

Project Description:

This project aims to develop and implement a secure file sharing and reconstruction software system. The software allows a user to split and store a secret file in different locations/devices so that when a minimum number of fragments located at specified locations are gathered, original file can be reconstructed. This system will provide better security than encryption based approaches, as well as fault tolerance in the case some storage devices are lost/damaged. The software system should have a GUI to allow a user to perform file sharing/reconstruction operations. The operations could be password protected. The system can be built based on a secret sharing scheme or error correction code.

Frontend: React.js

Backend: Node.js

Database: MongoLite (or any other cloud service but only can be in cloud)

* Company name is CloudByte Collective

System Admin(UPDATED):

1. As a system admin, I want to login to the system so that I can access the system.
2. As a system admin, I want to logout of the system so that I can end my usage session.
3. As a system admin, I want to be able to view user accounts so that I can see the profile of users.
4. As a system admin, I want to be able to view a log of all file access and actions performed by users to ensure security and track any unauthorized activities.
5. As a system admin, I want to be able to enable two-factor authentication on my account to secure my account.
6. As a system admin, I want to be able to update user accounts so that I can change the credentials of a user account whenever I need to. (Only user passwords cannot be changed)
7. As a system admin, I want to be able to delete user accounts in case of a device being lost or stolen. (When account is deleted, make sure all user credentials are also deleted)
8. As a system admin, I want to be able to search for user accounts so that I can easily find the user I want.
9. As a system admin, I want to receive alerts for any unauthorized access attempts to take immediate action.
10. As a system admin, I want to be able to create an account so that I can use the account for admin purposes.
11. As a system admin, I want to be able to change my account password to keep my account up to date.

Paid subscriber (UPDATED):

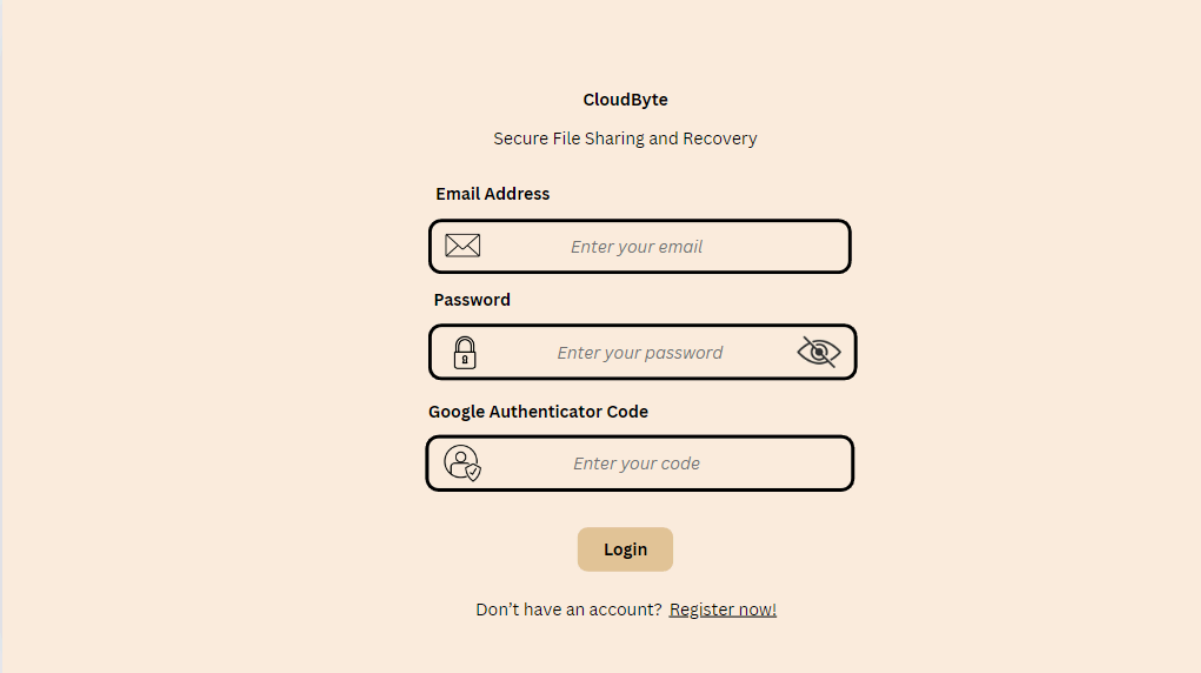
1. As a paid subscriber, I want to login for my account so I can use the features.
2. As a paid subscriber, I want to logout for my account so that i can protect my account privacy
3. As a paid subscriber, I want to create the account so that i can use my account to log into the system
4. As a paid subscriber, I want to delete the account so that whenever I want to stop the subscription, I can just delete the account.
5. As a paid subscriber, I want to change password so that I can secure my account
6. As a paid subscriber, I want to upload unlimited files so that I can store as many files as I want inside the system.
7. As a paid subscriber, I want to delete files so that I can remove the files I want from my storage.
8. As a paid subscriber, I want to search for a file by using a search bar so that I can search for the file I want.
9. As a paid subscriber, I want to be able to share my files so that I can invite other users within my organization to view my files. (only for users within the cloud)
10. As a paid subscriber, I want to be able to recover previous versions of my files. (limit duration and/or how often recovery can be performed?)
11. As a paid subscriber, I want to have a complete view of my audit logs so that I can see what has been changed in my files.
12. As a paid subscriber, I want to be able to set a user as a viewer to my file so that they can see its contents.
13. As a paid subscriber, I want to be able to set a user as a commenter to my file so that they can suggest what to change on its contents.
14. As a paid subscriber, I want to be able to set a user as an editor to my file so that they can modify the file's contents. (all users can only be users registered in the cloud)
15. As a paid subscriber, I want to be able to enable two-factor authentication on my account.
16. As a paid subscriber, I want to be able to encrypt my files with password so only authorized users can access.
17. As a paid subscriber, I want to be able to pin selected files so I can access files easier.
18. As a paid subscriber, I want to be able to edit concurrently with other users on the same file so users can collaborate in real time.
19. As a paid subscriber, I want to be able to lock files so that users can no longer edit.
20. As a paid subscriber, I want to be able to create files so that I can collaborate with other users on the platform.
21. As a paid subscriber, I want a 2FA system for the files I share to other users so I know the files that are being shared are secured.

User Interface



This is the landing page users will first see when they visit the website. The landing page will include the brief introduction page which will briefly describe some of the main functions that this service will provide. This page will also include the subscription page where the user can subscribe to our service and also a review page where it contains reviews from users who have already subscribed to our service and used it.

Login Page



The login page for CloudByte features a light orange background. At the top center, the text "CloudByte" is displayed in bold, with "Secure File Sharing and Recovery" underneath it. Below this, there are three input fields, each with a label and an icon. The first field is for the "Email Address" with an envelope icon and the placeholder text "Enter your email". The second field is for the "Password" with a lock icon and the placeholder text "Enter your password", and it includes an eye icon to toggle visibility. The third field is for the "Google Authenticator Code" with a person and checkmark icon and the placeholder text "Enter your code". A yellow "Login" button is positioned below the input fields. At the bottom, a link "Don't have an account? [Register now!](#)" is provided.

CloudByte
Secure File Sharing and Recovery

Email Address

Password

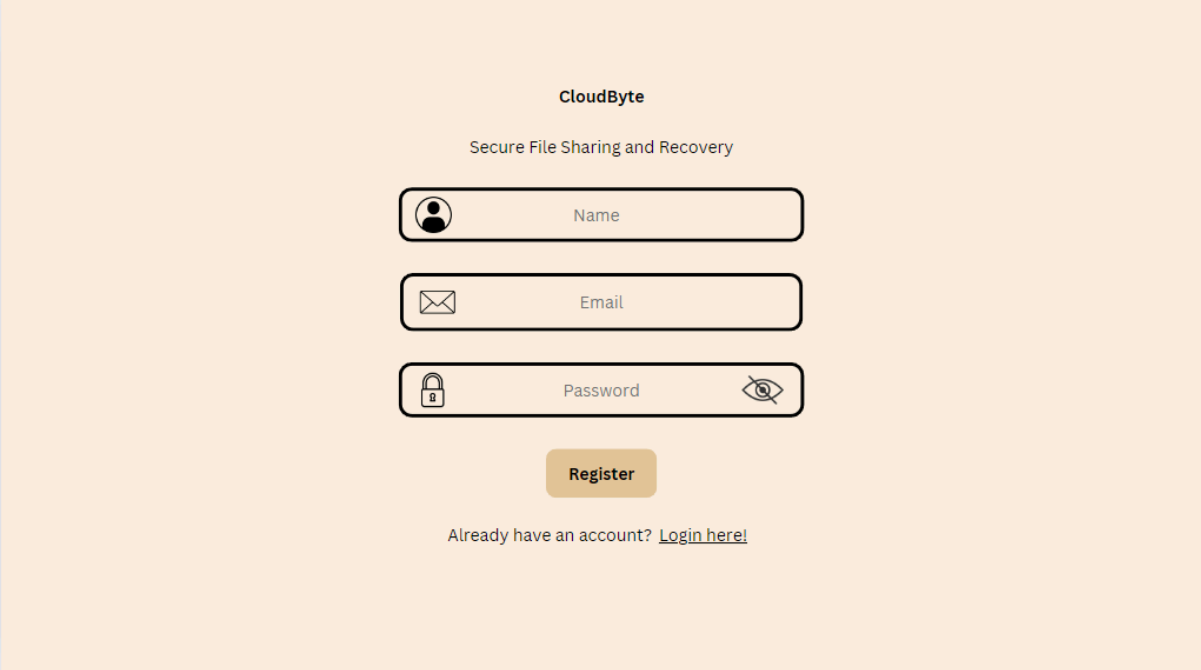
Google Authenticator Code

Login

Don't have an account? [Register now!](#)

Figure 2.1 Log In Page

This Login Page will require users to input their email, password and authenticator code to access the system. For new users who do not have an account yet will need to create a new account by clicking “Register now!”.



The image shows a registration form for 'CloudByte'. At the top, the text 'CloudByte' is centered, followed by the tagline 'Secure File Sharing and Recovery'. Below this are three input fields: 'Name' with a person icon, 'Email' with an envelope icon, and 'Password' with a lock icon and a toggle eye icon. A 'Register' button is positioned below the password field. At the bottom, there is a link that says 'Already have an account? [Login here!](#)'.

