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About Pigeon

The Team

Pigeon was created in 2022 as per requirement by the CS 414 System Design Class as a Capstone for graduating Information Systems and Cyber Security Majors. The team is comprised of Caleb Knapp the project manager, Himprawa Khattri the quality assurance engineer, Timothy De Jesus the database administrator, and Mason Phillips the cyber security specialist. Each member worked as their role and contributed to the programming and system design as well.


The Application

The name for pigeon came as an idea from the carrier pigeons of old used to deliver messages between two people. Just like the carrier pigeons could not be read as they flew through the air our app Pigeon was meant to be a secure messaging service for users to communicate securely.

Sign-Up, Sign-In, and Forgotten Passwords

Getting Started

To visit Pigeon, use the web address http://csmain/cs414/cs414_team2/index.aspx to get to the "Index" page where the user will have the option to log in using their account credentials, sign up for a new account, or if they have forgotten their password, they may use the "Forgot Password" link button to regain access to their account.



The logo features a stylized black outline of a pigeon's head and neck, facing right, with a blue circle behind it. Below the logo, the word "Pigeon" is written in a black, sans-serif font, with the letter "o" replaced by a blue circle.

Username

Password

[Sign In](#)


[Forgot Password](#)

— Or create an account —

[Sign Up](#)

Sign-Up

After selecting the “Sign Up” button the user will be taken to the sign-up page where they will be prompted to enter a username, email address, and password. Note that usernames may not include special characters or spaces and that usernames must be unique. Emails must also be unique and follow the format of emailname@students.pcci.edu or emailname@pcci.edu. The password must be entered twice to confirm it has been entered properly, it must be between eight to one hundred and twenty-eight characters long and may not include the “|” pipe symbol. Once these are all entered, and any errors have been corrected the user will be able to select the “Sign Up” button and they will be sent to the email confirmation page. Note that this page is accessed through the page extension “SignUp”. Users who have not confirmed their email will not be able to log in at this point but their account will have been created.



Username

Email

Password


Confirm Password

[Sign Up](#)

— Already have an account? —

[Sign In](#)

After completing the sign-up process, you will be immediately redirected to the email confirmation page where you will only need to enter the verification code to confirm your email and login.



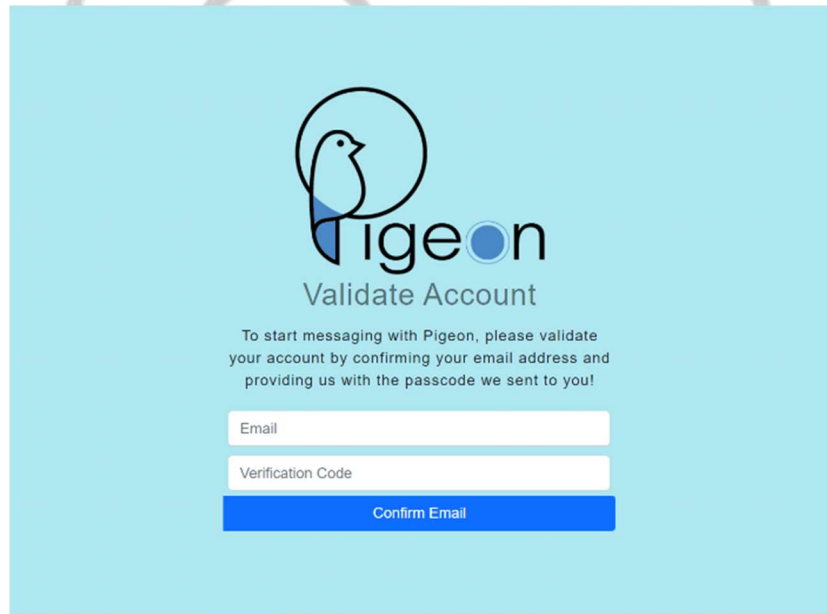
Validate Account

To start messaging with Pigeon, please validate your account by confirming your email address and providing us with the passcode we sent to you!

Verification Code

[Confirm Email](#)

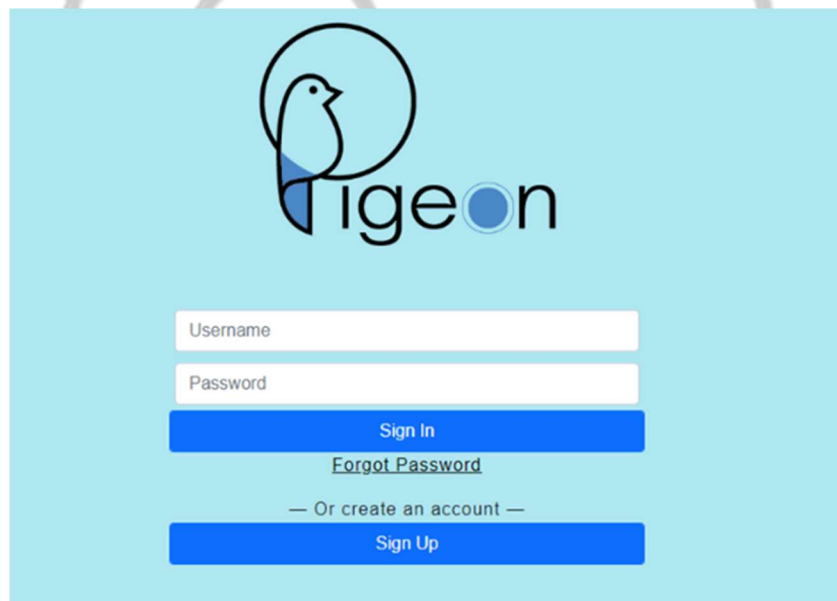
Once the user has verified their account they will be logged into the site and given access to the “Nest” page. Note that if a user exits the site and comes back to the “ConfirmEmail” page they will need to enter their email address along with the verification code.



The image shows a light blue rectangular form titled "Pigeon Validate Account". At the top center is the Pigeon logo, which consists of a stylized bird icon and the word "Pigeon". Below the logo, the text "Validate Account" is displayed. A paragraph of instructions follows: "To start messaging with Pigeon, please validate your account by confirming your email address and providing us with the passcode we sent to you!". Below this text are two input fields: "Email" and "Verification Code". At the bottom of the form is a blue button labeled "Confirm Email".

Sign-In

From the starting Pigeon page called “Index” the user will enter their username, their password, and select the “Sign In” button to login to their account.




The image shows a light blue rectangular form titled "Pigeon Sign-In". At the top center is the Pigeon logo. Below the logo are two input fields: "Username" and "Password". Below these fields is a blue button labeled "Sign In". Underneath the "Sign In" button is a link labeled "Forgot Password". Below the link is a separator line with the text "— Or create an account —". At the bottom of the form is a blue button labeled "Sign Up".

