

**Welcome to Metube!**

**CPSC 6620: DBMS**

**FINAL REPORT**

**GROUP: G3**

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# About METUBE

**Introduction:** Me-Tube project is a database-driven media-file sharing website, and is a clone of the popular YouTube system. The advantages that Me-Tube are that, unlike YouTube, it is capable of sharing all kinds of media files between its users. The different media files that can be shared are:

- i. Audio
- ii. Video
- iii. Images
- iv. Graphics & Animations.

Every user needs to register to get access to the Me-Tube system. Once registered, the user gets many privileges like viewing videos and images, listening to songs, sharing these songs, creating a playlist of his favorite media, commenting on media shared by other people, adding other users as his friend, thereby getting access to the media shared by his friends, and so on. There are many functionalities and requirements listed one by one in this document in detail.

The features implemented in the Me-Tube system can be broadly classified as follows:

- User Account
- Data sharing
- Media Organization
- User interaction
- Search

## **User Account:**

Every user is expected to create a user to enjoy all the functionalities of the MeTube system. This account is password protected, and can be accessed by 1 user only. For creating an account, the user needs to give his name, email address, date of birth, and other necessary information. This information is used by MeTube to distinguish between all the users, and so that each user can be identified as unique. After setting up a personal account, the user can update his/her information at any time in the future.

A feature unique to MeTube is that every user can create lists of contacts, friends and foes. This gives the user to regulate what media he wants to share with others. All users in the blocked list won't be able to interact with you in any way. This gives every user some security and privacy.

### **Data Sharing:**

Data sharing is the main purpose of having a MeTube account. The basic functions are uploading and downloading any type of media on MeTube. Once any data is uploaded on MeTube, it will be visible only to those people in your contact list. Similarly, you can view and download files shared by people in your contact list. But, if any user has been blocked by you, he won't have access to the media shared by you.

Also, while uploading, you can specify exactly what kind of media file you are uploading, like the genre, type, category, etc. so that other users can search for your file by that category.

E.g.: If you upload a song "Waving Flag", and mention the genre as sport, then any user searching for songs related to sports will be able to access this song directly.

### **Media Organization:**

All media on MeTube is organized into categories, which makes it easier for users to browse through all the files. Thus, there are separate sections for audio files, videos, images, etc. Similarly, the whole media database is divided into different channels, which contain files of 1 genre only. Any user can subscribe to his preferred channels. This way, he can enjoy all media being broadcast by that channel.

Similarly, any user can create separate playlists for his audio and video files. Also, he can share this with his friends. This way, his friends can know what songs he is listening to, and can give suggestions about it.

E.g. A user can create a playlist called "Travel" to listen during a journey, and similarly create a playlist of songs "gym" which he will listen to while working out in the gym.

An additional feature is marking specific media as favorite. It should be noted that, a user can also remove media from the lists he has created, if he no longer wants them. Though these media will not be in his playlists or favorite lists, they will still be on MeTube.

An advanced feature used for classifying media is knowing which media is most viewed. Thus, all users can view a ranked list of media, with the topmost media being viewed/played the most number of times.

Also, a user has access to a list of media files arranged by the order in which they have been uploaded. This list contains the most recent files at the top, and the user can use this feature to stay up to date with the latest media being shared.

### **User Interaction:**

Since all users have a personalized account, they have the power to interact with each other. The degree of interaction is regulated by the relation (friends/contacts/foes) 2 users share between each other.

- i. **Messages:** The most basic interaction between users is exchanging text messages. The message has been limited to 500 characters. Also, it has an associated timestamp with it, so you know when a message is sent.
- ii. **Comments:** All users can give comments on the media. These comments are visible to all other users in your contact list. This way, you can give your opinions about a particular media to everyone, whether you like it or do not like it, and anything else you want to share with your contacts.
- iii. **Media Rating:** If you want to let what you think about a particular media, but don't want to spend a lot of time commenting on it, you can simply rate it on a scale of 1 to 5. Similarly, you can check up on the ratings of any particular media file, and then decide whether you want to view/download it or not. Thus, media rating is a very helpful interaction between users.
- iv. **Group Discussions:** Group discussions or discussion forums can be built by any user who wants people to discuss about a particular topic. Thus, all other users can comment on the given topic. Also, everyone in a group discussion can read each other's comments. This is particularly useful in case of video lectures regarding study material, where all the doubts of students in a class can be clarified by the instructor in one single place.

- v. **Search:** The MeTube system has YouTube-like search interface to allow users to search media files based on keywords. The advanced features include word cloud, media recommendation, feature-based media search, etc.