CloudByte

Secure File Sharing and Recovery

Name

Email

Password

Register

Already have an account? [Login here!](#)

Figure 2.2 Register Page

This Register Page will require users to enter their name, email and password to sign up for a new account. For those who already have an existing account will be navigated to the Login Page by clicking “Login here!”.

System Admin

CloudByte Search Welcome, Admin

System Admin Home

	Name	Email	
	User_1	user_1@gmail.com	View
	User_2	user_2@gmail.com	View
	User_3	user_3@gmail.com	View
	User_4	user_4@gmail.com	View
	User_5	user_5@gmail.com	View
	User_6	user_6@gmail.com	View
	User_7	user_7@gmail.com	View
	User_8	user_8@gmail.com	View

[Home](#) [Create Admin](#) [Profile](#) [Logout](#)

Figure 3.1 System Admin Home

This is the System Admin Home page where it contains the user list when the admin searches for a specific user he/she wants. This page also contains the Home function to return to the System Admin Home page, the Create Admin function to create a admin account, the View function to view the profile of the user, the Profile function to view the profile of the admin using this account and the Logout function to logout of the account and go back to the Login page.

CloudByte

Search

Welcome, Admin

Home

Account Create

Name: admin

Email: admin@gmail.com

Password: 123456789

Cancel Create

Profile

Logout

Figure 3.2 Admin Account Create

This is the Account Create page where the admin can create more admin accounts. This page also contains the Home function to return to the System Admin Home page, the Profile function to view the profile of the admin using this account, and the Logout function to logout of the account. The Cancel button will cancel the account creation and bring the user back to the System Admin Home page and the Create button will confirm the creation of a new admin.

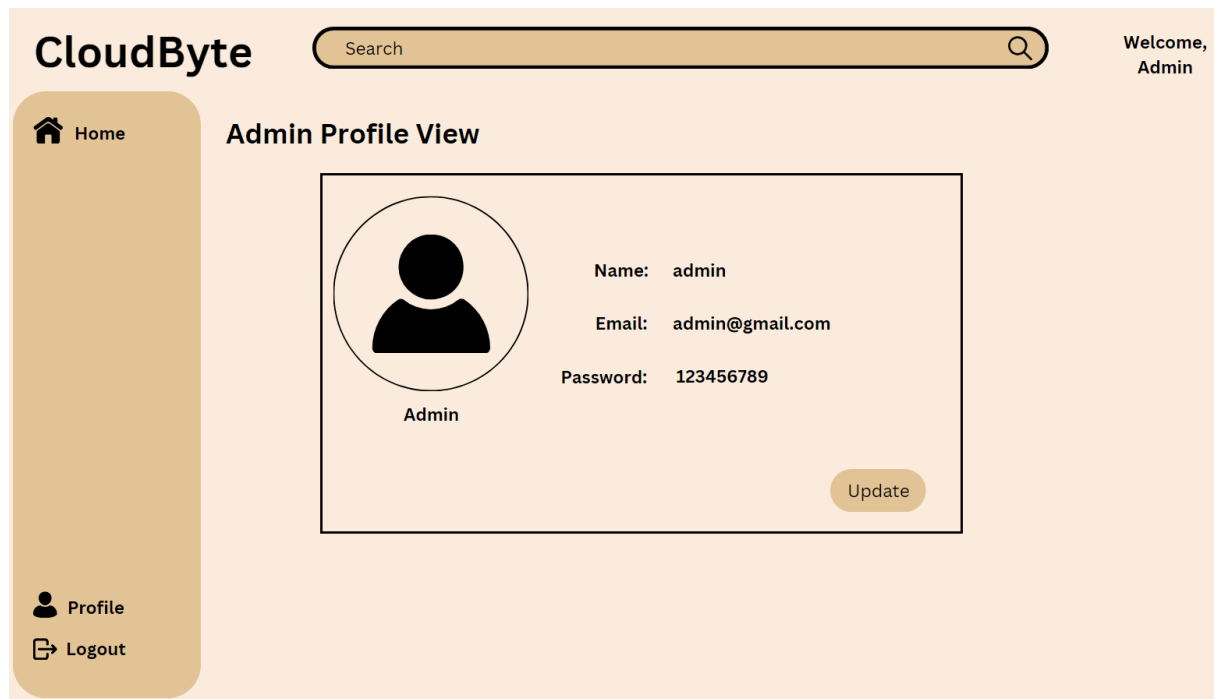


Figure 3.3 Admin Profile View

This is the Admin Profile View page where it contains the account credentials of the admin using this account. This page also contains the Home function to return to the System Admin Home page, the Profile function to view the profile of the admin using this account, and the Logout function to logout of the account. There is also a Update button to update the credentials of the admin using this account.

CloudByte

Search

Q

Welcome,
Admin

Home

Profile

Logout

Admin Profile Update



Admin

Name:

Email:

Password:

Access Rights:

Cancel

Confirm

Delete Account

Figure 3.4 Admin Profile Update

This is the Admin Profile Update page where an admin can change and update their account credentials whenever they need to. This page also contains the Home function to return to the System Admin Home page, the Profile function to view the profile of the admin using this account, and the Logout function to logout of the account. The cancel button will cancel the update process and move the user back to the Admin Profile page, the Confirm button will confirm the profile update and save the changes and the Delete Account button is if the admin wants to delete their own account.

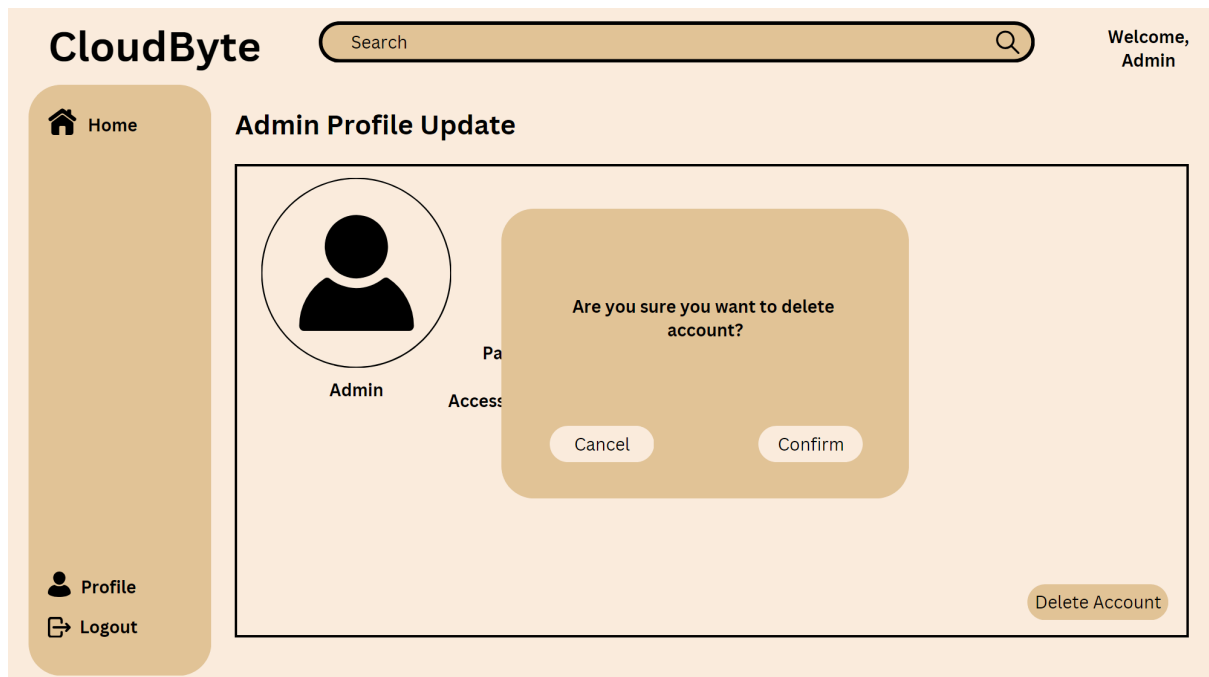


Figure 3.5 Account Delete Prompt

This is the Delete Account Prompt page. This pop up prompt will appear when the admin presses on the Delete Account button to confirm the account deletion. If the admin presses the Cancel button, it will stop the deletion process and bring the admin back to the Admin Profile Update page and if the admin presses on the Confirm button, it will proceed with the account deletion process.

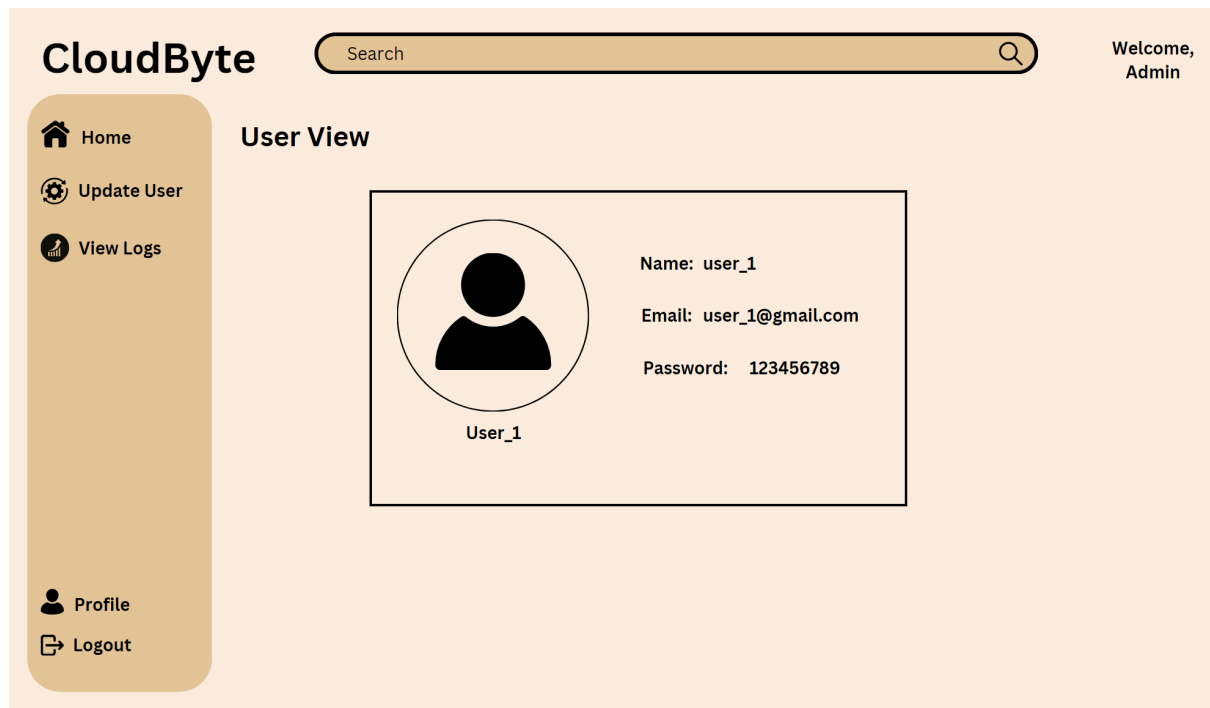


Figure 3.6 User Profile View

This is the User Profile View page. This page will show the account credentials of the user that the admin wants to see. The Update User function button on the left hand side will bring the admin to the User Profile Update page and the View Logs function button will bring the admin to the User Logs page.

