StoneLibrary

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Product Concept

I will be creating StoneLibrary, a free, open-source, web-based application for cataloging and organizing your various types of media. Media such as your books, movies, music, and possibly in the future, a few more. This product will initially be targeted to those in their late teens up to those in their mid-to-high 20s, but other age groups are expected to join in.

This product will provide a valuable service allowing users to easily catalog and organize their various types of media. In the near future, users will be able to share media catalogs with other users, as well as the ability to mark items as "lent" or "checked-out".[1] This easily allows users to keep track of the items they lend to their friends.

Requirements

- ❖ Operating System: Ubuntu Server 10.04 (Linux 2.6.32)
- ❖ HTTP Web Server Software: Apache 2.2.14 (Ubuntu)
- ❖ Development Language: PHP 5.3.2
- ❖ Backend Database: MySQL 5.1.41
- ❖ Tested with Google Chrome 13.0.782.112+ & Mozilla Firefox 5.0.1+
- ❖ Email address is used as their username
- ❖ Sessions are used in place of cookies for authentication as well as to maintain the users 'state' while on the site. Sessions only work while the browser is open, so once the user closes their browser, any information associated with the session as well as the session itself, is deleted from the server. No personal information is stored in these sessions, only a unique id and the usergroup (usergroup may be used for a future enhancement)[2] they belong to.
- ❖ Easily scales to accommodate high user traffic

Feature Summary

Accounts

User's will be required to login to access the site's content. First, they will need to create an account (future versions will authenticate users using their Google accounts and/or Facebook accounts).[3] This registration process will ask for their first name, a valid email address, and a password of their choice.

Visits to the site thereafter will allow the user to login to their account using their email address as their "username". A session (which is stored on the server) containing a unique, non personally identifiable

ID number and usergroup (which is the level of access they have, full admin access to their account for now) they belong to will be created when the user logs in.

Once logged in, the user's account settings page provides the user the ability to edit their account. Editing the account allows the user to change their password and email address. When the user is finished, he/she may logout by clicking the logout link or simply closing the browser (destroying the session).

Libraries

In addition to allowing the user to edit his/her account settings, he/she has the ability to manipulate the various media libraries available to them. This includes, creating, reading, updating, and deleting items in their movies, books, and music libraries. Creating and updating library items include properties such as title of a movie or author of a book.

Once library items are created, they begin to show up in the appropriate library, with a dynamically generated image as the cover art with the title of the said item centered in the middle on a white background. From here, the user is able to delete or edit the item. To delete the item, the user must simply click the delete icon ⊗, which is located in the upper right corner of each library item. Clicking the cover art allows the user to view (read) detailed information and update the information associated with the item.

External Design (User Interface)

login.php

Upon first visiting the site, the "new" or "existing" user is greeted with the login page. This page serves two purposes. The first purpose it provides is the ability for an existing user to login and access their media library. Two blank text boxes, labeled "Username" and "Password" validate the users' credentials against the database and if proves valid, is allowed to enter. The second function allows a guest the ability to navigate to the create_account page, thus allowing them to begin the process of creating an account.

create_account.php

The create_account page serves as the starting location for a new user. Here, he/she may create an account. Without an account, a user cannot access any other portion of the site. To create an account, the new user will be asked to enter their first name, email address, and password into the following blank text boxes; "First Name", "Email", "Confirm Email", "Password", "Confirm Password", respectively. Clicking the "Submit" button validates the data entered, and if correct, creates the account and thus, finishes this process.

add_media.php

Here, is where the user may add an item to their *library*; choosing from either a movie, music, or a book. Depending on which type of media the user is adding, different input fields for the details of the item will display.

movie_library.php

After the user has logged in, he or she is automatically redirected to the movie_library page. Viewing your movie library is done here.   The delete icon ⊗ in the upper right corner of each library item can be deleted by clicking this link. Clicking on the cover image of the movie will bring you to the edit_media page for that specific item. This is discussed more below, in the edit_media section.

music_library.php

Viewing the users music library is accomplished here. The delete icon ⊗ in the upper right corner of each library item can be deleted by clicking this link. Clicking on the cover image of the music album will bring you to the edit_media page for that specific item. This is discussed more below, in the edit_media section.

book_library.php

Perusing the users books is attained here.   The delete ⊗ icon in the upper right corner of each library item can be deleted by clicking this link. Clicking on the cover image of the book will bring you to the edit_media page for that specific item. This is discussed more below, in the edit_media section.