## **The System Design**

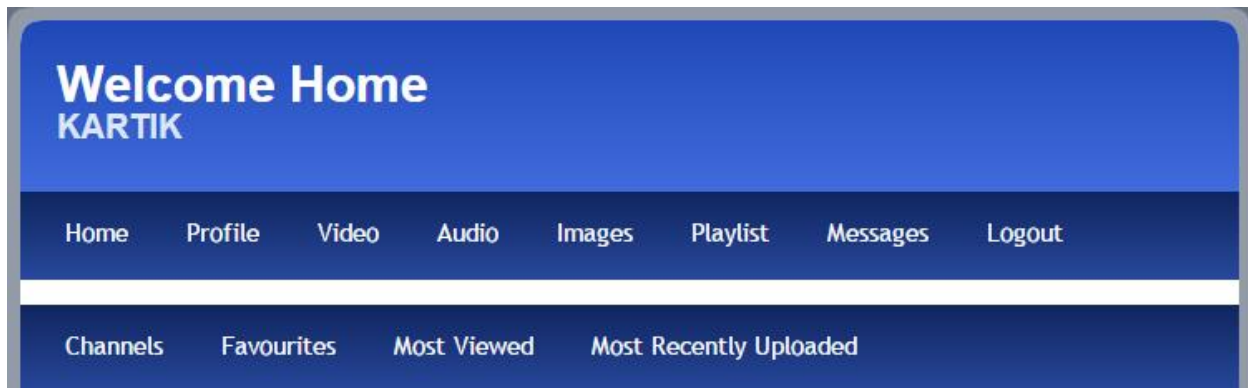
**Technologies used:** The MeTube system is designed mainly by using the following technologies:

- i. **PHPMYADMIN:** To design the database and create the tables. Also, it has been used to check some of the test results and validation.
- ii. **MySQL:** MySQL is a very popular RDBMS, has been used to query the database from the user interface for providing the various functionalities.
- iii. **HTML:** HTML is very simple and powerful language to design the layout of all the pages in the MeTube website.
- iv. **CSS:** CSS has been used to provide consistent styling to all the pages.
- v. **PHP:** PHP is used as a link between .....

Thus, MeTube is a combination of all the above mentioned powerful technologies. The layout is quite attractive to look at, and at the same time it is very user friendly, and easy to understand. It is simple to navigate through all the pages of this website very easily, and tabs have been given at appropriate locations in order to avoid any sort of confusion.

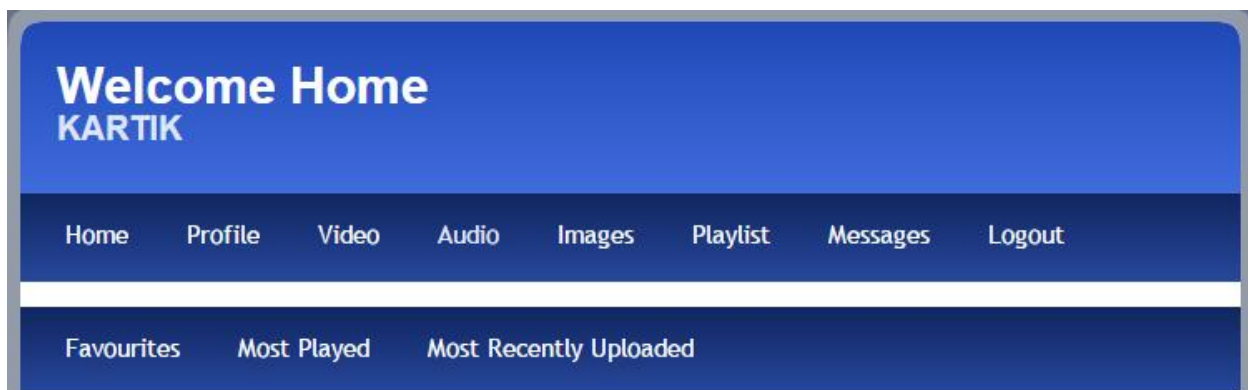
**The Website Layout:** The layout of this website can be best understood by having a look at the navigation bar, which is included in all the pages.

- i. **Browsing through the navigation bars:** A secondary navigation is given to some pages like audio, and video pages. These secondary bars contain the links to different features like the channels, favorites, most viewed and most recently uploaded media files. This placement of the navigation bar gives users the power to navigate through the website without any problems.



**The navigation bars for the video page.**

A similar layout is used for the audio page. The secondary bar for audio page lists all your favorite songs, the most played songs and also the most recently uploaded songs. This way, you can stay updated with the latest trending music.



**Page layout for audio page**

Once you login into the system, the metube makes sure that you access all the webpages with your username by making use of the SESSION feature. Of the different details stored in the SESSION feature, the username is made use of regularly so as to have high accessibility while using website, its underlying SQL commands.

The home page contains features that allow for search, uploading media and quick links to most viewed media files. Media search can be done by choosing the type of media we prefer to look for. Uploads give an option to provide the file with a display name and a genre.

