



jLib
ECE 422C Spring 2024
Final Project
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Overview:

- jLib is a project I created from scratch as the final component of my ECE 422C (Software Design and Implementation II) course.
 - It is a fun and creative way to showcase some of my favorite games, movies, and books using all of the tools and knowledge I gained over the course of the semester.
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For the Programmer:

- jLib is separated into 3 different Java projects in IntelliJ: Server, Client, and Resources.
 - *Server*: This project contains the overarching Server and Client Handler classes that all clients will connect to and interact with. It is also where the catalog and user base are kept, updated, and stored on disk (through .ser files). Everytime a client starts jLib, they connect to the server.
 - *Client*: This project contains the ClientGUI class, which serves as the entry point for the user interface and creates a Client that connects to and communicates with the Server. This is also where all of the JavaFX scenes and controllers are stored.
 - *Resources*: This project contains shared resources between Server and Client. Specifically, they share classes that represent objects (Item, Book, Movie, DVD, Game, Review, Message, FriendRequest, etc.). Any resource that is needed for both the Server and Client to operate is found here.
 - To start the Server, launch the Server .jar file (FinalProject_Server_JAR_jt2525.jar). Visibly, nothing will happen as I did not create a GUI for the server. However, after executing the .jar (by double clicking or other means), the Server will start running in the background, ready to accept and handle clients who want to use jLib.
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For the User:

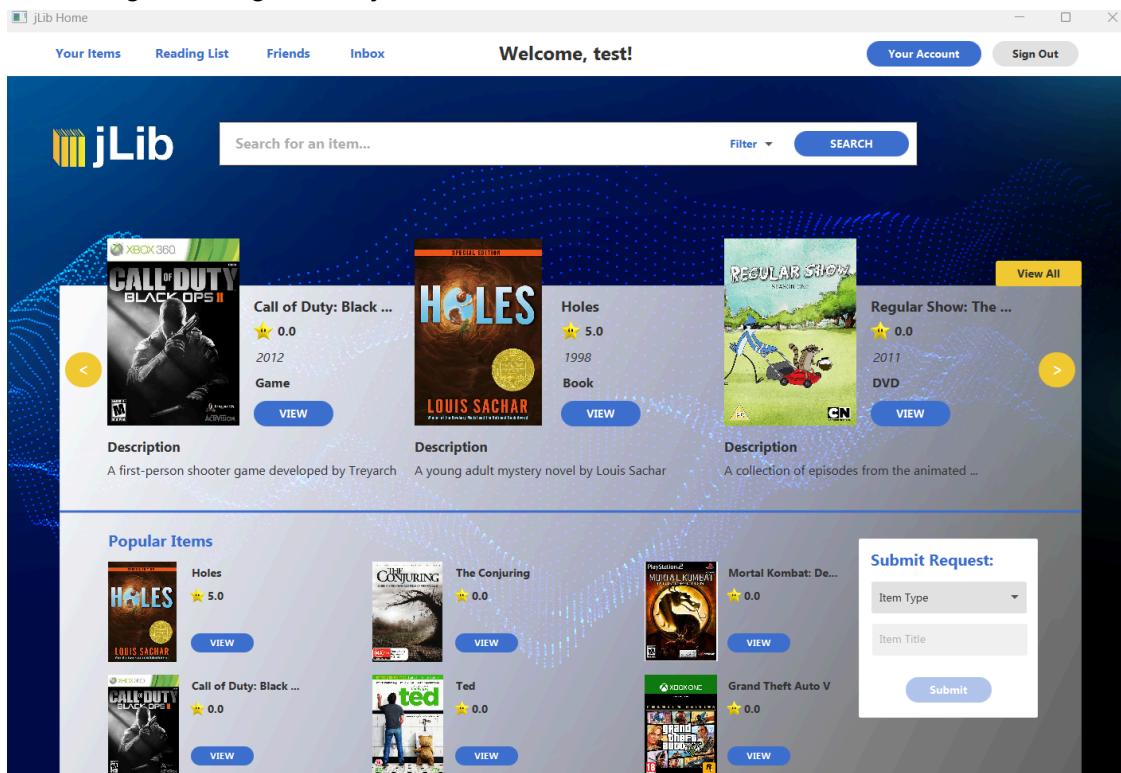
- Upon launching the Client .jar file (FinalProject_Client_JAR_jtt2525.jar), a Login screen will appear.



