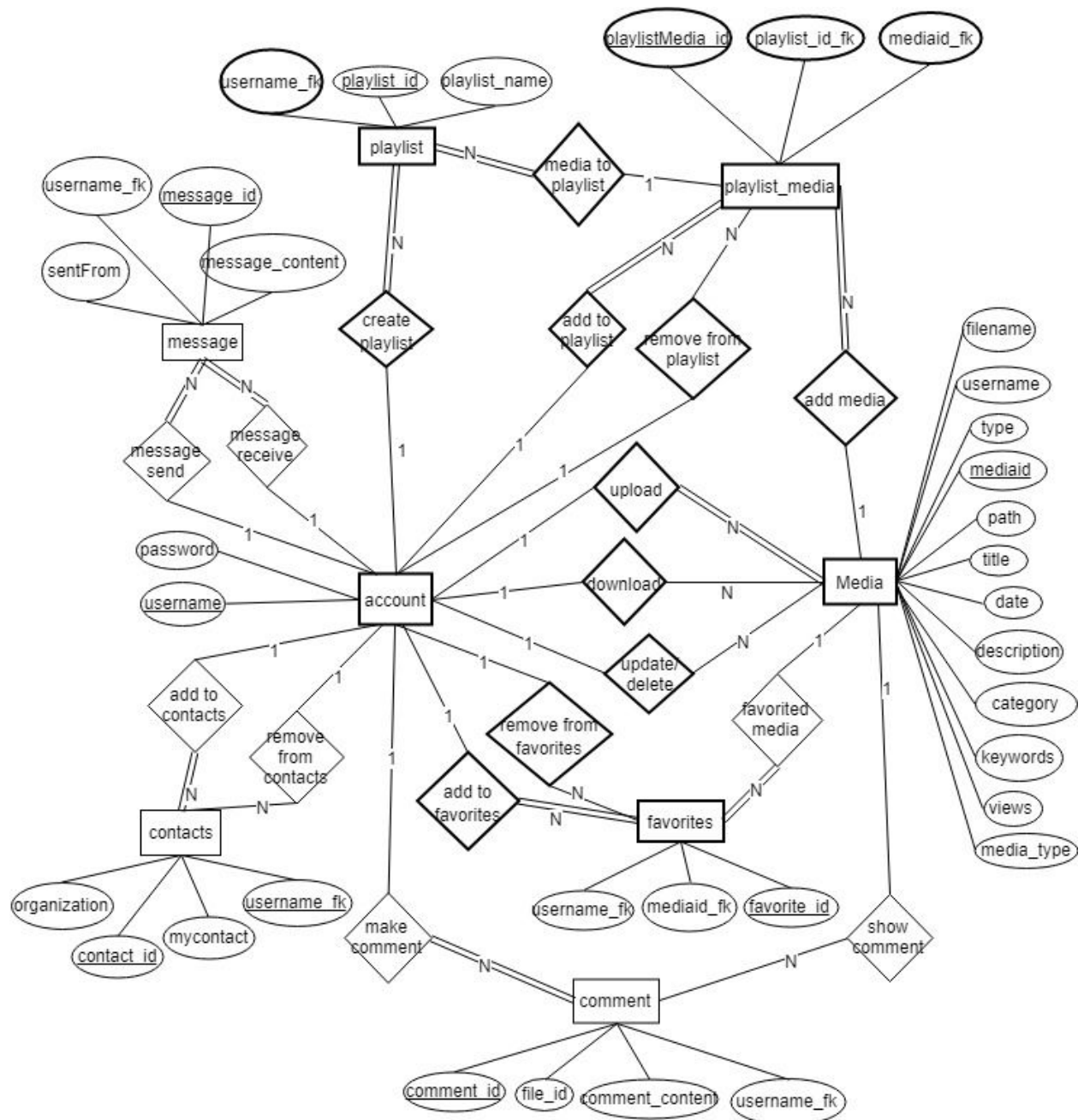# CPSC 4620 Database Technical Report
Team 5