User interaction is achieved by means of messages and forum discussions. Users are able to send new messages as well as reply to messages they may have received

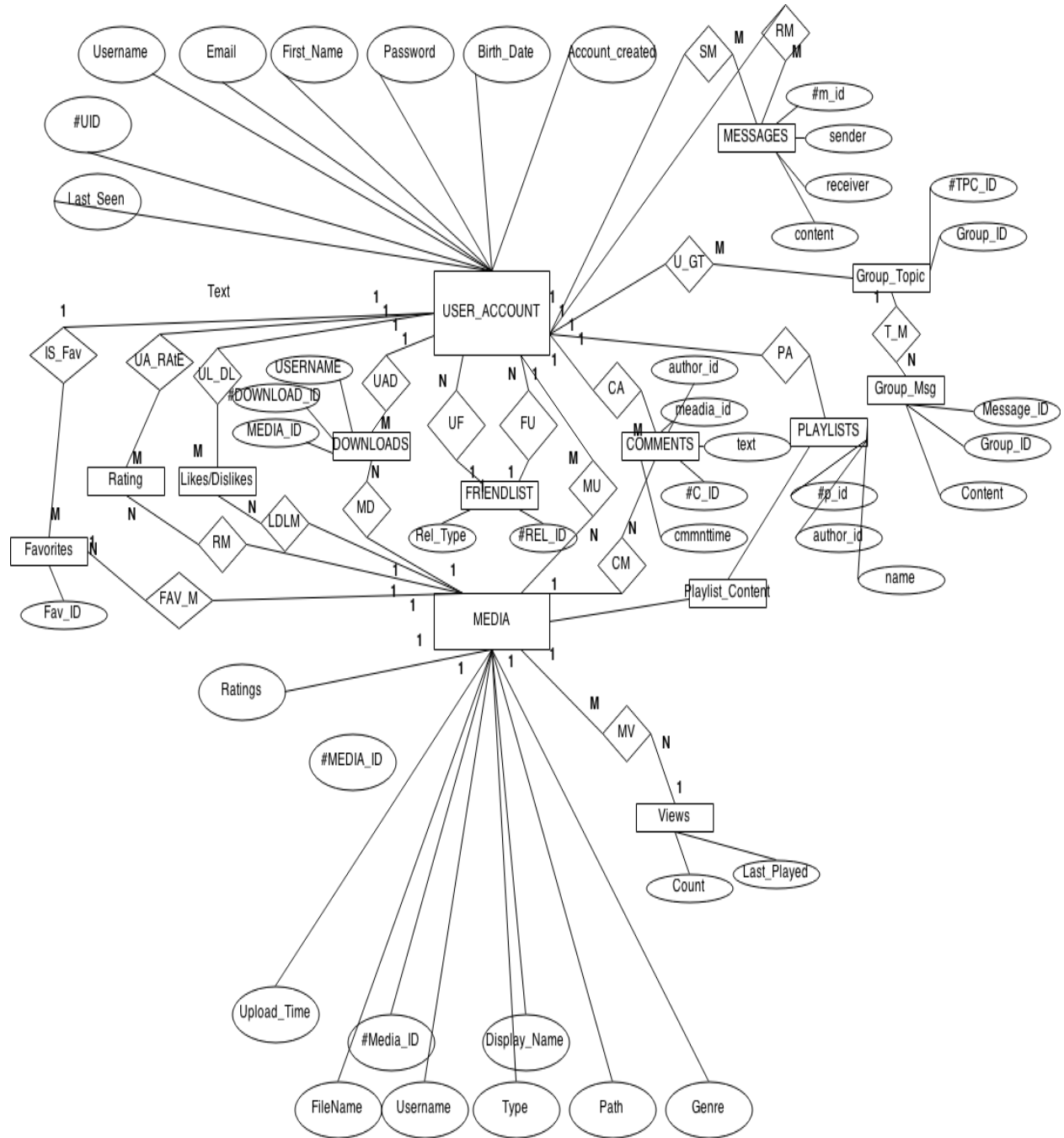
from other MeTube users. Forum discussions allow users to discuss topics of their choice. Users can also interact by choosing to make other users as friends or foes. This leads to media blocking features. Two users who are foes are blocked from viewing the media uploaded by each other.

Users can interact with the media by creating playlists and a favourites list. These lists can contain media of all types. Favourites list is not visible to other users. Channels provide a list of all the media files uploaded by the logged in user by category. Media can be viewed and commented on. Comments are displayed respectively for each media.

The lists of media, comments and messages are displayed using table format. SQL commands are used to obtain this list depending on media type, the playlist it belongs to and so on.

The layout of the webpage is stored in a separate CSS file. The properties in the CSS files are available to all the php files that it is linked to. This ensures that the webpage has a common layout. Styling has also been overwritten in certain areas to allow for simplicity of the page.