Forgotten Password

If a user is having difficulty remembering their password, they are to select the “Forgot Password” link text on the sign in page to reset their password. Note that a user is allowed five attempts to sign into their account before they will be locked out for fifteen minutes and may try five times again.

The user will need to use their email address and username selected at sign-up to begin this process. Once these fields are completed the user will need to select the “Send Code” button. If they enter a valid email and username combination the passcode to reset their password will be sent to the email used on sign-up. Note that the “Return to Login” button will be available for the user to allow them to return to the login page without resetting their password throughout this process. The page extension to get the forgot password page is “ForgotPassword”.



Forgot your Password?

Enter the email and username used at registration to receive a one use code to reset your account password.

Email


Username

[Send Code](#)

— Remember your password? —

[Return to Login](#)

Once you have received your code enter your new desired password, re-enter the desired password again to confirm nothing was mis-typed, and enter the passcode received via email. To finalize this information and login the user must select the "Submit Change" button. Not that if the user leaves the site between getting this confirmation code, they will need to resend the code again.



Forgot your Password?

Enter your New password, then confirm your new password, and enter the passcode sent to your email to reset your password to the new password.

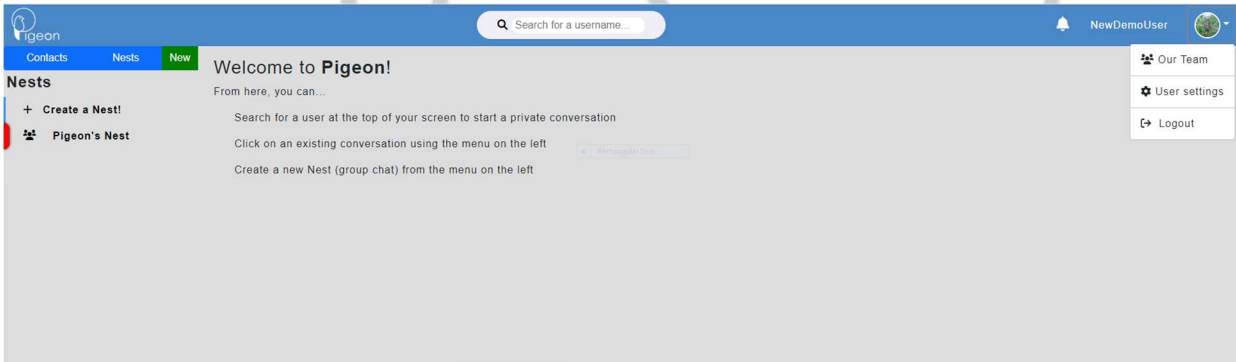
Submit Change

—Already remeber your password? —

Return to Login

User Settings

The user settings page is in the top right drop-down menu by the user's profile picture on the nest page. This page allows the user to change their password and change their profile picture to one of the predetermined pigeon images. This page also shows the user's pigeon points, which are a cool way of tracking how active you are. Note you get 3 pigeon points per message sent.

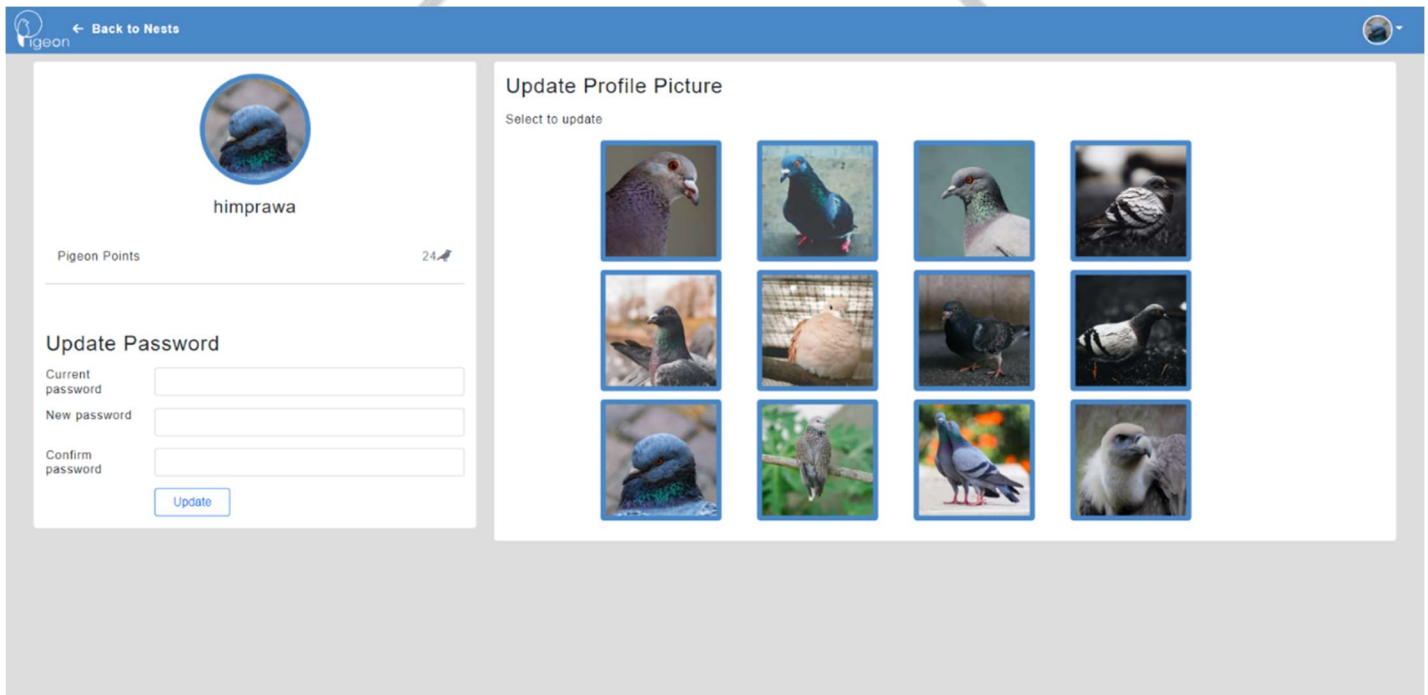


Updating User Passwords

To update a user's password, they must use the update password box on the user settings page. They will enter their current password, their new desired password, and their desired password again to confirm that what they typed in is correct.