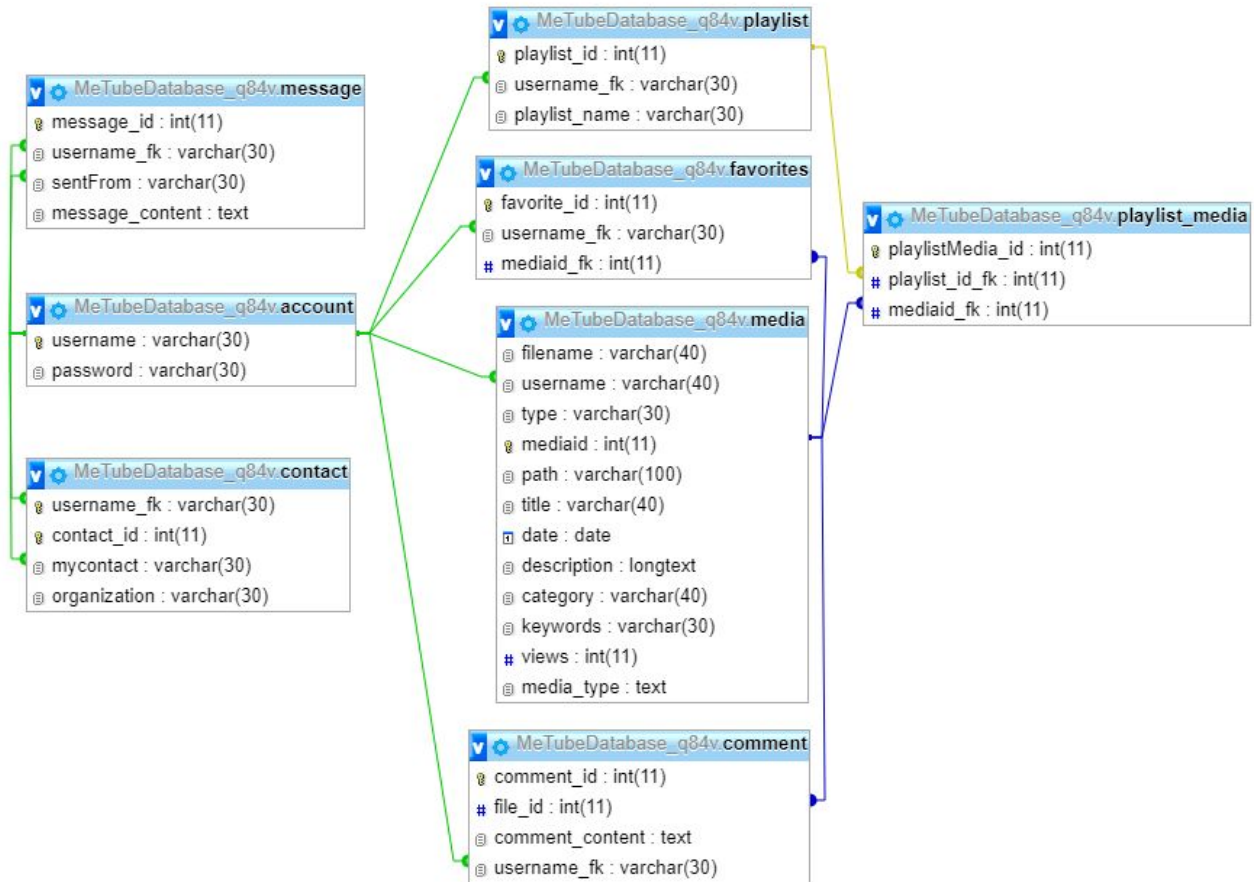# Trey Helms, Lisa Hieftje-Conley, Matthew Palmer