edit_media.php

If the user made a mistake when adding their specific media item, or would just like to change it later, he/she may edit the item in question on this page. After clicking the aforementioned media item, he or she may click the edit button to begin changing the desired fields (title, author, artist, director, etc.).

acct_settings.php

Navigating to the acct_settings page provides the user the ability to change their email address and password of their account.

login.php

- ❖ Login form (links to movie_library.php)
- ❖ Create an Account link (links to create_account.php

create_account.php

❖ Create new user form (First Name, Email, Password)

add_media.php

- ❖ Add Media form (Movie, Music, Book)
  - ➢ Movie (Media Type, Title, Year Released, Rating, Aspect Ratio, Director(s), Runtime, Language)
  - ➢ Music (Media Type, Album Title, Artist, Year)
  - ➢ Book (Media Type, Title, Author(s), Publisher)

movie_library.php
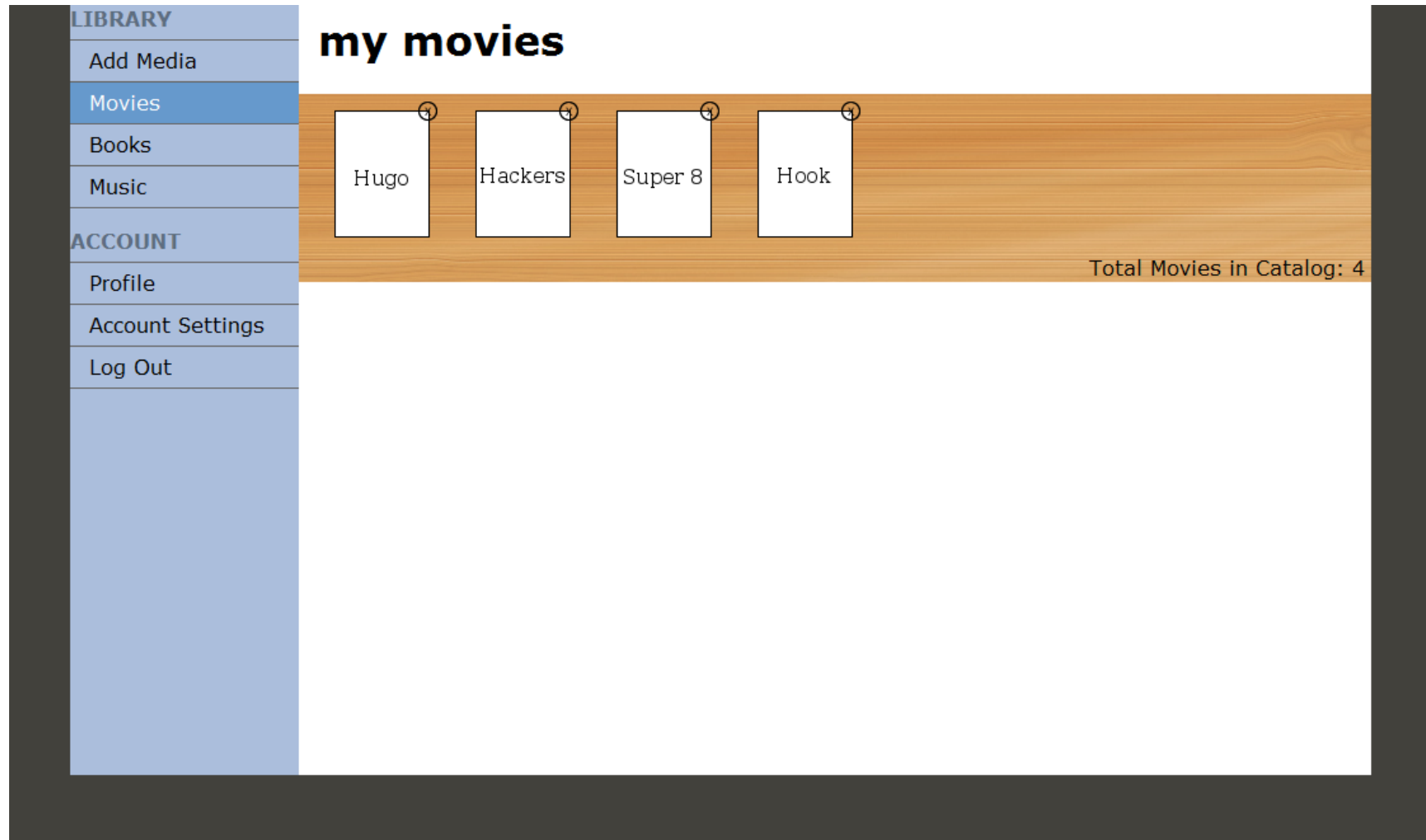
- ❖ All movies with links to their info/editing (edit_media.php)
- ❖ Delete individual media item

