Group G2
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Metube Project Technical Report

System Design:

View - Markup Language - HTML & CSS

The view presented to the user is determined by the HTML in the files on the web server. This includes the basic structure and the static elements of each of the web pages. The CSS is used to style the content on the web page.

Controller - Scripting Language - PHP

PHP acts as the controller between the view and the model. It takes input from the view and creates queries for selecting and inserting into the model. It also takes data from the model and uses it to generate dynamic parts of the view.
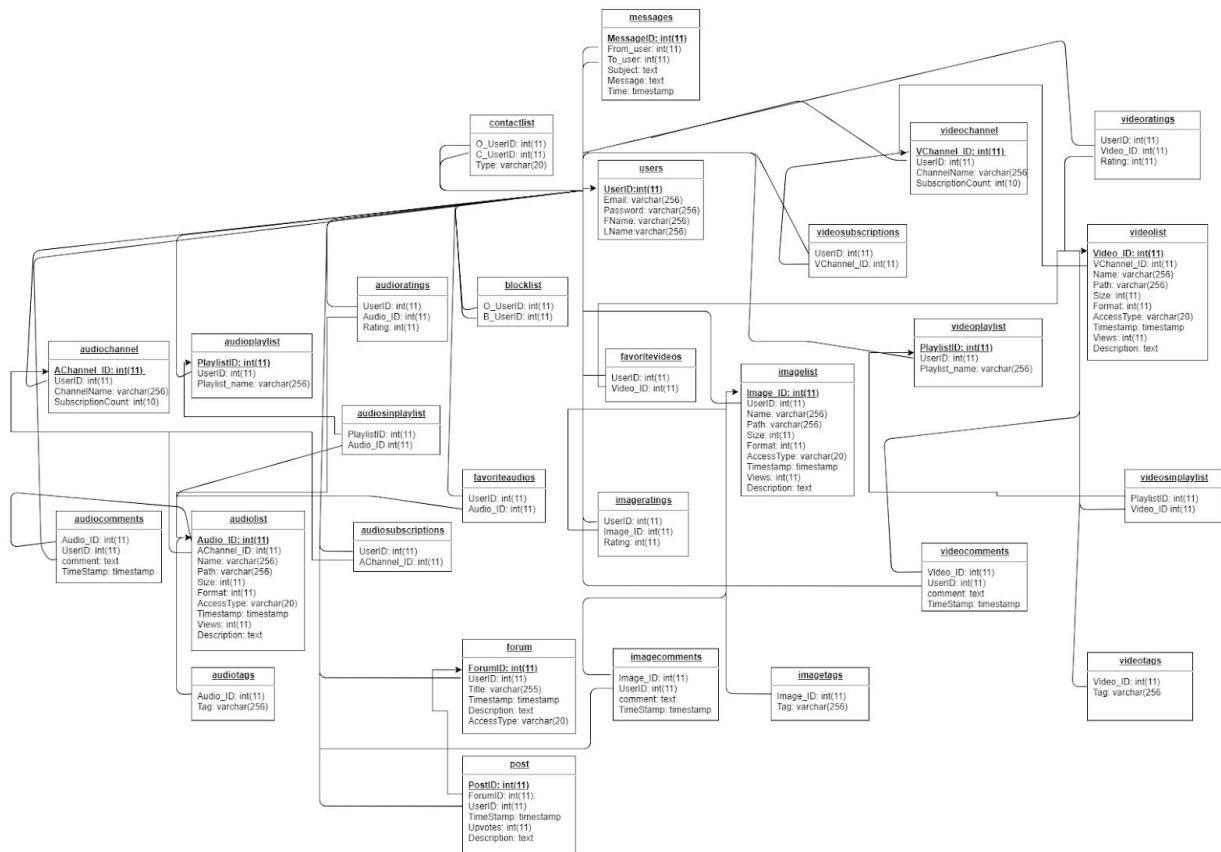
Model - Query Language - SQL

SQL is the language used to modify the model through queries generated by PHP. These are SQL statements stored as strings in the PHP runtime and then sent as queries to the database.

