CPSC 6620 Project Technical Report

Project: MeTube System

Team Number: G4

Team Members: Rajitha Bhavani Kantheti
(rkanthe@clemon.edu)

Chirayu Sharma
(chirays@clemson.edu)

Project Description:

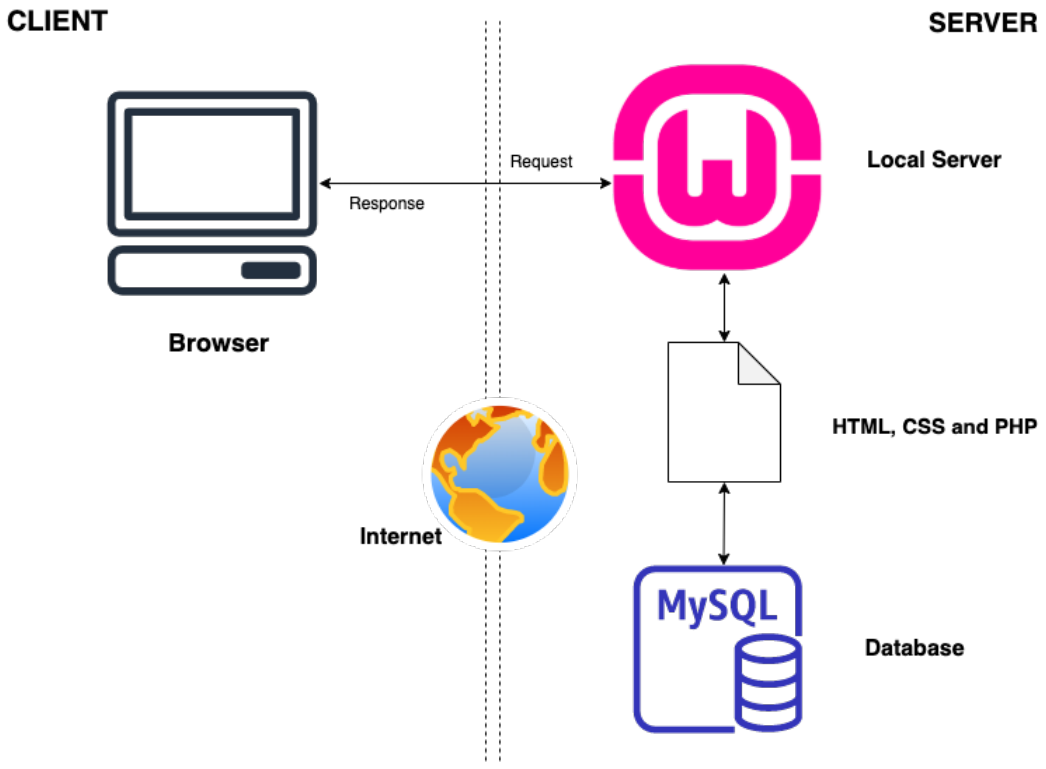
We have developed a modified version of Popular YouTube system called MeTube system as our project in CPSC 6620 course. The content of MeTube system includes graphics objects, video, audio, images and animation clips. In this project, we have implemented basic functions similar to that of YouTube system. We have also provided System Design, Function Design, ER Diagram, Database schema, Implementation details, Test cases with results, Instructions and Future work as a part of our technical report.

Link to the website: http://webapp.cs.clemson.edu/~rkanthe/MeTubedemo/

System Design:

We have created our website using WAMP server and tested it on Apache server. It contains many HTML pages styled with CSS and Bootstrap along with PHP for dynamic content. The PHP Code makes calls to the MySQL Database to store and retrieve information.

Architecture Design:



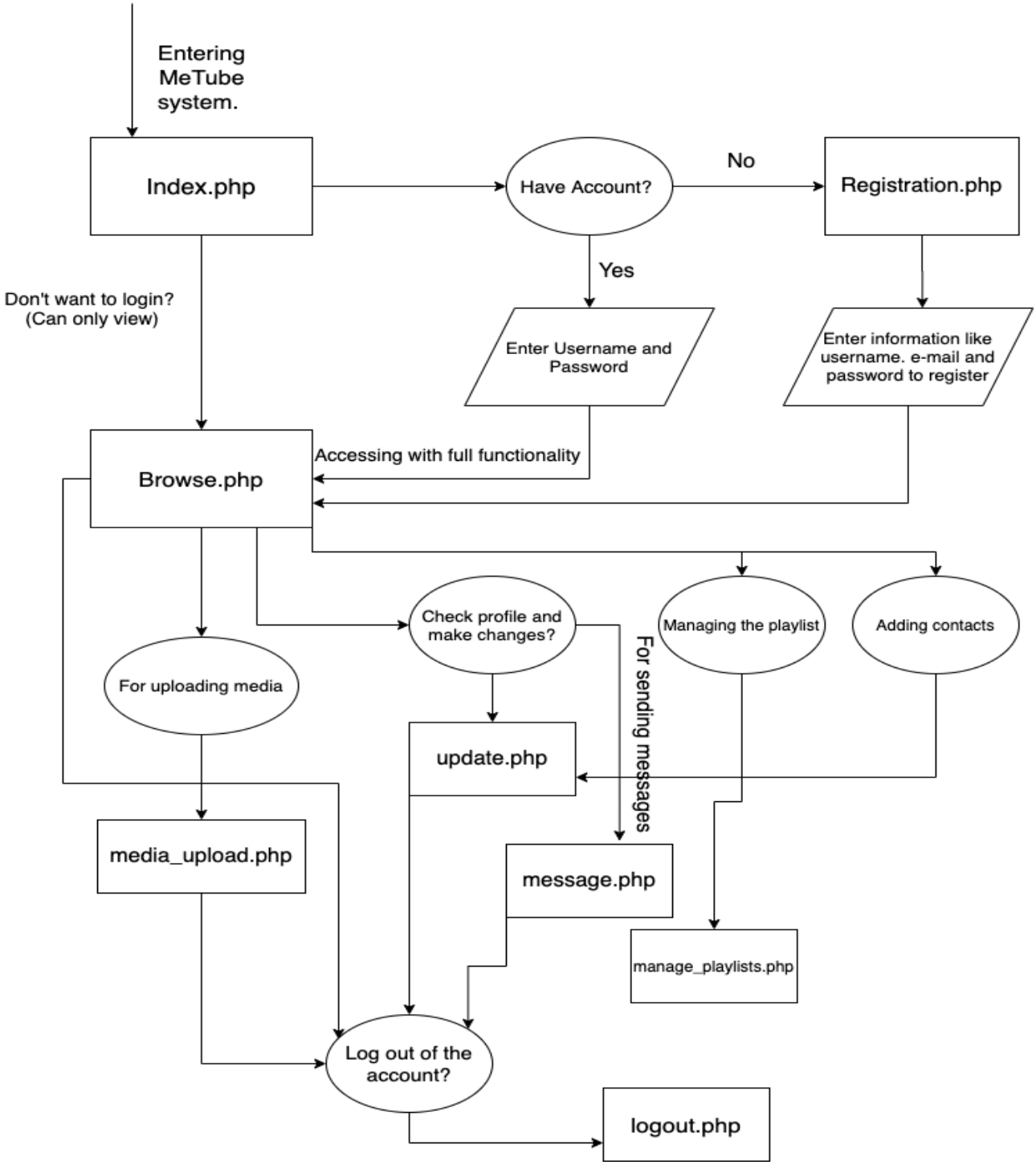
Function Design:

- To consolidate the functions that could be used repeatedly throughout the MeTube system, we have used “function.php” file.
- For styling purpose, we have used a default list of CSS classes and in some places, we have even used Bootstrap for making the content look explicit.
- We wanted our ‘home’ view to be nexus of interaction for new and returning users, so we redirected our Index page to the Browse page.
- Various PHP functions and MySQL queries populate the page and when a user performs certain action on the page, they are either redirected or given appropriate feedback from the PHP controlling the page.
- If a user closes their tabs without clicking on Logout, their session is not terminated, and they will still be logged in when they return to MeTube system. It’s better to logout that’s why.
- We have used HTML forms and PHP session instances for majority of our input.
- Connection to MySQL database is done through “config.php” file.
- Index.php: This is for the login page. Where it checks existing users and logs in if right credentials are provided.
- Registration.php: If you are a new user to metube, registration.php creates a registration page, in which you can enter your details and register. You are required to confirm the password and enter a valid email id. You cannot change your username once registered.
- Browse.php: This is the home page, where you can view all the files you have permission to. You can upload new files to metube if you are logged in. You can also create playlists, channels and filter media using them.
- Update.php: This is your profile page. You can update your profile information, manage contacts, manage friends, view and manage all your media files you uploaded and also create or join groups.
- Add_contact.php: This allows you to add a contact, who using metube and also add a relation associated to them.

- Add_group.php: This allows you to add a group in metube for discussion, give it a title and also provide description about it.
- BrowseFilter.php: This allows you to browse files in metube using keywords, category, filename, file size, uploaded date and also file type.
- Groups.php: This allows you to send messages to the groups in metube if you are a member of it.
- Manage_playlists.php: Creates a page where you can view all playlists and media in each playlist. It also allows you to delete a playlist or a media.
- Media.php: It allows you to view the media file available in Metube system through a media player embedded in the web interface. It also gives details, recommendations, allows you to rate, add to playlist, add to favorites and comment on the media file.
- Media_download_process: It is for downloading the media file.
- Media_upload_process: It allows you to upload the media file and its meta data including file type, title, category and keywords.
- Message.php: It helps in sending and receiving messages between user who are in the contact list.
- MysqlClass.inc.php: This file stores the methods to connect and query mysql database.
- Recommendation.php: This file runs sql queries to show all the related files using keywords database.
- Subscriptions.php: This file runs sql queries to show all the media files uploaded by the selected subscriber.
- Wordcloud.php: This file displays all the keywords used in metube and displays the most frequently used keyword in the largest size.

Implementation Design:

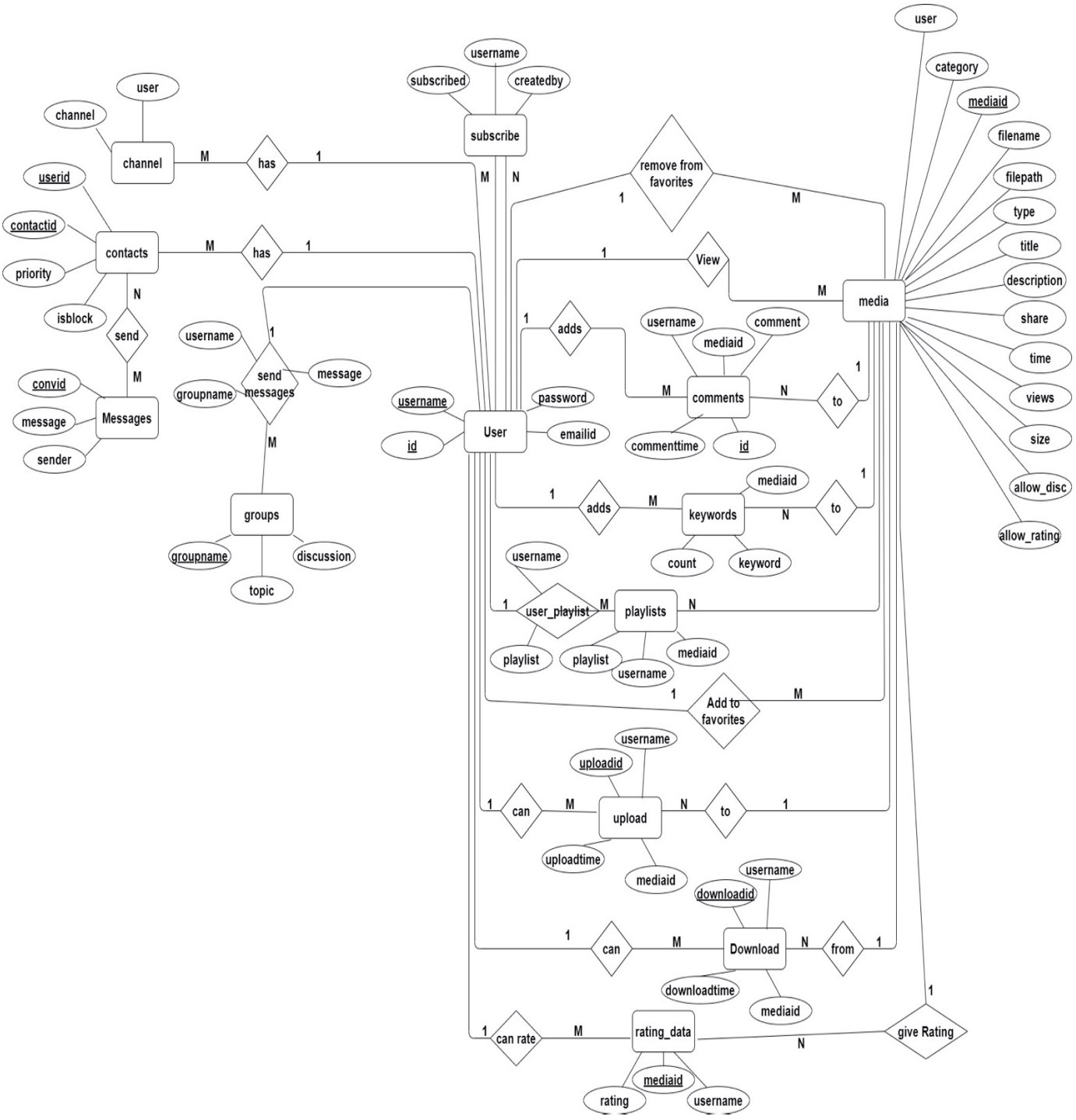
Basic Features of the implementation are described pictorially for better understanding. Other features are described below:



- On entering the MeTube system, it directs you to the login page automatically. If you are a user, you can login using that page, or you can use link provided in that page to direct to registration.
- If you don't want to login, you can click on the MeTube icon which redirects you to the home page, where you can view all public media files. But here you cannot upload any media files or comment or rate or add to favorites/playlists.
- In the registration page you will be asked information like username, email and password. Make sure you enter a valid username and reenter the write password for confirmation. You cannot change the username once registered. Once registered you will automatically be logged in and directed to the home page.
- In the login page you must enter a valid username and password to login into the MeTube account.
- In the home page you can upload images, add images to favorites list, create a new playlist, add/delete a channel and view all media files that are public and to which you have access to. You can also filter media files based on category, playlist, channel, most recent, most viewed, name and size.
- On clicking upload file in the home page, you can upload a file whose size is less than 10MB. When uploading the file title is a compulsory field and rest all are optional. You can also add description, category (image by default), sharing mode (public by default), Allow discussion (yes by default), Allow rating (yes by default) and keywords.
- On clicking the title of each media file in the home page, you will be able to view the media file through a media player embedded in the web interface. Here you can add the media file to favorites list, subscribe to the user who uploaded it, rate the media file if given permissions, comment if given permissions, add to any playlists available and view information of that file. You also get recommendations based on the current media file.
- You can delete the comment made by you on the media file. Once rated, you cannot modify your rating score for that media file. You can view the media file in full screen mode by clicking view and can select picture in picture option for video files. You can also download the media files.

- You can manage playlists created by clicking on manage playlist in the home page. Here you can view all playlists created by the user and media files in each playlist. You can also delete playlist/media file.
- You can view your profile by clicking on the profile button on the right-hand corner of the home page. In this page you can edit your information like email and password. You can manage contacts, friends, media uploaded by you and groups in this page.
- You can add a contact using the link provided in the profile page under contacts. Here you can add any user already using MeTube and also mention the relationship like friend, family or favorite. You cannot add the user who blocked you. You can also block/unblock a user in your contacts in the profile page. You can send a message to the user by clicking on message link next to the username. Contacts are arranged in the order of family, friends, favorite and none by default.
- You can view and delete media you uploaded in the profile page. You can create and join a group in the profile page. On clicking the group name, you can send messages and view messages in the group.
- On clicking the subscription drop down, you can view all the users you subscribed to. On clicking on the username, you can view all the media files he/she uploaded.
- Using the search bar in the home page, you can search all the media accessible to you based on keywords, filename, file size, category, file type and date uploaded.
- On clicking on word cloud button in top navigation bar of the home page, you can view all the keywords used in MeTube. Most used keyword has the largest size in the word cloud.
- On clicking logout, user logs out of the session and can login when wanted. If the user doesn't logout, the session doesn't close and next time when opened you will be seen logged in.