music_library.php

- ❖ All music with links to their info/editing (edit_media.php)
- ❖ Delete individual media items

book_library.php

- All music with links to their info/editing (edit_media.php)
- Delete individual media items

edit_media.php

Super 8 (2011)

LIBRARY
Add Media
Movies
Books
Music

ACCOUNT
Profile
Account Settings
Log Out

Title: Super 8
Year: 2011
Rating: PG-13
Aspect Ratio: Widescreen
Director: J.J. Abrams
Runtime: 112
Language: English

edit

Super 8

Super 8 (2011)

LIBRARY
Add Media
Movies
Music
Books

ACCOUNT
Profile
Account Settings
Log Out

Title: Super 8   edit

Edit Super 8   ✖

Media Type
Movie
Title
Super 8
Year Released
2011
Rating
PG-13
Aspect Ratio
Widescreen ▾
Director(s)
J.J. Abrams
Runtime
112
Language
English

Update   **Cancel**

- ❖ View details of media item (Movie, Music, Book)
- ❖ Edit details of media item (Movie, Music, Book)

acct_settings.php

LIBRARY

Add Media

Movies

Music

Books

ACCOUNT

Profile

Account Settings

Log Out

account settings

Password

Current Password

New Password

Re-type
New Password

Save Changes   Cancel
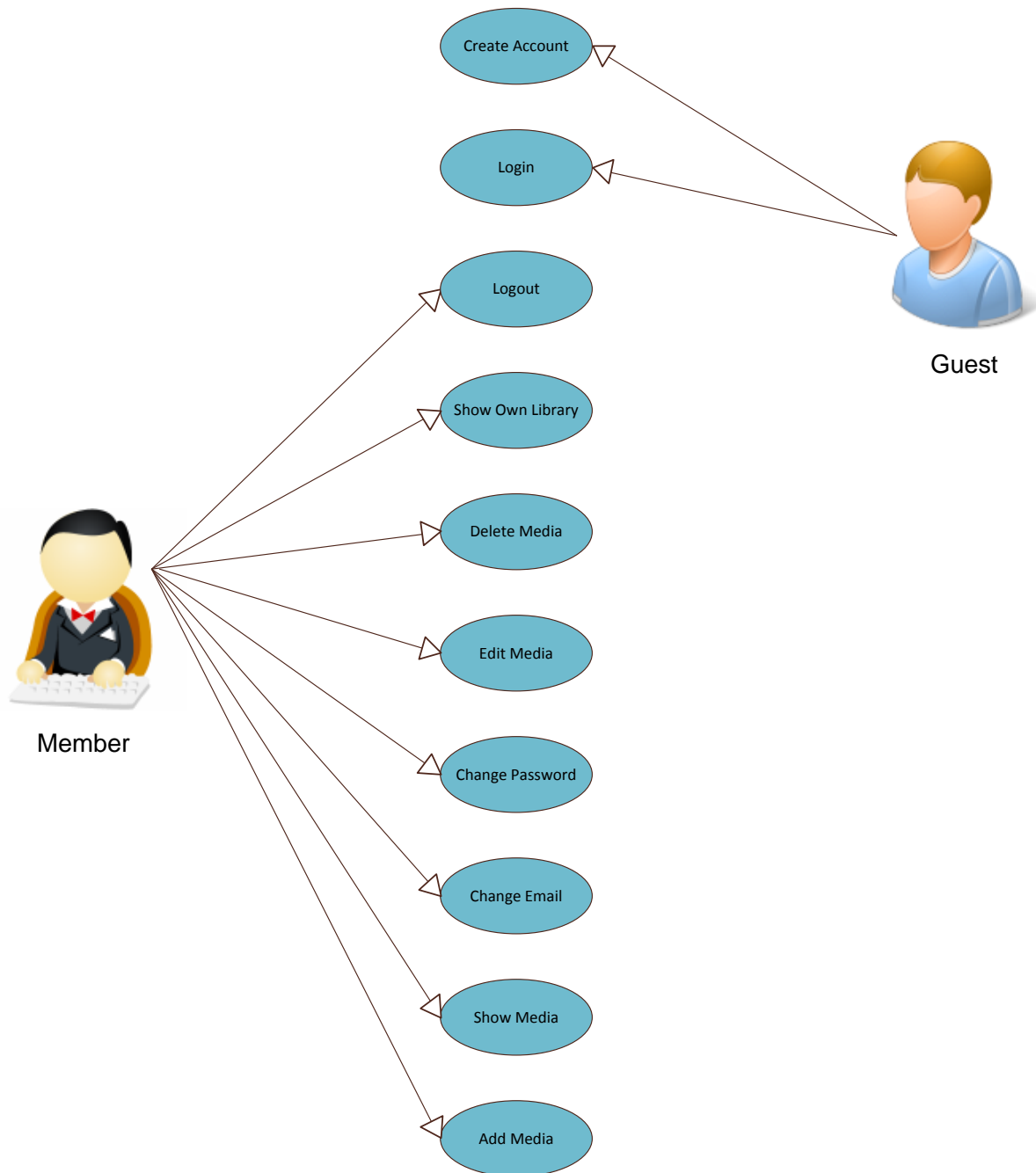
Email

Change Email

Re-type Email

Current Password

Save Changes   Cancel

❖ Edit Account Settings
  ➢ Change Password (current password required)
  ➢ Change Email Address (current password required

StoneLibrary Use Case Diagram

Use Case Narrative

#1 Create Account

ACTOR: Guest

DESCRIPTION: A Guest visits the website and selects "Create an Account" and proceeds to enter their first name, password, and a unique email address. Their email address serves as their username. The Guest is redirected to the login page and then, may login as a Member.

#2 Login

ACTOR: Guest

DESCRIPTION: The Guest enters in their email address and password to login to the website to receive elevated privileges.

#3 Logout

ACTOR: Member

DESCRIPTION: The Member selects the 'Log Out' link in the navigation column on the left side of any page to logout.

#3 Show Own Library

ACTOR: Member

DESCRIPTION: Once logged in, the Member is automatically redirected to their 'own' Movies library. From here, the Member may choose to view their Movies, Music, or Books libraries.

#4 Delete Media

ACTOR: Member

DESCRIPTION: From the chosen library page, the Member selects the delete icon ⊗ (located in the upper right corner of the individual media item) to delete the chosen media item. After the delete icon has been clicked, the item is deleted from the database.

