

**Manchester
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RECORD MANAGEMENT SYSTEM USING JAVA PROGRAMMING

Introduction to Programming – 6G4Z1901

Contents

Summary	3
Program Specification	3
Program Design	3
Main Menu	4
[1] Create	4
[2] Edit	4
[3] Delete	5
[4] Search	5
[5] Display All	5
[6] Decade	5
[7] Shuffle	5
[8] Exit	6
Menu Tree's	6
Main Menu	6
Create	7
Edit	7
Delete	8
Search	9
User Guide/ Interface Design	9
Program Boot	9
Program Start	9
Create A Record	10
Edit a Record	11
Delete a Record	13
Delete a single record	13
Delete in Bulk	14
Search	15
ID	15
Title	16
Artist	17
Year	18
Decade	19
Genre	20
Duplicates	21
Display All	22

Decades.....	23
Shuffle Pick.....	24
Exit.....	25
Exiting Functions.....	25
Exit Program.....	25
Function Path Codes	25
Class Design.....	26
Method/ Variable Design.....	26
Class - Program	26
Method – Main	26
Method – Write.....	28
Class – Create.....	28
Method – Create	28
Method – createRecord	28
Method - newId	29
Method – thisYear.....	29
Class – Edit	30
Method – Edit	30
Method – editRecord	30
Method – deleteRecord	31
Method – deleteInBulk	31
Class – Display.....	31
Method – Display	32
Method – displayAll	32
Method – shuffleById	32
Method – displayByDecade	32
Method - displayById.....	33
Method - displayByTitle	33
Method - displayByArtist	34
Method - displayByYear	34
Method - displayByDecade	34
Method - displayByGenre	35
Method – displayDuplicates	35
Class – VinylRecord	35
Method – VinylRecord	36
Method – getElement	36

Method – setElement	36
Method – toString	36
Version History.....	37
Version 1.0.1	37
Bugs Fixed	37
Additional Features.....	37
Version 1.0.2	37
Bugs Fixed	37
Additional Features.....	37
Version 1.0.3	37
Bugs Fixed	37
Additional Features.....	37
Version 1.0.3 Testing.....	37

Summary

This program is a record management system designed to manage album/ vinyl collections using a Terminal User Interface (TUI). The user can create entries within the application, or they can load them using the CSV file. Each record has five characteristics, and they are ID, this is a unique identifier specific for each record. Title, this is the title of the album e.g., 'Abbey Road'. Artist, this is the artist's name that produced the album e.g. 'The Beatles'. Year, this is the year the album was released e.g., '1969' and finally the Genre of the record being the style of music e.g., 'Rock'.

When records are in the program, they can then be managed using the functions built in. They are Create, Edit, Delete, Search, Display, Decade, and Shuffle. The programs main functions are the first five in this list and with the latter being extra features for user enjoyment.

Program Specification

For users to manage records efficiently the system is required to provide multiple functions that can assist. The below are built into the system, for more information please find the section 'Program Design'.

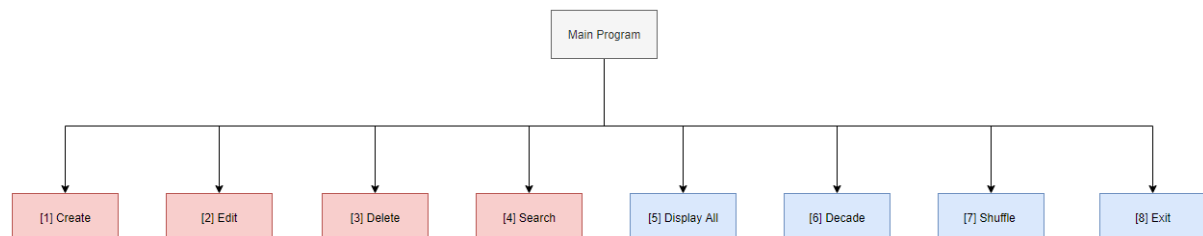
1. User Input – Allow the user to interact with the system.
2. Create – The ability to create records.
3. Edit - Change records details.
4. Searchable – Search for records using key criteria.
5. Display Information – Display record details in multiple ways.
6. Delete – Permanently remove records from system.

Program Design

The program is divided into eight core functions that perform specific tasks that all span from the main menu. The main menu is displayed for users at start up to select the function they would like and when a task is completed or quit this is where the program is returned to other than Exit which

will close the program. The programs overview is displayed in the below diagram, here you can see all functions spanning the main menu.

The diagram is split into functions colored Red and Blue. Red means they are a parent function and have child operations/ interactions needed to complete their purpose. Blue means parent only and when selected will require no further interactions to display or perform what is required. With each Parent/Child function a menu is displayed to the TUI stating the user will need key information to perform the task and if they do not have this, they can exit their current state to find this info.



Main Menu

The main menu is the anchor point of this program, this is placing the system starts after boot and where it returns after a function is completed or quit. This displays all options to the TUI for the user to them select by inputting the corresponding number with the option. When selected the program will then drop into the function's submenu (If Parent/ Child) or the data/operation (If Parent Only) will be displayed/performed.

[1] Create

The create function when completed and all input is entered correctly creates a new record. When selected a submenu is displayed giving the user the option to continue and create the record or exit this state. When continued it will then display to the TUI what information the system requires from the user to create a record and validates this when inputted. When completed indication that the record has successfully been created to the TUI.

[2] Edit

The edit function allows the user to modify certain details of an album. When selected a submenu is displayed to the TUI informing the user, they will need the ID number of the record they wish to edit and if they do not have this, they can exit here to find it. When continued the system will indicate its ready for the ID number from the user. This will then check for this ID and pull the records details, if no ID was matched a message is shown and the Edit function will return to the Main Menu.

If the ID entered matches a record the system will display the details records it will then ask user if they would like to modify an element of the record starting with Title. Once all elements that can be modified have been worked through the new details are presented and indicated that they are saved.

Element	Can be Modified
ID	N
Title	Y
Artist	Y
Year	Y
Genre	Y

[3] Delete

The delete function permanently removes a record from the system. When selected a submenu is displayed to the TUI informing the user, they will need the ID number of the record they wish to edit and if they do not have this, they can exit here to find it. There are two delete functions the first deleting a single record and the second deleting in bulk.

When deleting a single record, the program will indicate its ready for the ID number from the user. This will then check for this ID and pull the records details, if no ID was matched a message is shown and the Delete function will return to the Main Menu. If the ID matches a record, it will then display the records details and confirm the user is happy to delete this. If the user commits this then the record is removed and if not, the system returns to the main menu.

When deleting in bulk the program will continue to prompt the user to enter an ID until they answer "N" for no. This will then look at the list of IDs the user has entered and run this through the existing list of records, if found they are deleted and indicated to the TUI for the user.