ER Diagram:
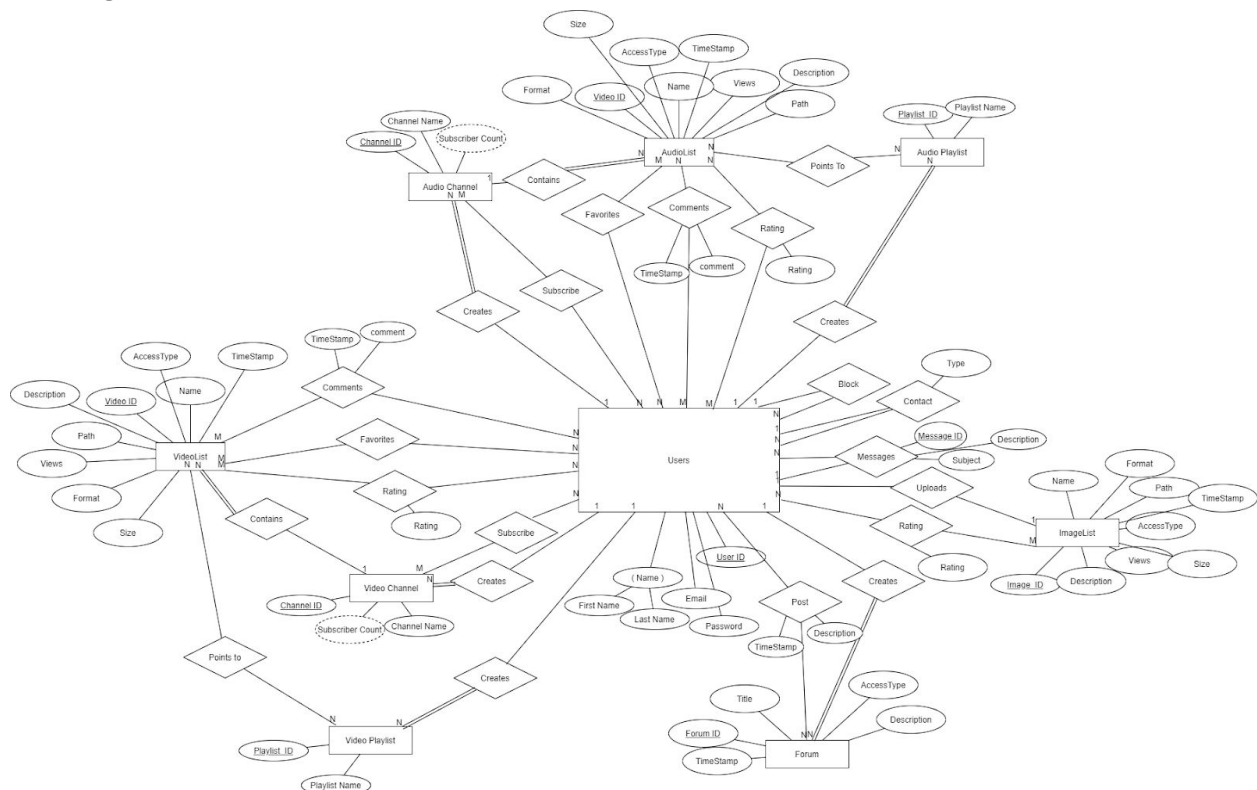
See included file: ER_Model.png

Database Schema:

See included file: Database_Schema.png

Function Design:

Profile:

The user can register a user profile with their email address, first name, last name, and a password. The user can update their name and password information. A user can also send and receive messages to and from other users.

Forums:

The user can create forum posts that other users can reply to. When creating a forum, the user specifies the access controls. The user can search forums based on search terms.

Media:

The user can interact with media in several different ways. The user can browse media files (images, videos, audio files) without logging in. They can go to a view page and view more details about the media file as well as comments posted by other users. They can also

download the file from this view page. If the user is logged in they can submit a rating, a like or a dislike, or a comment. A user can change the rating for a piece of content as many times as they want, but they cannot have more than one rating for a piece of content at a time. For example, if a user has liked a piece of content, if they try to like again nothing will happen. If they dislike the rating will be changed from a like to a dislike. A user who is signed in can also leave comments on media. When uploading media, the user can select access controls for their various contact groups if they wish.

Favorites, Channels, Playlists:

The user can select which of their channels they want to add media to when uploading. They can do this for video and audio files. They can add any video or audio already uploaded by any user to any of their playlists. They can add any audio or video to their favorites list.

Contacts and block list:

A user can search other users and add them to their various contact lists. They can remove users from the contact and block list as well. If a media's access type is set to public, then everyone can see it. If not, then the user must be in the author's appropriate contact list to view the media. A user in another user's block list cannot see any media posted by the user or send them messages.