Updating User Profile Pictures

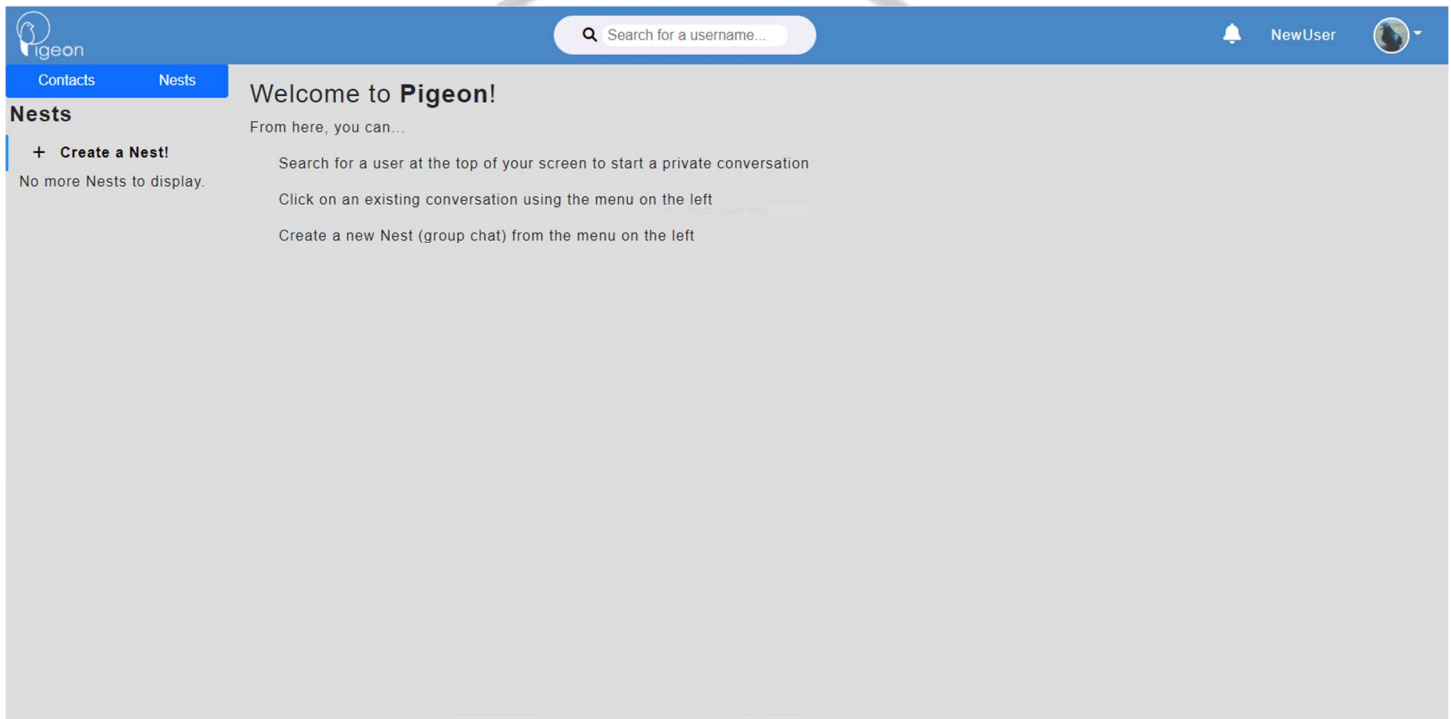
To update a user's profile picture the user will simply click on their desired image and the picture is automatically updated. The picture above their name in the top left will show this change.



Nest Page and Messaging

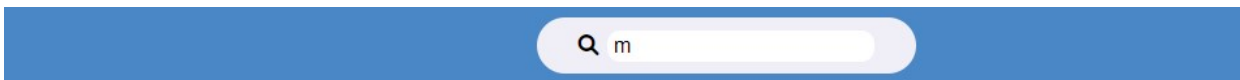
Private and Group Messaging

From user registration, a new user will be greeted by a nest page. This will be the page where all private and group messaging will be located. In pigeon we call these messaging groups nests.