ER Diagram: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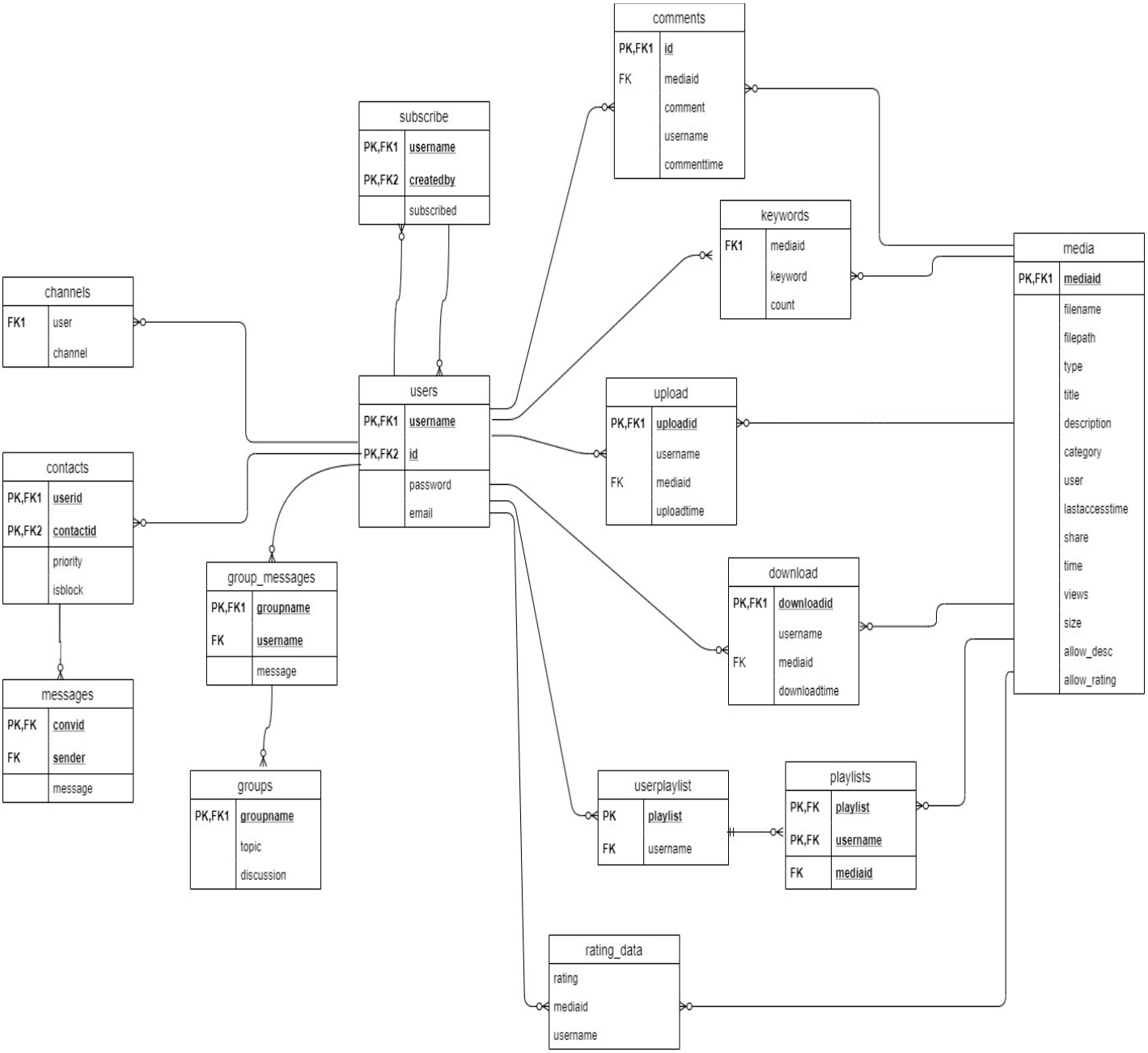
Database Schema:



Test Cases:

Case 1: Registration

- User is able to register for MeTube
- All field are compulsory
- Check for already existing user
- Password and confirm password should match
- Validating user ID as @
- Result: Pass

Case 2: Login

- User is able to log into MeTube
- Give error for incorrect username
- Give error for incorrect password
- User should be able to logout.
- Result: Pass

Case 3: Profile and contact list

- User is able to change basic information like email and password
- While changing passwords, password and confirm password should match
- Show existing contact list, friends list.
- Add/delete, block/unblock a contact
- Through an error if no such contact exists in metube.
- Contact cannot be left blank.
- Organization of contact list (friends, family, favorite, none) hierarchically.
- Message a contact/friend.
- On blocking a contact, other contact cannot add you in their contact list.
- Result: Pass

Case 4: Data Sharing and Viewing

- Users can only view media that are public without logging in.
- User cannot rate, add to favorites/playlists, add comments without logging in.