[4] Search

The search function displays record information based on search criteria inputted from the user. When selected a submenu is displayed showing the criteria that the user used to search for the record. When an option has been chosen, a further submenu is displayed allowing giving the users to continue or quit if they do not have the correct information.

The searchable criteria can be categorized by Single or Multiple. This is the number of records that search can offer if the data is available. Please see below for categorized searches.

Criteria	Single/ Multiple
ID	S
Title	M
Artist	M
Year	M
Genre	M
Duplicates	M

[5] Display All

The display all function displays every records detail to the TUI. When selected the user can see all record information at their own time. The system will pause and wait for the user to enter before returning to the main menu.

[6] Decade

The decade function creates a timeline of all the records on system. When selected this will display all records on the system in each decade they were released. The information shown here is Title and Artist only placed under each decade header. The user can view this at their own time as the system will pause and wait for the user to enter before returning to the main menu.

[7] Shuffle

The shuffle function will display a randomly chosen records details to the TUI. When selected the program will display 'What will you listen to today' followed by displaying "." five times with a pause in between to add suspense for the user. After this the randomly generated record will be displayed and the system will return to the main menu.

[8] Exit

The exit function will display the CSV export path and close the program. When selected the path of the export will be displayed to the TUI and the program will move to the closing menu. Once here it will display that the system is saving all records and then that it is now closed.

