

SCRATCH POST

Web Project Document

University of British Columbia – Okanagan Campus

COSC 360 – Web Development – 2020W Term 2

Professor: Dr. Mohamed Sheheta

Jonathan Gresl



Table of Contents

| | | |
|----------|--|-----------|
| 1 | Project Description | 3 |
| 1.1 | Mission Statement | 3 |
| 1.2 | Limitations..... | 3 |
| 2 | Development..... | 4 |
| 2.1 | Implemented Features..... | 4 |
| 2.2 | Layout and Design | 5 |
| 2.3 | Color Scheme | 5 |
| 3 | Client-side Experience..... | 6 |
| 3.1 | Site Map | 6 |
| 3.2 | User Engagement | 6 |
| 4 | Server-side Implementation..... | 7 |
| 4.1 | Relational Schema DDL | 7 |
| 4.2 | Entity Relationship Diagram..... | 8 |
| 5 | User Walkthrough | 8 |
| 5.1 | Web Access | 8 |
| 5.2 | Default User Accounts..... | 8 |
| 5.3 | Non-registered User Pages..... | 9 |
| 5.4 | Registered User Pages..... | 11 |
| 5.5 | Administrator Pages | 13 |
| 6 | Evaluation | 15 |
| 6.1 | Core Functionality | 15 |
| 6.2 | Additional Functionality | 16 |
| 6.3 | Documentation | 16 |
| 6.4 | Project Code | 16 |



1 Project Description

1.1 Mission Statement

Our vision is to provide cat lovers all over the world with a the most popular place to talk about cats; to build a web-based discussion forum where cat-lovers can engage in on-line discussions and view media related to these magnificent creatures. Non-registered users should be able to view, but not modify, the content. Registered users should be able to post questions, answers, photos, and videos – as well as manage their accounts. The system should also provide administrative functions for managing discussions, uploaded media, and users. We also aspire to provide reporting capabilities that will help report viewers make informed decisions.

1.2 Limitations

- The website is hosted on a personal home server. As there is no scratchpost domain name for the URL, the site must be accessed using an IP address that may change in the future.
- The User table has attributes for the user's first and last logins. These dates are assigned the current date and time as defaults during user registration. The intention is for these dates to be updated when the user logs in and logs out so that further analysis can be done on the user activity. Currently, these dates are not updated.
- When a user is disabled, they will not be permitted to log in to the site. If the user is already logged in, they will have access to the site until trying to log back in.
- When a user is granted administrative privileges, they will have to log out and log back in to be able to use the administrative functions.
- The email recovery works during local host development. The email recovery is not setup on the server hosting the productions site.
- Images are stored in the database as binary large object files. All images types are permitted during upload; however, some images will not upload properly. May be related to file size.
- Hot item tracking is implemented by the count of post scratches. Each user may only scratch a post once. The sorting buttons at the top of the main page do not currently sort the posts.



2 Development

2.1 Implemented Features

| | Non-registered | Registered | Administrator |
|---|----------------|------------|---------------|
| General Design | | | |
| Page header with contextual menus | N/A | N/A | N/A |
| Two column layout | N/A | N/A | N/A |
| Responsive design (medium, large) | N/A | N/A | N/A |
| Collapsible items without page reload | N/A | N/A | N/A |
| Database | | | |
| Data storage in MySQL | N/A | N/A | N/A |
| Server-side scripting using PHP | N/A | N/A | N/A |
| Store user profile images | N/A | N/A | N/A |
| Store discussion photos | N/A | N/A | N/A |
| Validation and Security | | | |
| Form validation using JavaScript | N/A | N/A | N/A |
| Appropriate data security | N/A | N/A | N/A |
| Appropriate error handling | N/A | N/A | N/A |
| Self-signed SSL certificate | N/A | N/A | N/A |
| Hosting | | | |
| Access site on external server | ✓ | ✓ | ✓ |
| Discussions | | | |
| Browse discussions | ✓ | ✓ | ✓ |
| Sort discussions by date or popularity | ✓ | ✓ | ✓ |
| Search for discussions by keyword | ✓ | ✓ | ✓ |
| Create new post | | ✓ | ✓ |
| Modify existing discussion | | ✓ | ✓ |
| Comment on existing posts | | ✓ | ✓ |
| User Accounts and Login | | | |
| Create new account | ✓ | | |
| Login to existing account | ✓ | | |
| Sign out of currently logged in account | | ✓ | ✓ |
| Maintain user state | | ✓ | ✓ |
| View or update profile information | | ✓ | ✓ |
| Upload profile picture | | ✓ | ✓ |
| Password recovery through email | | ✓ | ✓ |
| Administrator Portal | | | |
| List all users | | | ✓ |
| Search users by name, email, or post | | | ✓ |
| Enable and disable users | | | ✓ |
| Edit or remove discussions and media | | | ✓ |
| Database restore with SQL script | | | ✓ |
| View reports and charts on usage activity | | | ✓ |



2.2 Layout and Design



- The website has a two column layout using flexbox to create a responsive design between medium and large screens.
- The header is created in a separate PHP file so that it can be displayed on each page and modified for all pages at once.
- Each main PHP page is in the root directory. PHP processes are in the includes folder. SQL queries are in the sql folder. Javascript is in the js folder.
- The admin portal has several helper files in the includes folder which generate the content for the second column based on the link selected from the first column.