- If you already have an account, please login. Credentials are case sensitive.
 - If you do not have an account, you will need to create an account. Click on Sign Up, where you will be redirected to a screen where you can create an account.

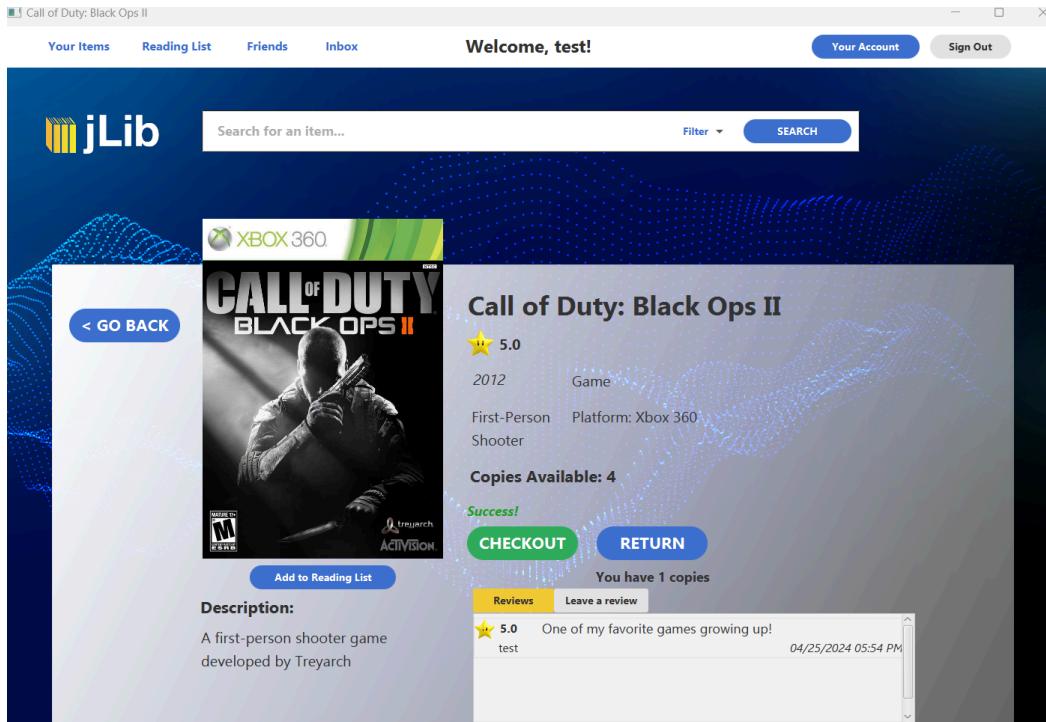


- After logging into your account, you will enter jLib! You will arrive at the home page, where you can
 - scroll through the catalog (by clicking the yellow < and > buttons on the side)
 - Search for an item (and filter the item type to what you are looking for)
 - view the most popular rated items at the bottom
 - Submit requests to the Admin to add additional items to the catalog
- There are also features at the bar at the top of the screen, allowing you to view
 - Your Items: your current checked out items
 - Reading List: your “wish list” containing items that you marked as interested in
 - Friends: view a list of your friends, send requests, accept/deny requests
 - Inbox: view your mail inbox, send messages to your friends or the Admin
 - Your Account: a single page where you can access all of the features listed above.
 - You will also be able to change your Profile Picture and Reset your Password from here.
 - Sign Out: sign out of jLib