Menu Tree's

Main Menu

Main Menu

[1] Create

[2] Edit

[3] Delete

[4] Search

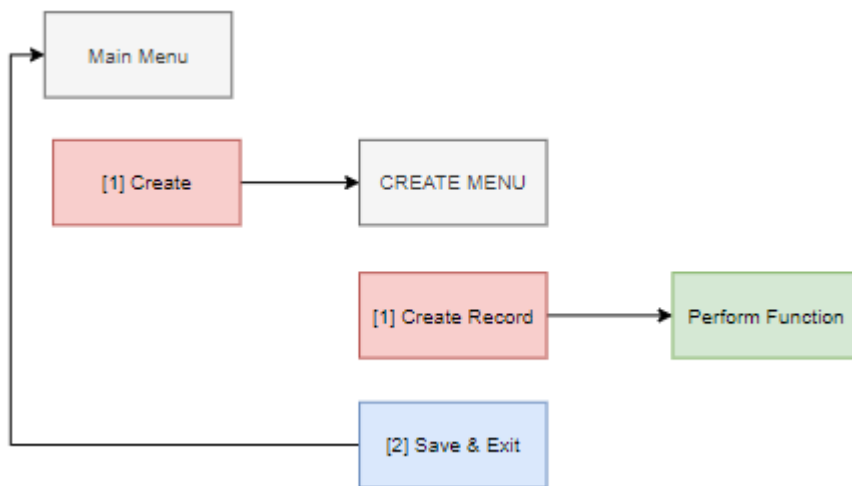
[5] Display All

[6] Decode

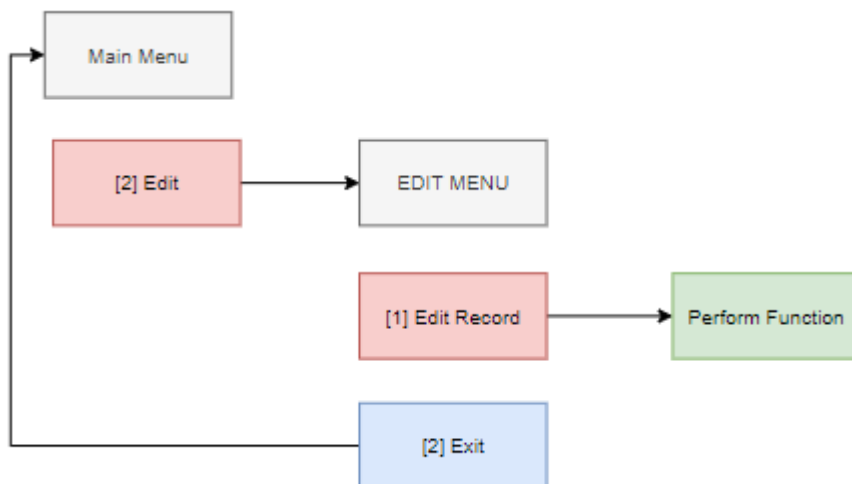
[7] Shuffle

[8] Exit

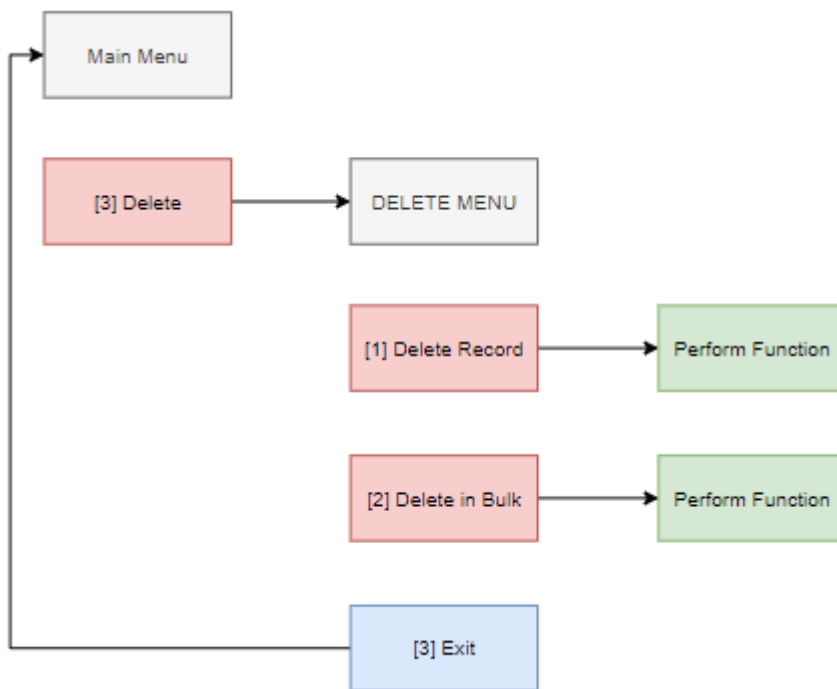
Create



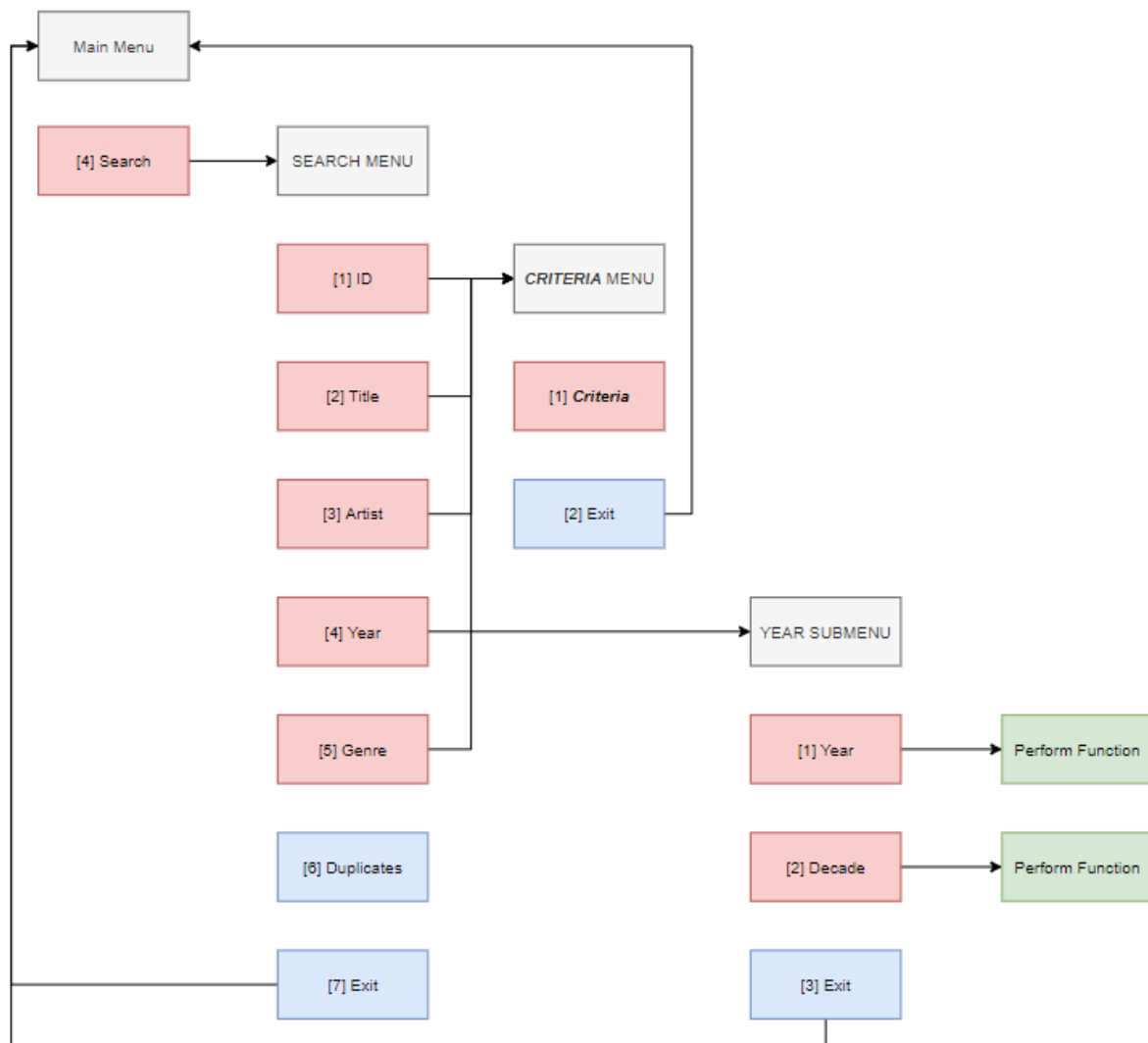
Edit



Delete



Search



User Guide/ Interface Design

Program Boot

When the program starts the start, menu is displayed.

```
=====
===== RECORD MANAGEMENT SYSTEM =====
System Starting.....
```

Program Start

When the program moves from the boot phase the main menu will be displayed. This is the anchor point of the program and where it will return when a function is completed or quit.

```

=====
===== MAIN MENU =====
=====
Functions:
[1] Create
[2] Edit
[3] Delete
[4] Search
[5] Display All
[6] Decades
[7] Shuffle Pick

[8] Exit
=====
=====

```

Create A Record

1. First choose option '[1] Create' by entering '1'.
2. When you enter the below submenu choose option '[1] Create Album'.

```

=====
===== CREATE MENU =====
=====
[1] Create Album
[2] Save & Exit
=====

```

3. You will now be in the function of creating a record and you will need to complete this to return to the main menu. Enter the record detail in each section and press enter to commit it.
 - a. Title
 - b. Artist
 - c. Year
 - d. Genre

```

=====
===== CREATE ALBUM =====
=====
1. Title:
Example - Abbey Road
Abbey Road
2. Artist:
Example - The Beatles
The Beatles
3. Year:
Example - 1969
1969

=====
===== EXISTING GENRE =====
=====
- Rock
- R&B
- Rap
- Country
- Blues

4. Genre:
Example - Rock
Rock
=====

```

4. After this the system will confirm your album is now saved.

```
=====
===== CREATE ALBUM =====

1. Title:
Example - Abbey Road
Abbey Road
2. Artist:
Example - The Beatles
The Beatles
3. Year:
Example - 1969
1969

=====
===== EXISTING GENRE =====

- Rock
- R&B
- Rap
- Country
- Blues

4. Genre:
Example - Rock
Rock
|
Album Created!
```

5. When the album is created you, the program will go back to the Create submenu, here you can create another or save and exit your new records

```
=====
===== CREATE MENU =====

[1] Create Album
[2] Save & Exit
2
=====
===== MAIN MENU =====

Functions:
[1] Create
[2] Edit
[3] Delete
[4] Search
[5] Display All
[6] Decades
[7] Shuffle Pick

[8] Exit

=====
=====
```

Edit a Record

1. First choose option '[2] Edit' by entering '2'.
2. When you enter the below submenu choose '[1] Edit Record' to enter the ID of the record.

```
=====
===== EDIT MENU =====

    You will need to know the ID of the
    record you wish to edit. If you do
    not know this Exit this menu and use
    functions 4/5 to find this.

[1] Edit Record
[2] Exit
```

3. You will then need to enter your record ID like below. You are now in the function and will need to complete this to return to the main menu.

```
=====
===== EDIT MENU =====

Record ID:
|
6
```

4. The current record details will be displayed, and you will be asked if you would like to edit this element. To change an element details, enter 'Y' like the example below.

Elements:

- a. Title
- b. Artist
- c. Year
- d. Genre

```

=====
===== EDIT MENU =====
=====

Record ID:

6
=====
===== ID 6

Record Details:
ID - 6
Title - abbey road
Artist - the beatles
Year - 1969
Genre - rock

Edit Title? Y/N
Y
New Title:
Let It Bleed
Edit Artist? Y/N
Y
New Artist:
The Rolling Stones
Edit Year? Y/N
N
Edit Genre? Y/N
N

Record Details Updated:
ID - 6
Title - Let It Bleed
Artist - The Rolling Stones
Year - 1969
Genre - rock

Album Saved!

