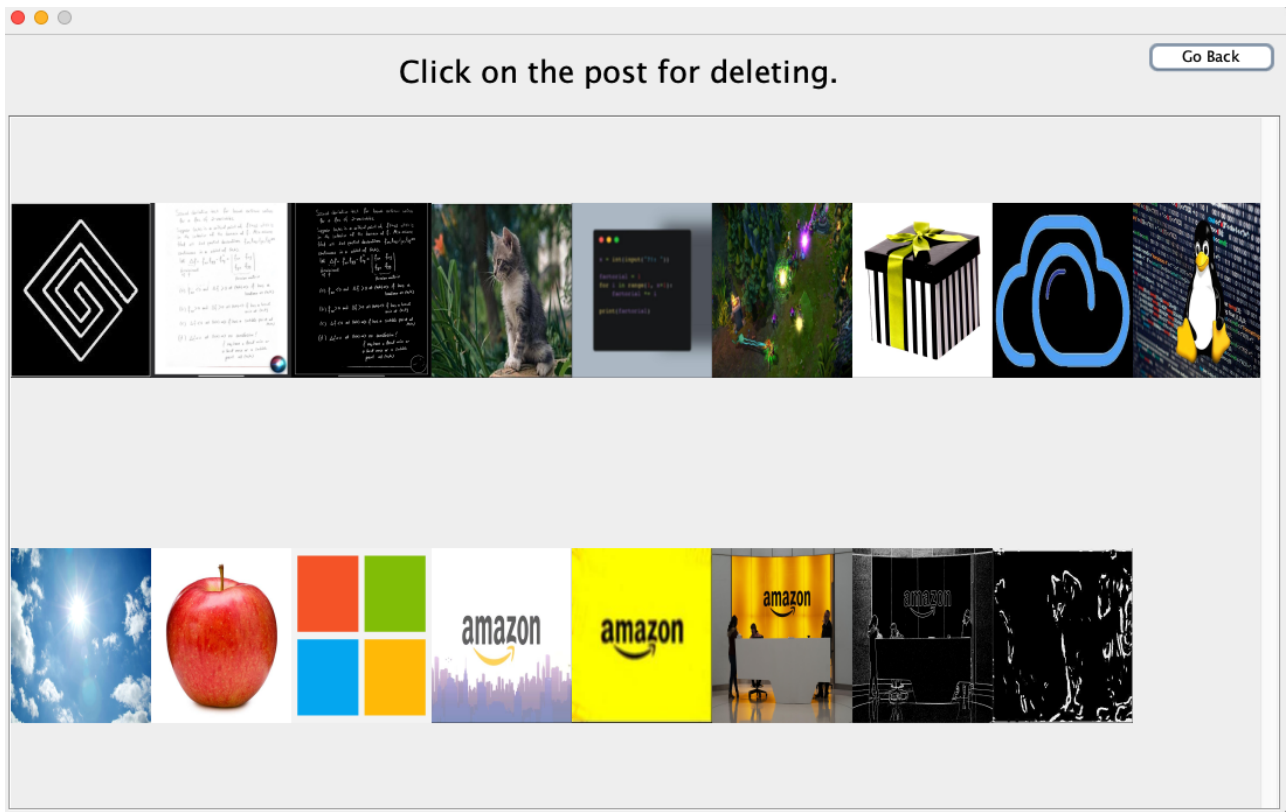
Contrast filter: Adjusts colour differences between pixels. Higher value increases the colour difference. 1*

Edge detection: Uses Sobel edge detection. Value is the threshold.

(For more info: 3*)

Sharpen: Makes detail part of the image more noticeable.