- Users need to login to upload media.
- Users cannot create playlists/channels or filter by them without logging in.
- Generating a unique ID every time a user uploads media with same name.
- User should be able to download media files.
- View media files using video player embedded in the web interface
- View media files in full size or picture in picture mode.
- Users can set privacy on the sharing mode of their media uploads
- User can add keywords to a media file.
- Blocking certain users from viewing media files.
- Allow discussion and rating for a specific media file.
- Add/subscribe/delete a channel.
- View all media files uploaded by the subscribed channel if given permission.
- Result: Pass

Case 5: Media Organization

- Title and file cannot be null while uploading a file.
- File size should not exceed 10MB.
- Error if there is no such file, file already uploaded, upload failed.
- User can create/delete a playlist.
- Users can create their favorite lists of media.
- Users can add/remove media in a playlist.
- Users should be able to delete their media
- Users should be able to see number of views for media files.
- Users should be able to see rating for each media file.
- Result: Pass

Case 6: User Interaction

- Users can send messages to other users in the contact list.
- Users can comment on media files (if given permission).
- Users can rate media files (if given permission).
- Users can create groups.
- Group name, topic cannot be blank.
- User can join/leave a group.
- Users can engage in group discussions if he/she is a member.
- Result: Pass

Case 7: Searching and Filtering

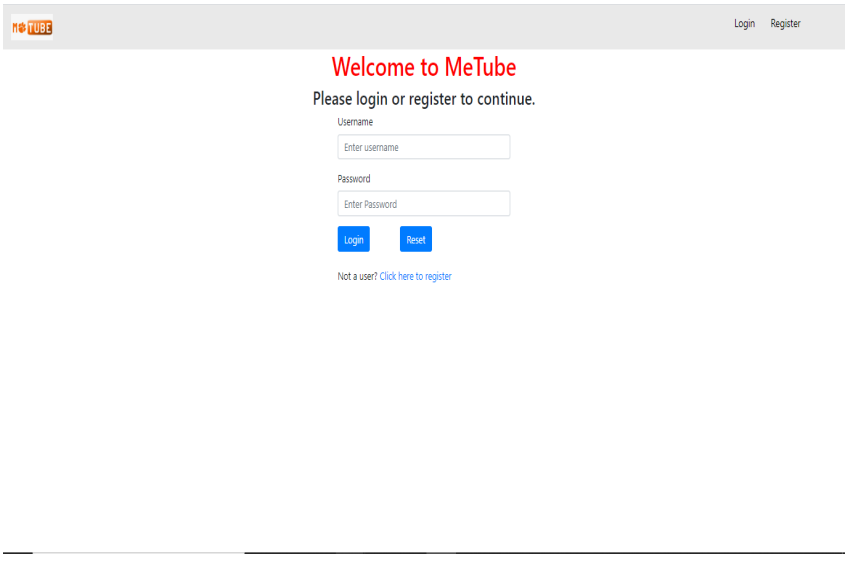
- Users can search by category.
- Users can search based on keywords.
- Users can search by file size, name, file type, date uploaded.
- Users can filter by channels
- Users can filter by category
- Users can filter by favorites
- Users can filter by playlists
- Users can filter by most recently viewed
- Users can filter by most recently uploaded
- Users can filter by name and size
- Result: Pass

Case 8: Word Cloud

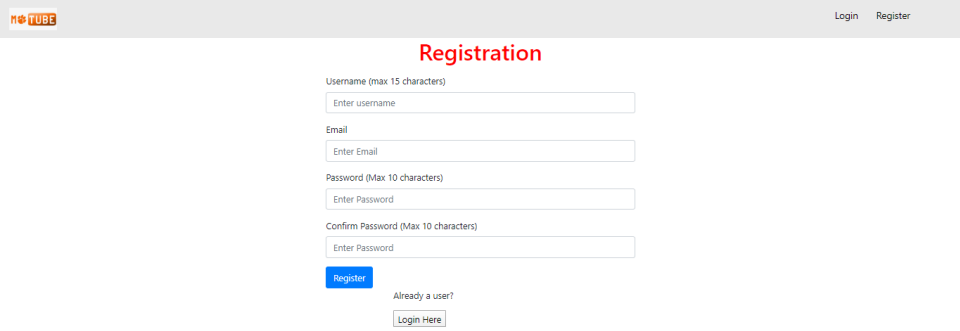
- Users can add keywords which will be visible in a cloud.
- Greater use of keywords increases the size of the keywords in the cloud.
- Result: Pass

Results:

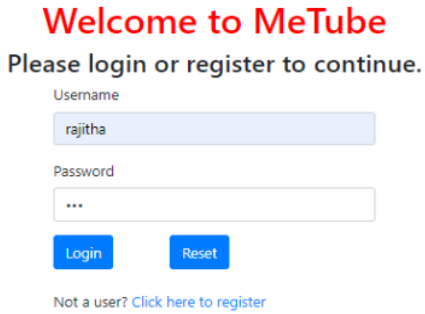
- Login to MeTube:



- MeTube Registration page:

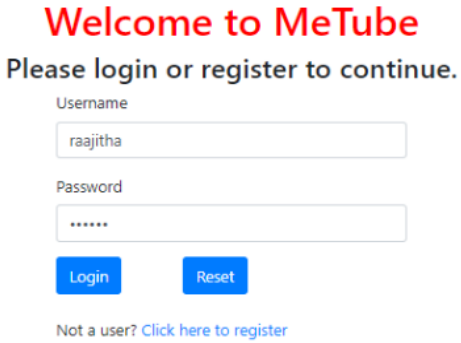


- Login Cases:
  - Invalid password



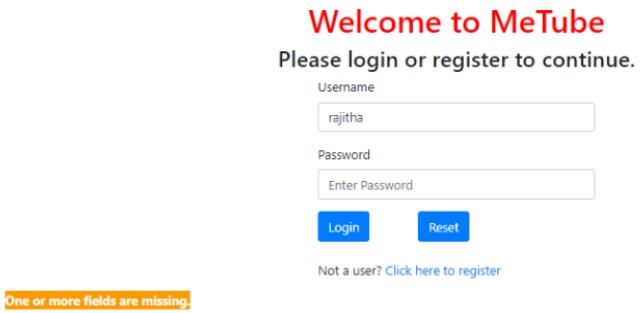
Incorrect password.