```

5. You will then be redirected to the main menu.

Delete a Record

Delete a single record

1. First choose '[3] Delete' from main menu by entering '3'.
2. When you enter the below submenu choose '[1] Delete Record' to enter the ID of the record.

```

=====
===== DELETE MENU =====
=====

    You will need to know the ID of the
    record you wish to delete. If you do
    not know this Exit this menu and use
    functions 4/5 to find this.

[1] Delete Record
[2] Delete in Bulk

[3] Exit

```

3. You will then need to enter your record ID like below. You are now in the function and will need to complete this to return to the main menu.

```
=====
===== DELETE MENU =====
Record ID:
6
```

4. The details of your chosen record will be displayed and displays a message to confirm you are sure you would like to delete this record.

```
=====
===== DELETE MENU =====
Record ID:
6
=====
===== ID 6
Record Details:
ID - 6
Title - Let It Bleed
Artist - The Rolling Stones
Year - 1969
Genre - rock
Are you sure you want to delete this item? Y/N
Y
Album Deleted!
```

5. You will have confirmation the record is deleted and returned to the main menu.

Delete in Bulk

1. First choose '[3] Delete' from main menu by entering '3'.
2. When you enter the below submenu choose '[2] Delete in Bulk' to enter the ID of the records.

```
=====
===== DELETE MENU =====
You will need to know the ID of the
record you wish to delete. If you do
not know this Exit this menu and use
functions 4/5 to find this.
[1] Delete Record
[2] Delete in Bulk
[3] Exit
```

3. You will need to complete this function to return to the main menu. If you do not wish to continue enter "N" straight away.

When in the below you are prompted to enter an ID of the record enter "Y" to do this.

```

=====
===== DELETE IN BULK =====

Enter as many ID's as you would like when
done, enter N to finish.

Enter ID ? Y/N

```

4. Enter the ID you want to delete, you will then be prompted if you would like to delete another ID example below.

```

Enter ID ? Y/N

y
Record ID:
10

Enter ID ? Y/N

y
Record ID:
20

Enter ID ? Y/N

n
|
Albums deleted!

```

5. When you are done enter "N" and the program will confirm the albums are deleted.

Search

ID

1. First choose '[4] Search' from the main menu by entering '4'
2. Then choose '[1] ID' by entering '1' in the below submenu.

```

=====
===== SEARCH MENU =====

[1] ID
[2] Title
[3] Artist
[4] Year
[5] Genre
[6] Duplicates

[7] Exit

```

3. In the below menu choose '[1] Enter ID' by entering '1'.

```

=====
===== SEARCH MENU =====

[1] Enter ID
[2] Exit

```

4. You will need to enter the ID of the record you are searching for. You are now in the function and you will need to complete this to return to the main menu.


```

=====
===== SEARCH MENU =====
|
Record ID:
5

```

5. The records details will then be displayed, and you will be returned to the main menu.

```

===== ID 5
Record Details:
ID - 5
Title - live at the regal
Artist - b.b. king
Year - 1965
Genre - blues

```

Title

1. First choose '[4] Search' from the main menu by entering '4'
2. Then choose '[2] Title' by entering '2' in the below submenu.

```

=====
===== SEARCH MENU =====
[1] ID
[2] Title
[3] Artist
[4] Year
[5] Genre
[6] Duplicates
[7] Exit

```

3. In the below menu choose '[1] Enter Title' by entering '1'.

```

=====
===== SEARCH MENU =====
[1] Enter Title
[2] Exit
1

```

4. You will need to enter the Title of the record you are searching for. You are now in the function and you will need to complete this to return to the main menu.

```

=====
===== SEARCH MENU =====
Record Title:
I Walk The Line

```

5. The records details will then be displayed, and you will be returned to the main menu.

```

=====
===== I WALK THE LINE

Record Details:
ID - 4
Title - i walk the line
Artist - johnny cash
Year - 1964
Genre - country

```

Artist

1. First choose '[4] Search' from the main menu by entering '4'
2. Then choose '[3] Artist' by entering '3' in the below submenu.

```

=====
===== SEARCH MENU =====

[1] ID
[2] Title
[3] Artist
[4] Year
[5] Genre
[6] Duplicates
[7] Exit

```

3. In the below menu choose '[1] Enter Artist' by entering '1'.

```

=====
===== SEARCH MENU =====

[1] Enter Artist
[2] Exit

```

4. You will need to enter the Artist of the record you are searching for. You are now in the function and you will need to complete this to return to the main menu.

```

=====
===== SEARCH MENU =====

Record Artist:
The Beatles

```

5. The records details will then be displayed, and you will be returned to the main menu. If you have multiple records from this artist, you will see all entries.

```

=====
===== THE BEATLES
=====

Record Details:
ID - 6
Title - abbey road
Artist - the beatles
Year - 1969
Genre - rock

Record Details:
ID - 7
Title - yellow submarine
Artist - the beatles
Year - 1969
Genre - rock

```

Year

1. First choose '[4] Search' from the main menu by entering '4'
2. Then choose '[4] Year' by entering '4' in the below submenu.

```

=====
===== SEARCH MENU =====
=====

[1] ID
[2] Title
[3] Artist
[4] Year
[5] Genre
[6] Duplicates

[7] Exit

```

3. In the below menu choose '[1] Enter Year' by entering '1'.

```

=====
===== SEARCH MENU =====
=====

[1] Enter Year
[2] Enter Decade

[3] Exit

```

4. You will need to enter the Year of the record you are searching for. You are now in the function and you will need to complete this to return to the main menu.

```

=====
===== SEARCH MENU =====
=====

Record Year:

Example - 1969

1969

```

5. The records details will then be displayed, and you will be returned to the main menu. If you have multiple records from this year, you will see all entries.

```

=====
===== 1969

Record Details:
ID - 6
Title - abbey road
Artist - the beatles
Year - 1969
Genre - rock

Record Details:
ID - 7
Title - yellow submarine
Artist - the beatles
Year - 1969
Genre - rock

```

Decade

1. First choose '[4] Search' from the main menu by entering '4'
2. Then choose '[4] Year' by entering '4' in the below submenu.

```

=====
===== SEARCH MENU =====

[1] ID
[2] Title
[3] Artist
[4] Year
[5] Genre
[6] Duplicates
[7] Exit

```

3. In the below menu choose '[2] Enter Decade' by entering '1'.

```

=====
===== SEARCH MENU =====

[1] Enter Year
[2] Enter Decade
[3] Exit