CloudByte

Search

Welcome,
Admin

Home

Update User

View Logs

Profile

Logout

User Profile Update

User_1

Name: user_1

Email: user_1@gmail.com

Password: 123456789

Access Rights: Read & Write

Cancel

Confirm

Delete Account

Figure 3.7 User Profile Update

This page is the User Profile Update page. This page is where the admin can change the account credentials of the user they want. When the admin clicks on the Cancel button, the profile update process will be canceled and the admin will be brought back to the User Profile View page. When the Confirm button is pressed, this will confirm the user profile update process. When the Delete Account button is pressed, this will delete the user's account after the confirmation of a pop up prompt window.

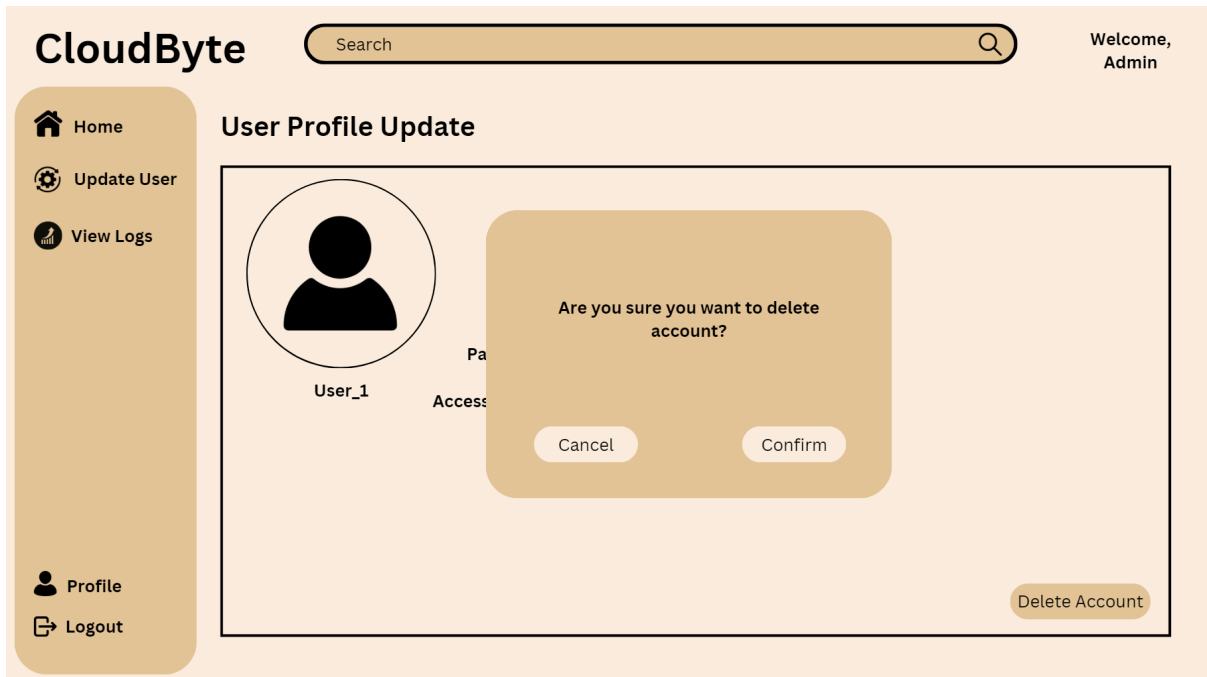


Figure 3.8 User Profile Delete Prompt

This page is the User Profile Delete Prompt page. This pop up prompt will appear when the admin clicks on the Delete Account button to confirm if the admin wants to continue with the account deletion process or cancel the process. If the Cancel button is pressed, the account deletion process will be canceled and the admin will return to the Admin Profile Update page. If the Confirm button is pressed, the account will be deleted.

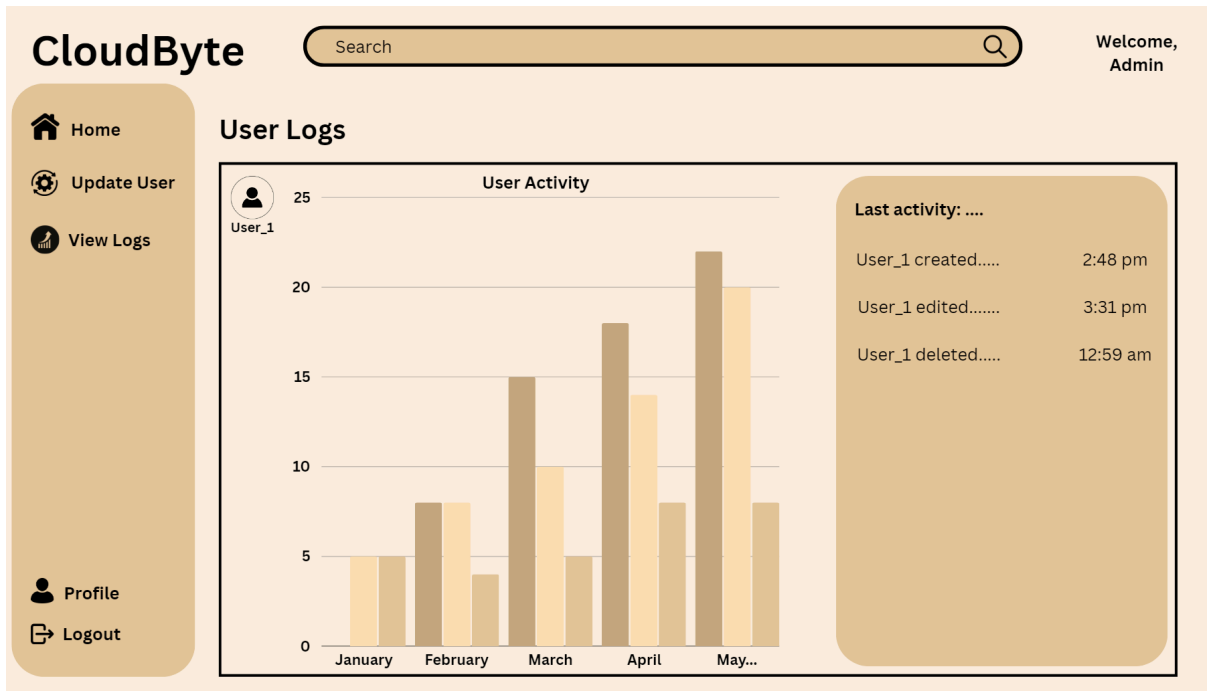
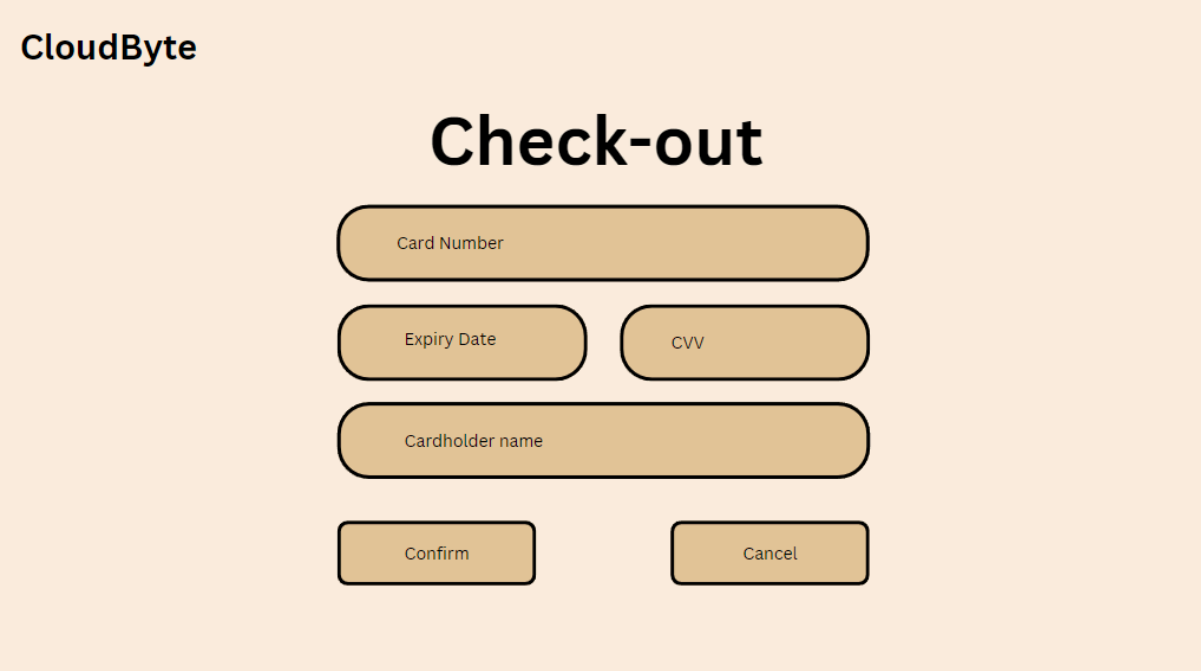


Figure 3.9 User Logs

This page is the User Logs page. This page will show the activity logs of the user that the admin wants to see. This page will show a graph comparing the activity count based on months and also a more detailed log showing the last activity the user has done in their account.