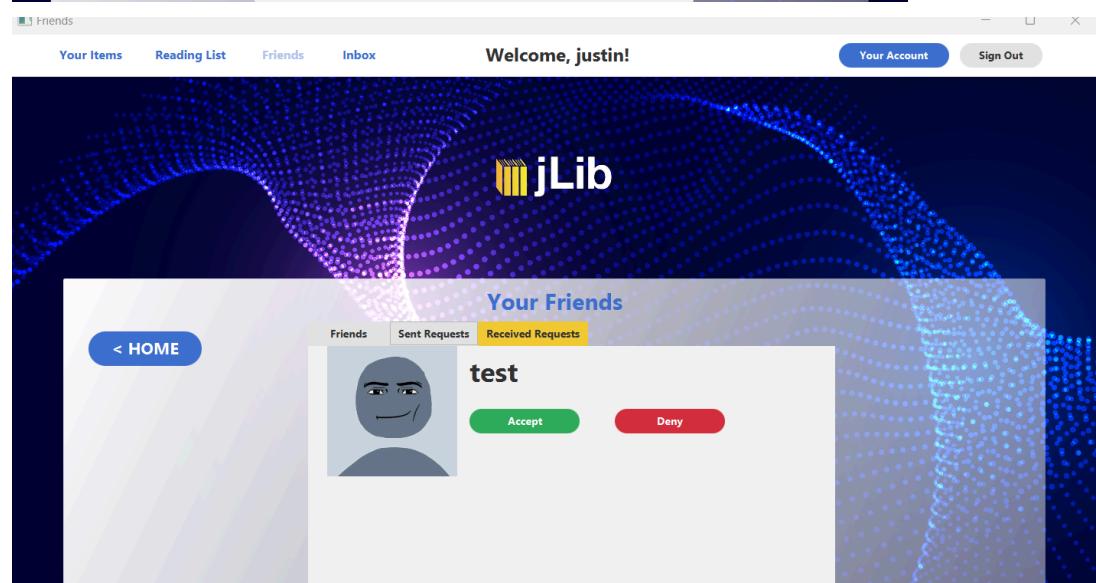
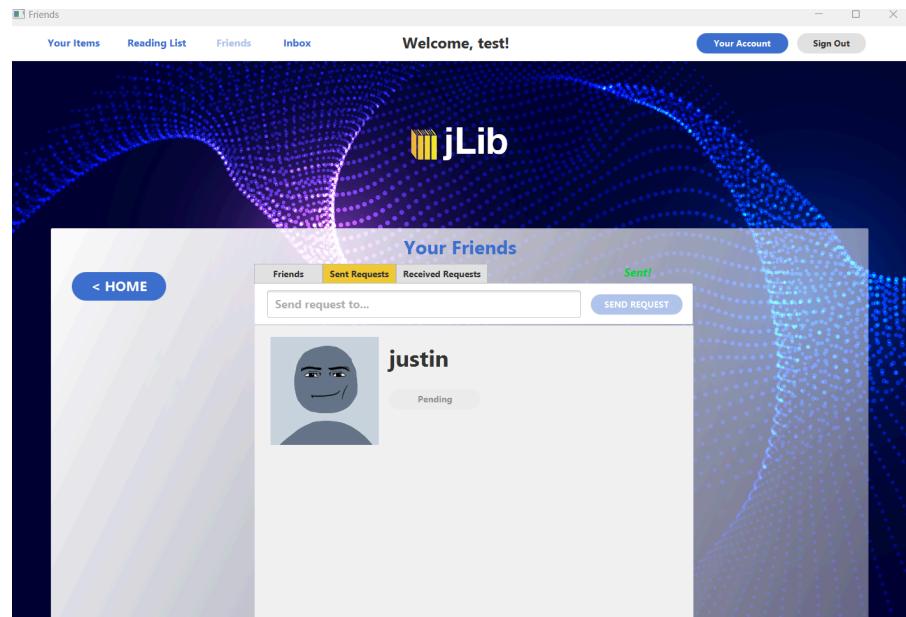