```

4. You will need to enter the Decade of the record you are searching for. You are now in the function and you will need to complete this to return to the main menu.

```

=====
===== SEARCH MENU =====

Record Decade:

Example - 90 = The 90's

60

```

5. The records details will then be displayed, and you will be returned to the main menu. If you have multiple records from this decade, you will see all entries.

```

=====
===== 60's =====
| i walk the line - johnny cash
| live at the regal - b.b. king
| abbey road - the beatles
| yellow submarine - the beatles

```

Genre

1. First choose '[4] Search' from the main menu by entering '4'
2. Then choose '[5] Genre' by entering '5' in the below submenu.

```

=====
===== SEARCH MENU =====
[1] ID
[2] Title
[3] Artist
[4] Year
[5] Genre
[6] Duplicates
[7] Exit

```

3. In the below menu choose '[1] Enter Genre' by entering '1'.

```

=====
===== SEARCH MENU =====
[1] Enter Genre
[2] Exit

```

4. You will need to enter the Genre of the record you are searching for. You are now in the function and you will need to complete this to return to the main menu.

```

=====
===== EXISTING GENRE =====
- rock
- r&b
- rap
- country
- blues

=====
===== SEARCH MENU =====

Record Genre:
rock

```

5. The records details will then be displayed, and you will be returned to the main menu. If you have multiple records from this genre, you will see all entries.

```

=====
===== ROCK
Record Details:
ID - 1
Title - the miracle
Artist - queen
Year - 1989
Genre - rock

Record Details:
ID - 6
Title - abbey road
Artist - the beatles
Year - 1969
Genre - rock

Record Details:
ID - 7
Title - yellow submarine
Artist - the beatles
Year - 1969
Genre - rock

```

Duplicates

1. First choose '[4] Search' from the main menu by entering '4'
2. Then choose '[6] Duplicates' by entering '6' in the below submenu.

```

=====
===== SEARCH MENU =====
[1] ID
[2] Title
[3] Artist
[4] Year
[5] Genre
[6] Duplicates
[7] Exit

```

3. This will then display all duplicate records. User will need to press enter to return to the main menu.

```
=====
===== DUPLICATE RECORDS =====
=====
===== ID 16

Record Details:
ID - 16
Title - thriller
Artist - micheal jackson
Year - 1982
Genre - r&b

=====
===== ID 14

Record Details:
ID - 14
Title - thriller
Artist - micheal jackson
Year - 1982
Genre - r&b

Press enter to continue.
```

Display All

1. Choose '[5] Display All' from the main menu by entering '5'.
2. All albums will they be displayed.

```
5
=====
===== ALL ALBUMS =====

ID - 1
Title - the miracle
Artist - queen
Year - 1989
Genre - rock

ID - 2
Title - after hours
Artist - the weeknd
Year - 2021
Genre - r&b

ID - 3
Title - the slim shady lp
Artist - eminem
Year - 1999
Genre - rap

ID - 4
Title - i walk the line
Artist - johnny cash
Year - 1964
Genre - country

ID - 5
Title - live at the regal
Artist - b.b. king
Year - 1965
Genre - blues

ID - 6
Title - abbey road
Artist - the beatles
Year - 1969
Genre - rock

ID - 7
Title - yellow submarine
Artist - the beatles
Year - 1969
Genre - rock

Press enter to continue.
```

3. Press enters to return to the main menu.

Decades

1. Choose '[6] Decades' from the main menu by entering '6'.
2. All albums in a timeline output will be shown in what decade they are in.


```

6
=====
===== DECADES =====
===== 2020's =====
| after hours - the weeknd
===== 2010's =====
| AM - Arctic Monkeys
| Glitterbug - The Wombats
| Currents - Tempe Impala
===== 1990's =====
| the slim shady lp - eminem
===== 1980's =====
| the miracle - queen
| Thriller - Micheal Jackson
| The Number of the Beast - Iron Maiden
===== 1970's =====
| The Dark Side of the Moon - Pink Floyd
| Aladin Sane - David Bowie
===== 1960's =====
| i walk the line - johnny cash
| live at the regal - b.b. king
| abbey road - the beatles
| yellow submarine - the beatles
===== 1950's =====
| Heres Little Richard - Little Richard

Press enter to continue.

```

3. Press enters to return to the main menu.

Shuffle Pick

1. Choose '[7] Shuffle Pick' from the main menu by entering '7'.
2. The program will then display a message followed my five loading '.

```

=====
===== SHUFFLE PICK =====
What will you listen to today.....

```

3. The randomly picked record will then be displayed to the TUI

```

=====
===== SHUFFLE PICK =====
What will you listen to today.....

=====
===== ID 11 =====

Record Details:
ID - 11
Title - The Dark Side of the Moon
Artist - Pink Floyd
Year - 1973
Genre - Progressive Rock

```

4. You will then return to the main menu.

Exit

Exiting Functions

Throughout the program you will be able to exit before entering the function chosen. You will see a menu with option one to enter the function and option 2 to exit back to the main menu like the one below.

1. To exit from the function, choose '[2] Exit' by entering '2'. Please note when you enter the function you will need to complete this to return to the main menu.

```
=====
===== SEARCH MENU =====
[1] Enter ID
[2] Exit
```

Exit Program

1. Choose '[8] Exit' from the main menu by entering '8'.
2. The program will then display the CSV export path to the TUI for the user.

```
=====
===== CSV EXPORT =====

Find CSV export at:

C:\Users\Jordan.Prescott.14IP\OneDrive - MMU\0003_Programming\0003_Assesments\0001 - A1 - Re
```

3. The program will then move to the Closing Page displaying the system is closing, saving user records, and then closed.

```
=====
===== RECORD MANAGEMENT SYSTEM =====

System Closing
Saving your records.....
System Closed

=====
=====
```