System design

Our MeTube project is a website designed to share multiple types of media. The site manages video and image files to be uploaded by users. These uploaded files can be accessed and downloaded by anyone with the link to MeTube. With this link, people can also search the site using keywords, categories, types of media, or users. Once registered, a user is created and given many more capabilities than just someone visiting the site. Users can update their information or update/delete previously uploaded files. Users can favorite media that will be added to their favorites list, and users can create and add to a playlist only they can customize and view. Users are attached to a channel where everything they upload can be found. The channel is essentially their public profile with access to all media they uploaded. Users have the ability to comment on media uploaded, add contacts and message other users directly.

The site tracks interactions between users and viewers with counts of views, favorites, comments, and downloads of each media uploaded. We took full advantage of Clemson's resources while developing this project. We utilized buffet.cs.clemson, phpmyadmin, and webapp to organize our project. In addition to provided resources, we used bootstrap framework as an open source tool for front end design. We also used font awesome to access different icons such as the search button icon in the navigation bar. The rest of the coding was completed and connected to phpmyadmin for table organization and shared through a github account.

ER diagram

Database schema

Function design

Requirement 1: **User Registration.** When a user visits the page and is not logged in, the navigation bar presents two options to the right of the search bar: Register and Login. Once the user has chosen Register, they will create a username, create a password, and confirm the password. These credentials are stored in the account table.

Requirement 2: **Sign-in.** When a user visits the page and is not logged in, the navigation bar presents two options to the right of the search bar: Register and Login. Once the user has chosen Login, they will enter an already created username and password. The entered username and password are verified with the account table.

Requirement 3: **Sign-out.** When a user, who is already signed into their account, clicks the sign out button in navigation bar they will be logged out of their account and therefore lose permission to their assets (i.e., contacts, favorites, playlists).

Requirement 4: **Profile Update.** When a user is already signed in, they are able to select many different options from the drop down button labeled "Account". The first option once Account is hovered over is Update Account. When a user clicks Update Account they will brought to a page that allows them to change their password, a value that is saved in the account table with the corresponding user.

Requirement 5: **Contact List.** When a user is already signed in, they are able to select many different options from the drop down button labeled "Account". The second to last option is Contacts. Users can add, categorize, and delete contacts that are saved to their account in the table labeled contact. Users can then also view a list of their contacts.

Requirement 6: **Upload Multimedia Files.** Once logged in, users can upload files to the media table by selecting Upload from the Account drop down button. Files are uploaded and stored in the media table the in the same way as the MeTube Template file.

Requirement 7: **Add Metadata to Uploaded Files.** Users can add title, description, category, etc, during the upload process. All of this metadata is saved to the file in the media table.

Requirement 8: **Download.** A download button is found on every image. When clicked, the file is downloaded and opened in the same browser tab.

Requirement 9: **View Media Files.** All media files are displayed in browse.php in a nicely designed table. If you click on the thumbnail you will be brought to a unique image.php page where you can view the information on the file. Here you can find keywords, category, and more.

Requirement 10: **Browse By Category.** Any user that visits the site will find the browse button in the top left corner of the navigation bar. When the button is clicked the user will brought to browse.php, which allows users to filter by category and media type. When you click the filter button is will query the database to display every matching file.

Requirement 11: **Channel.** The user's channel is very similar to the browse page. Users can customize their channel by applying filters to the database in order to view specific uploads.

Requirement 12: **Playlists.** Users can create their own playlists after they have logged in by scrolling through the Account button on the nav bar. Once you have selected playlist you will see a filter for your current playlists. If you haven't created a playlist yet, you can do so on this page. After creating a playlist, users can visit the home page, click on images, and add them to any playlist they want.

Requirement 13: **Favorite Lists.** Users can add multimedia files to their favorites in order to save their prefered files. Users can visit the home page, select a file, and add it to their favorites

if they are logged in. Users can view their favorites list by selecting favorites on the Account scroll through button.

Requirement 14: **Messaging Exchange Between Users.** Registered users can send messages to each other by selecting message in the Account drop down button in the navigation bar. Users can view their messages or send a new one to a specified user. Sent messages will appear in the "My Messages" page of the specified user. Users can also clear old messages.

Requirement 15: **Commenting on Media File.** Commenting on media files is done by clicking the image from the home page. Users then select "Add Comment" above the file and proceed to enter a comment. Once the comment is submitted, it can be viewed on the images page and also shows the username of the commenter.