2.3 Color Scheme

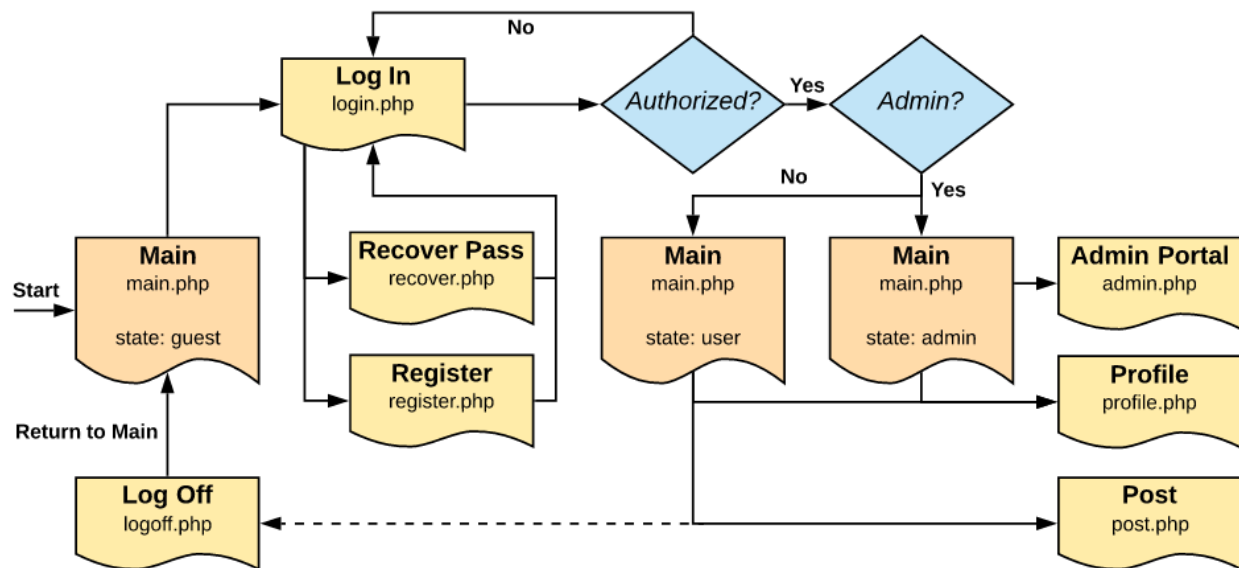
The website uses an *adjacent color scheme* created on paletton.com:

| | | | | | |
|----------------------|--------------------------------|--------------------------------|--------------------------------|--------------------------------|--------------------------------|
| Primary color: | <div>#FFAA63 #FFAA63</div> | <div>#FF9339 #FF9339</div> | <div>#FF7400 #FF7400</div> | <div>#C55900 #C55900</div> | <div>#9B4600 #9B4600</div> |
| Secondary color (1): | <div>#FFCB63 #FFCB63</div> | <div>#FFBD39 #FFBD39</div> | <div>#FFAA00 #FFAA00</div> | <div>#C58300 #C58300</div> | <div>#9B6700 #9B6700</div> |
| Secondary color (2): | <div>#FF6363 #FF6363</div> | <div>#FF3939 #FF3939</div> | <div>#FF0000 #FF0000</div> | <div>#C50000 #C50000</div> | <div>#9B0000 #9B0000</div> |



3 Client-side Experience

3.1 Site Map



3.2 User Engagement

All site guests are automatically directed to the main page where they can view existing discussions. The newest discussions are displayed at the top of the feed by default. A guest can proceed to the registration page by clicking the [sign up](#) link in the top right hand corner. Following registration, the user is directed to the login page so they may immediately enjoy the benefits of being a registered user. From the login page, the user can log in to an existing account, or recover their password through email. A unique email address is used as the username for all accounts.

Once logged in as a registered user, the [log in](#) link and [sign up](#) link is replaced with the account username and core user functions are made available. Additional administrative functions are made available if the user has the administrator account type. Further, administrators are given access to a separate portal where more advanced administrative functions can be found.

At any time, a user can modify their account information – including their password – by hovering over their username and selecting the [my profile](#) link from the interactive drop down menu. From this page, the user can view all the posts that they have created with the option to delete them.

Alternatively, the user can logout by selecting the [log out](#) link from the drop down menu instead. After logging out, the user is returned to the main page in the initial guest state.