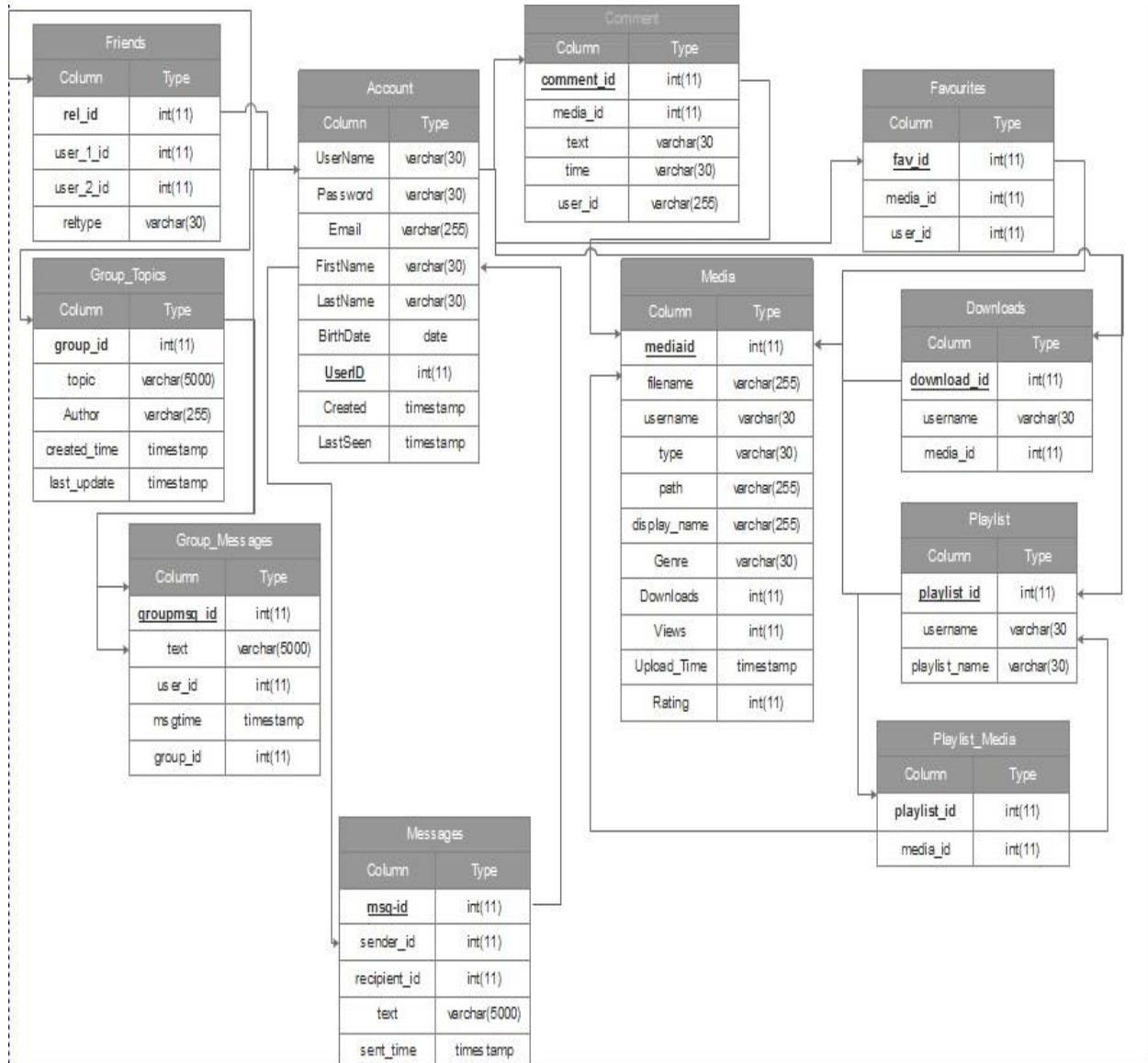
## The Entity Relationship Diagram



The above given ER diagram uses the Chen's notation, and includes all the features implemented in Metube.



## The Database Model.



The above shown database model has been drawn using an online tool called as EDraw. It depicts all the tables in our database. Also, the primary key for each table has been underlined. The datatype for each column/attribute is also given. It also includes the relations between the tables, with the account table and media table being the main 2 tables in this model. All other tables are either some functionality or an added feature based on these 2 tables.

The ER diagram and the Database Model have both been included in our folder on the server.

# Function Design

We have implemented all the required functions for a successful media sharing, which is user friendly and easy to use. Most of the functionalities are self-explanatory. Also, you can easily find the related functions at the same place, which gives more power to the user in, say creating or editing playlists, channels, etc.

All the important functions are briefly described below, with a screenshot providing additional information.

## I. The Log-In and Registration pages:

The registration page is the 1<sup>st</sup> page that all new users would start at. This page requires the basic information needed to set up a personal account. The functions carried out here are

- *Password & Email address validation:* A check whether the password and email address are of appropriate length and format. Would return an error message if there are any blank values.
- If the user already has an account, it would redirect to the log-in page.
- Similar checks regarding the inputs would be conducted on all other information, and would give error messages.
- The user needs to confirm his email address twice, while registering.



**Welcome To Metube**

Username:

Create Password:

Repeat password:

Email Address:

Repeat Email Address:

First Name:

Last Name:

Birth Date:

[Already a member? Log in here...](#)

II. **The Home Page:** Once a user has successfully logged in, the Home page is shown on his screen. This page is a one stop portal to navigate through the whole of the Metube database. A screenshot is shown below.

- A user can ***browse*** through all different types of media efficiently by clicking on any of the tabs that he wants. At the center of the home page, is a big search bar. He can enter the keywords for any file that he wants to search.
- Also, while ***searching***, a user has the option of selecting what type of media he wants to search, and the search will be limited to that type only. This is done using the checkboxes below the search bar.
- Also, on the home page itself, you can see there are some quicklinks. These quicklinks belong to
  - i. *Recently uploaded*
  - ii. *Most viewed videos*
  - iii. *Most viewed audios*
  - iv. *Most viewed images*

The above mentioned functions are implemented on the home page for easy access to the user, as these are the most often visited links.