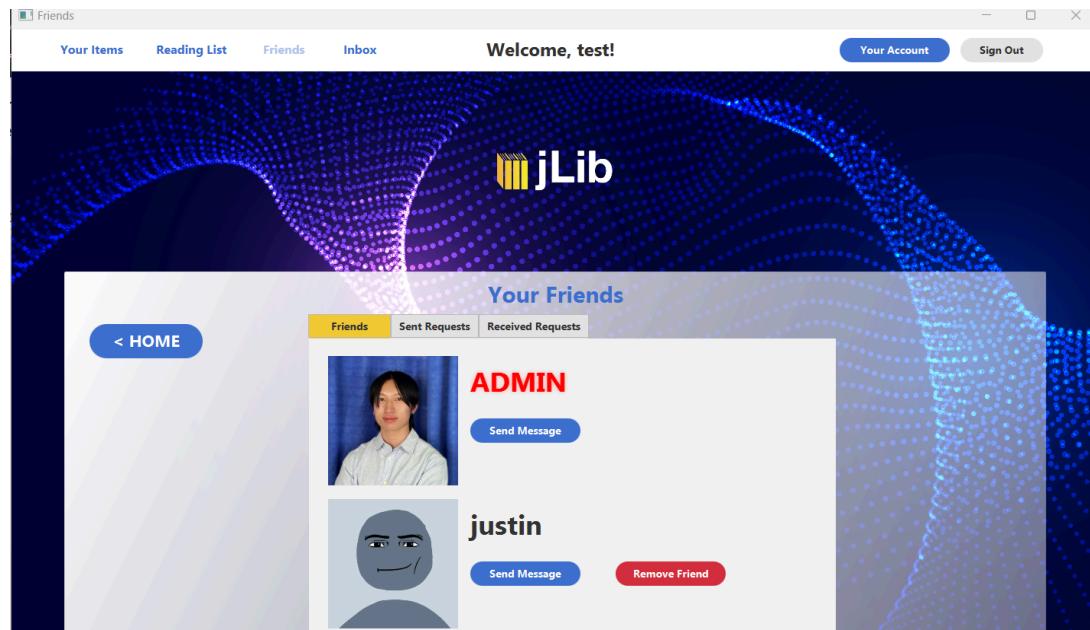
- Whenever you view an item, you will be taken to a page where you can interact with it further. You can
 - Checkout: checkout the item (if there are available copies)
 - Return: return the item if you have it checked out (including multiple copies)

- Add to your reading list: add the item to your reading list so you can come back later and check it out
- Leave a review: rate the item on a scale of 1-5, and leave a comment on what you thought of the item