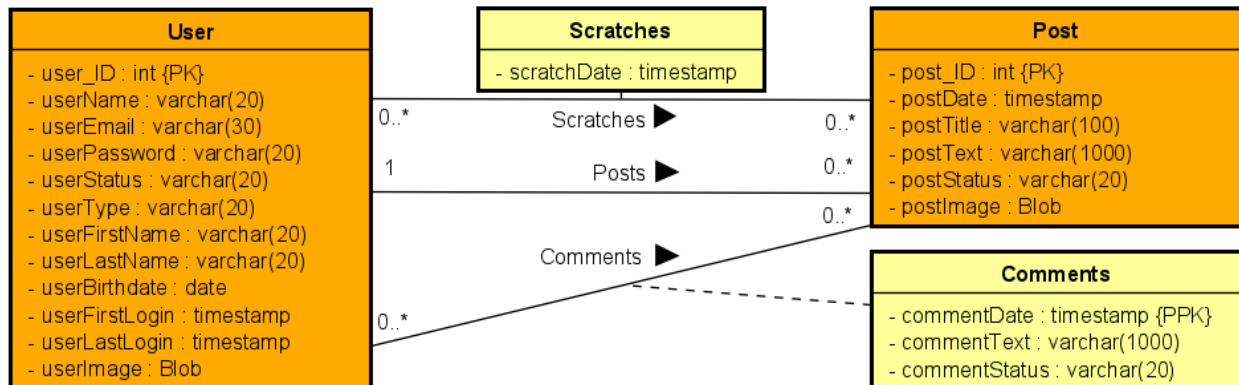
4 Server-side Implementation

4.1 Relational Schema DDL

```
CREATE TABLE User (  
    user_ID INT AUTO_INCREMENT,  
    userName VARCHAR(20) NOT NULL UNIQUE,  
    userEmail VARCHAR(30) NOT NULL UNIQUE,  
    userPassword VARCHAR(20) NOT NULL,  
    userStatus VARCHAR(20) NOT NULL DEFAULT 'Enabled',  
    userType VARCHAR(20) NOT NULL DEFAULT 'Basic',  
    userFirstName VARCHAR(20) NOT NULL,  
    userLastName VARCHAR(20) NOT NULL,  
    userBirthdate DATE NOT NULL,  
    userFirstLogin TIMESTAMP NOT NULL DEFAULT NOW(),  
    userLastLogin TIMESTAMP NOT NULL DEFAULT NOW(),  
    userImage BLOB,  
    PRIMARY KEY (user_ID)  
);  
  
CREATE TABLE Post (  
    post_ID INT AUTO_INCREMENT,  
    postDate TIMESTAMP DEFAULT NOW(),  
    postTitle VARCHAR(100) NOT NULL,  
    postText VARCHAR(1000),  
    postStatus VARCHAR(20) DEFAULT 'Enabled',  
    postImage BLOB,  
    user_ID INT NOT NULL,  
    PRIMARY KEY (post_ID),  
    FOREIGN KEY (user_ID) REFERENCES User(user_ID) ON DELETE CASCADE ON UPDATE CASCADE  
);  
  
CREATE TABLE Comments (  
    user_ID INT,  
    post_ID INT,  
    commentText VARCHAR(1000),  
    commentDate TIMESTAMP DEFAULT NOW(),  
    commentStatus VARCHAR(20) DEFAULT 'Enabled',  
    PRIMARY KEY (user_ID, post_ID, commentDate),  
    FOREIGN KEY (user_ID) REFERENCES User(user_ID) ON DELETE NO ACTION ON UPDATE CASCADE,  
    FOREIGN KEY (post_ID) REFERENCES Post(post_ID) ON DELETE NO ACTION ON UPDATE CASCADE  
);  
  
CREATE TABLE Scratches (  
    user_ID INT,  
    post_ID INT,  
    scratchDate TIMESTAMP DEFAULT NOW(),  
    PRIMARY KEY (user_ID, post_ID),  
    FOREIGN KEY (user_ID) REFERENCES User(user_ID) ON DELETE NO ACTION ON UPDATE CASCADE,  
    FOREIGN KEY (post_ID) REFERENCES Post(post_ID) ON DELETE NO ACTION ON UPDATE CASCADE  
);
```



4.2 Entity Relationship Diagram



5 User Walkthrough

5.1 Web Access

The website is hosted on a *Raspberry Pi 4* web server that uses:

➔ Raspbian (Linux), Apache, MySQL, and PHP

<http://50.98.99.115:1337/cosc360/scratchpost/main.php>



5.2 Default User Accounts

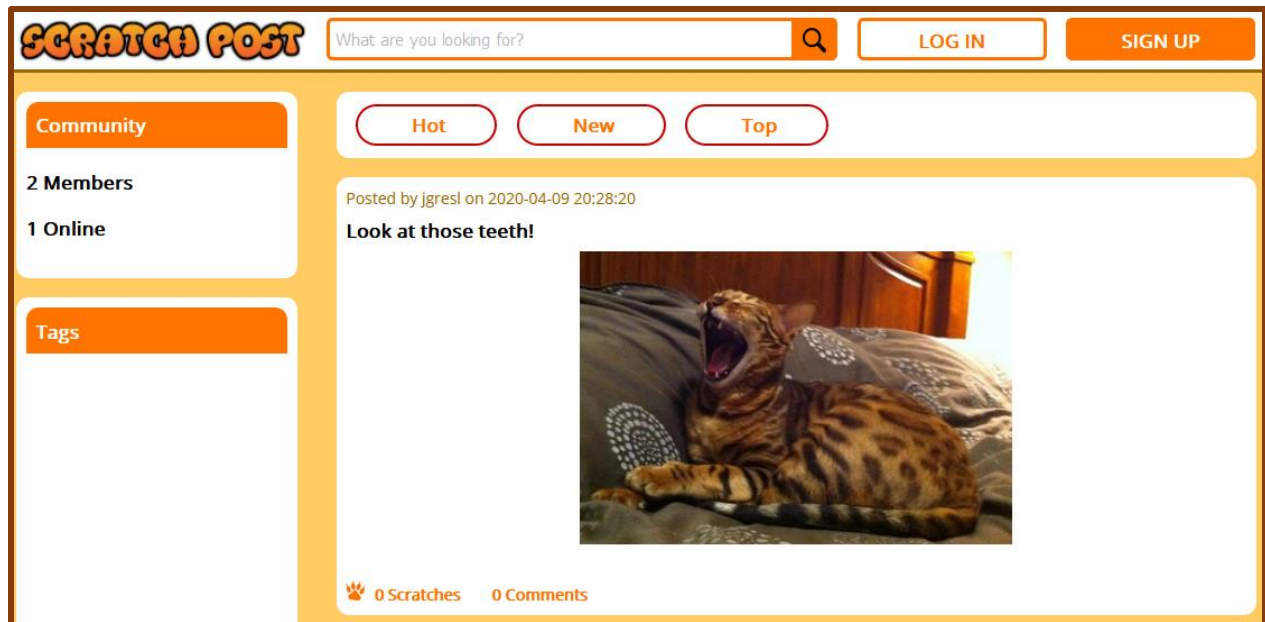
The following user accounts are included in the DDL language as INSERT clauses.

