



OLLSCOIL NA GAILLIMHÉ
UNIVERSITY OF GALWAY

2023-2024 Semester 1

CT326 Programming III

Individual Assignment 4

Objective	Demonstrate the use of GUI components, event handling, and layout managers.
Lecturer	Dr Adrian Clear Email: adrian.clear@universityofgalway.ie
Marks Awarded	This assignment is marked out of 60 marks and is worth 6% of the overall grade for the module.
Submission	The deadline for submission is 23:59 on Wednesday, November 8th, 2023. Your attempt should be submitted through Canvas. Please provide a single zip file of your answers. See further details below.

Please complete all parts. All parts are worth equal marks.

Create an application that displays a GUI similar to that shown in the screenshots below. This purpose of this application is to allow a user to navigate through their music library. When the application is launched, the user is presented with a view of the albums in their music library, represented as the album cover images (Figure 1). When they click on an album cover image, they are presented with a table listing the tracks on the album (Figure 2). Once they click the “Back” button in the track listing view, they go back to the view of the albums in their music library (Figure 1).

You can create your own music library data for this assignment, or you can make use of the library provided to you. The library is represented as follows:

- Details of the albums (Artist, album name, cover image file, track listing file) are contained in ‘music_library.txt’.
- The album tracks are contained in their own .txt files in a ‘library’ folder.
- The cover art images are contained in a ‘covers’ folder.

The application should terminate when the window is closed. Your code should be fully documented with Javadoc comments.

Notes:

- You’ll need to begin by reading the music library contents. You can use whatever data structures you wish to hold the content of the albums. You should create a class called `Album` to represent an album.
- You can use the `java.awt.image.BufferedImage` class to read and scale the cover art images before representing them as `ImageIcons`, e.g.,

```
BufferedImage bi = ImageIO.read(new File([a file name here]));  
Image dimg = bi.getScaledInstance(200, 200, Image.SCALE_SMOOTH);  
ImageIcon i = new ImageIcon(dimg);
```

- You can use the `JButtons` to represent the albums in the music library, and use an action command that allows you to map the button to an album in a data structure. E.g., `aButton.setActionCommand("1")`; could be used to indicate the button refers to an album that is at position 1 in a List.
- Use a `JTable` to represent the track listings.

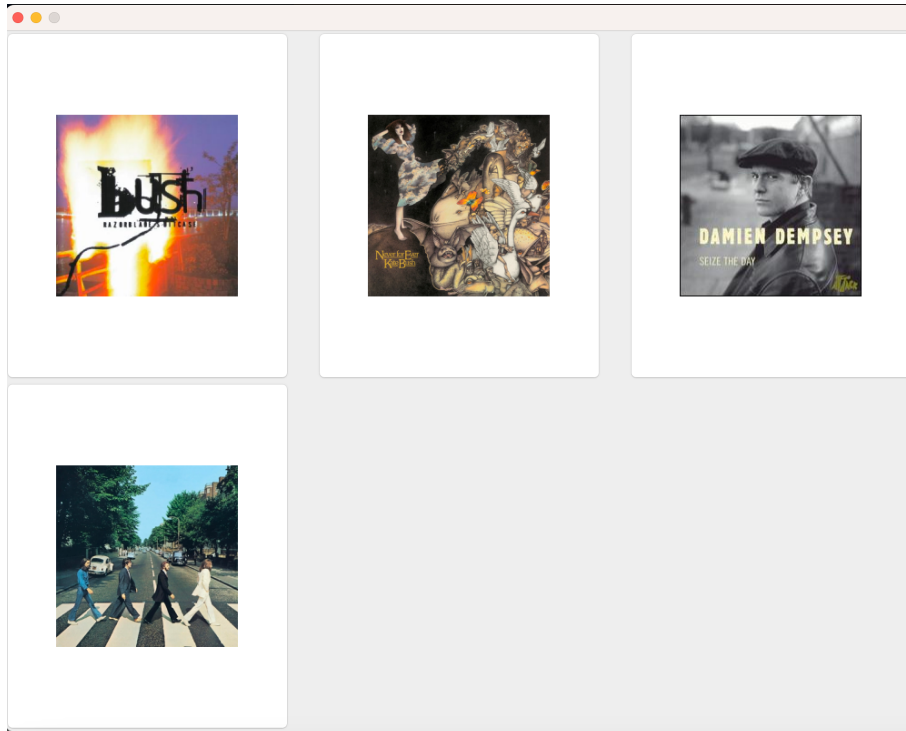


Figure 1: The album view of the music library. From here a user can click on an album to see the album tracks.

 A screenshot of a music library application in track listing view. It displays a table with 11 tracks. The table has three columns: 'No.', 'Track name', and 'Length'. At the bottom of the window, there is a 'Back' button.

No.	Track name	Length
1.	"Negative Vibes"	4:44
2.	"Ghosts of Overdoses"	4:41
3.	"It's All Good"	4:21
4.	"Factories"	5:17
5.	"Jar Song"	5:03
6.	"Celtic Tiger"	5:13
7.	"Apple of My Eye"	3:43
8.	"Industrial School"	5:27
9.	"Great Gaels of Ireland"	5:21
10.	"Marching Season Siege"	3:24
11.	"Seize the Day" (hidden track)	4:12

Figure 2: Track listing view. From here the user can click 'Back' to go back to the album view.

Submission instructions:

Include your name and student number in a comment in each java source file, and explain your code with comments. Submit your work in a single zip file using the name format **assignment4_firstname_lastname.zip** via Canvas - other file formats will NOT be accepted, and email submission will NOT be accepted. Include a screen shot of the testing / results in the same zip file. Use proper indentation in your source code. If you submit more than one attempt, then only the last attempt will be marked.

Plagiarism will be awarded a grade of zero!