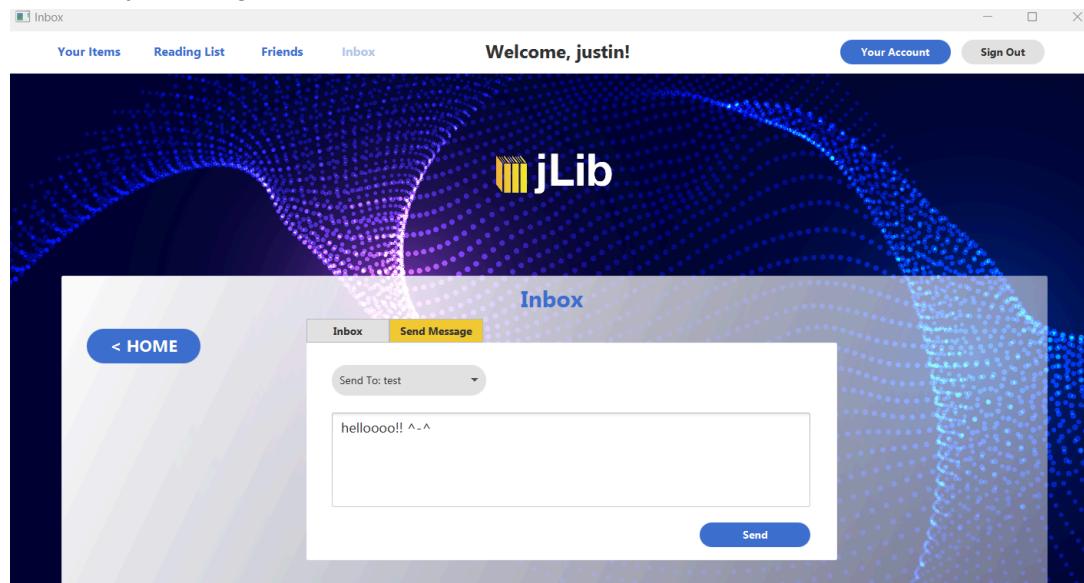


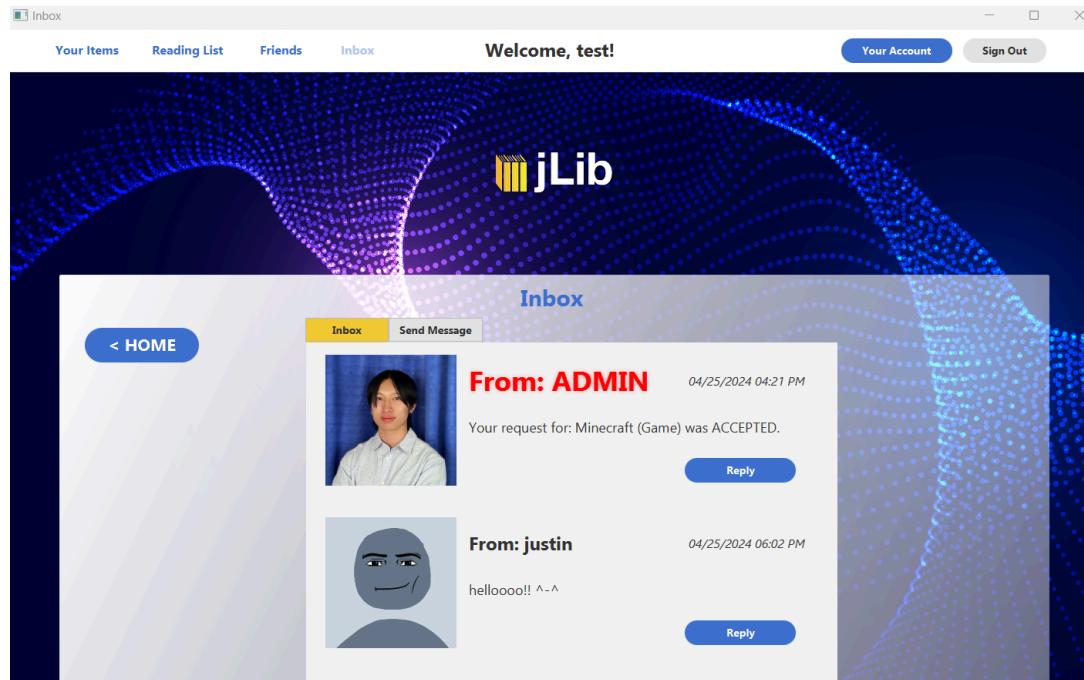
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- **Friend System:** You can add friends by searching for their username and sending a request. Once they have accepted, you two will become friends, and you will be able to message each other.
 - You can also accept/deny any requests that you have received.
 - You can also remove friends and break the connection between you two.
 - Everyone is friends with the Admin (me).



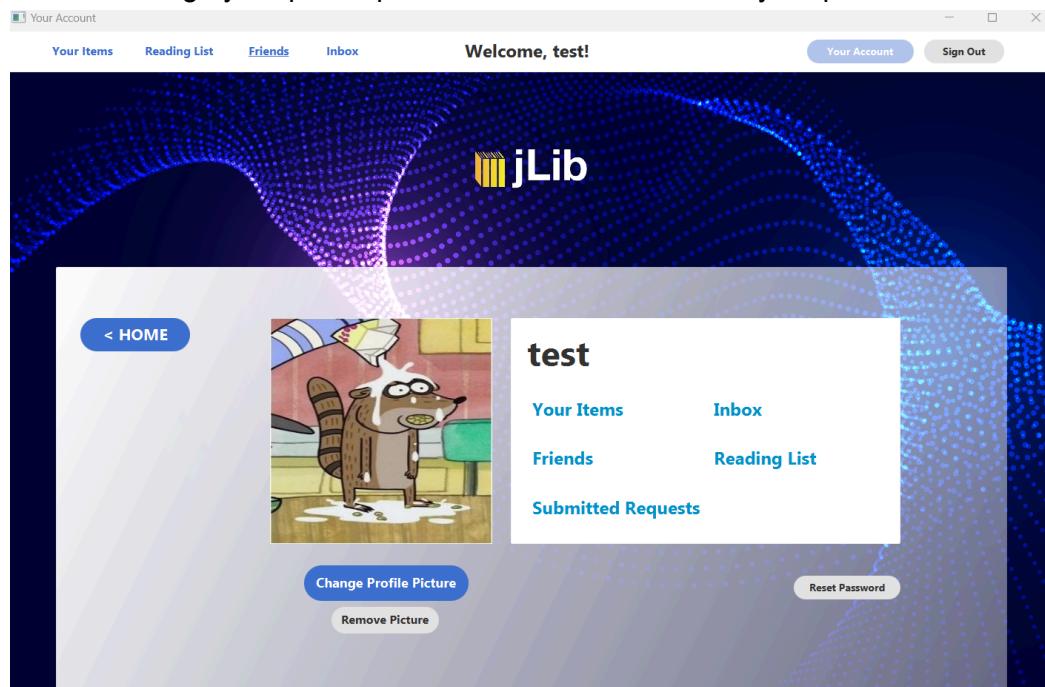


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- **Messaging System**: You can send messages to your friends, and view messages from them as well. Any messages from the Admin will also be shown here.