- Also, an important function visible on the home page is the *Upload* functionality. Along with uploading any file, the user needs to specify the type & genre of the file he is uploading. This way, any new file will automatically be classified as belonging to that type. (This implies that it is added to the corresponding table in the database accordingly.)

Apart from browsing through the media, the navigation tab at the top of the home page has the following easy access hyperlinks.

- i. *Playlists*
- ii. *Messages*
- iii. *Contacts*
- iv. *Logout.*

The Logout page takes you out of the MeTube system, and ends the session, and you go to the Index page.

Welcome Home  
SHARAN

Home Profile Video Audio Images Playlist Messages Contacts Logout

SEARCH FOR ANY MEDIA

SEARCH

☒ Video ☒ Audio ☒ Image

Add a Media: *(Each file limit 10M)*

Choose File No file chosen

Filename:

Genre:

Upload

Recently Uploaded

Most Viewed Videos

Most Viewed Audio Files

Most Viewed Images

III. **The PROFILE PAGE** : The profile page is where a user has all his personal information. So, this includes everything you entered during registration.

- The *profile update* function can be invoked through the hyperlink at the bottom of the page, where a user can edit his profile.
- The user has access to all his *channels*, *messages* and a list of his *favorite* media files.
- A timestamp which gives the time of profile creation is also displayed on this page.

## Other's Profile page:

Occasionally, you may want to look at other people's profile also. When we are viewing someone else's profile, you will see all the information about him.

- You can only *view* someone else's information, but cannot edit this information.
- You can view the *channels* of the other person.
- You can send messages to the other person.
- You are not allowed to view the favorites of other people, it is kept personal.
- If you are viewing a person who is
  - a) Not in your contact list, you can add him to it as a friend or a contact.
  - b) In your contact list, you can make him a friend or a foe.
  - c) In your friend list, you can remove him from your friend list, or make him a foe of yours.
  - d) If you share a "foe" relationship, you do not have access to the foe's profile. You cannot view his channels, or send him any messages.

The screenshot shows a web interface for a user profile. At the top, a blue banner says 'Welcome Home B'. Below this is a navigation bar with links: Home, Profile, Video, Audio, Images, Playlist, Messages, Contacts, and Logout. Underneath is another bar with 'Channels', 'Favourites', and 'Messages'. The main content area is titled 'B'S PROFILE PAGE' and contains a list of user details: Name (k k), Email (k@c.com), Birthday (2012-01-01), Account created on (0000-00-00 00:00:00), and Last Log Out at (2015-04-21 18:10:56). At the bottom left of this section is a link that says 'Update Profile'.

Welcome Home B								
Home	Profile	Video	Audio	Images	Playlist	Messages	Contacts	Logout
Channels   Favourites   Messages								
B'S PROFILE PAGE								
Name:	k k							
Email:	k@c.com							
Birthday:	2012-01-01							
Account created on:	0000-00-00 00:00:00							
Last Log Out at:	2015-04-21 18:10:56							
Update Profile								

Channels	Favourites	Messages	Channels	Favourites	Messages	Channels	Favourites	Messages
D'S PROFILE PAGE			A'S PROFILE PAGE			G'S PROFILE PAGE		
Name:			Name:			Name:		
Email:			Email:			Email:		
Birthday:			Birthday:			Birthday:		
Account created on:			Account created on:			Account created on:		
Last Log Out at:			Last Log Out at:			Last Log Out at:		
Make Friend			Make Foe			Add as friend		
Send a Message			Send a Message			Add as foe		
						Send a Message		

Figure showing profile page for a) FOE ,b)Friend & a c) Contact.

#### IV. Videos Page:

On the videos page, one can see all the videos hosted on the MeTube system.

- When you view any video, you have the option to *download* it.
- Similarly, you can *rate* the video.
- A user can add a video to his or her favorites also, and it will get saved in the *favorites* list.
- Any user can add these videos to a *playlist*. The user can create new exist, or add the video to already existing playlist from this page itself.
- Also, you can see the author of the video, and can visit his profile from here.
- Once you play a video, you can see the *comments* posted on that video. Also, you can see the author of the comment and the time of the comment.
- You can add a comment yourself from here.
- Just above the comments box, you have the option of *rating* the video on a scale of 1-5.
- The video page has 2 hyperlinks, the *Most Viewed* and the *Most Recently Uploaded* media files can be seen from here.