#5 Edit Media

ACTOR: Member

DESCRIPTION: The Member selects Edit (located in the upper right next to the details) to edit the details of the given item.

#6 Change Password

ACTOR: Member

DESCRIPTION: The Member clicks 'Account Settings' in the navigation column on the left side of any page. Their password can now be changed.

#7 Change Email

ACTOR: Member

DESCRIPTION: The Member clicks 'Account Settings' in the navigation column on the left side of any page. Their email can now be changed.

#8 Show Media

ACTOR: Member

DESCRIPTION: The Member selects the image of the media item from the library they've chosen. Details and other info of the media item is shown.

#9 Add Media

ACTOR: Member

DESCRIPTION: The Member clicks 'Add Media' in the navigation column on the left side of any page. Various types of media, such as Movies, Music, and Books, can now be added.

Data Validation

User input comes from the Create Account, Login, Account Settings, Add Media, and Edit Media pages.

All input interacting (SELECT, INSERT, UPDATE, etc.) with the database is escaped to prevent SQL injections using the PHP object class mysqli::real_escape_string(). In all form input fields, if valid information is entered, a checkmark icon ✓ is displayed.

Create Account

If no input is entered into the 'first name' field, a red message stating "Please enter your firstname" will display. If no input or a string other than a validly formatted email address is entered into the 'email' or 'confirm-email' field, a red message stating "Please enter a valid email address" will display. If an email address entered in the 'confirm-email' field differs from the one above, a red message stating "Please enter the same email as above" will display. If a password less than 4 characters is entered into the 'password' or confirm-password' field, a red message stating "Please enter at least 4 characters" will display. If no password is entered into the 'password' field, a red message stating "Please provide a password" will display. If no password is entered into the 'confirm-password' field, a red message stating "Please repeat your password" will display. If a password entered in the 'confirm-password' field differs from the one above, a red message stating "Please enter the same password as above" will display. On successful creation of an account, the user is automatically redirected to the login.php page with an "Account Successfully Created" message displayed above the login form.