  - Invalid username

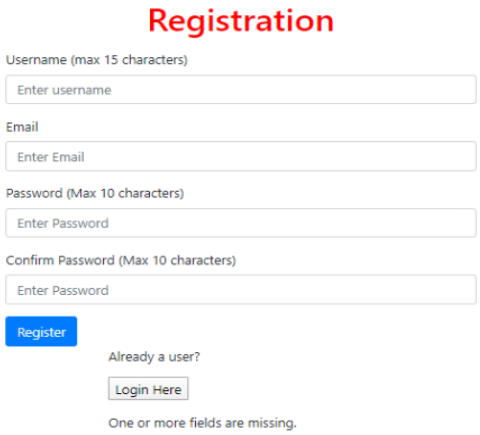


Unregistered username.

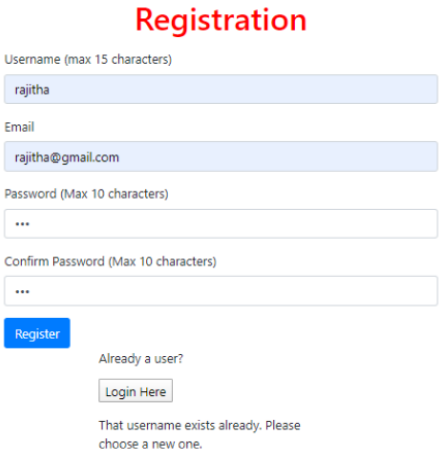
- Missing Inputs:



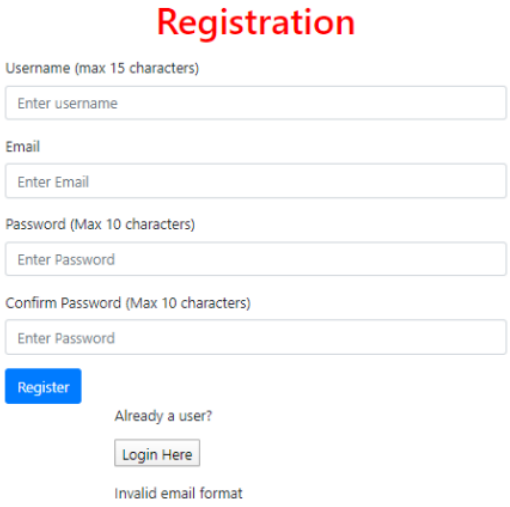
- Registration test cases:
  - Missing Inputs:



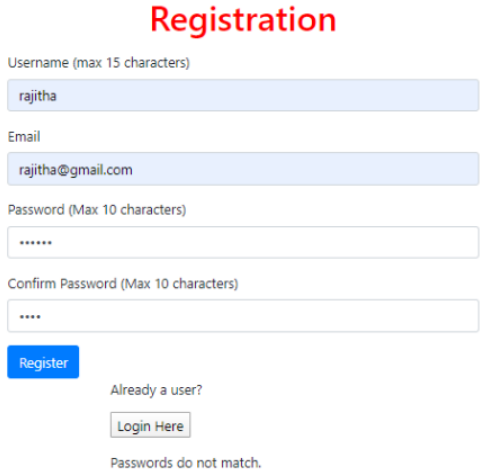
  - Checking existing users:



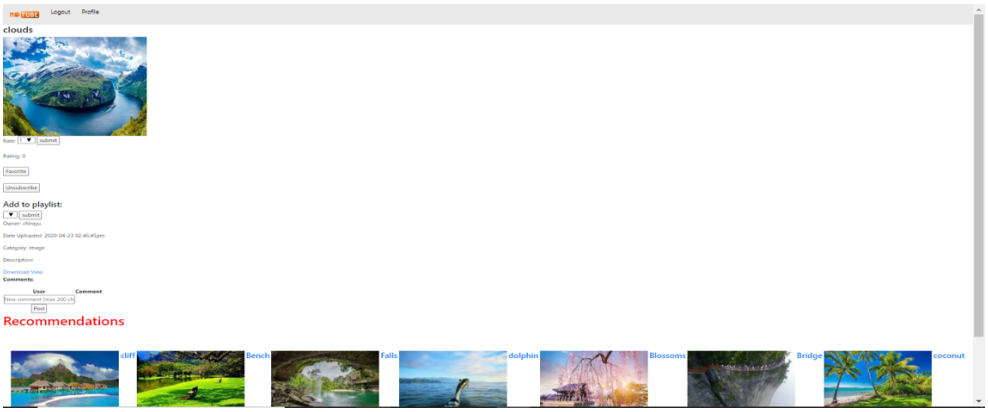
- Email check like @:



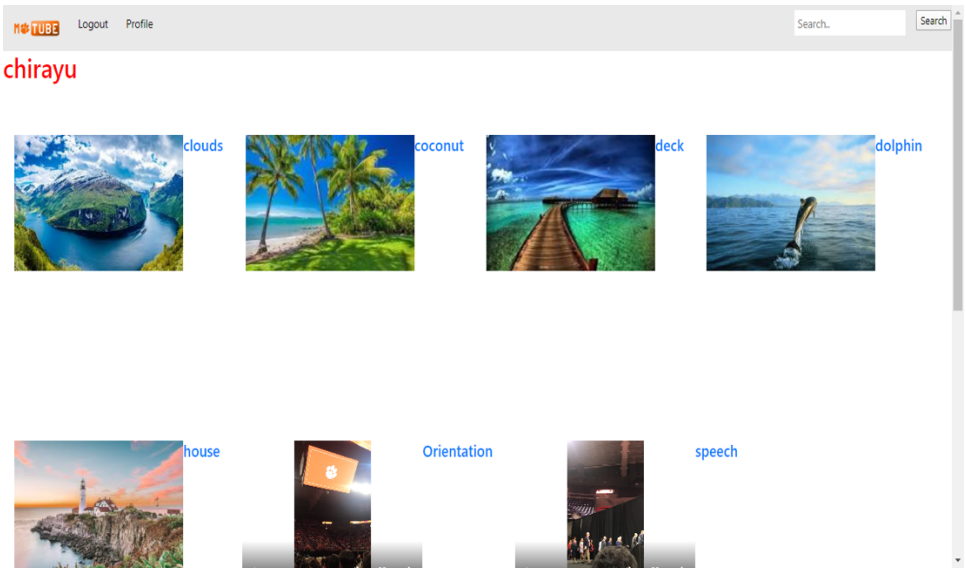
- Password and confirm password match check:



- Media Page: You can rate, add to favorites, add to playlists, subscribe, comment, view comment, view and download media, view recommendations here.

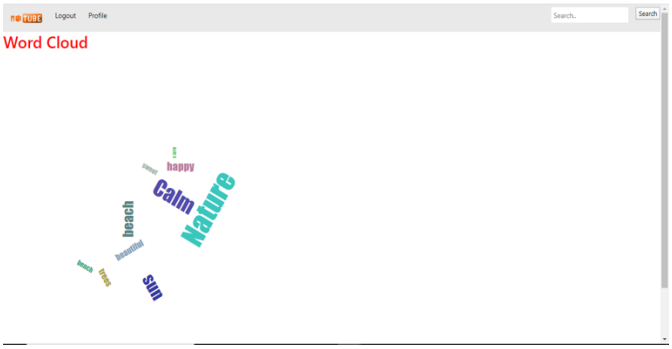


- Subscriber page:

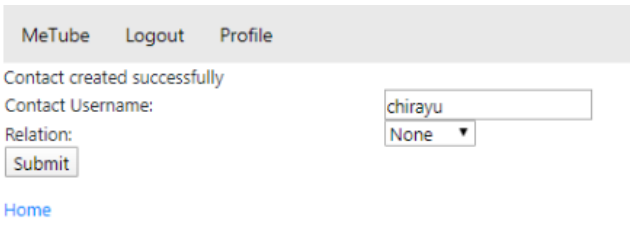


- Playlist Management:

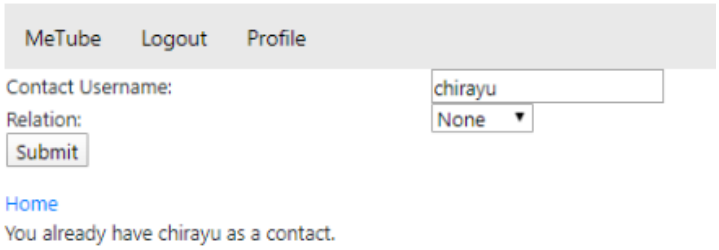
- Word Cloud:



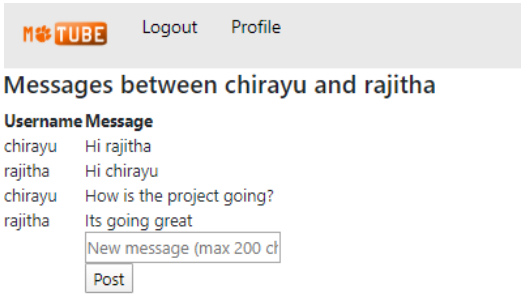
- Add Contacts:



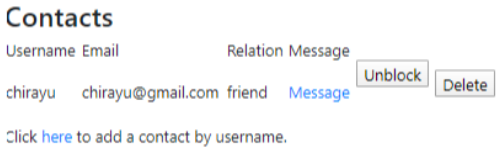
  - Can't add if contact already exists:



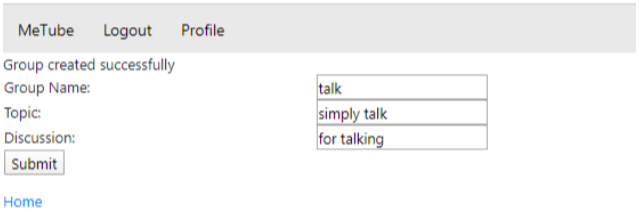
  - You can send messages between contacts:



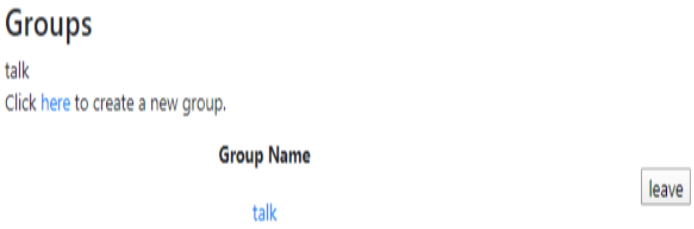
  - You can block/unblock/delete a contact



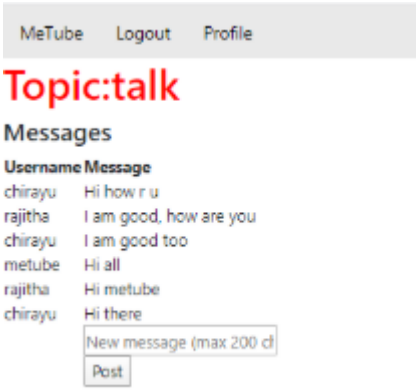
- Add Groups:



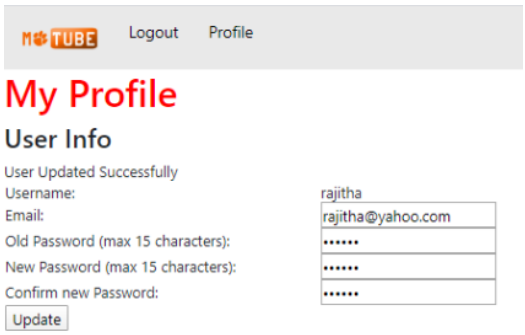
- You can join or leave a group:



- You can send messages in a group:



- Updating the profile:



Instructions:

Instructions for Building Your Own MeTube
1) Unzip the file in a directory webserver will serve to the web.
2) Create a MYSQL database and enter the proper credentials to connect to it in config.php
3) Open a browser and type localhost/filename/
4) Now you are ready to use MeTube.