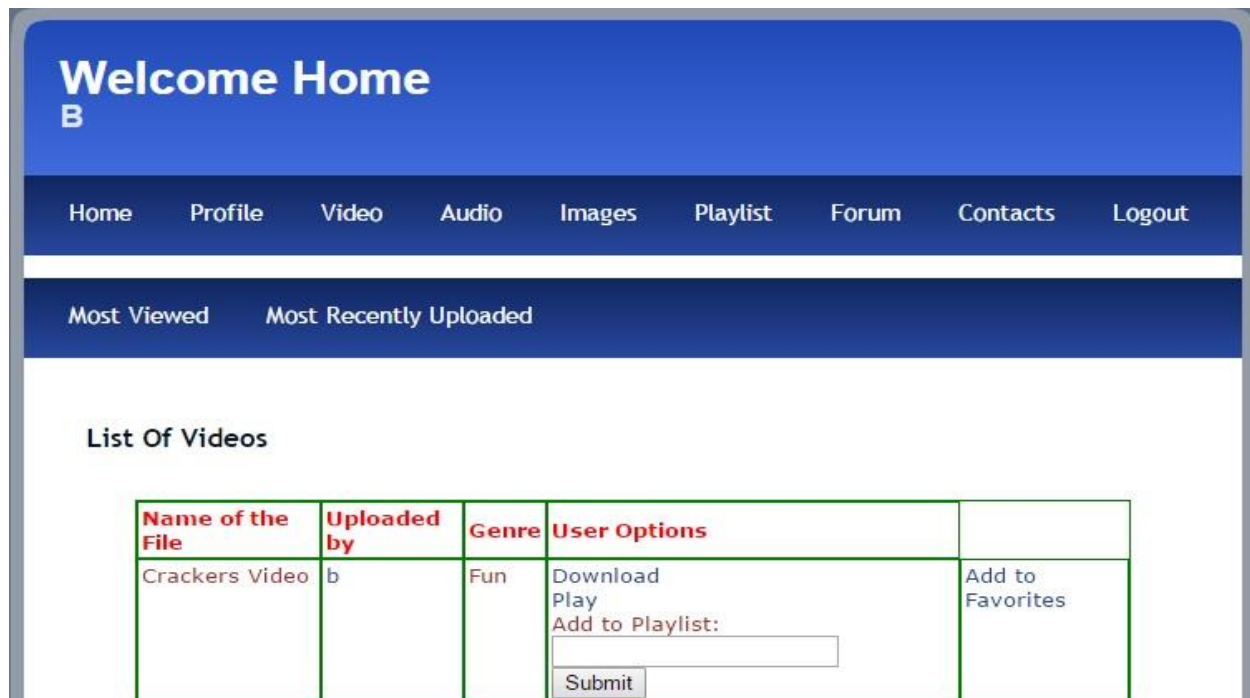


Figure to show the video page

As mentioned above, the *comments* are related to the video, and are visible only after playing the media file.

#### V. The Audio Page:

- The audio page is very similar to the video page.
- The functions implemented in this page are the *download, play and favorites* function. This are similar to the ones previously explained.
- Two hyperlinks to the most played and most recently uploaded files have been given in this page also.
- You also have the *comment,rate* or *add to playlist* options for the audio songs.

#### VI. The Images Page

Most of the functions are similar to those in audio and video pages. Thus, functionally, this page is similar to the previous pages.

**VII. The Playlist Page:** All users can create playlists, and this is done when they implement the *add to playlist* button. Every playlist is a list of media files, which are selected by the user.

- Also, you can see the name of the owner of the playlist.

- You can play the media either from the playlist, or from the specific media path.

### **VIII. The Forum:**

The forum is a common platform for all the users to have discussions.

- All users can see a list of the on-going discussions in the forum.
- One can create a new discussion thread, or comment on the on-going discussions.
- Any user can view the comments on discussions of everybody else, except for those marked as foe.
- The start time, and the last comment time on any discussion is also given.
- These discussions have been ordered, and you can always view the most recent discussions at the top.

### **IX. The Contact:**

- The contacts page is a list of all people in your contacts. You can add these people to your friendlist also.
- You can view all the media shared by people in your contacts.
- You can view the channels by your contacts.
- You can comment, hold discussions and send messages to people in your contacts.

**Conclusion:** Thus, all the required functions and their implementation have been discussed.

We move on to check a few test cases for some common testing conditions. Now, we cannot conduct an exhaustive testing, but have provided a sufficient number of cases.



Login Page	Results	Comments
Username should be registered	Works	Gives error if not registered
Password should match to existing value	Works	Error message
Return error message if any inout is blank	Works	Gives error if not registered
Link to Home page	Works	On succesfull registration.
Home Page		
Search bar to browse through all media	Works	Can use keywords
Link to upload any file	Works	File gets uploaded in meTube
Navigation bar to navigate based on category	Works	
Option to logout	Works	Takes to index page
Quick link to Most viewed videos	Works	give most viewed videos
Quicklink to Most viewed audio	Works	
Most viewed Images	Works	
Search using the checkboxes	Works	Works for all the categories. works for none also.
Profile Page		
View one's own profile properly	Works	
Option to update personal information	Works	Not allowed to update username
Update Profile	Works	Maintain formate rules
Change password	Works	Validation again
Verify email twice	Works	
Do nothing if blank	Works	
View one's channels	Works	Default channels, can create new channels also
view a list of favorites of self	Works	
View list of favorites of others	Prohibited	Privacy
Playlists		
Can view contents	Works	Can view all playlists
Can add any media to playlist	Works	Using Button
Can create new playlist	Works	Using Button
can view only friends playlist	Works	
Register page		
Proper format for the following fields	Works	Should be maintained
Username	Works	Alphanumeric & unique
Password	Works	
Email Address	Works	Proper format
Firstname & Lastname	Works	
Date of Birth	Works	Proper format & string
Return error message if any of the above is not proper	Works	
videos		
Navigate through categories	Works	Using tabs on every page
Navigate throughfavoutire/channels/	Works	Given on some pages
Most viewed	Works	Enabled