| ID | Username | Email | Status | Type | Name | Password |
|----|----------|---------------------|-----------|---------|----------------|----------|
| 1 | jgresl | jgresl@hotmail.com | Enabled ▾ | Admin ▾ | Jonathan Gresl | jgresl |
| 2 | jaxong | jgresl2@hotmail.com | Enabled ▾ | Basic ▾ | Jaxon Gresl | jaxong |



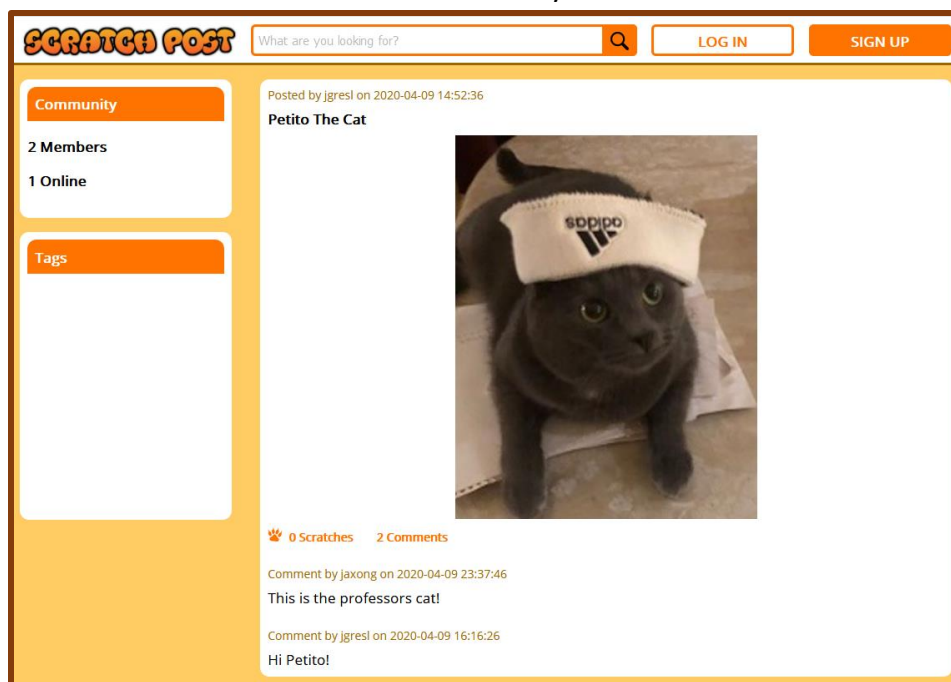
5.3 Non-registered User Pages

The website's home page is main.php. When visiting the site, the user starts in a guest state.