Login

Verification of an existing and valid email address & password is processed and if no account exists, a red message stating "Login Failed. Please check your email address and password." will display. If no

input or a string other than a validly formatted email address is entered into the 'email' field, a red message stating "Please enter an valid email address" will display. If a password less than 4 characters is entered into the 'password' field, a red message stating "Please enter at least 4 characters" will display. If no password is entered into the 'password' field, a red message stating "Please provide a password" will display.

Account Settings

Verification of an existing and valid current password is processed and if the current password doesn't match the one in the database, a message stating "Current Password Wrong. Try Again. " will display. If a password less than 4 characters is entered into the 'current-password', 'new-password', or 're-type-password' field, a red message stating "Please enter at least 4 characters" will display. If no password is entered into the 'current-password' or 'new-password' field, a red message stating "Please provide a password" will display. If no password is entered into the 're-type-password' field, a red message stating "Please repeat your password" will display. If a password entered in the 're-type-password' field differs from the one above, a red message stating "Please enter the same password as above" will display. If no input or a string other than a validly formatted email address is entered into the 'change-email' or 're-type-email' field, a red message stating "Please enter a valid email address" will display. If an email address entered in the 're-type-email' field differs from the one above, a red message stating "Please enter the same email as above" will display.

Add Media

If no input is entered into the 'title' or 'album-title' field, a red message stating "Please enter a title" will display. If anything other than digits are entered into the 'year-released', 'runtime', or 'year' field, a red message stating "Please enter only numbers" will display. The 'year' and 'year-released' fields must contain a minimum and maximum of four numbers. If it does not, a red message stating "Please enter in YYYY format" will display.

Edit Media

(**FUTURE ENHANCEMENT**) If no input is entered into the 'title' or 'album-title' field, a red message stating "Please enter a title" will display. If anything other than digits are entered into the 'year-released', 'runtime', or 'year' field, a red message stating "Please enter only numbers" will display. The 'year' and 'year-released' fields must contain a minimum and maximum of four numbers. If it does not, a red message stating "Please enter in YYYY format" will display.

Future Enhancements

- ❖ Validation of data input in Edit Media form (didn't quite get to it)
- ❖ Clean up/improve/make more efficient PHP code
- ❖ Administrator interface for managing accounts, passwords, etc./Implement usergroup/user level access

❖ Ability to mark items as "lent" or "checked-out", as well as noting who's borrowing it
❖ Allow users to share their media catalogs with other users, as well as the ability to mark items as "lent" or "checked-out" (expands on the enhancement above)
❖ Expansion of catalog to include libraries other than media…perhaps electronics (maybe for warranty purposes)
❖ Fetch detailed movie/dvd, music, book info from Amazon so user can simply enter in an ISBN # or search for the item and choose from a list
❖ Provide option to allow users to authenticate using their Google and/or Facebook account

Internal Design (Modules)

login.php
Gives users a place to log in. No session is required to view the page. Once authenticated, a session is created and users are redirected to their movie library (movie_library.php).

create_account.php
The create_account.php page allows the user to create an account. An account allows them access to the site; without one, a user cannot access any other portion of the site. No session is created nor required. Allows new users to create, or add, media items into the three different libraries: Movies, Music, and Books by entering in user information. Access to each page is verified by checking to see if a session variable exists. If the variable exists, the user is logged in. In addition to checking for a session variable, their username is also verified against the session variable name to restrict access. To create an account, the new user will be asked to enter their user information. Clicking the submit button creates the account and forwards the user to the login.php page, thus, finishing the process. The information is submitted via the form elements using the POST method, processed by PHP, and inserted into the MySQL database.

add_media.php
Allows users to submit media items into the database. A session is required. User chooses the media type (movies, music, books) using the form drop down and enters in the appropriate media details. Details are then validated and submitted into the database.

movie_library.php
Users are able to view their movie library on this page. A session is required. By default, when a movie is added to the library, a cover image with the title of the movie on it is dynamically generated by the PHPImage.inc.php page and shows up in the library as the initial cover image for that movie. A delete icon is placed in the upper right allowing deletion of the specific movie. Clicking on this image will bring you to the edit_media.php page for that specific item. This is where editing and viewing details takes place.