Implementation Details:

The storage of all metadata, profile data, and file location data is done in the MySQL database. Every user created is given a row in the "users" table, which includes their first name, last name, email address, password, and a user id.

Media files have their path stored in the database, so that when PHP makes a query it can get the path and embed it into the HTML, allowing for dynamic page generation. The paths are stored alongside the primary key, file type, size, the description, access type, view, the id of the user who uploaded it, and the name for the content that is displayed on the website. Whenever a piece of content is viewed from the view page, the views column is incremented.

Ratings are stored in a table with three columns; media id, user id, and rating. A rating can be a 1 or a 0 (like or dislike). The same is done for comments, except instead of a rating column there are the comment text and timestamp columns.

Each type of media has its own table, and audio and video have tables for playlists and channels.

Access Control is handled by a string of four bits assigned to a piece of media. From left to right the bits are 'Public', 'Family', 'Friends', and 'Acquaintances'. A one bit in the public position represents that every user that is not blocked can see that piece of media. A one bit in the other circles represents users in those circles can see the media. A zero represents that users in that circle cannot see the media.

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Tags have a different tag table for each type of media. There are only two columns, media id and tag text. Every tag gets its own row in the table. When searching for media with tags, if any tag matches a search term that content is selected from the database and presented to the user.

Channels, playlists, and favorites lists all have foreign keys that connect to the user and the media in the lists.

Test Cases:

1. **Register User**
   - Navigate to "/metube/index.php"
   - Click the login button at the top right corner of the screen
   - Click the green "Register" button
   - Enter your first name, last name, email address, and a password into the form.
   - Click "Register"

2. **Sign-in**
   - Navigate to "/metube/index.php"
   - Click the login button at the top right corner of the screen
   - Enter your email address and password into the form
   - Click the "Sign-in" button

3. **Sign-out**
   - User must be signed-in
   - Click the logout button at the top right corner of the screen
     - Confirm Sign-out
       - Click the "Yes" button
     - Decline Sign-out
       - Click the "No" button

4. **Profile Update**
   - User must be signed-in
   - Navigate to "/metube/index.php"
   - Click the link after "Would you like to update your profile?"
   a. **Name**
      - Enter a new first name and last name into the form
      - Click the "Update Name" button
   b. **Password**
      - Enter your current password and new password into the form
      - Click the "Update Password" button

5. **Contact List**
   - User must be signed-in
   a. **View**
      - Navigate to "/metube/index.php"

- Click the link after "Would you like to view your contacts?"

b. Remove Contact
- Click the "Remove From Contacts" button on the row of the contact you want to remove

c. Add
- Click the "Add Contacts" button at the top of the page
- Fill out one or more of the fields of the form

    i. Contact List Organization

        Family:
- Click the "Add to Family" button of the profile you want to add

        Friends:
- Click the "Add to Friends" button of the profile you want to add

        Acquaintances:
- Click the "Add to Acquaintances" button of the profile you want to add

6. **Block User**
- User must be signed-in
- Navigate to "/metube/index.php"
- Click the link after "Would you like to view your contacts?"

a. Add to Block List
- Click the "Add Contacts" button at the top of the page
- Fill out one or more of the fields of the form
- Click the "Block" button of the profile you want to block

b. Remove from Block List
- Click the "Block List" button at the top of the screen
- Click the "Remove From Block List" button of the profile you want to unblock

7. **Upload Multimedia Files**
- User must be signed-in
- Navigate to "/metube/index.php"
- Click the link after "Would you like to browse media?"
- Click the "Upload" button at the top of the screen
- Enter a Name
- Click the "Choose File" button to select the file

a. Metadata
- Select the checkboxes for the circles you want to have access to the file
- Enter a description
- Enter tags, separated by commas

b. Audio and Video
- Select a channel

8. **View Media Files**

- Navigate to "/metube/index.php"
- Click the link after "Would you like to browse media?"
- Click the "View" button of the media file you would like to view

9. Download

- Navigate to "/metube/index.php"
- Click the link after "Would you like to browse media?"
- Click the "View" button of the media file you would like to view
- Click the download link below the embedded media file

10. Sharing Mode

- User must be signed-in
- Navigate to "/metube/index.php"
- Click the link after "Would you like to browse media?"
- If the user is not in one of the access circles for a specific piece of media, that user will not be able to see it