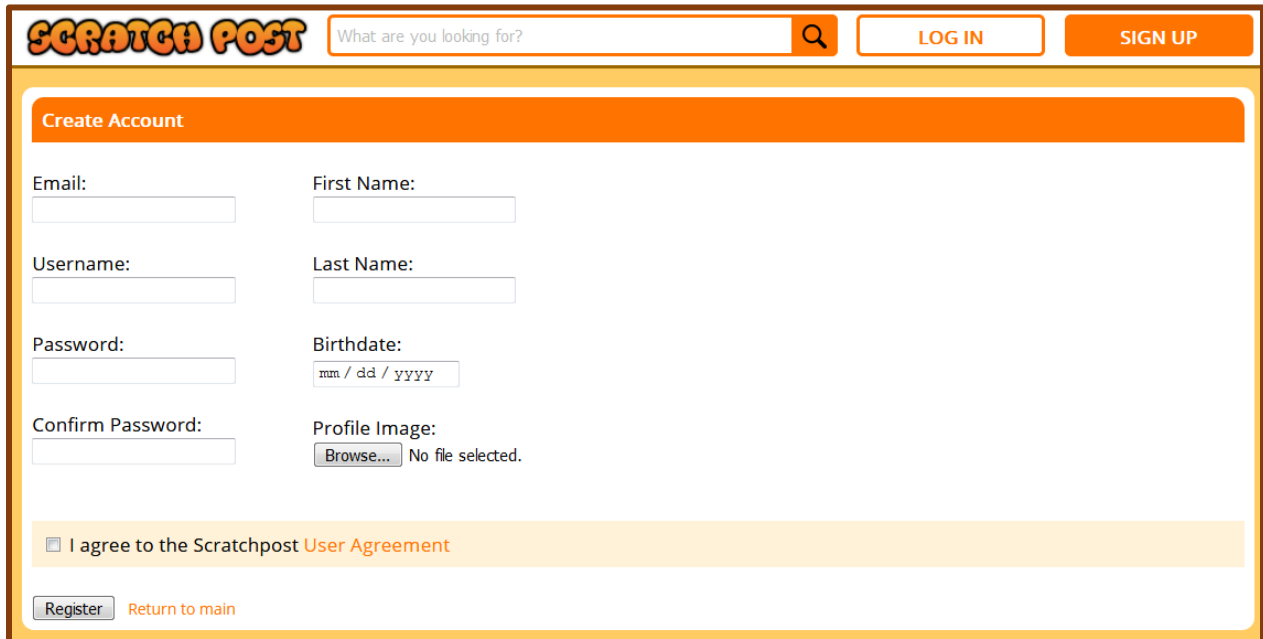


The search for posts using the search bar at the top. The hot, new, and top buttons can be used to sort the posts by most scratches (likes), most comments, or newest post date.

Clicking on a post or comments link, will send the user to post.php. The non-registered user can view comments but is unable to create any.

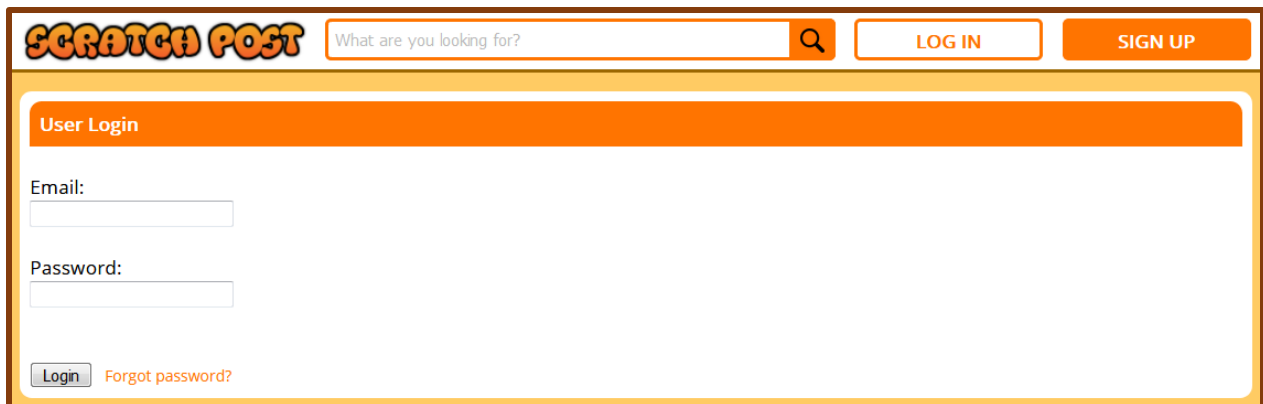


The sign up button leads the user to register.php. From here, the user must fill out every field and accept the user agreement before they are able to register. The email and username must be unique. The password must be at least 6 characters long. The profile image is optional.



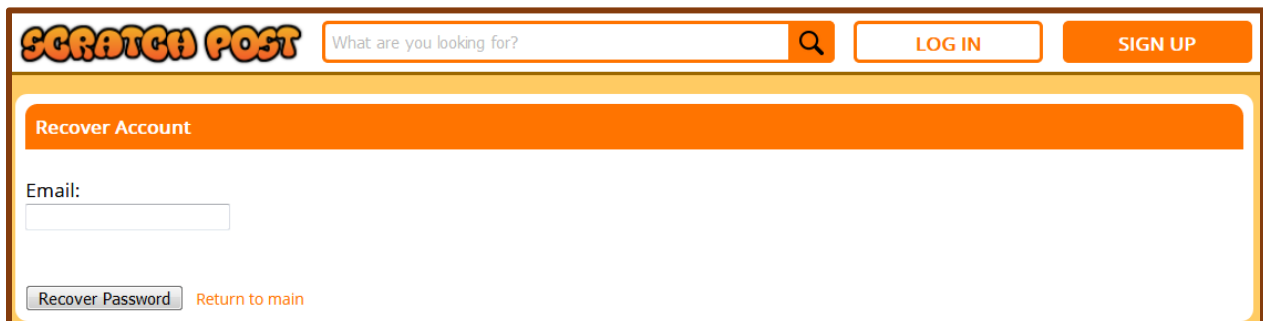
The 'Create Account' form is part of the Scratch Post website. It features a header with the 'SCRATCH POST' logo, a search bar with the placeholder 'What are you looking for?', and buttons for 'LOG IN' and 'SIGN UP'. The form itself has an orange header bar labeled 'Create Account'. It contains several input fields: 'Email:', 'First Name:', 'Username:', 'Last Name:', 'Password:', 'Birthdate:' (with a date picker showing 'mm / dd / yyyy'), 'Confirm Password:', and 'Profile Image:' (with a 'Browse...' button and the text 'No file selected.'). Below these fields is a checkbox labeled 'I agree to the Scratchpost User Agreement'. At the bottom, there is a 'Register' button and a 'Return to main' link.

The log in button will lead the user to login.php. If the user cannot remember their password, they can recover their password by clicking on the forgot password link



The 'User Login' form is part of the Scratch Post website. It features a header with the 'SCRATCH POST' logo, a search bar with the placeholder 'What are you looking for?', and buttons for 'LOG IN' and 'SIGN UP'. The form itself has an orange header bar labeled 'User Login'. It contains two input fields: 'Email:' and 'Password:'. Below these fields is a 'Login' button and a 'Forgot password?' link.