music_library.php

Users are able to view their music library on this page. A session is required. By default, when an album is added to the library, a cover image with the title of the album on it is dynamically generated by the PHPImage.inc.php page and shows up in the library as the initial cover image for that album. A delete icon is placed in the upper right allowing deletion of the specific album. Clicking on this image will bring you to the edit_media.php page for that specific item. This is where editing and viewing details takes place.

book_library.php

Users are able to view their book library on this page. A session is required. By default, when a book is added to the library, a cover image with the title of the book on it is dynamically generated by the PHPImage.inc.php page and shows up in the library as the initial cover image for that book. A delete icon is placed in the upper right allowing deletion of the specific book. Clicking on this image will bring you to the edit_media.php page for that specific item. This is where editing and viewing details takes place.

edit_media.php

Edit media allows the user to view and edit the specific information fields of their different types of media in their library. Information fields such as title, author, genre, director, year, artist, etc. jQuery assists in the editing process by providing the lightbox and some of the CSS styling, which contains the form elements of the editable fields and is then submitted and processed through MySQL. A session is required.

acct_settings.php

Account settings provides some of the use cases to the user. A session is required. The user has the ability to change their email address and password of their account. Providing this feature allows the user to change their information without requiring them to create a new account. Once the new information is validated and confirmed, it's submitted to the MySQL database.

Auth.inc.php

The authentication object class gives other modules the ability to authenticate users. It also contains functions for account management. Functions include creation of new account, verifying & processing login credentials, creation & management of sessions, changing of password, changing of email, and processing of logging out.

Movies.inc.php

The movies object class provides the necessary functions to allow the interaction & manipulation (CRUD) of movie library items.

Music.inc.php

The music object class provides the necessary functions to allow the interactions & manipulation (CRUD) of music library items.

Books.inc.php

The books object class provides the necessary functions to allow the interaction & manipulation (CRUD) of book library items.

Main.inc.php

The main object class provides basic, generic functions and variables that assist in website and page operations/navigation such as the 'setPageTitle', 'buildNavBar', and 'createLink' functions.

MySQL.inc.php

The mysql object class provides basic database functions and variables that assist in database connections and queries.

MediaLibrary.inc.php

The medialibrary object class provides functionality that assists in library related tasks like creating library items and building the library for each actual library (movies, music, books).

PHPImage.inc.php

The phpimage object class dynamically generates and outputs an image of the requested height and width, though two sizes are used, 75px x 100px and 400px x 500px. The image consists of a white background and a 1px thing black border with the title of the movie, music album, or book printed in the center. This image is used as the default cover art for each media item.

Component Diagram

Task List

| Module	Developer	Estimated Hours to Completion	Hours Spent	% Complete
login	J.D.	4.5	4.5	100%
create_account	J.D.	5.5	5	100%
add_media	J.D.	10	16	100%
movie_library	J.D.	5	6	100%
music_library	J.D.	5	3	100%
book_library	J.D.	5	3	100%
edit_media	J.D.	9	13	97%
acct_settings	J.D.	6	5.5	100%
Auth	J.D.	3.5	5	100%
Movies	J.D.	23	24	100%
Music	J.D.	23	17	100%
Books	J.D.	23	17	100%
Main	J.D.	6	7	100%
MySQL	J.D.	2	6	100%
MediaLibrary	J.D.	12	15	100%
PHPImage	J.D.	4	8	100%
Project Total:		**146.5**	**155**	**99.8%**