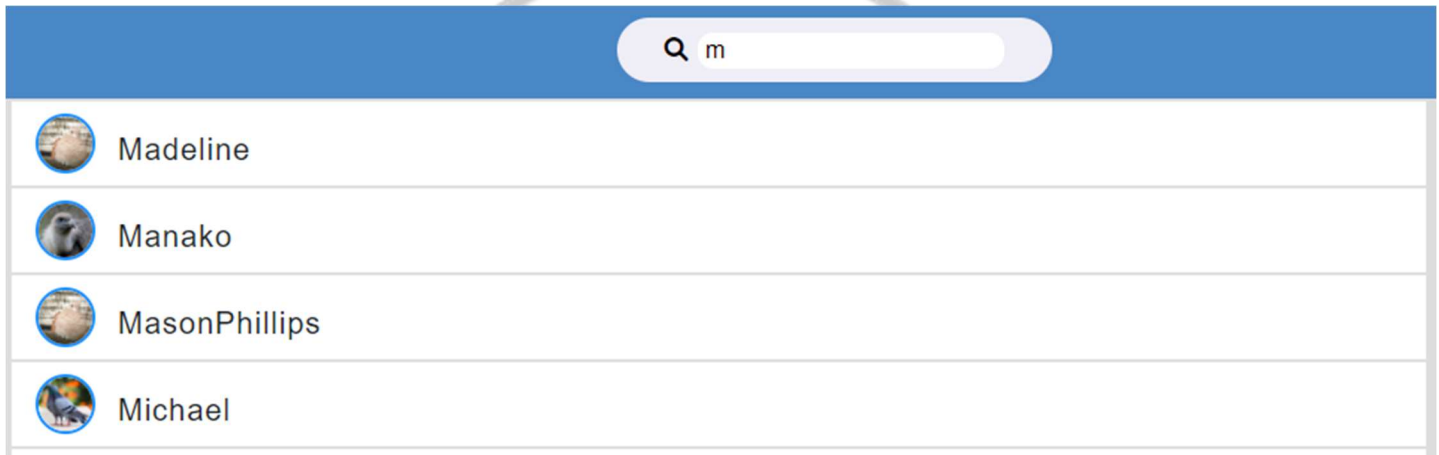


Private Nest

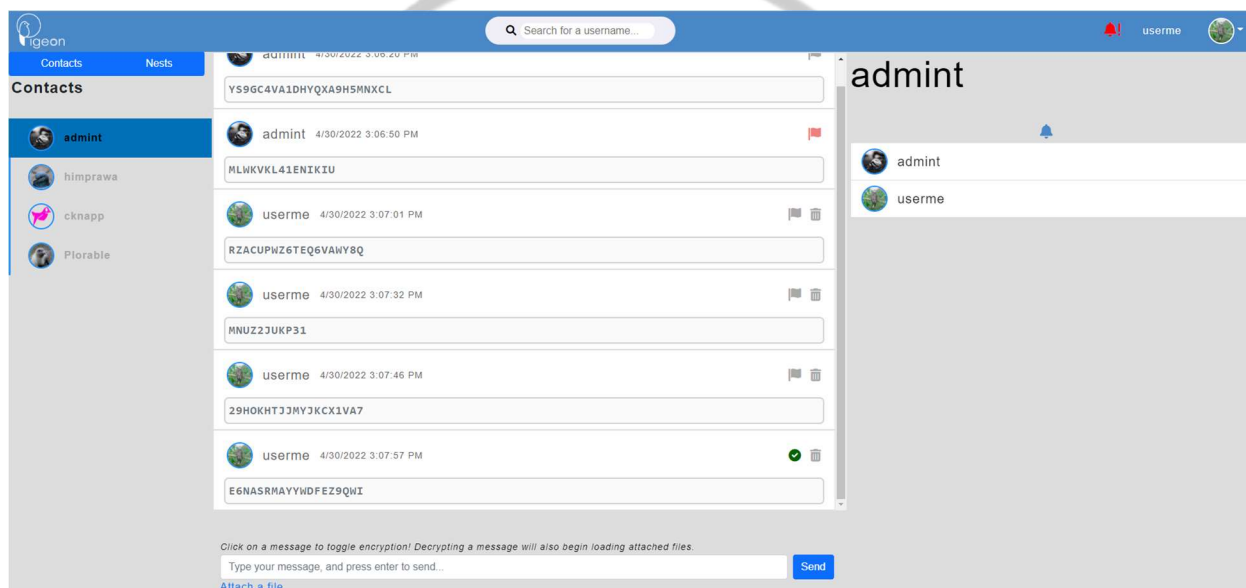
Private Messaging – Located under the “Contacts” tab, this will be where all messages between the users one on one will be located. To populate the contacts tab, the user will use the search bar located in the top middle of the nest page and enter the name of the user they wish to message. Note that this can only be done once if you want another private message between that user you will need to create a group messaging nest.



Users may search either partial usernames or the whole username to find the user they wish to message. Once the user hits enter on the search, a box will populate with all matching usernames. Simple select one user to open a private messaging nest between the users.



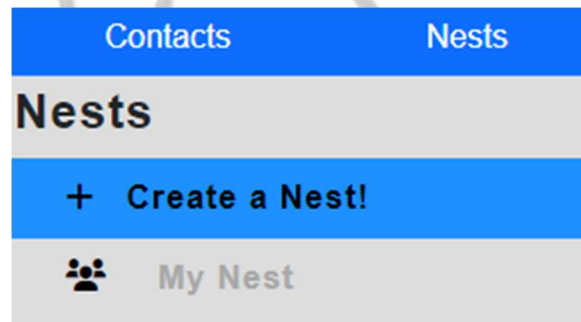
The private messaging will show the name of the user you are messaging in the contacts tab and in the top right above the usernames once the private messaging has been selected from the contacts tab.



Private nests have most of the functionality of a group nest, but users cannot be added to this type of messaging group, users cannot be kicked, and no local admin can be created in this group chat. If a user wishes to report a message, delete their own message or mute the conversation these features are available in this group type.

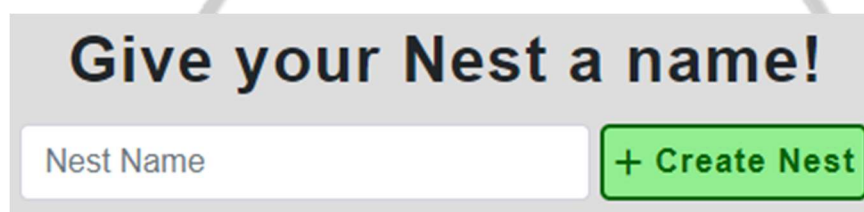
Group Nest

Group Messaging – Located under the “Nests” tab, this will be where all messages with one to many will be located. To populate the group nests a user can either accept a group invitation they have been sent or they may create a new nest of their own. To begin this process, click the “+ Create a Nest!” button under the nests tab.



After clicking create a nest the user will be able to enter a name for their nest and click the “+ Create Nest” button to finalize their nest creation and name selection. Note that user’s will only be able to create a total of five nests. Once they have reached this limit,

they will need to delete one of their previous nests to create another. This limit does not apply to joining nests.



Group Nests: Roles and Controls

Nest Creators – This user will be highlighted in a blue box with the title “Nest Creator” inside of the right nest member list when inside of a group nest. These users will have access to a variety of controls to manage their nest. Including inviting users, promoting users to local admin, removing users, deleting the nest, muting the nest, and deleting user messages.

Local Admins – This user will be highlighted in a blue box with the title “Admin” inside of the right nest member list when inside of a group nest. Only nest creators and system admins can promote a user to local admin in a group nest. These users will have access to a variety of controls to manage a nest. Including inviting users, removing users, leaving the nest, muting the nest, and deleting user messages. Note this role is not a system admin, system admins are discussed later in the document under admin features.

Default User Role – These users will not be highlighted in the members list in a group nest. This role is assigned to any user when they are invited to a group. They are only able to delete their own messages, flag other user messages, mute the nest and leave a nest.

User Role Icons



Nest creators are identified by this icon within a group nest.



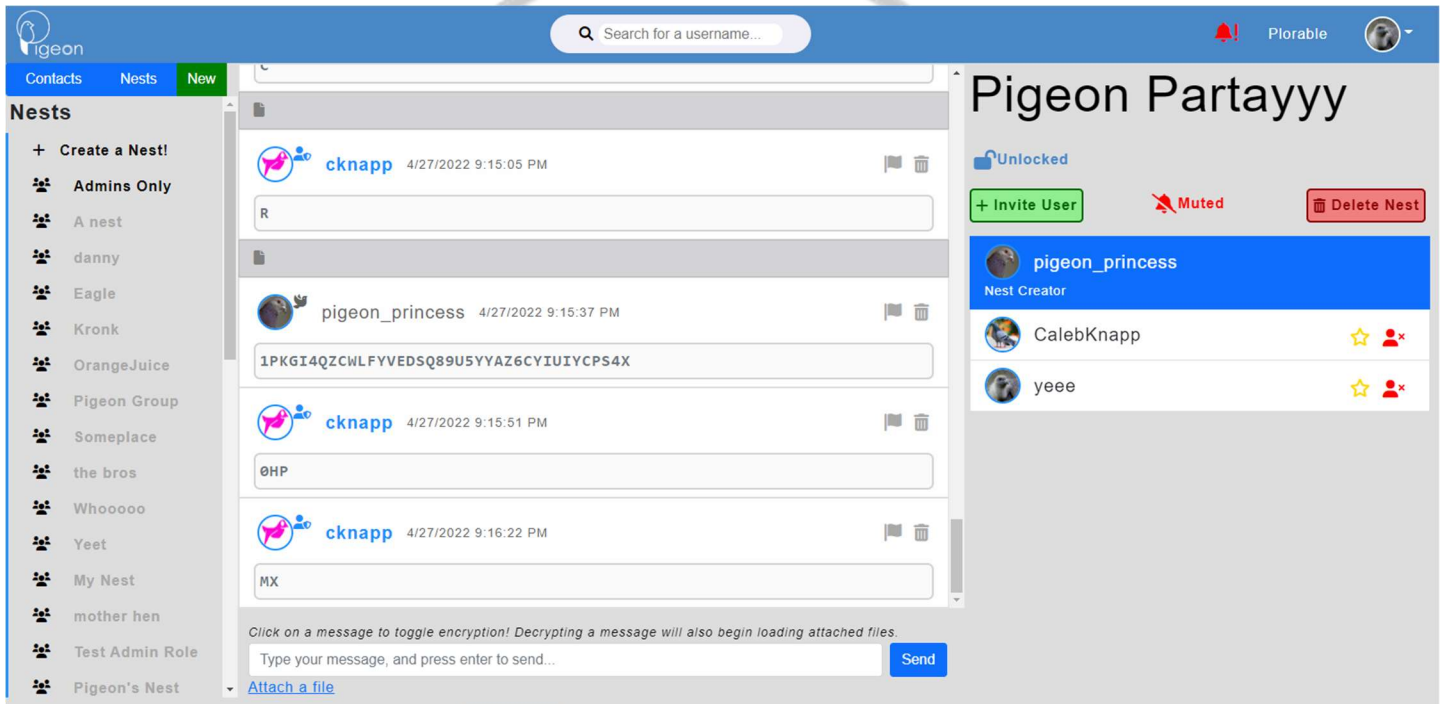
Local admins are identified by this icon within a group nest.