Paid Subscriber



The image shows a checkout form for CloudByte. It has a light orange background. At the top left is the 'CloudByte' logo. In the center is the title 'Check-out'. Below the title are four input fields: 'Card Number' (a wide rounded rectangle), 'Expiry Date' (a rounded rectangle), 'CVV' (a rounded rectangle), and 'Cardholder name' (a wide rounded rectangle). The 'Expiry Date' and 'CVV' fields are side-by-side. At the bottom are two buttons: 'Confirm' and 'Cancel'.

CloudByte

Check-out

Card Number

Expiry Date

CVV

Cardholder name

Confirm

Cancel

Figure 4.1 Check-out Page

The Check-out Page requires Users to input payment details such as card number, expiry date, card verification value and cardholder's name. Once a user has added all their details, they can press confirm for the system to verify their payment method is valid before proceeding to use CloudByte services. If a user does not want to follow through with payment, they can simply press the cancel button at any given time.

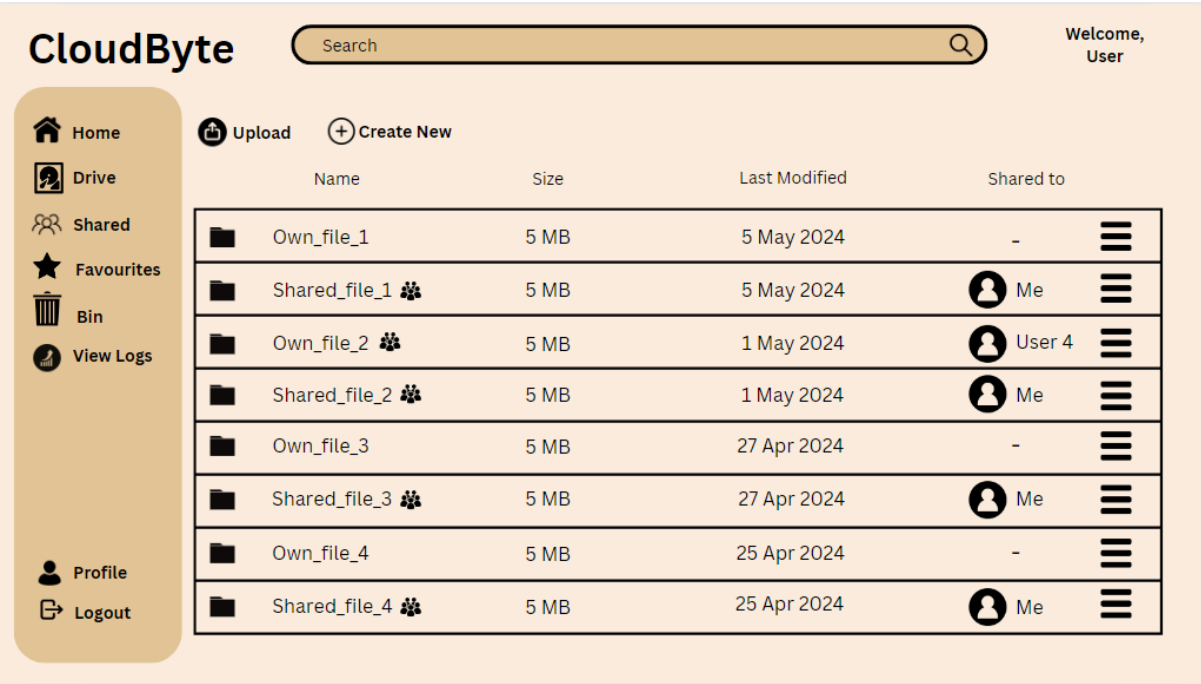


Figure 4.2 Home Page

The Home page will be shown upon successful login of the user account or when the home button is pressed. This page will show the cumulative files in the Drive, Shared and Favourites. The files are organized automatically when they are last modified, the latest modified file shall appear at the top. Users can see the file name, size, last modified date, accounts which the file has been shared to as well as the options button. On the left hand side menu, the user can access the Drive, Shared, Favourites, Bin, View Logs, and Profile pages. The menu also has a logout button for the user to exit their account once they are done with their session. On this page, the user can also upload, create new files and search for files they wish to access.

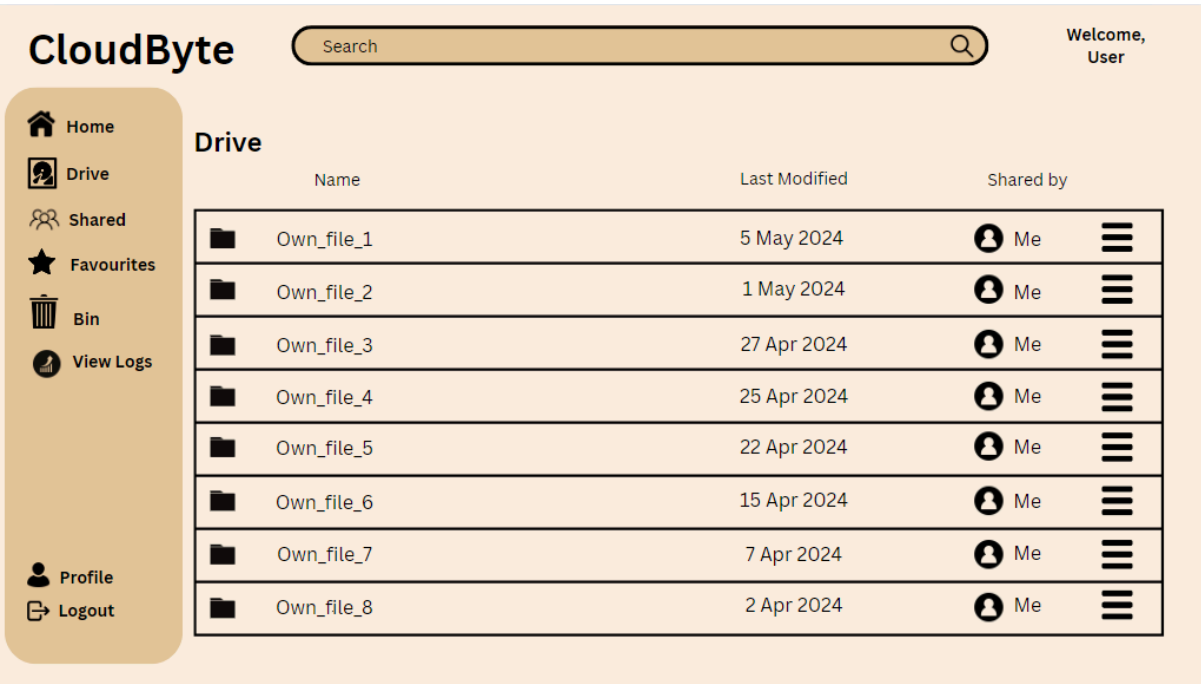


Figure 4.3 Drive Page

The Drive page will appear when the user pressed the Drive button on the left hand side menu. The user can view files that they have created, once again the latest modified file goes at the top. The page remains relatively unchanged from the home page with exceptions of the upload and create new file button.

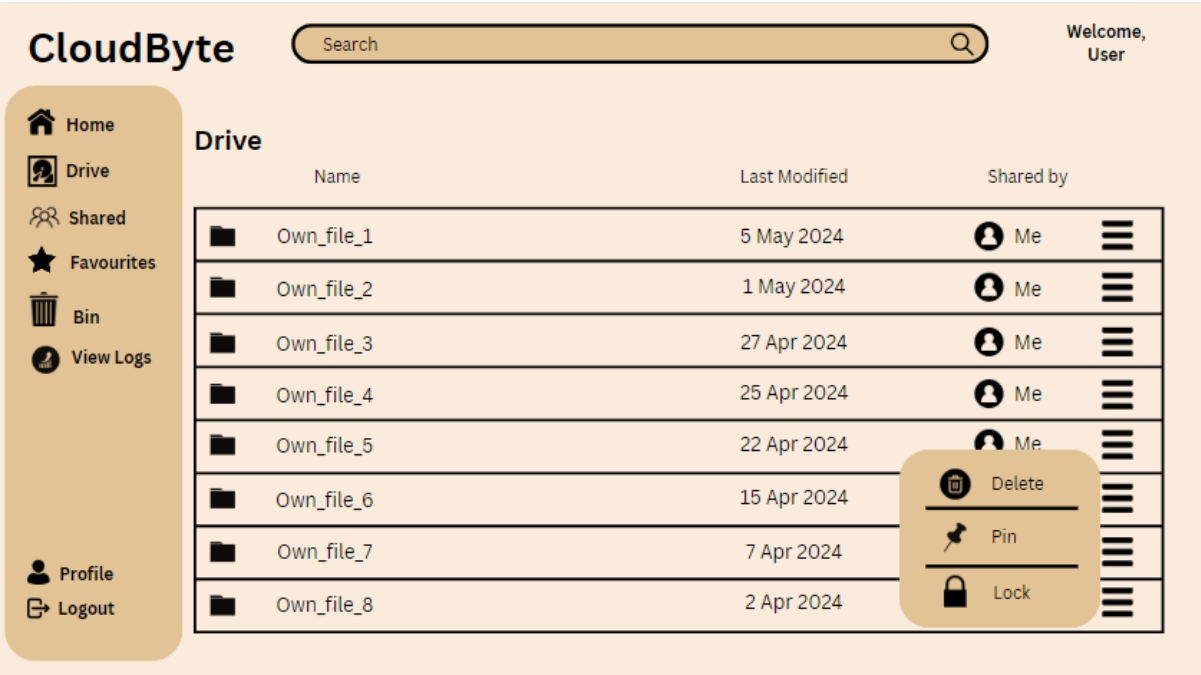


Figure 4.4 File Options Pop-up

The Options pop-up will appear when the user clicks on the options button (3 horizontal lines). This will allow the user to delete, pin or lock the file that they selected.