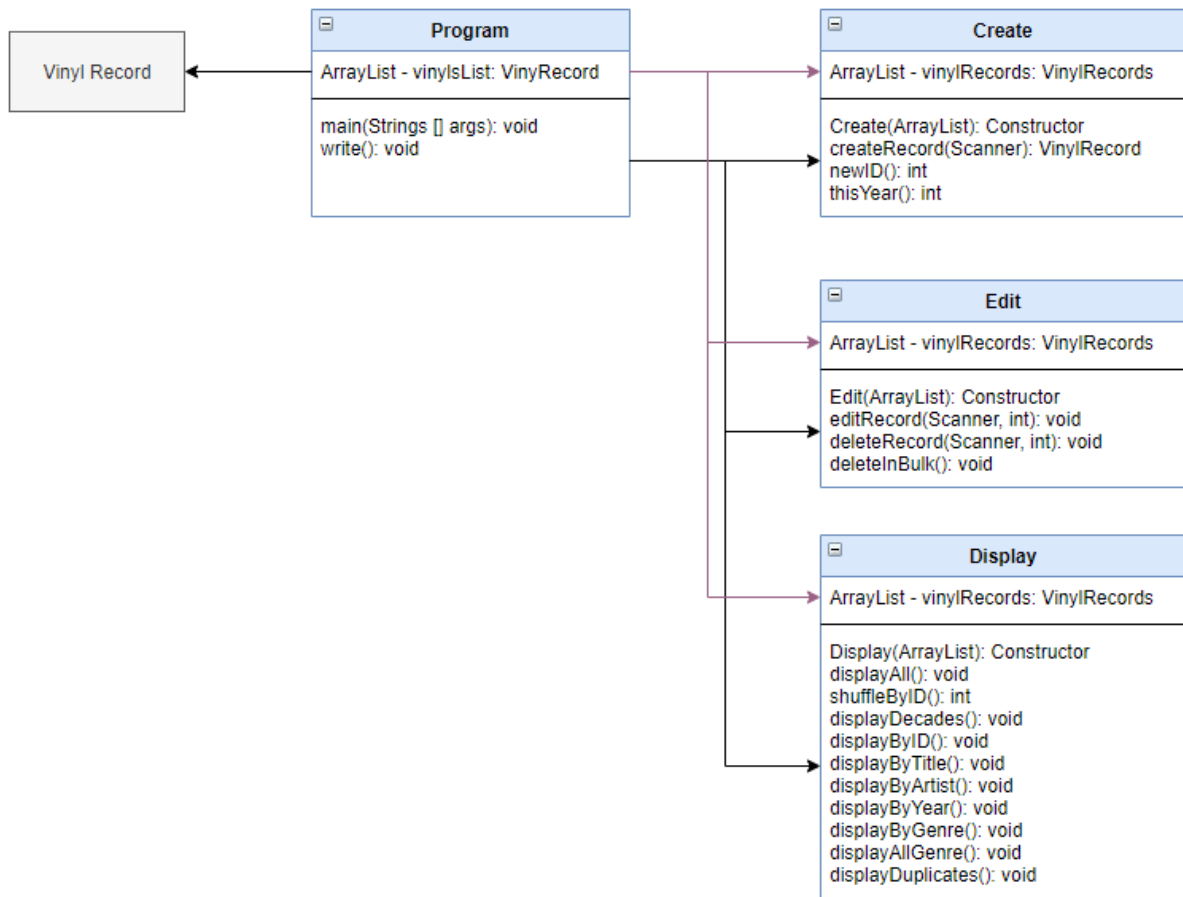
Function Path Codes

All codes below start from the main menu in the program.

Function	Path Code
Create Record	1-1
Edit Record	2-1
Delete Record	3-1
Delete in Bulk	3-2
Search by ID	4-1-1
Search by Title	4-2-1
Search by Artist	4-3-1
Search by Year	4-4-1
Search by Decade	4-4-2
Search by Genre	4-5-1
Search by Duplicates	4-6
Display All	5

Decades	6
Shuffle Pick	7
Exit	8

Class Design



Method/ Variable Design

Class - Program

Method – Main

Purpose	Starting point of the program, this will read in all existing records from the CSV and create instances of them. It is then link to all the functions the user would like to perform. The displaying of the menus will guide the user to the action they want to do and then when they confirm this is the correct action the program calls the correct function. After every function it will return to the main menu and if the user decides to exit it will enter the exit stage writing the records to the CSV and displaying the location.
Pseudocode	<ol style="list-style-type: none"> 1. First read the lines in the file path Data/VinylRecords. 2. With each line create a new instance in the array list. 3. The program will now have the existing records. 4. Start the program and show something to the TUI its starting.

	<ol style="list-style-type: none"> 5. Enter the main menu. 6. Take in user input for choice of submenu. 7. Display submenu options. 8. Take in user input for choice in submenu. 9. Take in some input to confirm details of record they wish to perform action on. 10. Call the correct method with the input taken from user. 11. After method completion/ exit return to the main menu. 12. Repeat the above unless exit is selected from main menu. 13. If exit is chosen to leave the do while loop for the main menu. 14. Write the array list to the CSV. 15. Display the location path to the CSV. 16. Display the program is closing. 17. End.
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Variables

Name	Purpose
Scanner read	Reads in the file
Scanner in	Stores users input for menu selection and some functions
Boolean exit	The condition for the do While loop that contains the main menu
Int userAnswer	Stores user's choice from main menu
Int createMenu1	Stores user's choice from create menu
Boolean exitCreate	The condition used to control the loop for creating records
Create createRecord	Instance of create used to pass in the global array list
Int userAnswer	Stores the users answer for the create submenu
Int editMenu1	Stores user's choice from exit menu
Int recordID	Stores the integer of the ID the users' inputs
Display displayRecordID	Instance of display to pass in the global array list
Edit editRecord	Instance of edit to pass in the global array list
Int deleteMenu1	Stores users answer for delete menu
Display deleteRecordID	Instance of display to pass in the global array list
Edit deleteRecord	Instance of edit to pass in the global array list
Edit bulkDelete	Instance of edit to pass in the global array list
Display searchRecord	Instance of edit to pass in the global array list
Int searchMenu1	Stores user's choice to submenu
Int idSubMenu	Stores user's choice to submenu
Display displayRecordID	Instance of display to pass the global array list
Int titleSubMenu	Stores user's choice to submenu
String recordTitle	Stores the users title they are searching for
String recordTitle	Stores the user's artist they are searching for
Int yearSubMenu	Stores user's choice to submenu

Int recordYear	Stored outside of the try catch so its accessible to the function call. This stores the year they are searching for
String recordDecade	Stores the user's decade they are searching for
Int genreSubMenu	Stores user choice for submenu
String recordGenre	Stores users input of genre they are searching for
Display displayDuplicates	Instance of Display to pass in global variable
Display decadesOfRecord	Instance of Display to pass in global variable
Display shuffleRecord	Instance of Display to pass in global variable
File file	File reader to take in Data/VinyRecords.csv

Method – Write

Purpose	Writes all the all instances in the global array list into the csv file stored in Data/VinyRecords.csv
Pseudocode	<ol style="list-style-type: none"> 1. Open the file. 2. Write headers to the file for each variable of Vinyl Record. 3. Loop through all records and print the toString to the file.

Variables

Name	Purpose
PrintWriter file	Creates print writer for editing the file

Class – Create

Global Variables

Name	Purpose
ArrayList vinylsList	Stores instances of vinyl records

Method – Create

Purpose	Constructor method to pass in the array list ready for use by internal methods.
Pseudocode	<ol style="list-style-type: none"> 1. Take in the global array list. 2. Store the list as a global variable here for methods to access.