System admins are identified by this icon within a group and do not appear as members in the members panel of the group.



Default users are identified by no icon within a group nest.



Nest Buttons

These buttons will be located above the members' list panel to the right of any nest. Some will be only available to certain user types and group nests.



Allows the creator, local admin, or system admin to invite a user to their group.



Allows the creator or system admin to promote a user to be a local admin. (see admin features for more information)



Allows the creator, local admin, or system admin to remove a user from their group.



Allows the creator or system admin to delete the nest.



Allows the local admin or a default user to leave the nest.



Within nests both private and groups, any user type can mute the conversation.



When the nest is muted, the user will not be notified of any new activity.

Message Buttons

These buttons will appear on messages sent within a nest.



Any user can report any messages once. This will give a message one flag and will be sent to the admin dashboard to be reviewed. Once a message is flagged twice or if it has been flagged by an admin the message will not appear in the group or private message.



When a message has been flagged by the logged in user the flag color will turn red for that user to show that they have reported it.



When the message has been approved by a system admin the flag will be replaced by a green check mark and will no longer be available for reporting. At this point the message has been deemed okay to remain on the site and will need to be deleted by an admin, the user that sent it, or a nest creator to be removed. If a system admin deems the message inappropriate that message will be removed from the private or group nest permanently.



A nest creator and local admin can delete any user and local admin's message, and any user can delete their own message.

Inviting Users


When the invite user button is selected the user will be brought to a search like the one for making a private message. Just like that search partial or full usernames can be used to search and all matching usernames will be displayed.

Enter a username to invite

Clicking on a user in the list will send them an invitation to the group.

Enter a username to invite

An invite has been sent to mstemem!

	Michael
	Madeline

Sending Messages

Click on a message to toggle encryption! Decrypting a message will also begin loading attached files.

Type your message, and press enter to send...

Send

[Attach a file](#)

Messages can be sent with only text or with a file attached. To attach a file the user must select the “[Attach a file](#)” link button and then the “Choose File” button to choose which file they would like to send from their file directory. Note that to send a file the user must include text in the text box to send with the file. Only permitted file types of the following may be sent: .txt, .pdf, .doc, .docx, .jpg, .png, .jpeg, .webp, and .jif. All messages sent by default user roles will need to have files approved. The max file size limit is one megabyte.

Your message will be hidden until a system administrator has reviewed and approved the file.

A message must be sent with a file

Send

File size limit: 1MB No file chosen

[Cancel](#)



Messages with a file have this icon attached to them and the file will be displayed once the encryption text has been toggled off.



MasonPhillips 4/30/2022 3:51:12 PM



220XZR7MTMX1FFLYX2BUSICXIIA8D4BLVPIIB0T2UFIR4V336FWVB



All messages will be obfuscated by cipher text to act as a shoulder surfing protection. Once the cypher text box has been clicked the text will be displayed along with any files attached to that message. Once the “ClassWork.docx” link button has been selected the file will be downloaded in the user’s browser.



Plorable 5/1/2022 9:51:45 PM



This document is very important please read!

[ClassWork.docx](#)

Messages with images attached can be downloaded but will also be displayed in the browser without downloading the image.



Notifications

When a user has a notification for either a nest invite, a message being reported or the outcome of a reported message. The bell icon at the top left of the nest icon will be colored red with an exclamation point.



No new notifications

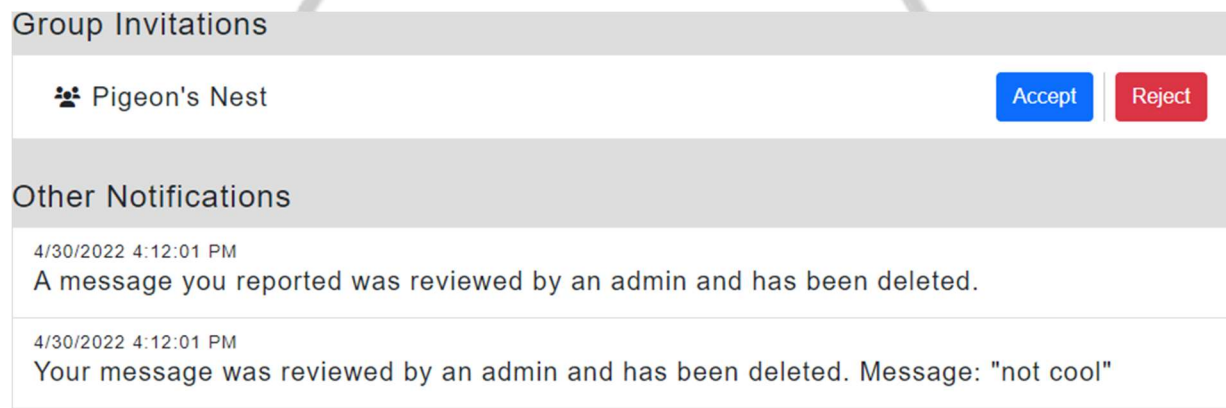


New unread notifications

Clicking the notification bell will display all notifications and clear the red coloring from the bell.

In the notification page, users can see their group invitations and users can either accept or reject these invitations.

Below “Group Invitations”, is “Other Notifications” which details the users’ flagged messages either their own or somebody that the user reported.



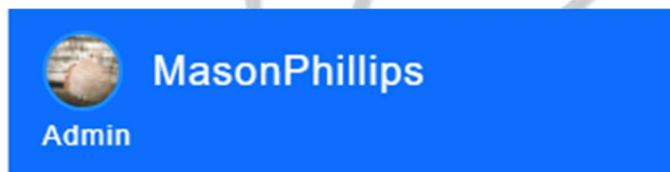
When a user has activity in a private or group nest the “New” tab will appear in the top left of the nest page by the “Contacts” and “Nests” tabs. This tab can also be selected and will combine all new activity from both nests and contacts in the panel beneath the tabs.