CloudByte

Search

Q

Welcome,
User

Home

Drive

Shared

Favourites

Bin

View Logs

Profile

Logout

Shared

































Name	Last Modified	Shared by
 Shared_file_1 	5 May 2024	 User 1 
 Shared_file_2 	1 May 2024	 User 3 
 Shared_file_3 	29 Apr 2024	 User 1 
 Shared_file_4 	25 Apr 2024	 User 1 
 Shared_file_5 	22 Apr 2024	 User 2 
 Shared_file_7 	15 Apr 2024	 User 1 
 Shared_file_8 	7 Apr 2024	 User 3 
 Shared_file_9 	2 Apr 2024	 User 1 

Figure 4.5 Shared Page

The Shared page will appear when the user selects the Shared button. This page is similar to the Drive page but only shows the files that other users shared with the user. Any file that is shared will have a group icon beside the file name. The page also indicates who the file is shared by.

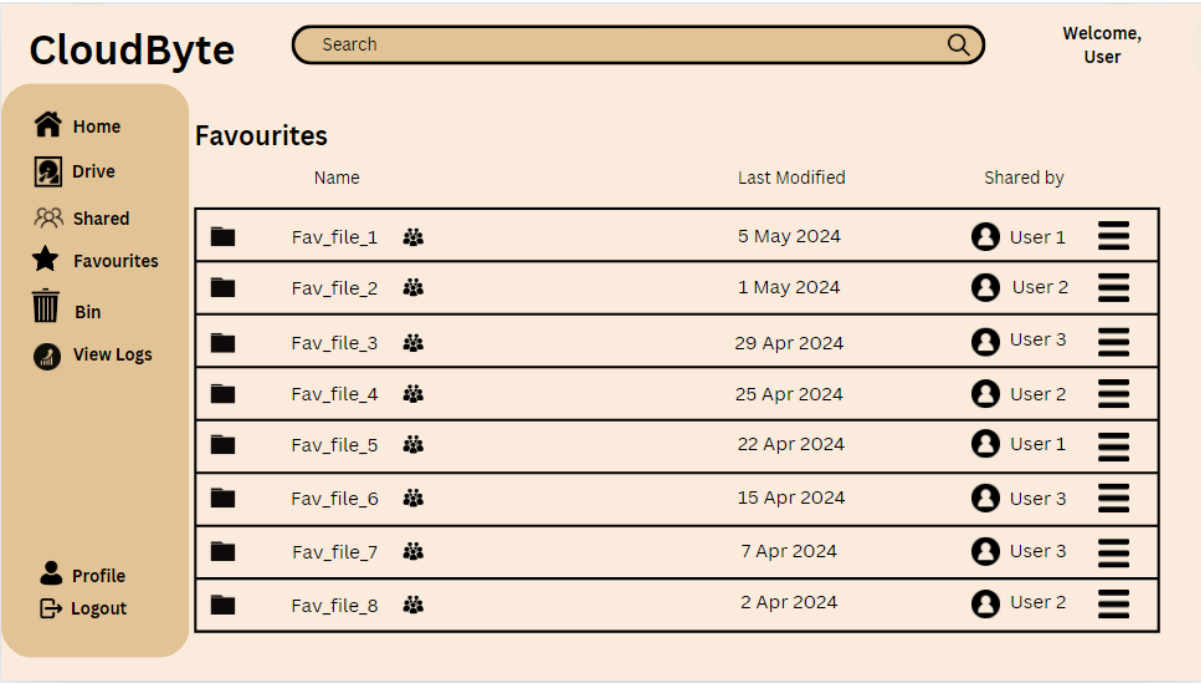


Figure 4.6 Favourites Page

The Favourites Page will contain all the user’s favorite files.

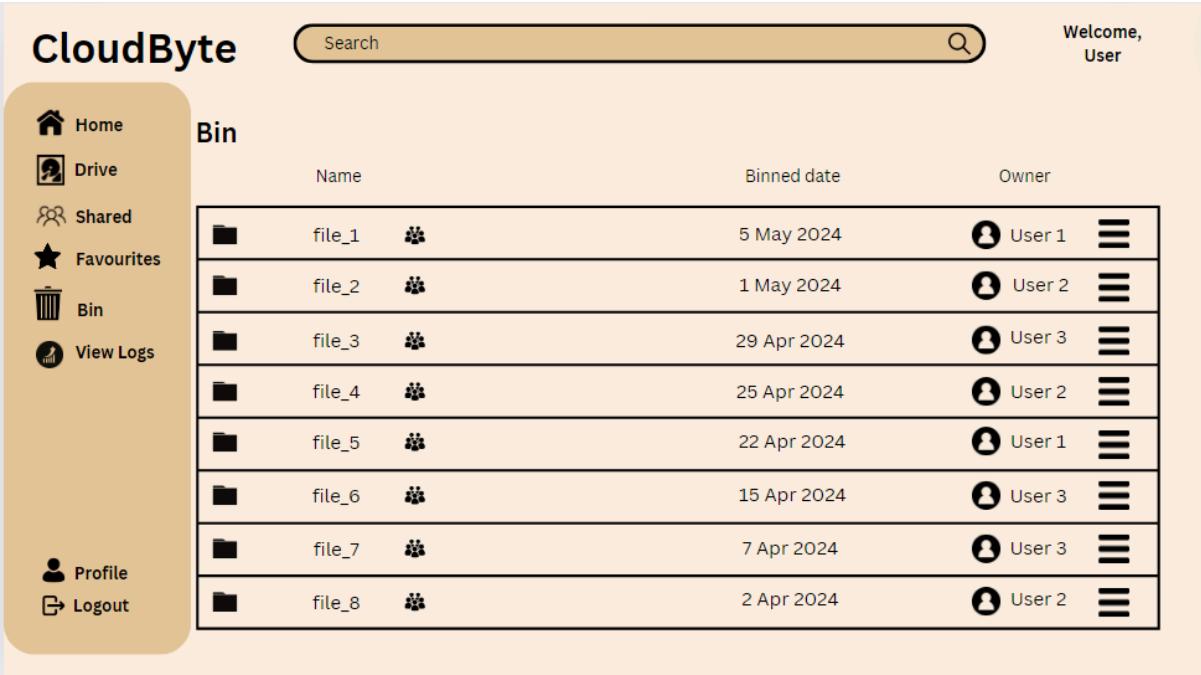


Figure 4.7 Bin Page

This Bin Page will contain all the deleted files.

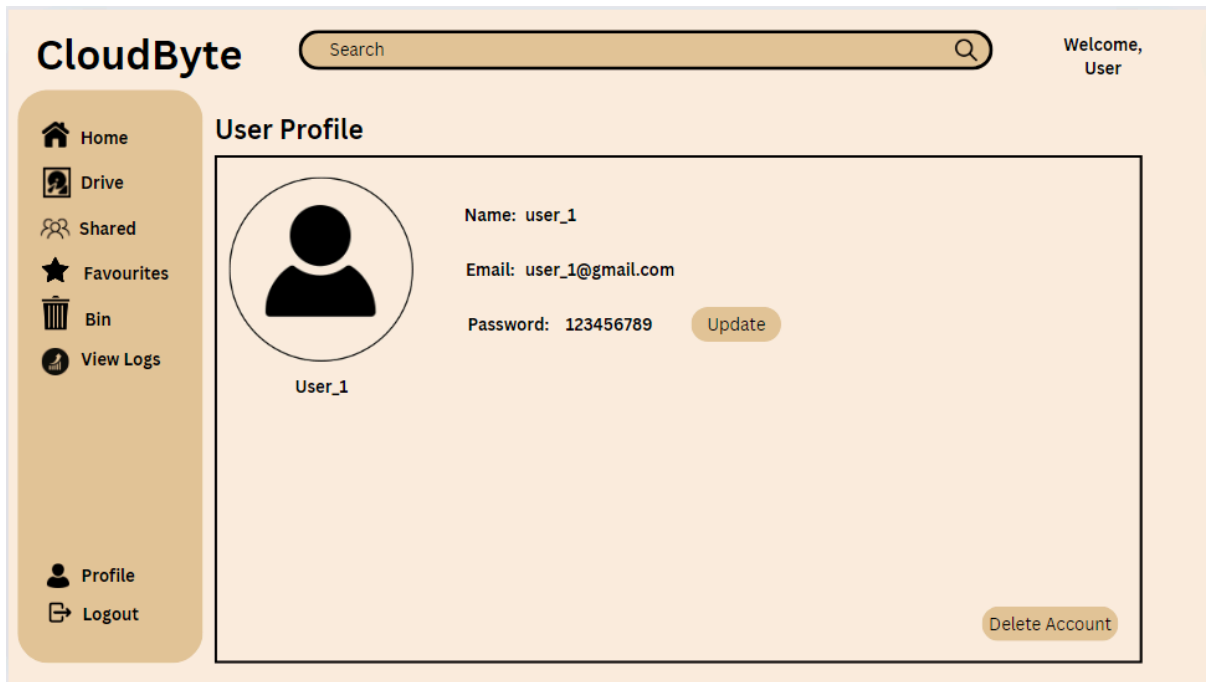


Figure 4.8 Profile Page

This User Profile Page will display the name, email and password of the user. Users can choose to change password or delete account.