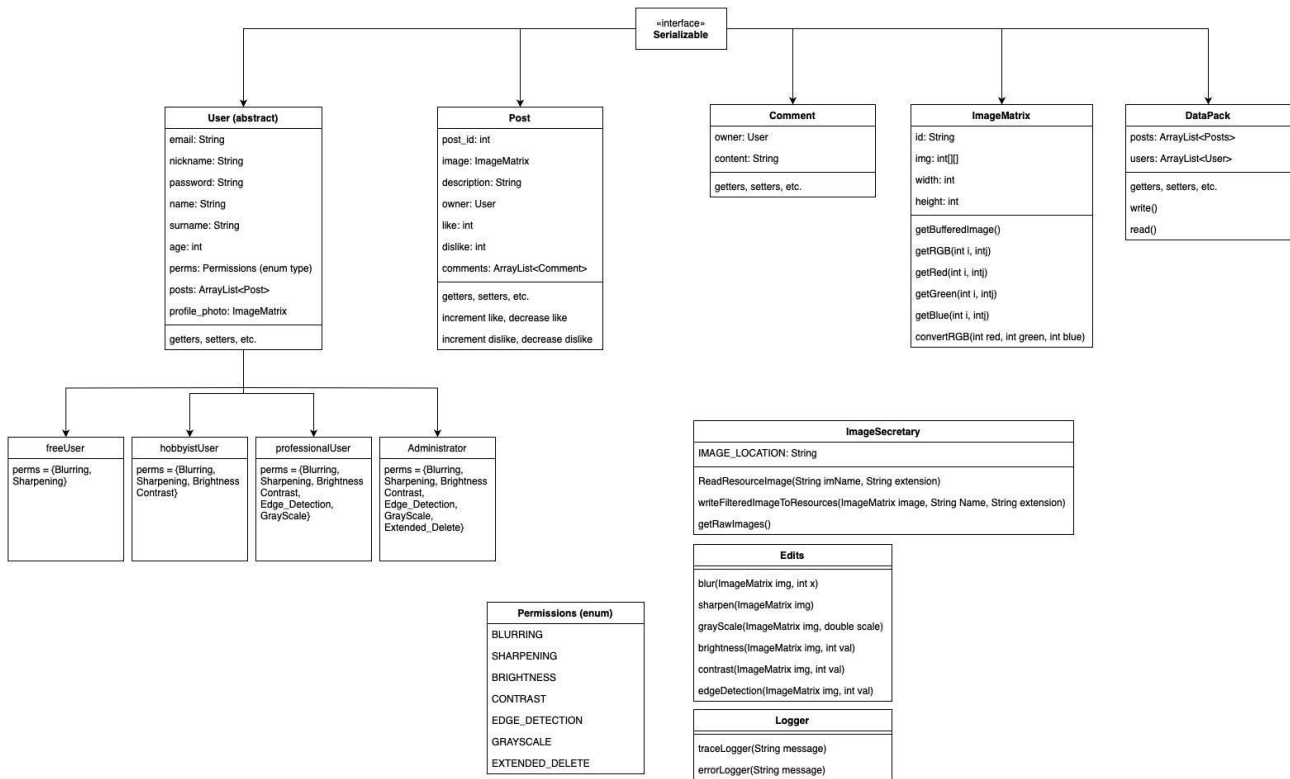
Admin panel: (can be used and seen just by admins)



Every post which exists, shown here. If one of them is clicked by an admin, it will be deleted and disappeared.

Part 2

Classes



Most of the classes are implementing Serializable interface because of storing data purposes. 6*

ImageSecretary's functions are all static.

Edits' functions are all static.

Logger's functions are all static. (For logger's implementation 9*, 10*, 11*)

Class relations:

freeUser, hobbyistUser, professionalUser and Administrator Is-A relationship between User.

User has a Has-A relationship between Post.

User has a Has-A relationship between Permissions.

User has a Has-A relationship between ImageMatrix.

Post has a Has-A relationship between Comment.