Requirement 16: **Keywords-based Search.** Users can search the media table by typing text into the search bar in the navigation bar. The query will search and select the media table fields for title, description, or keywords that match the entered text.

Implementation details

Requirement 1: **User Registration.**

register.php

> *if(passwords match){*
> > *if(username does not already exist){*
> > > *Create user and give user permissions.*
> > *}*
> *} else { error }*

The code used for the registration process matches the template for the most part. Registration simply adds a new user to the account table.

Requirement 2: **Sign-in.**

login.php

if(user exists){
> *if(password is correct){*
> > *Sign user in and give access to their assets.*
> *}*
} else { error }

The login process was also kept very similar to the way the template logged users in.

Requirement 3: **Sign-out.**

logout.php

<?php
session_start();
session_destroy();
header('Location: login.php');
exit;
?>

The sign-out function is very simple and takes away the users permissions to their files.

Requirement 4: **Profile Update.**

accountsettings.php

if(passwords match){
> *Update password field in account with corresponding user.*
} else { error } Profile update is a simple function that allows users to change their passwords.

Requirement 5: **Contact List.**

addContacts.php

To add contact:

if(user is logged in){
*   if(new contact username exists){*
*   Add new contact*
*   }*
}

To delete contact:

if(user is logged in){
*   if(deleted user exists in contacts list){*
*   Remove specified contact from users contact list.*
*   }*
}

To view their contact list, users simply click the contacts button.

Requirement 6: **Upload Multimedia Files.**

media_upload_process.php

if(uploads folder does not exist)
Create uploads folder
if(file is within size constraints){
*   if(user is logged in){*
*   if(file doesn't already exist)*
*   Upload to media table with corresponding entered metadata.*
*   }*
*   }*
} else { error }

Requirement 7: **Add Metadata to Uploaded Files.**

media_upload.php

<h4 style="margin-bottom:0px; margin-top: 20px;">Title</h4><input maxlength="40"
id="title" name="title" type="text" class="form-control" style="width: 550px;">
*
*
*   <select name="mediaType"class="form-control" style="width: 175px;">*
*   <option>Image</option>*
*   <option>Audio</option>*

<option>Video</option>
</select>

All metadata is added with the same format as the above HTML excerpt.

Requirement 8: **Download.**

Kept same as process in the project template.

Requirement 9: **View Media Files.**

Media files are viewed in index.php with their thumbnail and title, but can be expanded by clicking on them

index.php

<h5> <?php echo $title ?> </h5>
<div class="img-thumbnail"> <a href="<?php echo $url;?>"><img src="<?php echo
$filenpath;?>" class="img-responsive" width = "250" height="200"></div>

Files are displayed with a thumbnail in the format shown above.

image.php

if(title, description, keywords, etc)

   Display image and associated metadata.

Requirement 10: **Browse By Category.**

browse.php

*SELECT * FROM media WHERE category='$category' AND media_type='$type'*

Browse works with a simple query that is based off of user entered search criteria.

Requirement 11: **Channel.**

channel.php

*SELECT * FROM media WHERE category='$category' AND media_type='$type' AND*
username='$username'

A users channel page is filtered with a similar query to browse, except only shows user uploaded multimedia files.

Requirement 12: **Playlists.**

createPlaylist.php

INSERT INTO playlist (`username_fk`, `playlist_name`) VALUES ('$username','$playlist_name')

Users create playlists with this simple query shown above.

playlist.php

SELECT playlist_name FROM playlist WHERE username_fk='$username'

Users can view their playlists with this query.

Requirement 13: **Favorite Lists.**

addComment.php

INSERT INTO `favorites`(`username_fk`, `mediaid_fk`) VALUES ('$username','$fileid')

When users are on the image page, and decide to add the file to their favorites, this query is executed.

favorites.php

SELECT mediaid_fk FROM favorites WHERE username_fk='$username'

*SELECT * FROM media WHERE mediaid=Above_Mediaid_fk*

A users favorites are displayed with this query and subquery.