Variables

Name	Purpose
This.vinylRecords = vinylsList	Stores instances of vinyl records

Method – createRecord

Purpose	Create an instance of record by taking in the criteria from the user. This should ask the user for specific data when all together is a record and then use this to create a record and store this in the global array list.
Pseudocode	<ol style="list-style-type: none"> 1. Generate a new record ID and store this.

	<ol style="list-style-type: none"> 2. Store user input for Title. 3. Store user input for Artist. 4. Store user input for Year. 5. Store user input for Genre. 6. Create new instance of Vinyl Record. 7. Add new instance to global array list.
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Variables

Name	Purpose
Int newId	Stores the generated new ID for the new record
String newTitle	Stores the input for title from user
String newArtist	Stores the input for artist from user
Int newYear	Stores the input for year from user
String newGenre	Stores the input for genre from user
Display displayRecordGenre	New instance to pass in global array
VinylRecord newVinylRecord	New instance of vinyl record

Method - newId

Purpose	The purpose of this is to generate a new ID for the new record when creating. Record ID's will increment by 1 starting at 1 so this record simply needs to collect the latest ID and continue the sequence.
Pseudocode	<ol style="list-style-type: none"> 1. Read all records. 2. Store each record ID in a list. 3. Look at the last ID stored in the list. 4. Add one to the last ID.

Variables

Name	Purpose
ArrayList <Integer> albumIDs	Store's integers of the IDs

Method – thisYear

Purpose	Return the current year is YYYY format.
Pseudocode	<ol style="list-style-type: none"> 1. Take in today's date. 2. Format the date to show the year as YYYY. 3. Return the year in correct format.

Variables

Name	Purpose
Date currentDate	New instance of date taking in today's date
SimpleDateFormat dateFormat	Formats the date to the style the program needs which is YYYY
Int n	Parses the formatted year into an integer

Class – Edit

Global Variables

Name	Purpose
ArrayList vinylsList	Stores instances of vinyl records

Method – Edit

Purpose	Constructor method to pass in the array list ready for use by internal methods.
Pseudocode	<ol style="list-style-type: none">1. Take in the global array list.2. Store the list as a global variable here for methods to access.

Variables

Name	Purpose
This.vinylRecords = vinylsList	Stores instances of vinyl records

Method – editRecord

Purpose	Edit a records criterion, prompt the user if they would like to edit a certain piece of data about the record, if yes then take in the new data and adjust the record.
Pseudocode	<ol style="list-style-type: none">1. Take in a record ID.2. Loop through the records.3. If the ID matches prompt the user if they would like to edit below.<ol style="list-style-type: none">a. Titleb. Artistc. Yeard. Genre4. Update the records details to the new data.

Variables

Name	Purpose
Int searchableID	Stores the ID passed to the method as a local variable for use
Scanner in	Takes in the scanner passed from the program for use in this method
String Title	Stores user answer which is the condition for the if statement
String Artist	Stores user answer which is the condition for the if statement
String Year	Stores user answer which is the condition for the if statement
String Genre	Stores user answer which is the condition for the if statement

Method – deleteRecord

Purpose	Delete a record chosen by the user. Prompt the user to confirm they are happy before they delete the record.
Pseudocode	<ol style="list-style-type: none"> 1. Take in the ID of record. 2. Loop through the records. 3. If match is found confirm the user would like to delete this record. 4. If yes, then delete the record. 5. If no cancel deletion.

Variables

Name	Purpose
Scanner in	Takes in the scanner passed from the program for use in this method
Int deleteID	Stores the ID passed to the method as a local variable for use
Int index	If the match is found the index of the record in the array list is stored here

Method – deleteInBulk

Purpose	Delete record in bulk. Ask user for ID and that they would like to enter another until they do not. When they do not delete the record, they have chosen.
Pseudocode	<ol style="list-style-type: none"> 1. Ask user if they would like to delete a record. 2. If yes, ask for ID If no cancel the deletion. 3. Store the ID user enters in a list. 4. Repeat asking until they say no. 5. Then remove the IDs chosen.

Variables

Name	Purpose
Scanner in	Stores the scanner passed by program
Boolean again	Controls the condition of the do While loop
ArrayList <Integer> idList	Stores the IDs the user enters
ArrayList <Integer> found	Stores the IDs that match what the user entered
String userAnswer	Stores the users answer if they would like to continue

Class – Display

Global Variables

Name	Purpose
ArrayList vinylsList	Stores instances of vinyl records

Method – Display

Purpose	Constructor method to pass in the array list ready for use by internal methods.
Pseudocode	<ol style="list-style-type: none">1. Take in the global array list.2. Store the list as a global variable here for methods to access.

Variables

Name	Purpose
This.vinylRecords = vinylsList	Stores instances of vinyl records

Method – displayAll

Purpose	Displays all the existing records and their details in a list to the TUI.
Pseudocode	<ol style="list-style-type: none">1. Loop through each record.2. Display the record to the TUI in a formatted way.

Variables

Name	Purpose
N/A	N/A

Method – shuffleByID

Purpose	Randomly chooses a record from the existing list and displays that records details to the TUI.
Pseudocode	<ol style="list-style-type: none">1. Loop through the records and store all the IDs in a list.2. Randomly choose one of the IDs in list.3. Return the ID of the randomly selected record.

Variables

Name	Purpose
ArrayList <Integer> albumIDs	Stores record IDs
Int shuffleID	Stores the integer of the randomly generated between the size of the list. This will give the index of the random ID and it will then be returned.

Method – displayByDecade

Purpose	Display a timeline of the existing records in their decade to the TUI over the past 100 years.
Pseudocode	<ol style="list-style-type: none">1. Loop through all records.2. Look at the year they were released.3. Check the 3rd character in this as this will determine the decade.4. Store this in a list that will signify that decade.5. Display the lists in a formatted way to the TUI giving a timeline.

Variables

Name	Purpose
ArrayList <String> the1930s	Store's title and artist of the record in this decade.
ArrayList <String> the 940s	Store's title and artist of the record in this decade.
ArrayList <String> the1950s	Store's title and artist of the record in this decade.
ArrayList <String> the1960s	Store's title and artist of the record in this decade.
ArrayList <String> the1970s	Store's title and artist of the record in this decade.
ArrayList <String> the1980s	Store's title and artist of the record in this decade.
ArrayList <String> the1990s	Store's title and artist of the record in this decade.
ArrayList <String> the2000s	Store's title and artist of the record in this decade.
ArrayList <String> the2010s	Store's title and artist of the record in this decade.
ArrayList <String> the2020s	Store's title and artist of the record in this decade.
Int i	Stores the year of the record
String j	Makes the int of i to a String
Char [] charSplit	Splits the year into a character index

Method - displayByID

Purpose	Takes an ID of a record and display the records details to the TUI.
Pseudocode	<ol style="list-style-type: none">1. Take the ID.2. Loop through the records.3. Display the details of the record matching the ID.4. Display no records found if there is no match.