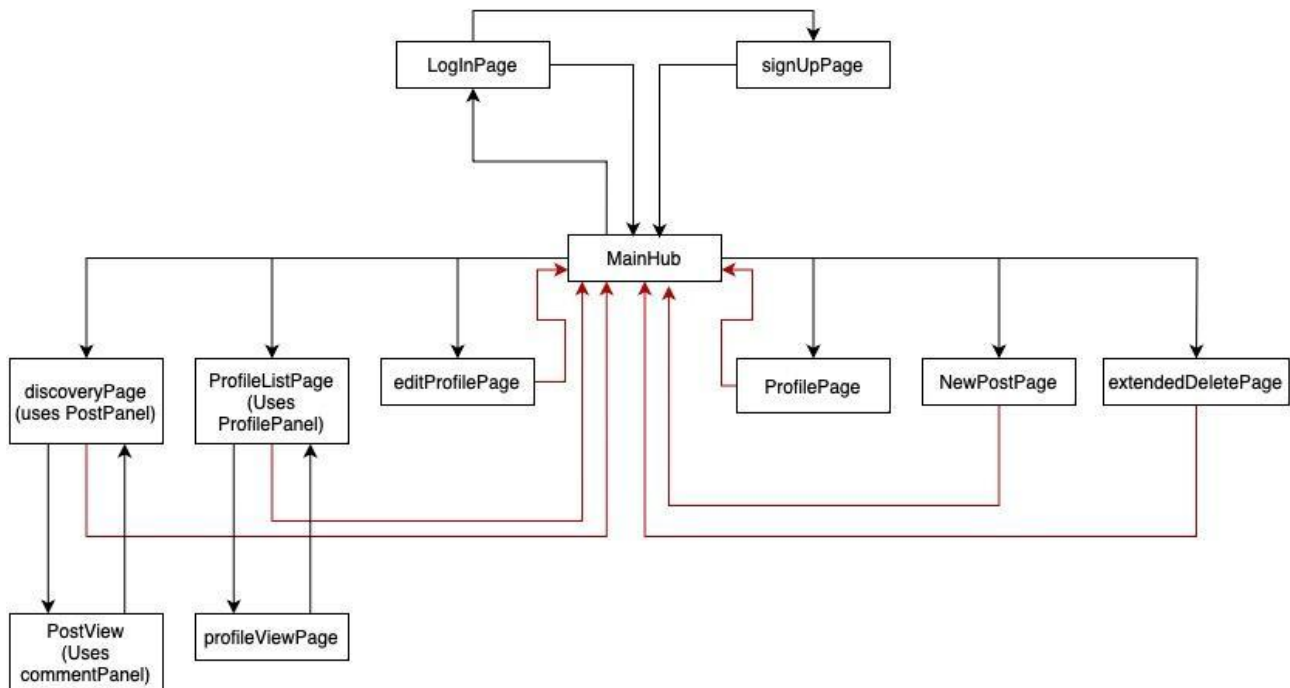
Post has a Has-A relationship between User.

Comment has a Has-A relationship between User.

DataPack has a Has-A relationship between Post.

DataPack has a Has-A relationship between User.

GUI Components



LogInPage: Login page that is the page started at startup.

signUpPage: Sign up page for registering.

MainHub: The page which is linked to other pages.

discoveryPage: The page which includes all the posts. Allows comment, like, dislike and view.

ProfileListPage: The page that includes all the profiles. Redirects to profile pages.

editProfilePage: Profile page of the user but allows changing some user information and allows to delete posts which belong to the user.

ProfilePage: Profile page of the user but just for viewing purposes. Does not allow changing.

NewPostPage: The page that is for uploading, editing and then sharing a post.

extendedDeletePage: Admin panel to delete public photos.

The sources I used for GUI: 2*, 4* and used WindowBuilder

Extra Info:

I used the Shutdown hook for saving data at the end. I learned Shutdown hook from the sources: 7*, 8*

As I mentioned earlier, some of my classes are implementing a Serializable interface for gaining the ability to save some data.

Used regex for checking extensions of files, controlling email input etc. 5*

References

- 1) <https://www.allaboutcircuits.com/technical-articles/digital-image-processing-point-operations/>
- 2) <https://stackoverflow.com/questions/6714045/how-to-resize-jlabel-imageicon>
- 3) <https://www.youtube.com/watch?v=uihBwtPIBxM>
- 4) <https://www.youtube.com/watch?v=Kmgo00avvEw>
- 5) <https://stackoverflow.com/questions/2031805/java-regular-expression-or-operator>
- 6) <https://samderlust.com/dev-blog/java/write-read-arraylist-object-file-java>
- 7) <https://stackoverflow.com/questions/5747803/running-code-on-program-exit-in-java>
- 8) <https://www.geeksforgeeks.org/jvm-shutdown-hook-java/>
- 9) <https://stackoverflow.com/questions/1225146/java-filewriter-with-append-mode>
- 10) <https://stackoverflow.com/questions/43103578/java-is-there-a-way-to-open-a-text-file-if-it-does-not-exist-already-and-append>
- 11) <https://www.javatpoint.com/java-get-current-date>
- 12) Comp 132 shared resources