Schema Diagram

UML Entity Relationship Diagram
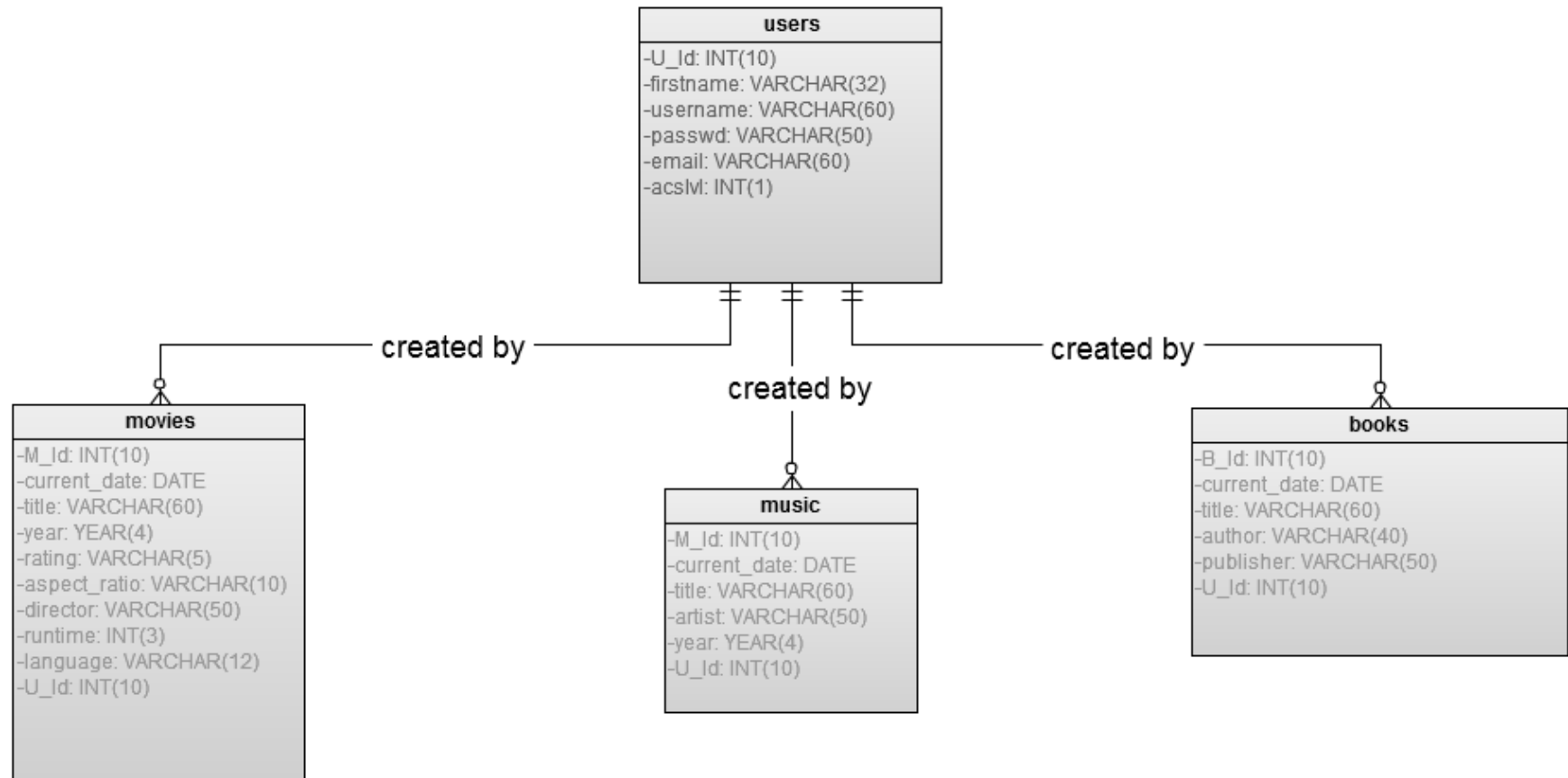
Data Dictionary

Table	Column	Type	PK/FK	Null	Default	Extra	Links to
users							
	U_Id	int(10)	PK	No		auto_increment	
	firstname	varchar(32)		No			
	username	varchar(60)		No			
	passwd	varchar(50)		No			
	email	varchar(60)		No			
	acslvl	int(1)		No	3		
movies							
	M_Id	int(10)	PK	No		auto_increment	
	current_date	date		No			
	title	varchar(60)		No			
	year	year(4)		Yes	NULL		
	rating	varchar(5)		Yes	NULL		
	aspect_ratio	varchar(10)		Yes	NULL		
	director	varchar(50)		Yes	NULL		
	runtime	int(3)		Yes	NULL		
	language	varchar(12)		Yes	NULL		
	U_Id	int(10)	FK	No		Non-Unique Index	users -> U_Id
music							
	M_Id	int(10)	PK	No		auto_increment	
	current_date	date		No			
	title	varchar(60)		No			
	artist	varchar(50)		Yes	NULL		
	year	year(4)		Yes	NULL		
	U_Id	int(10)	FK	No		Non-Unique Index	users -> U_Id
books							
	B_Id	int(10)	PK	No		auto_increment	
	current_date	date		No			
	title	varchar(60)		No			
	author	varchar(40)		Yes	NULL		
	publisher	varchar(50)		Yes	NULL		
	U_Id	int(10)	FK	No		Non-Unique Index	users -> U_Id