Administrative Features

Nest Page View

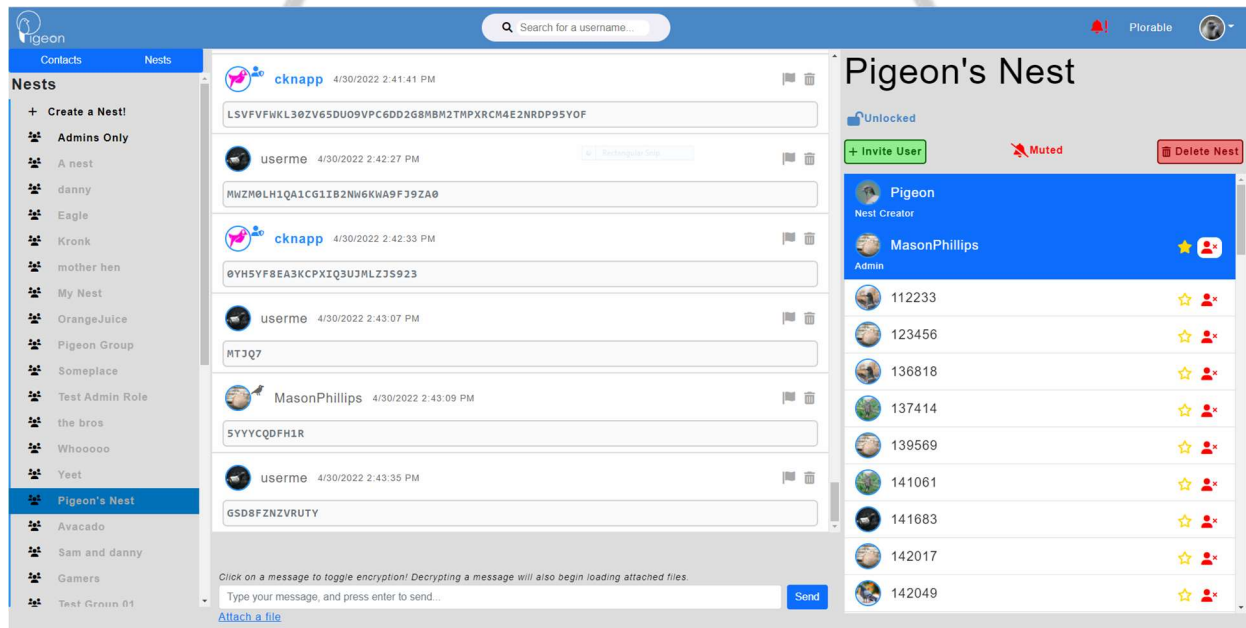
On the nest page there are two different admin types.



Local Group Admins – This admin type can be assigned to any user by either a nest creator or a system admin and will be highlighted blue with an admin tag inside of a nest. The local admins can use administrative features within a group which are kicking users, inviting users and deleting messages.

System Admins – This admin type has full access to the administrative suite within a nest which includes adding new users, removing users, locking nests, deleting nests, deleting messages, and promoting users to local admin. This admin

does not appear in any nest as a user and is included in every nest that is created. System admins are also hidden in private messages as well, but these chats will not show up for system admins in their nests on the nest page.



Used to add users to a nest as an admin.



Used to delete a nest as an admin.



Used to unlock and lock nest as an admin.



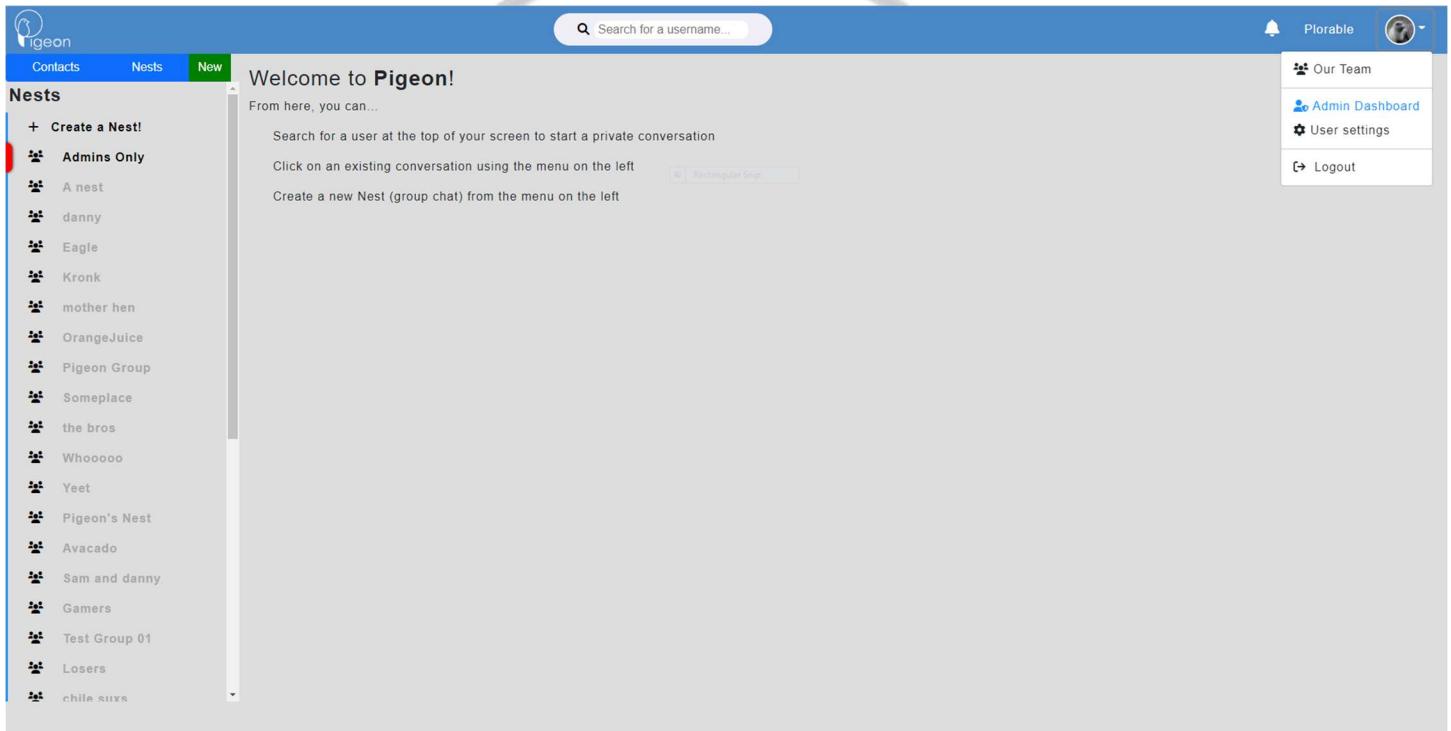
Used to delete messages in a group as an admin.