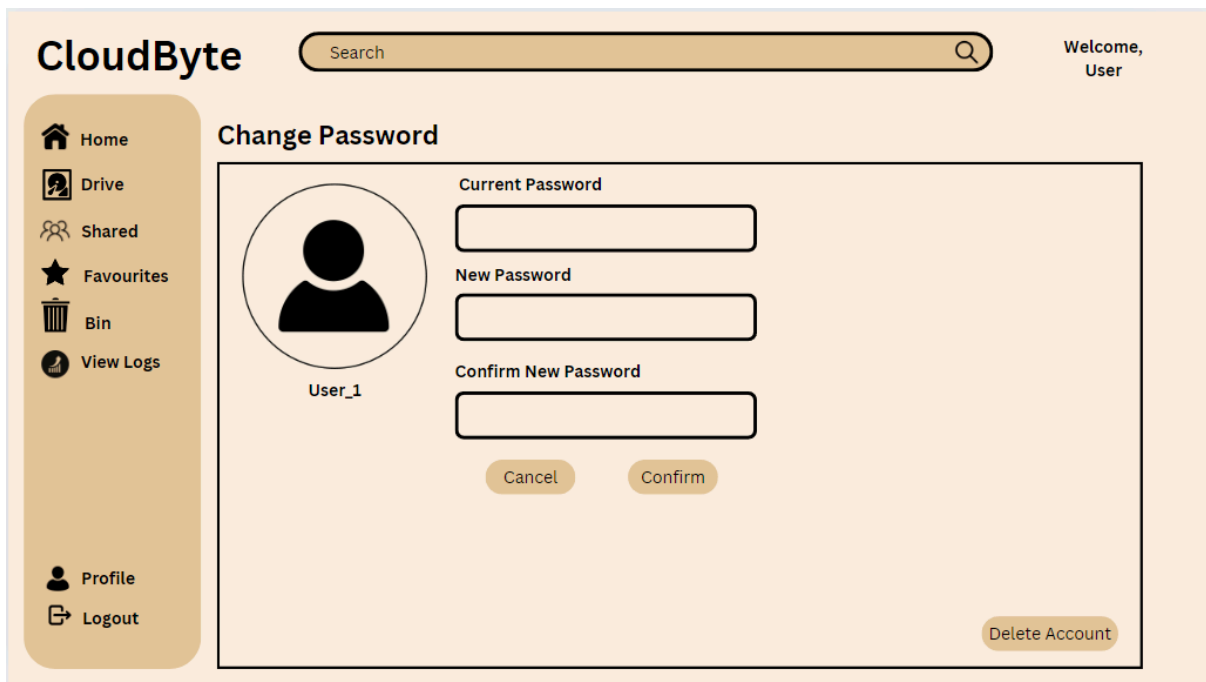


Figure 4.9 Change Password Page

This Change Password Page will require the user to enter their existing password and a new password. By clicking the “Confirm” button, password will be successfully changed.

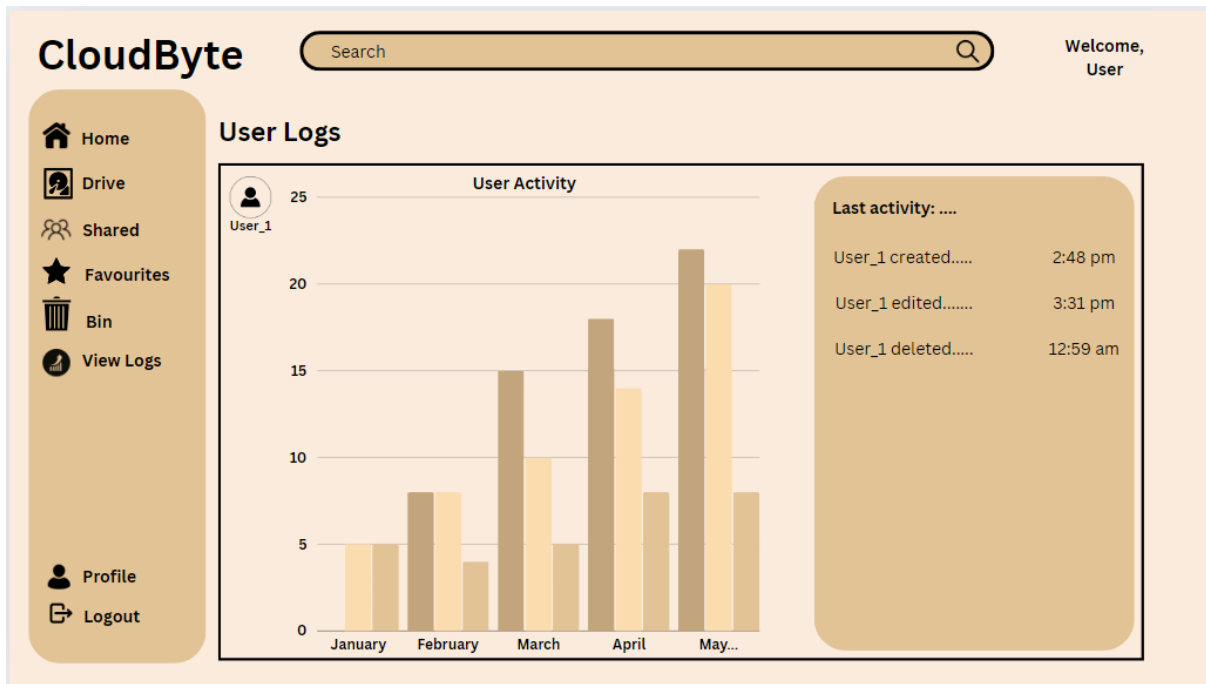


Figure 4.10 Audit Logs Page

This Audit Logs page will show the activity logs of the user such as which user accessed which files, when they were accessed and what actions were performed on the files. This page will show a graph comparing the activity count based on months and also a more detailed log showing the last activity the user has done in their account.

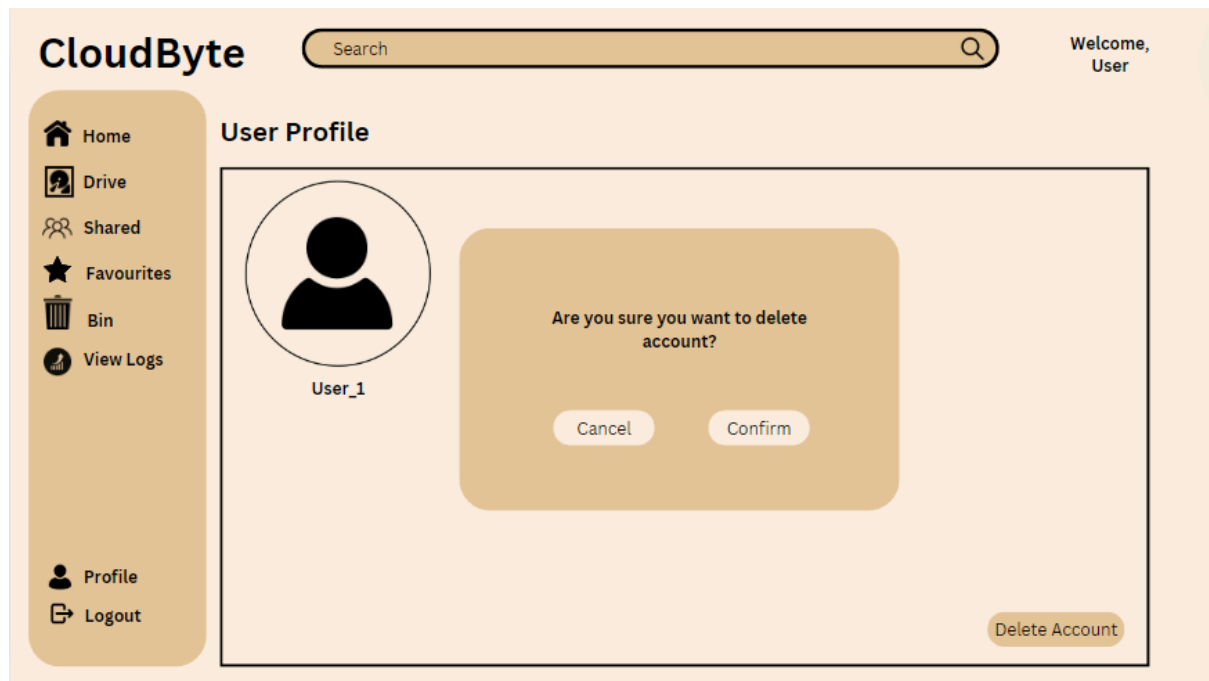


Figure 4.11 Delete Account Page

This Delete Account Page will prompt users to confirm whether they want to delete their existing account.

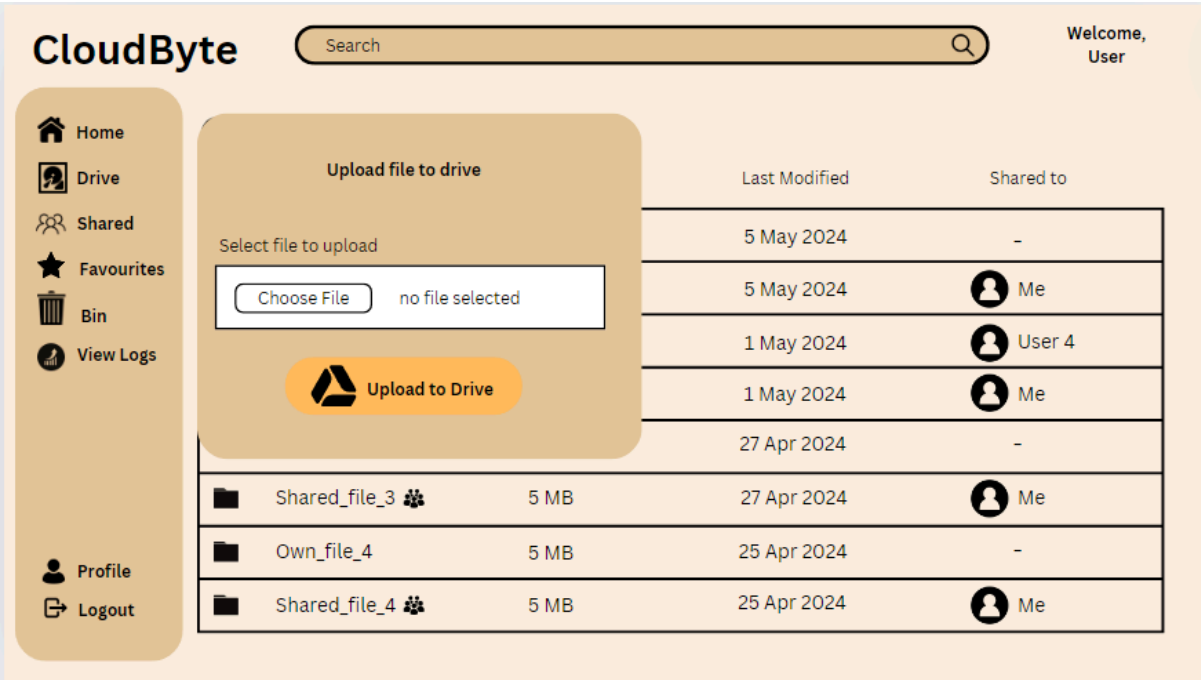


Figure 4.12 Upload File Pop-up

This Upload File Pop-up will require the user to choose files from their storage location and upload files to their drive.