Most recently uploaded	Works
add to playlist	Works
add to favorites	Works
download	Works
audio	
Navigate through categories	Works
Navigate through favourites	Works
Most recently uploaded	Works
add to playlist	Works
add to favorites	Works
download	Works
images	
display all images	Works
add to favorites	Works
Messages	
Get sender name	
Get receiver name	
Get timestamp	
Get content	
Cannot send messages to foes	
Group Discussions	
Can view all existing discussions	Works
Can comment on any discussions	Works
Time stamp of discussions	Works
Search	
search by single keyword	Works
feature based search	Works
Contacts & Relations	
Add to contact	
Add to friend	
Add to foes	

# USER MANUAL

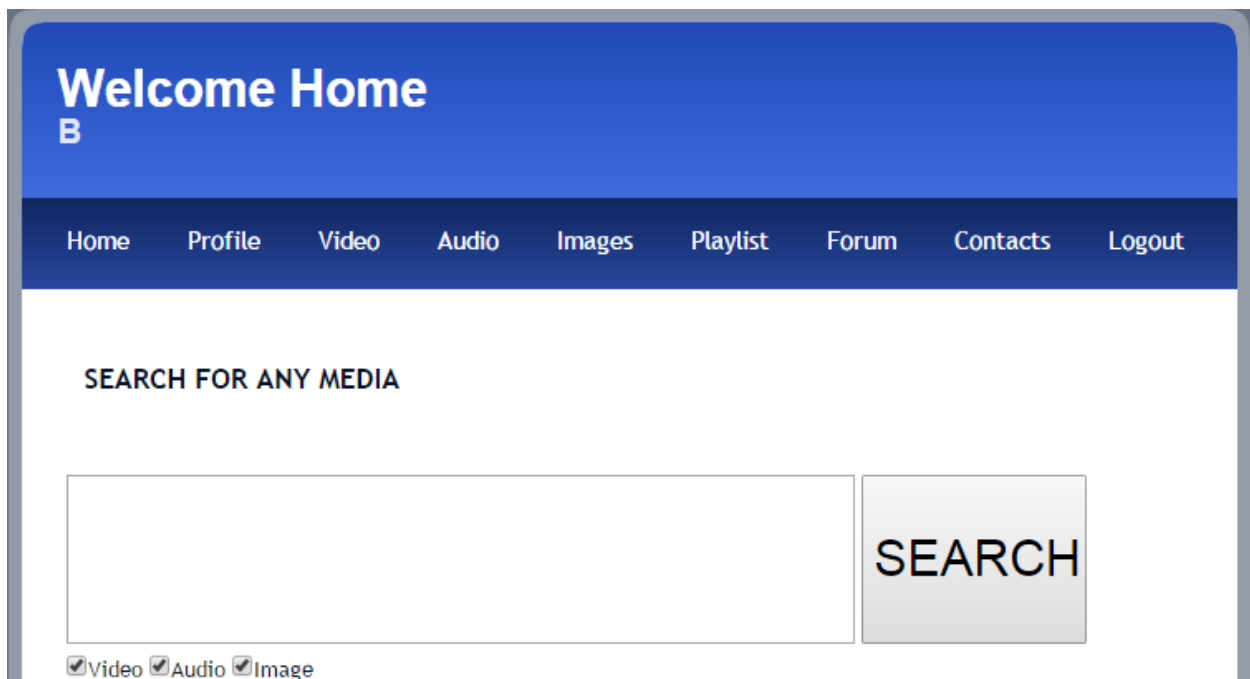
## 1. Logging In:



A login form with a dark gray background. It contains two white input fields: the first is labeled 'Username:' and the second is labeled 'Password:'. Below the password field are two buttons: 'Login' and 'Reset'.

All registered users need to input their username and password to log in. You should always remember your password.

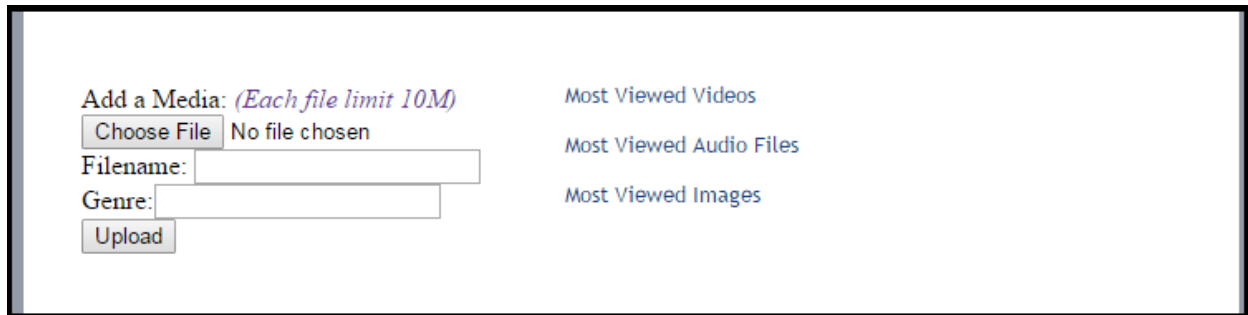
## 2. Searching for media on home page:



The home page interface features a blue header with the text 'Welcome Home' and a small 'B' below it. Below the header is a dark blue navigation bar with links: 'Home', 'Profile', 'Video', 'Audio', 'Images', 'Playlist', 'Forum', 'Contacts', and 'Logout'. The main content area has the heading 'SEARCH FOR ANY MEDIA'. Below this is a large white search input field and a gray 'SEARCH' button. At the bottom of the search section, there are three checkboxes: 'Video', 'Audio', and 'Image', all of which are checked.

- Use checkboxes to search for any particular type of media.
- User can navigate through this page to all other tabs given in the top.
- You can Logout at any time , upper right corner always has this tab.

### 3. Uploading a media, using Quicklinks:



Add a Media: *(Each file limit 10M)*

No file chosen

Filename:

Genre:

[Most Viewed Videos](#)

[Most Viewed Audio Files](#)

[Most Viewed Images](#)

- Upload files of any type using the upload link.
- Remember to specify the genre
- Users can make use of the quicklinks to get the most viewed media files.

### 4. Use the update profile to update your information.



**Welcome Home**  
B

[Home](#) [Profile](#) [Video](#) [Audio](#) [Images](#) [Playlist](#) [Forum](#) [Contacts](#) [Logout](#)

[Channels](#) [Favourites](#) [Messages](#)

**B'S PROFILE PAGE**

Name: k k

Email: k@c.com

Birthday: 2012-01-01

Account created on: 0000-00-00 00:00:00

Last Log Out at: 2015-04-21 20:40:05

[Update Profile](#)

- Users can also view their channels and messages in this profile.

## 5. The Discussions & Forum page:

# Welcome Home

B

- Home
- Profile
- Video
- Audio
- Images
- Playlist
- Forum
- Contacts
- Logout

## List Of Discussion Topics

Create New Discussion Thread

Forum Topic	Started by	Last Update
test1	b on 2015-04-20 00:52:31	2015-04-20 00:52:31
Test	a on 2015-04-18 23:55:59	2015-04-19 00:00:00

- Users can create or participate in group discussions from Forum page.
- They can also see the last created time and the last updated time of any topic listed in the Forum page.

## 6. The Contacts page:

# Welcome Home

B

- Home
- Profile
- Video
- Audio
- Images
- Playlist
- Forum
- Contacts
- Logout

## Contacts

Username	Email	Last Logout at	Link to profile	Friend/Foe
c	k@c.com	2015-04-21 20:40:05	Profile\	friend
a	k@c.com	2015-04-21 20:40:05	Profile\	foe
d	k@c.com	2015-04-21 20:40:05	Profile\	foe
tushar.a17@gmail.com	k@c.com	2015-04-21 20:40:05	Profile\	friend
paul	k@c.com	2015-04-21 20:40:05	Profile\	friend

- Users can view their contacts here  
They can also check relations like friend/foe etc.

7. Recently viewed/updated or Most recently viewed

- Users can also check media based on timestamp category or number of views. This is usually to get the most popular media or the trending media.

8. Channel: Whenever users will update any media, it will automatically be added to their channel. Users can view their own media files by going through their channels.

Home	Profile	Video	Audio	Images	Playlist	Forum	Contacts	Logout
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### Channel

My Video Channel

Name of the File	Genre	User Options
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My Image Channel

Name of the File	Genre	User Options	
Comic Strip 2	Art	Download Play Add to Playlist: <input type="text"/> <input type="button" value="Submit"/>	Add to Favorites
Stuff1	Art	Download Play Add to Playlist: <input type="text"/> <input type="button" value="Submit"/>	Add to Favorites
Wall1	Wallpaper	Download Play Add to Playlist: <input type="text"/> <input type="button" value="Submit"/>	Add to Favorites
wall2	wallpaper	Download Play Add to Playlist: <input type="text"/> <input type="button" value="Submit"/>	Add to Favorites
wall3	Wallpaper	Download Play Add to Playlist: <input type="text"/> <input type="button" value="Submit"/>	Add to Favorites

My Audio Channel

Name of the File	Genre	User Options
------------------	-------	--------------

## 9. Messaging

- Users can share messages amongst their friends and contacts.
- Users can also delete all their messages.

# Welcome Home

HomeProfileVideoAudioImagesPlaylistForumContactsLogout

Create MessageDelete Messages

From	Message	Received At	Options
------	---------	-------------	---------

### **Acknowledgement :**

We, the members of CPSC6620 G3 express our gratitude towards Dr Zijun Wang, the Instructor for providing us with the opportunity to learn the concepts of DBMS through the MeTube project. We believe that the theoretical and the practical knowledge gained through this course will be highly helpful during the course of our future endeavours. Also, we would like to include the TA, Ms Yuanyuan Zhang, in our gratitudes.

**Thank You**