Used to kick users from a group as an admin.

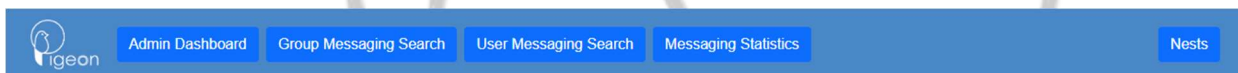


Used to promote users in a group as an admin or nest creator.



Administrative Page

From the nest page access to the admin dashboard is available through the user account drop-down in the top left of the page. Using the Admin Dashboard link button, you will be taken to the administrative page dashboard. The admin page view can be changed by using the banner at the top of the page. Note that this page is only available to logged in system administrators.



Admin Dashboard – contains all users and all flagged messages pending review.

Group Messaging Search – allows admins to search for a specific group to view messages and members in that group.

User Messaging Search – allows admins to search for a user and view all messages they've sent and which groups they are a part of.

Messaging Statistics – allows admins to run statistics on different time periods to get message counts and activity.

Nests – Allows admins to quickly navigate back to the main Nest page of the site.



Admin Dashboard View

The screenshot displays the Admin Dashboard interface. At the top, a blue navigation bar contains the 'Nest' logo and several menu items: 'Admin Dashboard', 'Group Messaging Search', 'User Messaging Search', 'Messaging Statistics', and 'Nests'. The main content area is divided into two panels. The left panel, titled 'Flagged Messages', lists three flagged messages with their sender names, timestamps, and 'Approve'/'Delete' buttons. The right panel, titled 'All Users', displays a list of users with their names, user IDs, email addresses, and 'UnBan' buttons.

Flagged Messages			
adminit	4/30/2022 3:06:50 PM	Approve	Delete
.....			
userme	4/30/2022 3:07:57 PM	Approve	Delete
until scroll pop up			
MasonPhillips	4/30/2022 3:51:43 PM	Approve	Delete
Hi admins please approve my file quickly, it's urgent!			
BigBirdPicture.jpg			

All Users			
AnneFrank	User Id: 417		UnBan
[redacted]@students.pcci.edu			
Report Count 2			
Manako	User Id: 458		UnBan
[redacted]@students.pcci.edu			
Report Count 2			
elijah	User Id: 416		UnBan
[redacted]@students.pcci.edu			
Report Count 2			
notCaleb	User Id: 442		UnBan
[redacted]@students.pcci.edu			
Report Count 2			
AlphaGameKnight	User Id: 485		UnBan
[redacted]@students.pcci.edu			
Report Count 1			
chocolate	User Id: 492		UnBan
chocolate@pcci.edu			
Report Count 1			
	User Id: 493		UnBan

From admin dashboard system admins will be able to approve or delete user flagged messages. All user's will also be viewable on this page where a system admin can look through users sorted by their report count and ban status to ban or unban them. This will also include basic information to use to further research the users accounts including usernames, id numbers and email addresses.

Users that have been banned are highlighted in a red orange box with a blue unban button.

JSparks
User Id: 505
██████████@faculty.pcci.edu
Report Count 9999

UnBan

Users that have not been banned are not highlighted in their box and have a red ban button.

cknapp
User Id: 3
██████████@students.pcci.edu
Report Count 5

Ban

Flagged messages that come up in the flagged messages column will not be obfuscated for shoulder surfing protection and will include any download files as well as the message text. All messages sent by default user accounts with files attached will be flagged to be reviewed on the admin dashboard.

MasonPhillips

4/30/2022 3:51:43 PM

Approve

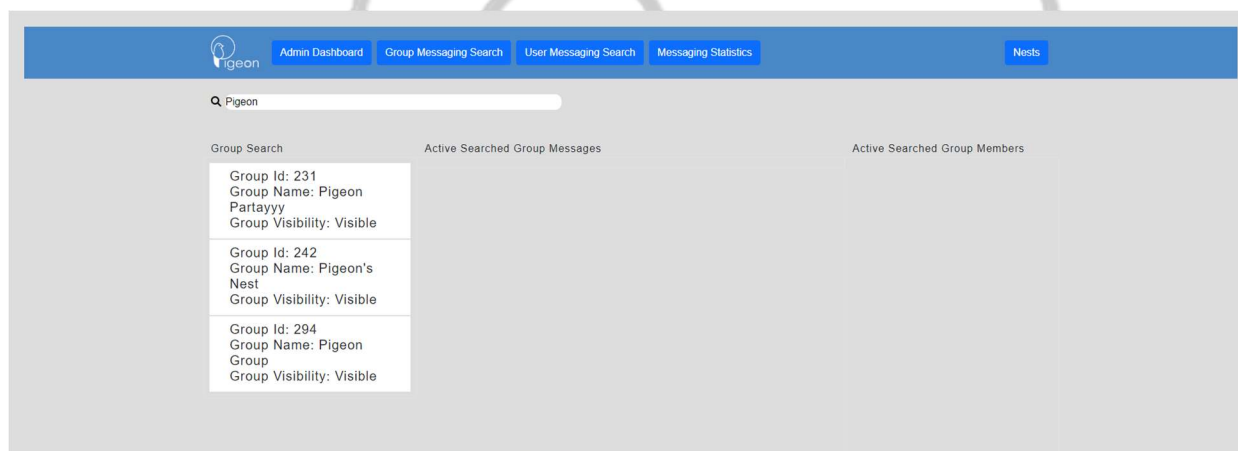
Delete

Hi admins please approve my file quickly, it's urgent!

[BigBirdPicture.jfif](#)

Group Messaging Search View

The group messaging search page view will allow admins to search for a group by id or by name to view the messages in that group and its users.



Once a name or id has been searched all matching groups ids will displayed in the “Group Search” column. This column displays the group name, id, and whether that group is deleted or visible. One of these groups can be selected and the “Active

Searched Group Messages” will populate with the messages in the selected group and the “Active Searched Group Members” will populate with the members in the selected group with their user roles and id number.

Admins will also be able to delete messages in the Messages column and ban or unban users in the Members column. Note that messages without a delete button have already been deleted and will show up in this search despite not appearing on the nest view on the main nest page.

Group Search

Group Id: 231 Group Name: Pigeon Partayyy Group Visibility: Visible
Group Id: 242 Group Name: Pigeon's Nest Group Visibility: Visible
Group Id: 294 Group Name: Pigeon Group Group Visibility: Visible

Active Searched Group Messages

cknapp	4/27/2022 9:33:55 PM	
Welcome to Pigeon's Nest!		
Pigeon	4/27/2022 9:34:15 PM	Delete
Welcome to Pigeon!		
Pigeon	4/27/2022 9:34:16 PM	Delete
I am Pigeon!		
Pigeon	4/27/2022 9:34:21 PM	Delete
:D		

Active Searched Group Members

Pigeon Nest Creator User Id: 403	Ban
MasonPhillips Admin User Id: 388	Ban
112233 User Id: 465	Ban
123456 User Id: 462	Ban
136818 User Id: 496	Ban
137414 User Id: 414	Ban
139569 User Id: 480	Ban

User Messaging Search View

The group messaging search page view will allow admins to search for a user by name. This allows admins to view all the messages they have sent and which groups they are members of.