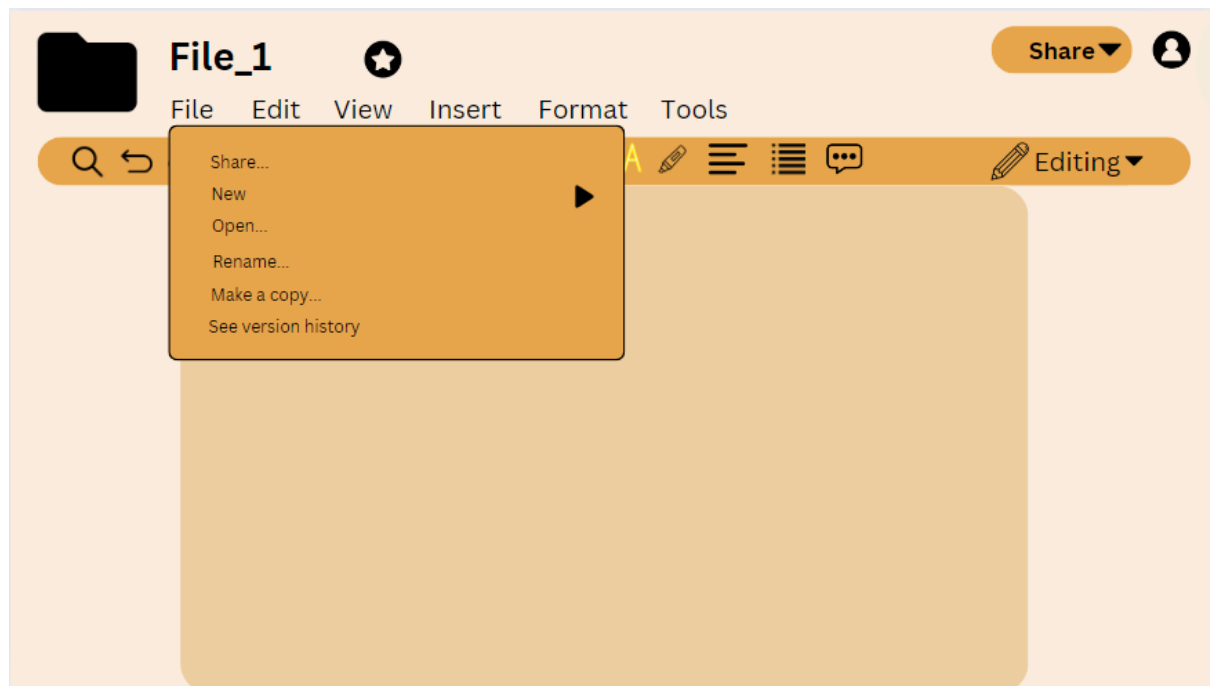


Figure 4.13 File Pop-up

This File pop-up will display functions such as create new file, open file, rename file, make a copy of the existing file and also view the version history of the file.

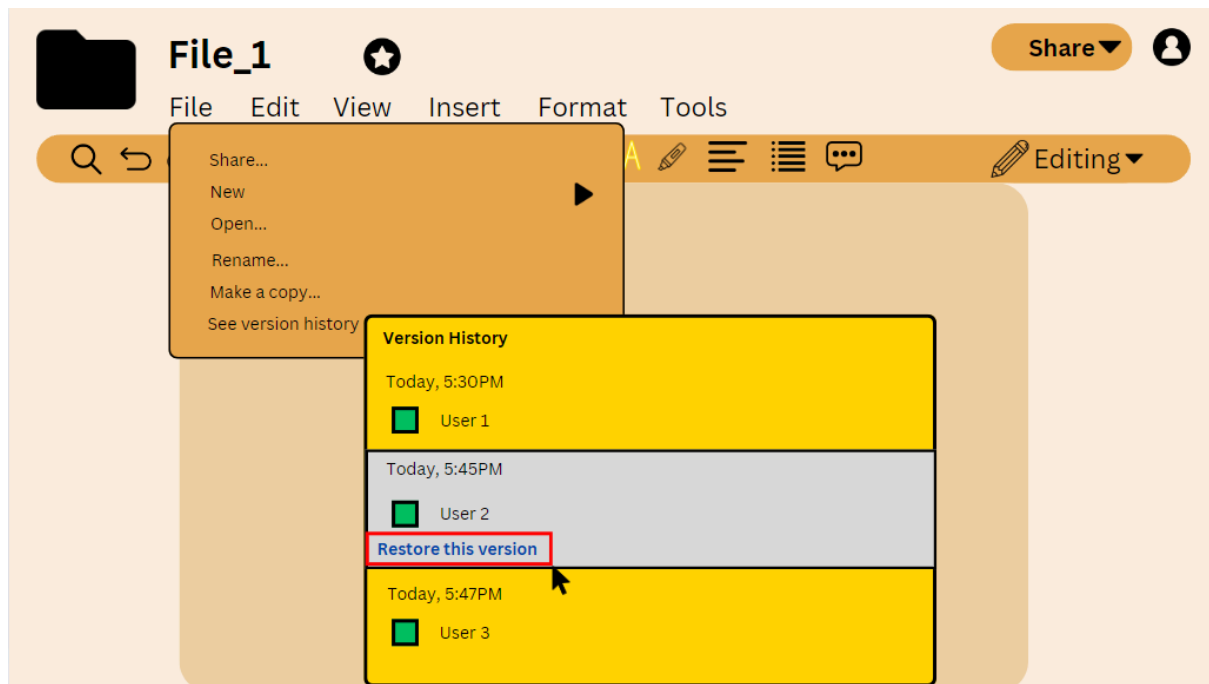


Figure 4.14 Recover Version History Pop-up

This Recover Version History Pop-up will show the previous version history of the file. The user can choose to recover a specific version of the file by clicking “Restore this version” based on the date and time of the particular modification.



Figure 4.15 File - Editing Access Page

The File (editing access) page will appear when the user clicks on a file. This allows the user to choose if they want any user accessing the file to be able to edit the document.



Figure 4.16 File - Editing Access Pop-up

The Access Control pop-up will appear when the user clicks on the Editing button. This allows the user to change the access of anyone to either a commentor or viewer.

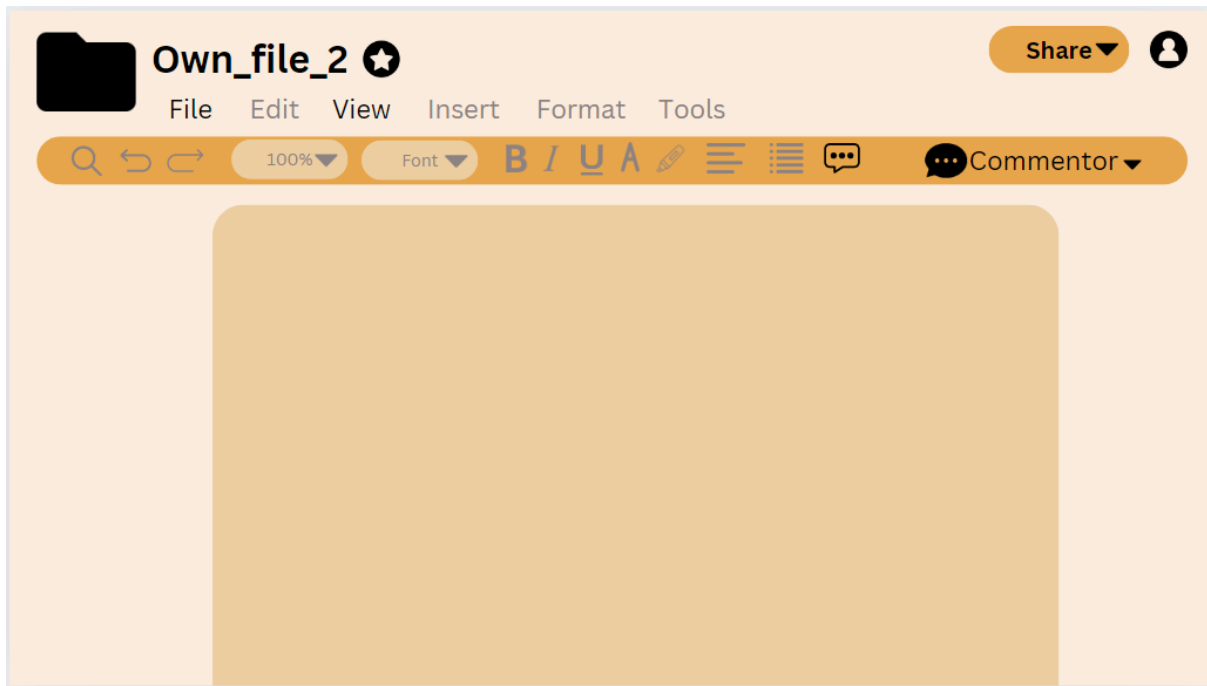


Figure 4.17 File - Commentor Access Page

This file (commentor access) page will appear when the user clicks on commentor button in the Access Control Pop-up. This means that anyone that has access to the file can only comment on the contents of the file. The buttons that they are unable to access will turn gray.