An email will only be sent to the user if the email is found in the Scratch Post database.

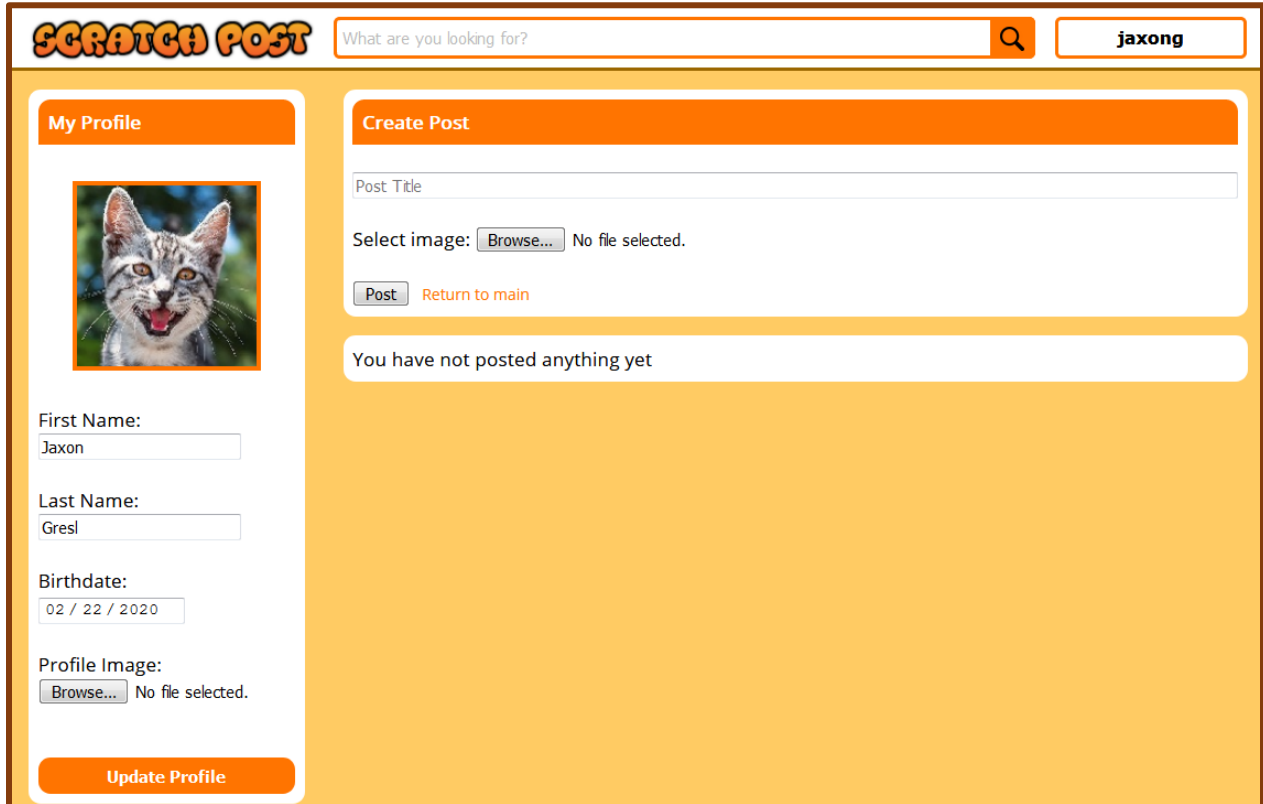


The 'Recover Account' form is part of the Scratch Post website. It features a header with the 'SCRATCH POST' logo, a search bar with the placeholder 'What are you looking for?', and buttons for 'LOG IN' and 'SIGN UP'. The form itself has an orange header bar labeled 'Recover Account'. It contains one input field: 'Email:'. Below this field is a 'Recover Password' button and a 'Return to main' link.



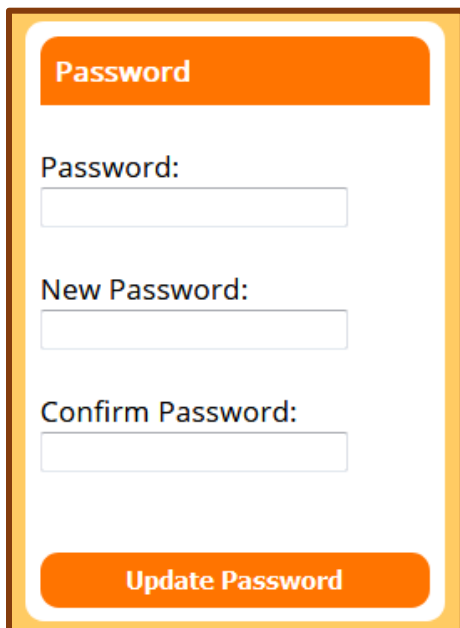
5.4 Registered User Pages

When logged in as a basic user, the sign in and sign up links are replaced with the username and a profile page will now be available.



The image shows a web application interface for "Scratch Post". At the top, there is a navigation bar with the site logo "SCRATCH POST" on the left, a search bar with the placeholder text "What are you looking for?" and a magnifying glass icon in the center, and a user profile box on the right containing the username "jaxong". Below the navigation bar, the page is divided into two main sections. The left section, titled "My Profile", contains a profile picture of a cat, followed by form fields for "First Name:" (containing "Jaxon"), "Last Name:" (containing "Gresl"), and "Birthdate:" (containing "02 / 22 / 2020"). Below these is a "Profile Image:" section with a "Browse..." button and the text "No file selected.". At the bottom of this section is an "Update Profile" button. The right section, titled "Create Post", contains a "Post Title" text area, a "Select image:" section with a "Browse..." button and the text "No file selected.", and a "Post" button next to a "Return to main" link. Below this section is a message box that says "You have not posted anything yet".