User Search

User Id: 467 User Name: Papercrane
User Id: 466 User Name: Penny
User Id: 434 User Name: PersonNumber1
User Id: 403 User Name: Pigeon
User Id: 475 User Name: Pigeon1234
User Id: 62 User Name: Plorable
User Id: 396 User Name:

Active Searched User Messages

Active Searched User Groups

Once a name has been searched all matching usernames will be displayed in the “User Search” column. This column displays the usernames and ids. One of these users can be selected and the “Active Searched User Messages” will populate with the messages the selected user has sent since account creation and the “Active Searched User Groups” will populate with the user’s groups that they are a member of with their names and id number.

The message column will display the group name where the message was sent, the group id, and the date that the message was sent. Admins will also be able to delete messages in the Messages column. Note that messages without a delete button have already been deleted and will show up in this search despite not appearing on the nest view on the main nest page.

The screenshot displays the Pigeon Admin Dashboard with the following sections:

- Navigation Bar:** Includes the Pigeon logo and links for Admin Dashboard, Group Messaging Search, User Messaging Search, Messaging Statistics, and Nests.
- Search Bar:** A search input field with the letter 'p' entered.
- User Search:** A list of users found by the search:

User Id: 467	User Name: Papercrane
User Id: 466	User Name: Penny
User Id: 434	User Name: PersonNumber1
User Id: 403	User Name: Pigeon
User Id: 475	User Name: Pigeon1234
User Id: 62	User Name: Plorable
User Id: 396	User Name: [truncated]
- Active Searched User Messages:** A list of messages sent by the selected user (Pigeon):

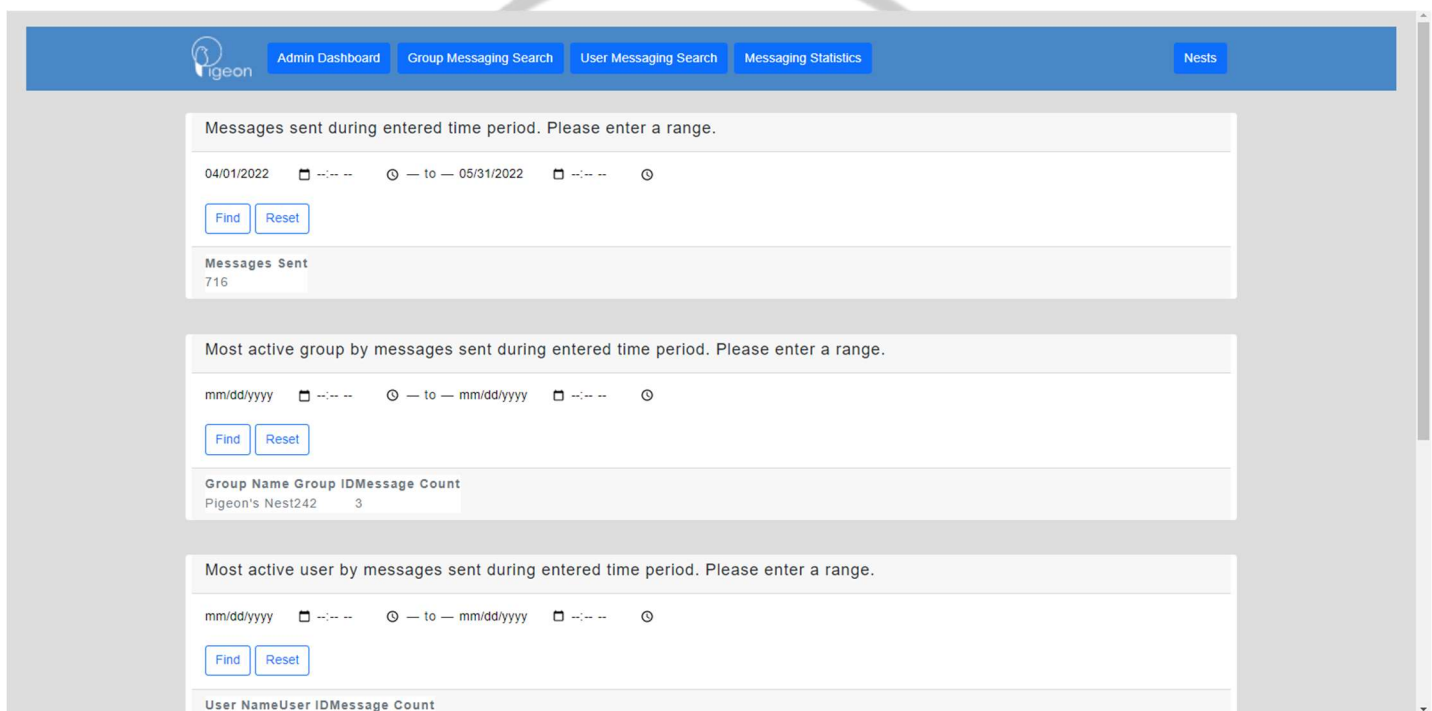
	Pigeon's Nest [242]	Pigeon	4/27/2022 9:34:15 PM	Delete
Welcome to Pigeon!				
	Pigeon's Nest [242]	Pigeon	4/27/2022 9:34:18 PM	Delete
I am Pigeon!				
	Pigeon's Nest [242]	Pigeon	4/27/2022 9:34:21 PM	Delete
:D				
	497 -> 403 [331]	Pigeon	4/29/2022 8:39:10 PM	
coo coo				
- Active Searched User Groups:** A list of groups the user is a member of:


Pigeon's Nest	242
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Messaging Statistics View

This statistical page of the admin page will allow admins to quickly view message counts in a time frame, most active user with message count in a time frame, most active group with message count in a time frame, message count in a time frame for a specific user, and message count for a specific group in a time frame.

To view the statistics select the start date and time and end date and time. Click Find to view result. You can clear the selected date and time by clicking Reset button, while keeping the results.




[Admin Dashboard](#)
[Group Messaging Search](#)
[User Messaging Search](#)
[Messaging Statistics](#)
[Nests](#)

Messages sent during entered time period. Please enter a range.

04/01/2022 -- 05/31/2022 --

Messages Sent
716

Most active group by messages sent during entered time period. Please enter a range.

mm/dd/yyyy -- mm/dd/yyyy --

Group Name	Group ID	Message Count
Pigeon's Nest	242	3

Most active user by messages sent during entered time period. Please enter a range.

mm/dd/yyyy -- mm/dd/yyyy --

User Name	User ID	Message Count
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