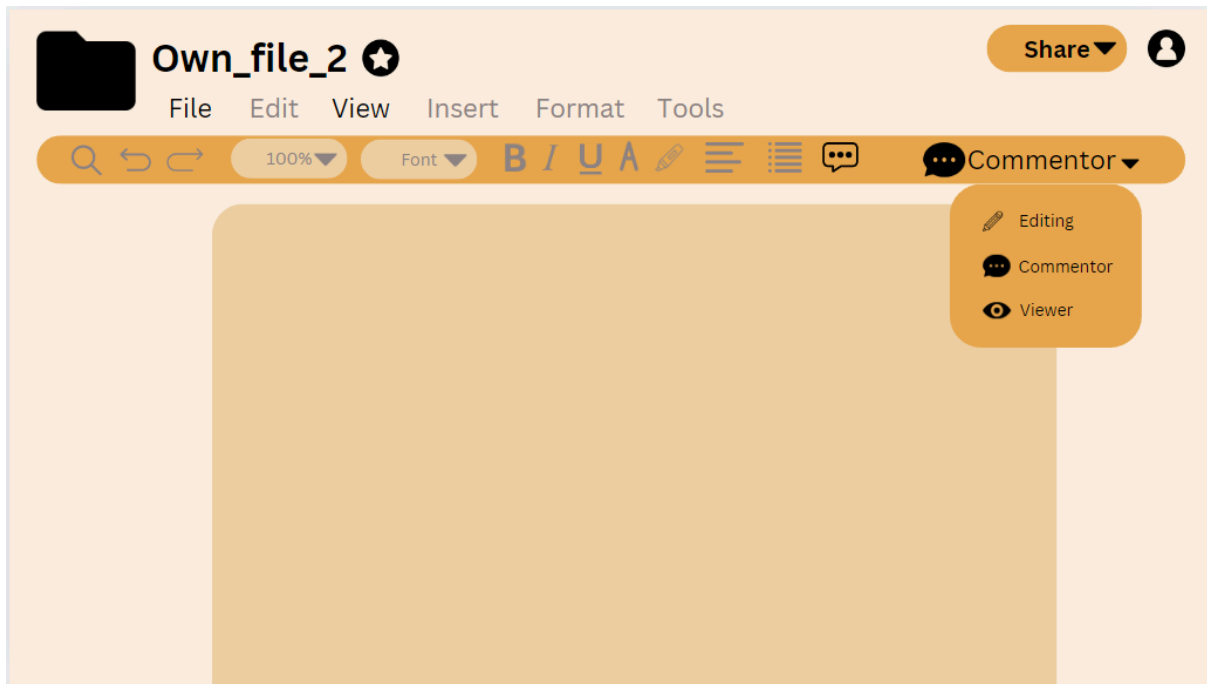


Figure 4.18 File - Commentor Access Pop-up

The Access Control pop-up will appear when the user clicks on the Commentor button. This allows the user to change the access of anyone to either a editor or viewer.

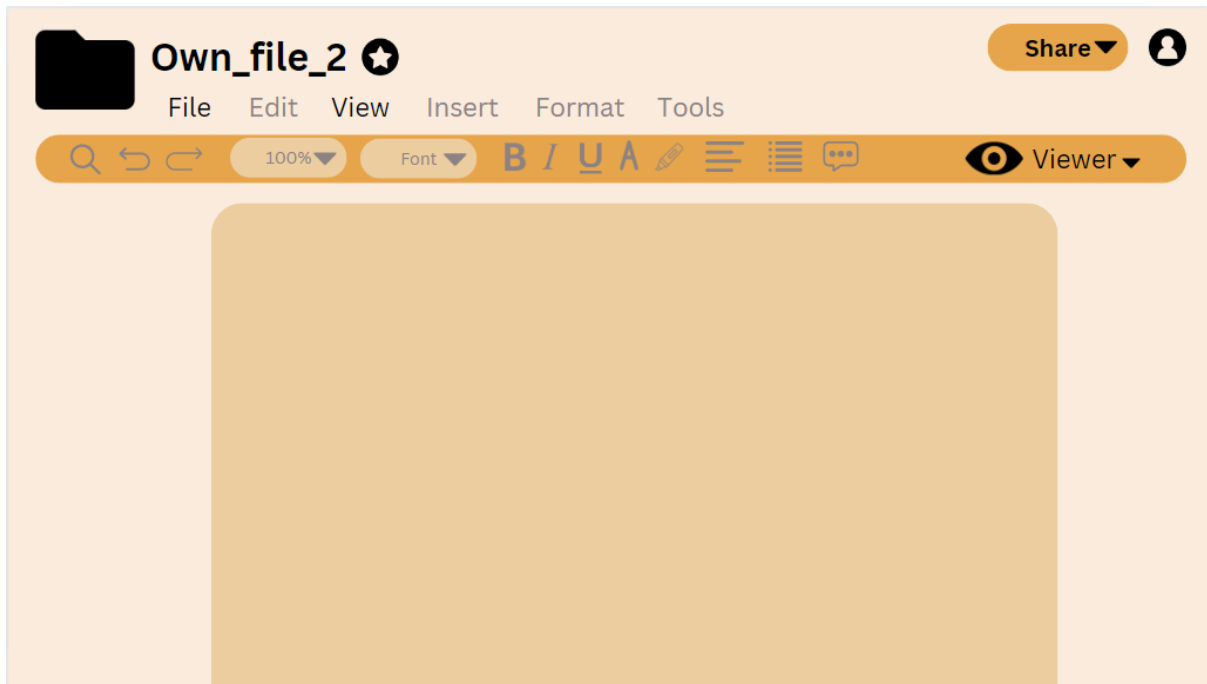


Figure 4.19 File - Viewer Access Page

This file (viewer access) page will appear when the user clicks on viewer button in the Access Control Pop-up. This means that anyone that has access to the file can only see the contents of the file. The buttons that they are unable to access will turn gray.

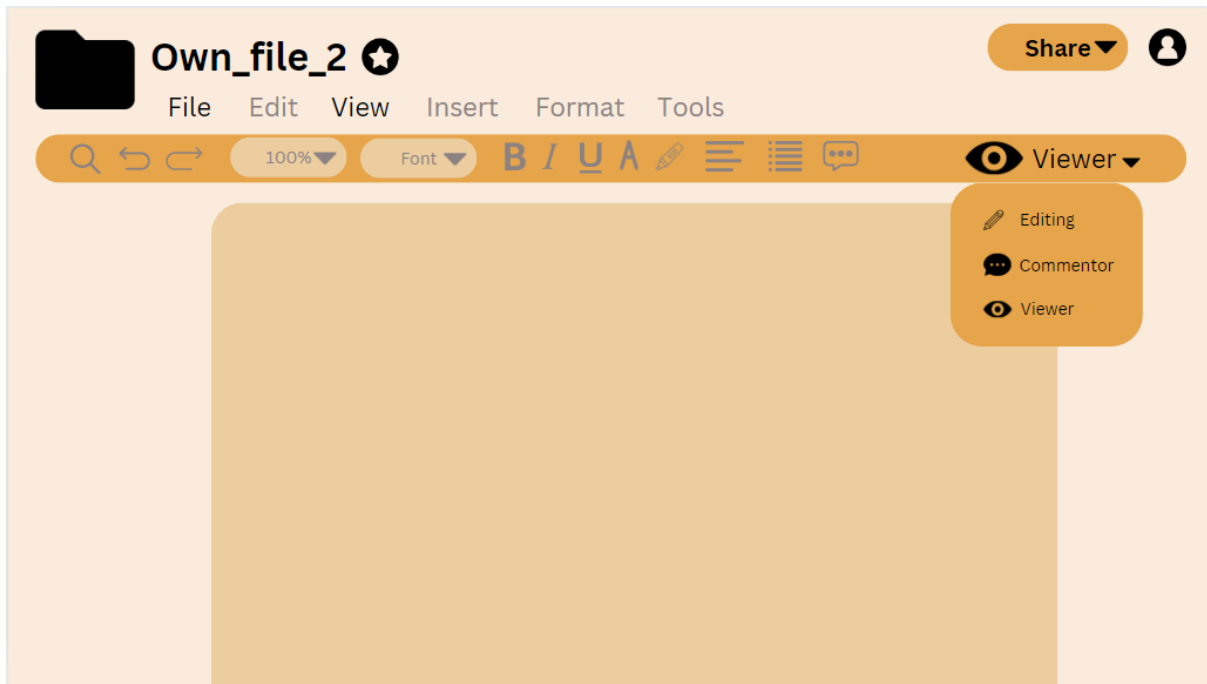


Figure 4.20 File - Viewer Access Pop-up

The Access Control pop-up will appear when the user clicks on the Viewer button. This allows the user to change the access of anyone to either an editor or commenter.

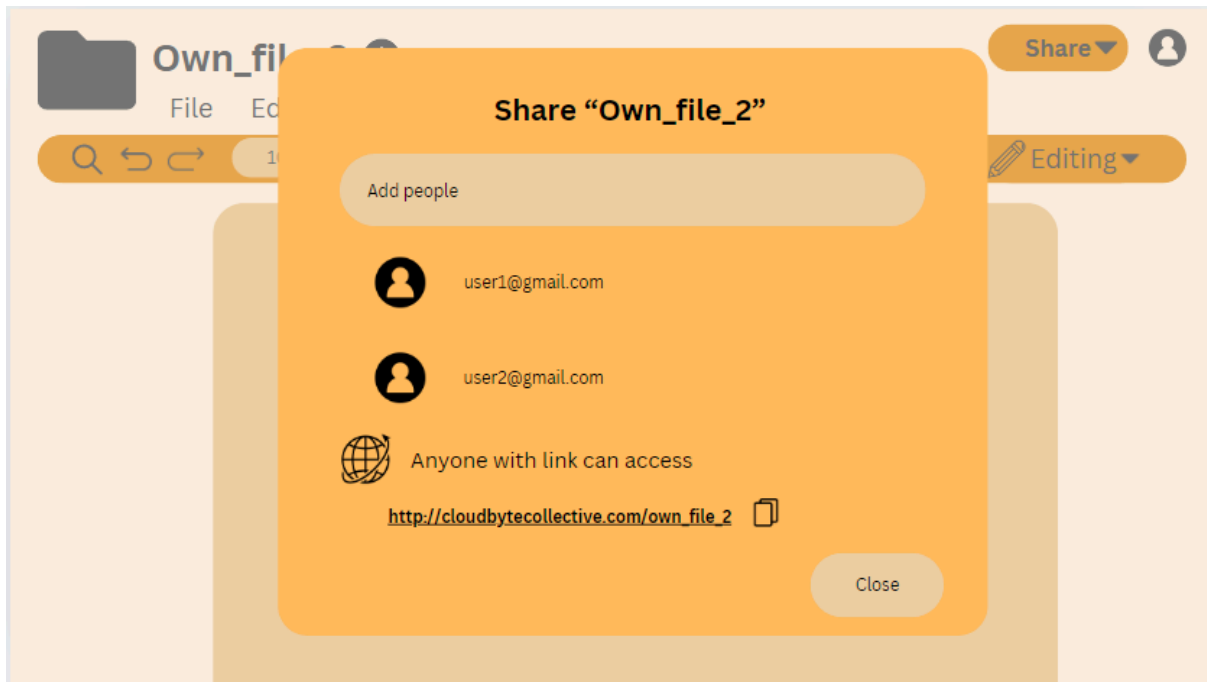


Figure 4.21 Share Pop-up

This Share pop-up page will appear when the user clicks on the share button. On this page, the user is allowed to add specific people to access the file or copy the link and share with other users by sending them the link on other communication platforms. The user can exit this pop-up just by clicking the close button.