

- Learning
 - What knowledge and/or skills did you learn?
 - Aspects of the language?
 - Some aspects of the language that I learned was using javafx to design and implement the user interface. The javafx uses .fxml to design the user interface layout. It also uses the java controller class to implement the UI component action, and uses the .css file to control how elements are displayed. For example the font size, color, and the effect of the button when the mouse is hovering over it. All those files are separators, and this makes it easy for me to focus on coding and UI design. Unlike java swing, the code is also organized very well. Java swing causes the logic behind the code and UI messed up.
 - Specific topics, such as dealing with images, sound files, networking?
 - I learned how to add images to the fx panel. JavaFx uses ImageView to load and show the image, there are two ways to load the image.
 - One way to locate the image on the local PC, we can use


```
FileInputStream input = new
FileInputStream("com//culminating//ui//mainpage.jpg");
Image image = new Image(input);
mainPageImg.setImage(image);
```
 - The second way is the image on the internet, we can use


```
Image image = new Image(url of image);
bookImage.setImage(image);
```
 - Specific java classes that you used?
 - Some specific java classes I used was;
 1. UserBorrowMediaController, this java class is the javafx controller class. This class will handle the action of the borrowMedia button to borrow media from the system.
 2. JSONObject, this class can convert the java class to name and value pair json objects. First, I convert the user arraylist and media arraylist to a JSONObject, then save it to a file. I also read users and media information from file to this JSONObject class then convert to user arraylist and media arraylist.
 3. Handler class handles all the action for example checkin/checkout/hold/renew media, add/delete/update user, and add/delete/update media. This class has the attributes: media arraylist, user arraylist, checkout media arraylist and hold media arraylist. In order to make the system share the same data for all the users, those attributes use static variable type.
 - Project management?
 - I have learned that for good project management, I need to follow these steps.

1. Define the system goal, what the system will be and the detail requirement .
2. Clear to know the system deadline.
3. Break down the system function to different modules.
4. Design each module function and set up the start time and deliver time for each function.
5. Making a checklist file for those modules, and checking each item on the calendar.
6. use the daily work log to track the everyday work. For example, what I need to do today, what I need to finish today, what I need to do next day.
7. Finished the project before the closing day so that there is a buffer to do the testing and issue fix.

- Time management?

- I have learn for time management is

1. Break down the project to different small functions.
2. Setup start time and deliver time for each function.
3. Write all those tasks start time and end time on the calendar.
4. Make a checklist file for all those functions, and check the schedule on time or not.
5. Use the daily work log to track the process to control what needs to be done next and what should be finished.
6. Make a buffer time to handle issue problems.

- o What problems did you experience?

- o My user interface on the screen was in a fixed size in the first version, and the user interface will not auto extend when the window resizes.

- o How did you overcome them?

- o At first, I tried to set the parent and child controls and make `setResize = true`, but it didn't work.
 - o I tried to search the internet, and there are a lot of people asking this question. I find that one good way is to add a parent Hbox to all the current components and set all the child components `HBox.hgrow="ALWAYS"` in the .fxml file. After that, it worked well.