11. Browse Media

- Navigate to "/metube/index.php"
- Click the link after "Would you like to browse media?"

a. Browse by category

i. Images, Videos, Audio

- Select the category from the dropdown box labelled "Choose which media type to browse:"

b. Sort by parameter

- Select which parameter you would like to sort by from the dropdown box labelled "Sort by:"
- Choose whether you would like to sort Ascending or Descending from the dropdown box labelled "Order:"

12. Channel

- User must be signed-in
- Navigate to "/metube/index.php"

a. View Channels

- Click the link after "Would you like to Maintain your <media> Channels?" where <media> is audio or video
- Click the link of the channel you would like to view in the "Channel Name" column

b. Add Channel

- Click the "Create <media> Channel" where <media> is audio or video
- Enter a channel name

c. Delete Channel

- Click the link after "Would you like to Maintain your <media> Channels?" where <media> is audio or video
- Click the delete button for the channel you want to delete

d. Add to Channel

- Upload a file following the steps in Test Case 7

13. Playlists
- User must be signed-in
- Navigate to "/metube/index.php"
- Click the link after "Would you like Maintain your <media> Playlists?" where <media> is audio or video

    a. Add Playlist
- Click the "Create Video Playlist" button at the top of the page
- Enter a playlist name
- Click the "Create" button

    b. Delete Playlist
- Click the "View Video Playlists"
- Click the "Delete" button in the row of the playlist you want to delete

14. Favorite Lists
- User must be signed-in
- Navigate to "/metube/index.php"
- Click the link after "Would you like View your Favorite <media>?" where <media> is audio or video

15. Most Viewed
- Navigate to "/metube/index.php"
- Click the link after "Would you like to browse media?"
- Select the media type in the dropdown box labelled "Choose which media type to browse"
- Select "Views" in the dropdown box labelled "Sort by:"
- Select "Descending" in the dropdown box labelled "Order: "

16. Most Recently Uploaded
- Navigate to "/metube/index.php"
- Click the link after "Would you like to browse media?"
- Select the media type in the dropdown box labelled "Choose which media type to browse"
- Select "Upload Time" in the dropdown box labelled "Sort by:"
- Select "Descending" in the dropdown box labelled "Order: "

17. Order by other parameters
- Navigate to "/metube/index.php"
- Click the link after "Would you like to browse media?"
- Select the media type in the dropdown box labelled "Choose which media type to browse"
- Select Name in the dropdown box labelled "Sort by:"
- Select "Descending" in the dropdown box labelled "Order: "

18. Messaging Exchange
- User must be signed-in
- Navigate to "/metube/index.php"
- Click the link after "Would you like to Send and View messages?"

a. Send Message
- Click the "Send Message" button at the top of the screen
- Fill out the email address, subject, and body
- Click the send button

b. View Received Messages
- There must be messages in the user's inbox
- Click the "View Messages" button at the top of the screen

c. Delete Received Messages
- Click the "View Messages" button at the top of the screen
- Click the "Delete" button of the message you want to delete

d. View Sent Messages
- Click the "Sent Messages" button at the top of the screen

19. Commenting on media file
- User must be signed-in
- Navigate to "/metube/index.php"
- Click the link after "Would you like to browse media?"
- Click the "View" button of the media file you want to comment on
- Enter a comment in the text field labelled "Add a comment:"
- Click the "Add Comment" button

20. Media Rating
- User must be signed-in
- Navigate to "/metube/index.php"
- Click the link after "Would you like to browse media?"
- Click the "View" button of the media file you want to comment on
- Select either the Like or Dislike radio button
- Click the "Add Rating" button

21. Group Discussion
- User must be signed-in
- Navigate to "/metube/index.php"
- Click the link after "Would you like to browse forums?"

a. Search Forums
- Click the "Search for Forum" button at the top of the screen
- Enter a search term

b. Create Forum
- Click the "Create a Forum" button at the top of the page
- Enter a title and description
- Select the checkboxes for the circles you want to have access to the file

c. Reply to forum
- Click the "Search for Forum" button at the top of the screen
- Enter a search term
- Click the title link of the forum you want to view
- Write a reply in the "Post Description" box
- Click the "submit" button

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22. Keywords-based search
- Navigate to "/metube/index.php"
- Click the link after "Would you like to browse media?"