The user can also change their password in the profile.php page.




The image shows a "Change Password" form. It has an orange header with the title "Password". Below the header are three text input fields labeled "Password:", "New Password:", and "Confirm Password:". At the bottom of the form is an orange button labeled "Update Password".



After creating a post, it shows up in the user's profile as well as the main.php page.

SCRATCH POSTjaxong

My Profile



First Name:

Last Name:

Birthdate:

Profile Image:
 No file selected.

Password:

New Password:


Create Post



Select image: No file selected.

[Return to main](#)


Posted by jaxong on 2020-04-09 23:51:16

Kitty Posing




 0 Scratches  0 Comments

The drop down menu allow for the user to sign out

SCRATCH POSTjaxong

My Profile



Create Post

Select image: No file selected.

[Return to main](#)

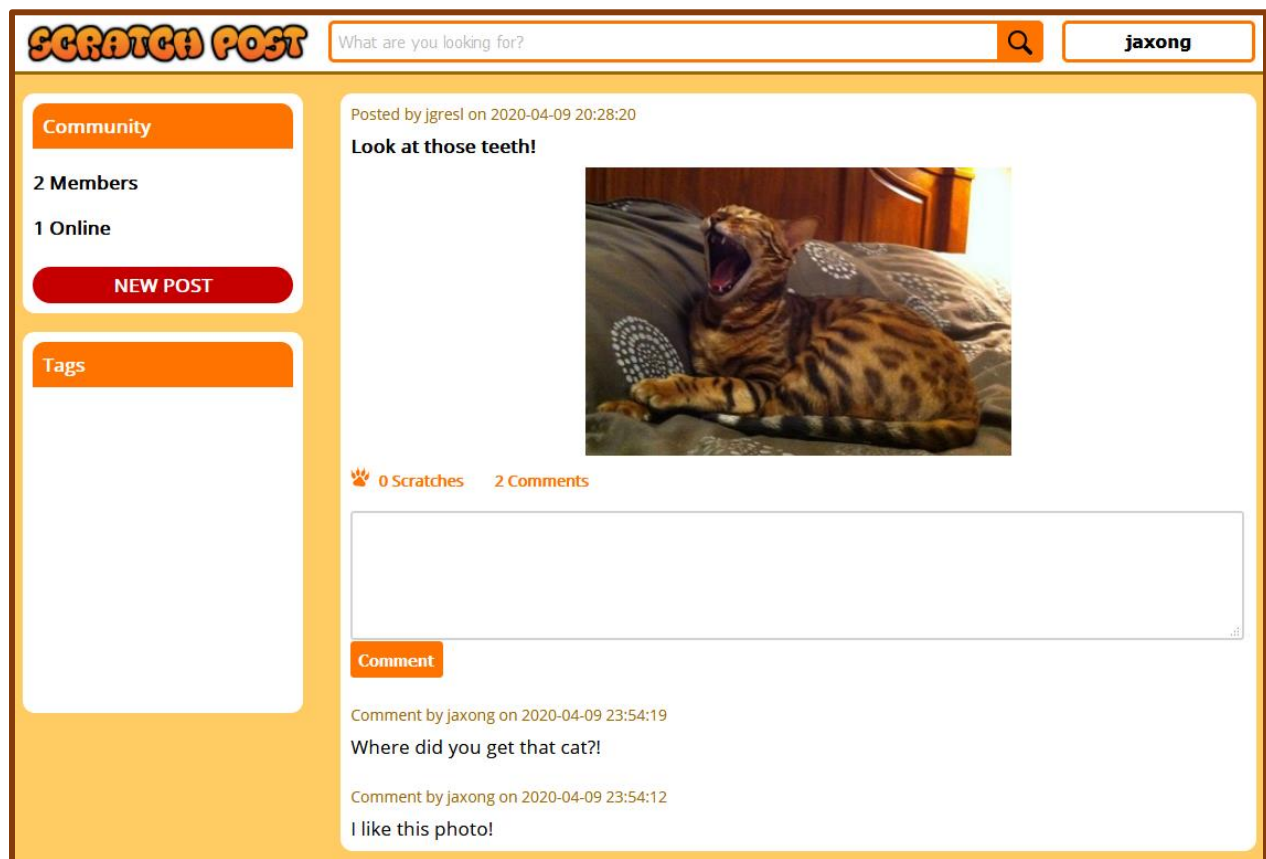
Posted by jaxong on 2020-04-09 23:51:16

My Profile

Sign Out

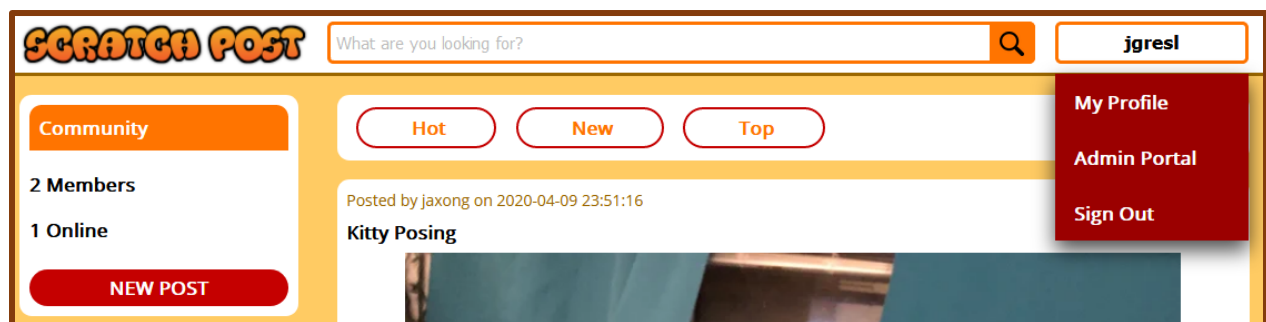


Registered users can comment on posts




5.5 Administrator Pages

Administrators can access the admin portal through the drop down menu



From the admin.php the user can modify existing users as well as access additional admin function in the left column.

SCRATCH POST


jgresl

Admin

- Maintenance
 - Manage Users
 - Disabled Posts
- Reports
 - Site Usage
 - Site Activity
 - Demographics
- Database
 - ER Diagram
 - Database Restore

| ID | Username | Email | Status | Type | Name | Last Login |
|----|----------|---------------------|---------|-------|----------------|---------------------|
| 1 | jgresl | jgresl@hotmail.com | Enabled | Admin | Jonathan Gresl | 2020-04-09 14:47:02 |
| 2 | jaxong | jgresl2@hotmail.com | Enabled | Basic | Jaxon Gresl | 2020-04-09 14:47:02 |

Admin users can also enable or disable posts from the main.php page.

SCRATCH POST

jgresl

Community

2 Members

1 Online


NEW POST



Tags

HotNewTop

Posted by jaxong on 2020-04-09 23:51:16

Kitty Posing



 0 Scratches  0 Comments

Disable Post



6 Evaluation

6.1 Core Functionality

| Description | Value | Source Files |
|--|-------|--|
| Browse items without registering | 2 | main.php sql/ |
| Responsive design philosophy | 2 | css/main.css css/header.css |
| Server side security and best practices | 2 | includes/db_login.php includes/db_update_password.php |
| Search for posts by keyword without registering | 2 | includes/header.php main.php sql/search_posts_newest.php |
| Item and associated details stored in the database | 2 | data/scratchpost.sql sql/insert_* |
| Form validation with JavaScript | 2 | js/login_form_validation.js js/recover_form_validation.js js/reg_form_validation.js |
| Register at the site by providing name, email, and image | 4 | register.php includes/db_register.php sql/insert_new_user.php |
| Allow user login by providing user id and password | 2 | login.php includes/db_login.php sql/select_user_data.php |