User Manual:

- **Registration/Logging In and Out:** Visit the website's URL and click the 'Register' button in the upper right hand corner. If you do not wish to register, you can still use a limited number of MeTube's publicly accessible features. Attempting to navigate to any of these pages while not logged into an account, or an account with sufficient permissions, will result in the content not being available to you. Fill out the information requested and click 'Register'. You will need to recall your username and password, so don't forget these! At any point after registration, click the 'Log Out' button in the upper right-hand corner to log out of your account. You may log back into your account using your credentials with the 'Log in' link in the upper right-hand corner.
- **Home Page:** MeTube will refresh after registering or logging in to the browse page, which displays the most recent content from the uploaded content on MeTube. Clicking on the name of a file or the image preview will redirect you to view the content. Logged in users can view and create their own playlists easily from the browse page. All visitors may use the central search bar will to search MeTube for specific content. Just type in a search and click the search button. Logged in users can add a channel. You can sort the media based on category, name, size, most recent, most viewed etc. You can manage your playlists by clicking on manage playlist button. Logged in users can upload media files.
- **Toolbar:** MeTube's persistent toolbar will follow you around the site, offering quick access to the main features offered by MeTube. The link on the top metube logo will take you to the home page. When you are logged out it shows 2 links on the top right asking you to login or register. When you are logged in you can see logout and profile links in that place.
- **Viewing Media:** When you view media hosted on MeTube, you'll be able to see who uploaded it, the media's name and description, its view count and average rating as well as comments on the media. Logged in users can Favorite the media or add it to other playlists, subscribe to the user, offer their own rating and comment on the media or in reply to other users. If you have adequate permissions, you can download the media using the download button. You can only comment and rate if the media has permissions for that. You can also see recommendations related to the media.

- **Uploading Media:** Select the 'Choose File' button to navigate your computer's file system and select the file you'd like to upload. Give that file a name you'd like to display on MeTube, as well as any tags that would help users find your media. You cannot upload media with size greater than 10MB. You cannot upload media without a title. You can change sharing permissions, which is set public by default. You can also change discussion and rating permissions, which is set to yes by default. Click the 'Upload' button to post it.
- **Deleting Media:** You can delete media you uploaded, by going to your profile page and clicking on delete button beside the media name in the My Media section.
- **Managing Your MeTube Account:** Clicking the 'Profile' link will bring you to a page with a form where you can update your email address, password. But you cannot change your username. You may want to enter a new email to change it and click submit. This will only change the email id. Old password is already shown, so you will have to enter new password and confirm it. All changes will instantly go into effect upon clicking the 'Submit' button.
- **Contacts:** Your contacts allow you to exchange messages with users, delete contacts, or to block users from seeing your content and from sending you messages. Blocked users will be notified that they are blocked when they try to add you in their contact list.
- **Add Contacts:** You can add contacts that are users of MeTube. You cannot add existing contacts. You can select a relation with the contact which will give permissions to some media files that are available to specific relations.
- **Messages:** You can click on message link beside the contact name to send messages to that contact. He can view your message, when you become his contact. If you block a contact, he cannot see your messages.
- **Groups:** You can create a group using the link in the profile page. You can also join/leave an existing group. You cannot view/send messages in a group without joining the group. Once joined, if you click on the group name, you can view/send messages in that group.
- **Playlists:** From the browse page, you can create a new playlist by specifying a name and clicking the add button. Your playlists appear in a list below the media. Logged in users who own the playlist can manage the playlists using manage playlist button. Here you can view all your playlists and files in each playlist or delete a playlist/file using delete button beside them.

- **Channel:** Clicking on a username under the ‘Add Channel’ drop-down in-home page will add a channel to your account. You can view the users publicly available media files and also filter based on his files. You can filter your media files using ‘My channel’ filter.
- **Subscriptions:** You can subscribe to any user, by clicking on the subscribe button under a media file uploaded by that user. Once subscribed, you can view your subscriptions in the tool bar. On clicking the username of the user you subscribed to, you can view the user’s accessible media files.
- **Word Cloud:** You can view the word cloud by clicking on the word cloud button on the toolbox. It displays all the keywords used. Highest accessed keyword is the largest in size.
- **Search:** You can search any file by using its keywords, category, file size, file name, date uploaded, file type. Once you enter the word and click search button, you will be directed to a page where all related media files will be displayed.

Future Works:

Increase performance by adding these steps:

1. Reducing the time, the browser takes to fetch a given resource: By reducing the server processing time, using browser caching, and HTTP pipelining.
2. Decreasing the number of requests: By reducing the number of resources by using sprites and combining JavaScript.
3. Optimizing the rendering speed: By using more efficient CSS selectors, a better page layout, and optimizing the JavaScript code.
4. Making the loading time appear shorter: By adding loading indicators, pre-caching, and deferred loading strategies.