Requirement 14: **Messaging Exchange Between Users.**

This function allows users to message eachother:

message_user(fromUser, toUser, message){

*SELECT * FROM contact WHERE username_fk='$fromUsername' AND mycontact='$toUsername'*

INSERT INTO message (`username_fk`, `sentFrom`, `message_content`) VALUES ('$toUsername','$fromUsername','$message')

}

The sent messages will appear in the toUser's messages screen.

Requirement 15: **Commenting on Media File.**

addComment.php

send_comment($username, $fileid, $comment){
* $query = "INSERT INTO comment (`file_id`, `comment_content`, `username_fk`)*
VALUES ('$fileid','$comment','$username')
}

Comments are then viewable on the image page.

Requirement 16: **Keywords-based Search.**

The search bar works the same as the browse.php file seen in browse by category section above.

Test cases and results

test scenario	test steps	expected results	actual results	Pass/Fail
view media and contents	1. click on media	show file, views, upload date, keywords, category, description, and users that have commented	as expected	Pass
user registers to MeTube	1. click register button on the top left corner of the home page 2. enter username, password, and confirm password 3. click submit	user is taken back to a visitors homepage	as expected	Pass
sign in to Metube	1. click login button 2. enter username and password as registered 3. click sign in	user is taken to the home page, but upper left corner changed to account and login	as expected	Pass
sign out of MeTube	1. Click logout button	logs the user out and goes back to login page	as expected	Pass
update password	1. click on account drop down tab 2. click on update account 3. enter new password and retype new password 4. click submit	page now has confirmation at the bottom stating new password with username	as expected	Pass
user must enter valid login information	1. click login button 2. enter invalid username or password to test 3. click sign in	receive an argument saying incorrect password for given username	as expected	Pass
user uploads media	1. click account drop down tab 2. click upload 3. click on choose file and select the desired file to upload 4. enter the title of the media 5. select the type of media(image, audio, video) 6. type keywords associated with the media 7. enter a desription for the media 8. enter a category for the media to be filed under 9. click upload	takes the user back to the browse page, the home page now has the media uploaded under new uploads	as expected	Pass
download media	1. click on desired media for downloading 2. click download button underneath the media	image downloads and shows on full page	as expected	Pass
browse by category or media type	1. click on browse button 2. select category from drop down menu and/or type of media from drop down menu 3. click filter	shows results from specific filtered search	as expected	Pass
search by media name, keyword, or description	1. enter information(name, keyword, part of description) of desired media to view into the search bar 2. click enter on the keyboard or the search icon next to the search bar	shows results from search	as expected	Pass
user has a channel that holds all their media	1. click account drop down tab 2. click channel 3. filter your channel as desired or keep category ad media type as all 4. click filter	shows results from filter or all media items that the user uploaded and that are attached to their profile	as expected	Pass

create playlist	1. click account drop down tab 2. click playlist 3. click create playlist page 4. enter the name of the playlist 5. click submit	creates playlist, shows insert confirmation, shows playlist as an option to choose when looking at your playlists	as expected	Pass
view playlist	1. click account drop down tab 2. click playlist 3. choose desired playlist from drop down tab under choose 4. click filter	shows all media in given playlist	as expected	Pass
add to playlist	1. click on desired media to add to playlist 2. click on add comment/add to playlist button 3. choose desired playlist to add to 4. click submit	media is added to selected playlist	as expected	Pass
add comment to media	1. click on desired media for commenting 2. click add comment/playlist/favorites 3. enter comment in add comment section 4. click submit	comment confirmation, and comment added to to file	as expected	Pass
go to favorites	1. click account drop down tab 2. click favorites	shows all media user has favorited	as expected	Pass
add to favorites	1. click on desired media to favorite 2. click add comment/playlist/favorites 3. click submit button under add file to favorites	file is added to favorites list	as expected	Pass
delete file	1. click on desired file to update or delete 2. click update/delete file 3. click delete file button	file is permanently deleted	as expected	Pass
update file	1. click on desired file to update or delete 2. click update/delete file 3. enter updated information 4. click update file	file will be updated with new information	as expected	Pass
add contacts	1. click account drop down tab 2. click contacts 3. enter username of contact 4. select contact organization 5. click submit	contact is added to contact list	as expected	Pass
view contacts	1. click account drop down tab 2. click contacts 3. click my contacts page	view contacts by organizational category	as expected	Pass
delete contact	1. click account drop down tab 2. click contacts 3. enter username of contact 4. click submit	contact is deleted	as expected	Pass
message another user	1. click account drop down tab 2. click message 3. enter username to send to 4. enter message 5. click submit	user receives the message	as expected	Pass
view messages	1. click account drop down tab 2. click message 3. click my messages page	shows all messages and sender	as expected	Pass
clear all messages	1. click account drop down tab 2. click message 3. click my messages page 4. click clear	all messages are deleted	as expected	Pass