- **Your Account:** This is the hub for Your Items, Reading List, Friends, Inbox, and your Submitted Requests.
 - You can change your profile picture here, as well as reset your password.



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- **Submitted Requests:** If jLib doesn't have an item you want, you can request that I add it. On the home page at the bottom right corner, you can specify what kind of item you want (Book, DVD, Game) and specify the title.
 - After submitting the request, it will be sent to the Admin (me) where I can accept/deny the request. You can track the status of your item requests by navigating to Your Account and selecting Submitted Requests.

The image shows a two-part screenshot of the jLib website. The top part is a modal window titled "Submit Request:" with a dropdown menu set to "Game" and the text "Minecraft" entered. A blue "Submit" button is at the bottom. The bottom part is the main "Your Requests" page, which has a header with "Your Requests", "jLib", and "Welcome, test!". It includes navigation links for "Your Items", "Reading List", "Friends", and "Inbox". Below the header is a search bar with a "HOME" button. The main content area displays a list of items: "Game" and "Minecraft", both marked as "ACCEPTED" in green boxes. The entire interface has a dark background with blue and purple glowing particle effects.

FULL LIST OF FEATURES:

| Feature | Description |
|--------------------|---|
| Creating a Account | Register with jLib! |
| Password Reset | If you are struggling to login, you can reset your password. You can also reset your password through the Your Account hub. |
| Checking Out Items | See an item you like? Check out a copy! (if there are enough copies) |
| Returning Items | Return an Item back to the library once you are done! |
| Searching | Search through the catalog by scrolling left and right, as well as by typing in the Search Bar |
| Sort view | Sort results from searching by the Date Published (newest or oldest first) or the Ratings (highest or lowest first) |
| Filter Search | Filter your search to only include a specific item type(s): Book, DVD, Game |

| | |
|-------------------------|---|
| Images | Every catalog item has its own image |
| Reviews | Rate any item you want on a scale from 1-5, and leave a comment on what you thought of it! |
| Sound effects | Most actions will play a sweet female voice that will tell you what you just did! |
| Profile Pictures | You can upload a Profile Picture for you and your friends to see! |
| Friend System | You can search for existing users and send a request to be friends! Once you two are friends, you can message each other! |
| Messaging System | Send messages to your friends or to the Admin! |
| Librarian Account + GUI | This is for me to be able to see a log of every user who has registered with jLib. This is where I can edit catalog images, accept/deny submitted requests, and send messages to users. |
| Submit Requests | Don't see an item you like? Send a request to the Admin to have it added! |
| Reading List | See an item that interests you? Add it to this list, and come back to |

Nice GUI

Visually appealing GUI!

REFERENCES: Additional sources used to help build jLib:

1. <https://stackoverflow.com/questions/5554217/deserialize-a-listt-object-with-gson>
2. <https://www.baeldung.com/json-list>
3. [https://subscription.packtpub.com/book/programming/9781786460196/2/ch02lvl1sec16/initializing-the-user-interface#:~:text=The%20initialize\(\)%20method%20comes.from%20the%20preceding%20Application%20class.](https://subscription.packtpub.com/book/programming/9781786460196/2/ch02lvl1sec16/initializing-the-user-interface#:~:text=The%20initialize()%20method%20comes.from%20the%20preceding%20Application%20class.)
4. <https://stackoverflow.com/questions/18361195/javafx-how-to-load-populate-values-at-start-up>
5. <https://stackoverflow.com/questions/11241690/regex-for-checking-if-a-string-is-strictly-alphanumeric#:~:text=Considering%20you%20want%20to%20check.else%20it%20will%20return%20false.>
6. <https://stackoverflow.com/questions/24347658/getting-a-mp3-file-to-play-using-javafx>
7. https://www.youtube.com/watch?v=9XJicRt_Fai
8. <https://mkyong.com/java/java-how-to-get-current-date-time-date-and-calender/>
9. <https://stackoverflow.com/questions/25643098/how-to-set-fileimage-on-imageview>
10. <https://stackoverflow.com/questions/31095544/how-to-open-photos-by-the-filechooser-with-a-certain-extension-with-javafx>