Entity Relationship Diagram
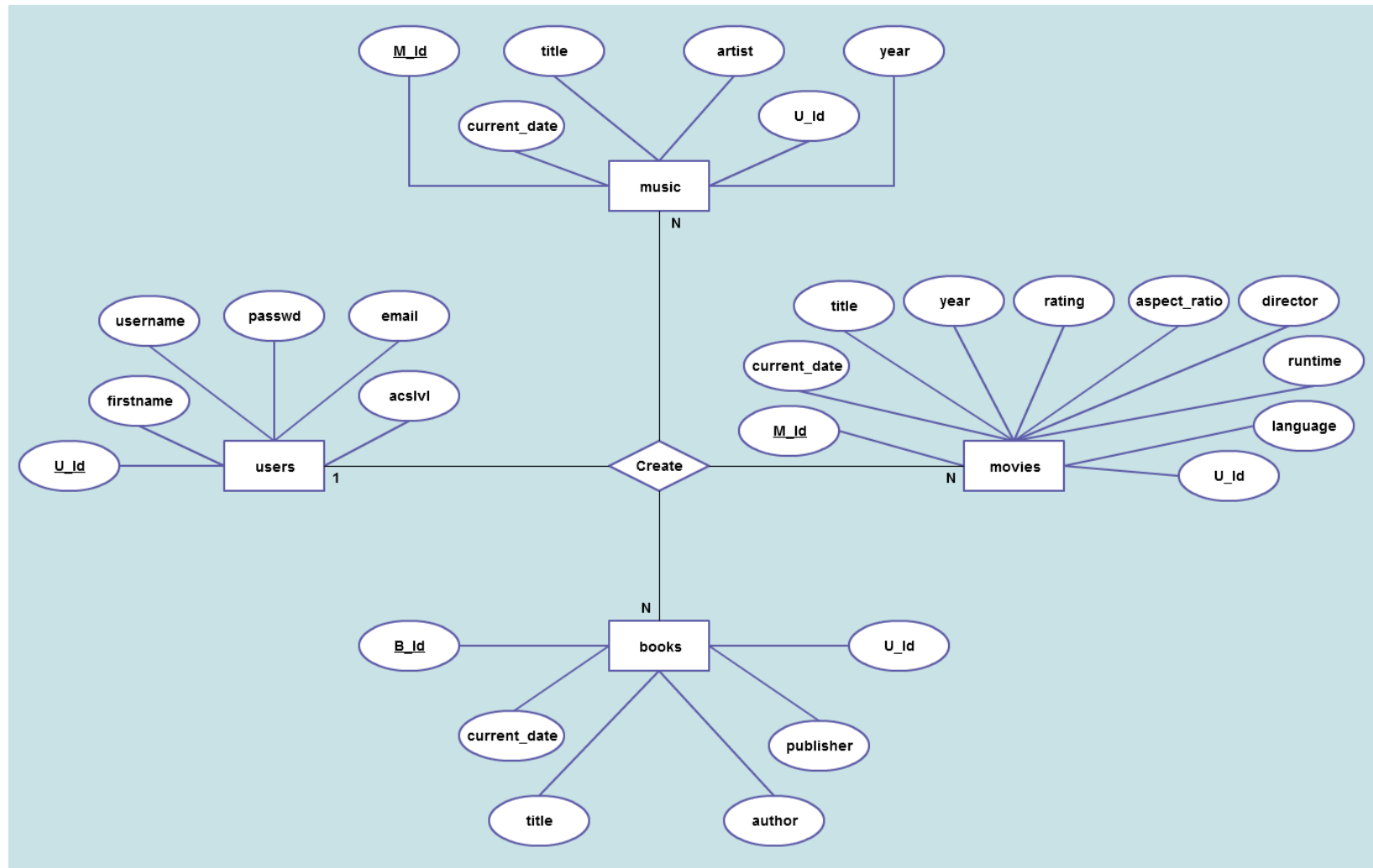
Confidence that core project features will be completed on time: 100%