User manual/instruction

Building system from source code

Building the system from source code can be done in two ways. The simple way would be to access the project through the website housing all given tables at https://webapp.cs.clemson.edu/~jlhelms/MeTube_Project/index.php. This website must be accessed on Clemson's campus network. Building the system this way, however, causes permission restrictions. When this is accessed, some of the media uploaded by other users can be denied viewing access on the webapp because it is private on their host computer. All other functionalities not associated with media are working properly such as contacts, messages, favorites, playlists and more. When you click on the blank image, it still shows all information attached including views, date, keywords, category, description, and comments. The user can comment, add to playlist, and favorite on the media and is even allowed to download and view the downloaded image. Since it is all still working properly, this is a valid and easy way to build and access the system; you just may not have access to that specific user's personal files on the webapp.

The other way you can access the website is by downloading all of the source code which is attached to our buffet and phpmyadmin accounts. The source code has all of the back end and front end needed code wise, but if you didn't want to use our given webapp, you would have to create one as a new user.

User instruction

Visitors

Once the system is up and running, there are two different types of users that can do different things. The first is someone who isn't a registered user and is just viewing the site - a visitor. This person is able to see any media on the site and, when selected, all things that are attached to it such as information, views and comments. The home page is organized by most viewed and new uploads where media can be selected. If the visitor wants to access further media, they can also search for specific media by using the search bar. They can also browse media by filtering it into categories or files types. A visitor can choose to register a new account and can then log in to their account. A visitor would choose to do this to open up many more possibilities allowing them to do everything a non registered user can do and more.

Registered users

User Information

A user that is registered is able to login and logout as requested. They can then update their profile information at any time where they can change their account name and password. This is done by clicking the "Update account" button on the "Account" drop down tab on the navigation bar.

Media Access

A user can upload media for others to see by clicking the "upload" tab under the account drop down bar. When this media is selected, a user can update information or delete a file they previously uploaded by clicking on the "Update/Delete" button. Anyone can download media onto their personal machine by clicking the "Download" button underneath the media when selected.

Media can be searched and viewed the same as a visitor but can also be added to your playlist, favorited, or commented on. This is done by clicking add comment/add to playlist then further specified.

Message

Users can also message other users directly in an email like system. By clicking on "Message" in the account drop down tool, the user can click on "Send message" tab(initial message page) and enter the message information. The message is sent out after the user types a user name and message then clicks send. Users can access their messages by selecting the "My Messages" tab which displays the messages and who sent them. A user can clear all messages when viewing their message by clicking clear which will delete all previous messages.

Contacts

Users can create a contacts list to save other users whether they are friends, family, a favorite user, or other. This is done through the "Contacts" in the Account drop down tab. This takes you to the Add/Delete contact page where users can type a username of a contact to delete or enter the name of a new contact and their relation to the user. The contacts can be viewed by clicking the "My Contacts" page in contacts. "My Contacts" is organized by grouping then showing the username of contacts.

Playlist

Going to the account drop down menu and clicking playlist takes the user to a page where they can select a playlist to view. Once the playlist is selected, all

media added to that playlist is shown. Users can create multiple playlists by clicking create playlist and giving it a name.

Channel

Users can view their channel by clicking channel on the account drop down menu. This takes them to their channel which stores all media uploaded. This media can be filtered much like browse into categories or media types. If the user wants to view all media, they just click filter with nothing specified and all media is displayed.