| Create and comment on posts when logged into the site | 2 | profile.php includes/db_create_post.php sql/insert_new_post.php post.php includes/db_comment.php sql/insert_new_comment.php |
| Users can view/edit their profile | 2 | profile.php includes/db_get_user_image.php includes/db_update_profile.php sql/update_user_profile.php includes/db_update_password.php sql/update_password.php |
| User password recovery (via email) | 4 | recover.php includes/db_recover.php sql/update_user_password.php |
| Error handling / bad navigation | 4 | includes/*.php |
| Site must maintain state between sessions | 2 | includes/header.php css/header.css |
| Admin users can search for user by name, email, or post | 4 | includes/adm_users.php sql/search_users.php |
| Admin users can enable and disable users | 2 | includes/adm_users.php includes/db_update_user.php |
| Admin users can remove items and comments | 2 | main.php includes/db_disable_posts.php sql/update_post_status.php includes/adm_disabled.php |



6.2 Additional Functionality

| Description | Value | Source Files |
|--|-------|---|
| Hot threads / hot item tracking | 3 | main.php includes/db_scratch_post.php sql/update_post_scratches.php sql/count_post_scratches.php |
| Visual display of updates | 3 | includes/adm_site_usage.php |
| Activity by date | 3 | includes/adm_site_activity.php |
| Alerts on page changes | 3 | includes/adm_users.php includes/db_update_user.php |
| Style flourishes | 3 | css/main.css css/header.css |
| The site is launched into production and real world users are registering for Scratch Post and uploading images. To do this, I setup a permanent Raspberry Pi 4 with LAMP configuration. I had to configure port forwarding in my router firewall settings to allow for external access. I also had to create a non-root user for the database and allow it to access from a non-localhost IP address. | 4 | data/scratchpost.pdf [page 8] Link to external website |

6.3 Documentation

| Description | Value | Source Files |
|---|-------|---------------------------------------|
| Walkthrough document that can be used to test the site by performing the walkthrough you describe. It is to your advantage to include detail to highlight the best features of your website. This document will describe how a user and admin can use the site. This document will also include things like required login ids and passwords, how to test your site as well as identifying any unique features. | 2 | data/scratchpost.pdf [page 9 - 13] |
| Detailed description of your implementation from a system or developer's perspective including: What features did you implement? Include a description of the PHP and JavaScript files of your web site. How does your web site work at a high-level? Identify any known limitations of the site? | 3 | data/scratchpost.pdf [page 3 - 6] |

6.4 Project Code

The code is stored in GitHub at <https://github.com/igresl/scratchpost>.