Test Results:

1. **Register User**
   - A new row will be inserted into the user table
2. **Sign-in**
   - The "userid" session variable will be set
   - The "fname" session variable will be set
3. **Sign-out**
   - All session variables will be unset
4. **Profile Update**
   a. **Name**
      - The fname and lname columns of the user row in the users table will be updated
   b. **Password**
      - The password column of the user row in the users table will be updated
5. **Contact List**
   a. **View**
      - All of the users contacts will be displayed on the web page
   b. **Remove Contact**
      - The contact row will be removed from the contacts table
   c. **Add**
      - A new row will be inserted into the contacts table with the proper type and user id's
6. **Block User**
   a. **Add to Block List**
      - A new row will be inserted into the block list table with the proper user id's
   b. **Remove from Block List**
      - The block list row will be removed from the block list table.
7. **Upload Multimedia Files**
   - The file will be uploaded to the web server
   - A new row will be added to the proper media list table with the file path and metadata
   a. **Audio and Video**
      - A new row will be added to the proper media channel table
8. **View Media Files**
   - The selected media file will be presented to the user
9. **Download**
   - The file is downloaded successfully

10. Sharing Mode
- A user can not see media they are not permitted to see

11. Browse Media
    a. Browse by category
        i. Images, Videos, Audio
- Media files in the MeTube database will be presented to the user based on the category selected

    b. Sort by parameter
- Media files in the MeTube database will be presented to the user based on the category selected in the order specified

12. Channel
    a. View Channels
- Channels are presented to the user

    b. Add Channel
- New row is inserted into the channel table

    c. Delete Channel
- Channel row is deleted from the database

    d. Add to Channel
- New row is inserted into the "mediainchannel" table

13. Playlists
    a. Add Playlist
- New row is inserted into the playlist table

    b. Delete Playlist
- Playlist row is deleted from the database

    c. Add to playlist
- New row is inserted into the "mediainplaylist" table

14. Favorite Lists
- User's favorites are displayed

15. Most Viewed
- Most viewed media is shown at the top of list

16. Most Recently Uploaded
- Most recently uploaded media is shown at the top of the list

17. Order by other parameters
- Media is presented in the order specified by the user

18. Messaging Exchange
    a. Send Message
- The message is sent and visible to the other user
- A new message row will be inserted into the messages table

    b. View Received Messages
- Received messages are presented to the user

    c. Delete Received Messages
- Message row is deleted from the messages table

    d. View Sent Messages
- Sent messages are presented to the user

19. Commenting on media file
- A new row will be inserted into the comments table

20. Media Rating
- If no rating with (UserID, Media_ID) exists, a new row will be created.
- Else, the row will be updated

21. Group Discussion
    a. Search Forums
- Forums matching search terms will be presented to the user

    b. Create Forum
- A new forum row will be inserted into the forum table

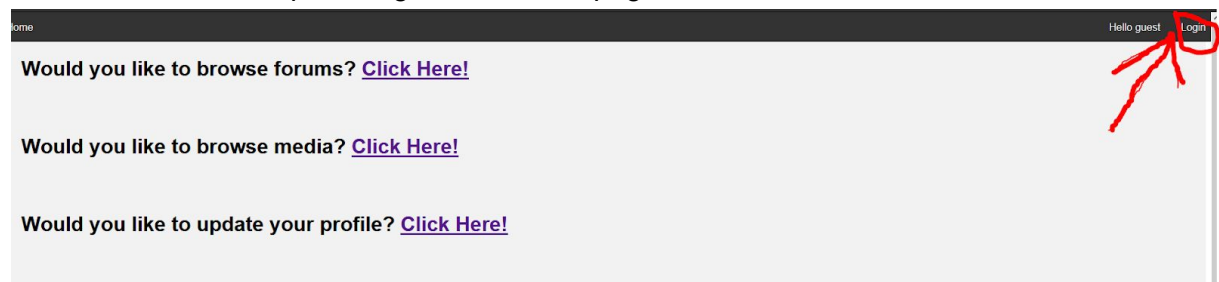   **c. Reply to forum**
- A new post row will be added to the post table

22. Keywords-based search
- Only images with tags matching search terms will be displayed to the user

User Manual:

    1. Create an account:
        a. Account creation gives access to all the features otherwise a guest user can only browse through media and forums.
        b. To create an account press login in the homepage:
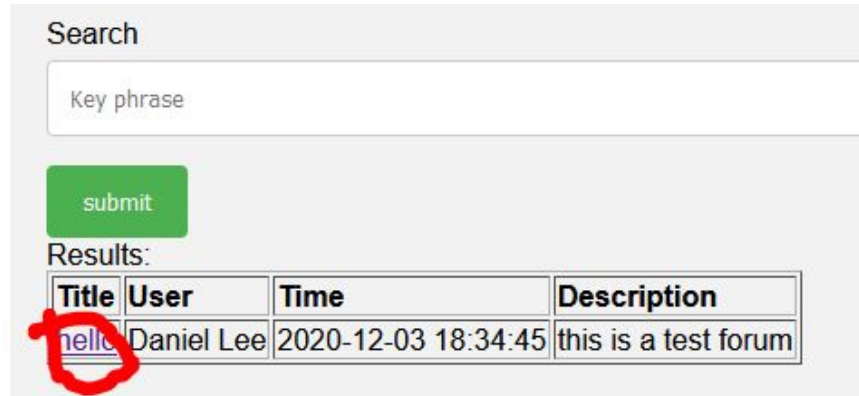
        c. Then press register.
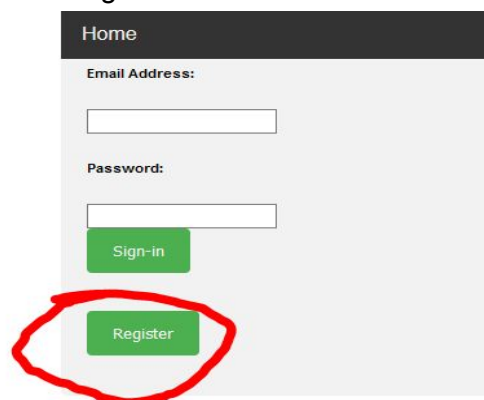
        d. Then create your account and you will be redirected to the home page. You have to press login and login with your email and password. Now you can do many more things like maintaining contacts, sending messages, maintaining channels, etc.

    2. Browse Forums

a. A user can browse forums by clicking on the browse forums link. There, the user can search for forums and create/ post to a forum if the user is signed in. The user can only browse through publicly available forums. To access the forum, he can Click on the hyperlink on the forum title.
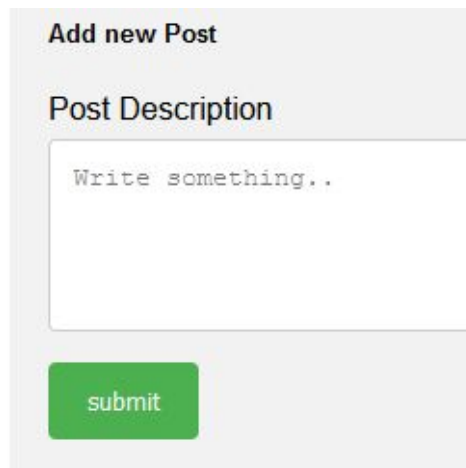
Search

Key phrase

submit

Results:

Title	User	Time	Description
hello	Daniel Lee	2020-12-03 18:34:45	this is a test forum

b.

c. The user can add a post to a forum using the post form below a forum page.

Add new Post

Post Description

Write something..

submit

3. **Browse Media**

a. A user can browse forums by clicking on the browse media link. There, the user can search for media. The users can select what type of media they want to browse, and order by ascending or descending, and sort by name, views, file size, and upload time.

b. The user can add an audio type or video type file to their existing playlists which can be created and maintained in the playlists page.They can leave comments on the videos they are viewing. Blocked users are prevented from accessing the media uploaded by the owner.

4. **Update Profile**

a. The user can change his/her name and update their password through the upload profile page.

5. **Sending and Viewing messages**

a. The user can send , view sent messages and view received messages by email.

6. Maintain audio/video playlists and channels
   a. The user can maintain his/her favorite videos and channels and playlists through a series of options in the home page. They can create channels, playlists and add videos/audios to their favorites.

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Would you like to Maintain your Video Channels? [Click Here!](#)

Would you like to View your Favorite Videos? [Click Here!](#)

Would you like to Maintain your Video Playlists? [Click Here!](#)

Would you like to Maintain your Audio Channels? [Click Here!](#)

Would you like to View your Favorite Audio? [Click Here!](#)

Would you like to Maintain your Audio Playlists? [Click Here!](#)