Variables

Name	Purpose
Int i	Stores the ID to a local variable
Boolean found	Condition for the if statement if a record is found

Method - displayByTitle

Purpose	Takes a Title of a record and display the records details to the TUI.
Pseudocode	<ol style="list-style-type: none">1. Take in the title.2. Loop through the records.3. Display the details of the record matching the Title.

	4. Display no records found if there is no match.
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Variables

Name	Purpose
String i	Stores the Title to a local variable
Boolean found	Condition for the if statement if a record is found

Method - displayByArtist

Purpose	Takes an Artist of a record and display the records details to the TUI.
Pseudocode	<ol style="list-style-type: none"> 1. Take in the artist. 2. Loop through the records. 3. Display the details of the record matching the Artist. 4. Display no records found if there is no match.

Variables

Name	Purpose
String i	Stores the Artist to a local variable
ArrayList <String> artist	Stores records by this artist

Method - displayByYear

Purpose	Takes a Year of a record and display the records details to the TUI.
Pseudocode	<ol style="list-style-type: none"> 1. Take in the Year. 2. Loop through the records. 3. Display the details of the record matching the Year. 4. Display no records found if there is no match.

Variables

Name	Purpose
int i	Stores the Year to a local variable
ArrayList <String> years	Stores records by this artist

Method - displayByDecade

Purpose	Takes a Decade and displays records details from this decade to the TUI.
Pseudocode	<ol style="list-style-type: none"> 1. Take in the Decade. 2. Loop through the records. 3. Display the details of the record matching the Decade. 4. Display no records found if there is no match.

Variables

Name	Purpose
Char [] i	Stores the decade as a character array

ArrayList <String> decade	Stores Title and Artist of the record matching the decade
Int j	Stores the year of the record
String k	Changes the int j into a string
Char [] charsplit	Creates a character array of the string k

Method - displayByGenre

Purpose	Takes a Genre of a record and display the records details to the TUI.
Pseudocode	<ol style="list-style-type: none"> 1. Take in the Genre. 2. Loop through the records. 3. Display the details of the record matching the Genre. 4. Display no records found if there is no match.

Variables

Name	Purpose
String i	Stores the Genre to a local variable
ArrayList <String> genre	Stores records by this Genre

Method – displayDuplicates

Purpose	Display any duplicate records IDs to the TUI for the user to resolve.
Pseudocode	<ol style="list-style-type: none"> 1. Loops through the records. 2. Takes the record and compare it against all others. 3. If details match other than the ID display this to the TUI. 4. If no duplicates found display this to the TUI.

Variables

Name	Purpose
Boolean records	Condition for the if statement if no records are found
ArrayList <Integer> duplicates	Stores record ID's that are duplicates

Class – VinylRecord

Global Variables

Name	Purpose
Private int id	Stores as global variable for lower method to access
Private String	Stores as global variable for lower method to access
Private String	Stores as global variable for lower method to access
Private int year	Stores as global variable for lower method to access
Private String	Stores as global variable for lower method to access

Method – VinylRecord

Purpose	Constructor method to pass in the variables needed to create object of VinylRecord
Pseudocode	<ol style="list-style-type: none">1. Take in the variables passed to the method.2. Store the variables as a global variable here for methods to access.

Variables

Name	Purpose
this.id	Takes in the value and stores to global variable
this.title	Takes in the value and stores to global variable
this.artist	Takes in the value and stores to global variable
this.year	Takes in the value and stores to global variable
this.genre	Takes in the value and stores to global variable

Method – getElement

Purpose	Get methods in this class are used to look at a records specific element and then pull that element for use in another class/method.
Pseudocode	<ol style="list-style-type: none">1. Return the records element requested.

Variables

Name	Purpose
NA	NA

Method – setElement

Purpose	Set methods in this class are used to change a records specific element to a new value.
Pseudocode	<ol style="list-style-type: none">1. Set the records element requested to new value.

Variables

Name	Purpose
NA	NA

Method – toString

Purpose	When the class VinylRecord is called this is the default output it sends to the TUI.
Pseudocode	<ol style="list-style-type: none">1. Return the records details in a formatted way for CSV.

Variables

Name	Purpose
NA	NA

Version History

Version No.	Date
1.0.1	29/04/2021
1.0.2	01/05/2021
1.0.3	09/05/2021

Version 1.0.1

Bugs Fixed

- Scanner not cleared after an integer take in causing some values to be blank throwing exceptions – buffer cleared on these integers take in.
- Menus not clear when taking in input from the user – Changed the TUI to indicate better and be more user friendly.
- Multiple functions being called after completion of one – Breaks in switch cases were missing in some places but they are now in where needed.

Additional Features

- Decades Function.
- Shuffle Pick.

Version 1.0.2

Bugs Fixed

- Decade's function showing all decades even if no records exist in them – If statements introduced to only display if data exists in the array list.
- Error checking not working for year input in Create function – If statement was incorrect allowing additional years, adjusted the if statement has cleared it.

Additional Features

- Duplicates Function.

Version 1.0.3

Bugs Fixed

- Start method was removed to handle exceptions better and main program code was moved to the main method.
- Duplicate function not displaying in testing – If statement to check criteria against one another was incorrect. This was written with || rather than && not completing properly.

Additional Features

- Delete in Bulk.

Version 1.0.3 Testing

Test No.	Test Details	Expected Results	Result	PASS/FAIL
1	Program boots into main menu.	Start program and the main menu is displayed.	Started the program and the main menu was displayed.	PASS

2	Program reads all of existing records in CSV into the array list.	Start program and records are read into array list. I will use the [5] Display All to confirm.	Started program and used option 5. All records were displayed.	PASS
3	Reach Create function from main menu.	Input the function path from the Main Menu and then function starts.	Inputted path and function started.	PASS
4	Create function with correct input.	Input details the function needs.	Inputted correct details and a new record was created .	PASS
5	Create function with invalid input.	Inputted invalid format.	Program terminated the create function and displayed message stating invalid input.	PASS
6	Return from Create to Main Menu.	Select the exit option from the submenu.	Selected exit option and returned to Main Menu.	PASS
7	Reach Edit function from main menu.	Input the function path from the Main Menu and then function starts.	Inputted path and function started.	PASS
8	Edit function with correct input.	Input details the function needs.	Inputted correct details and a record was edited .	PASS
9	Edit function with invalid input.	Inputted invalid format.	Program terminated the edit function and displayed message stating invalid input.	PASS
10	Return from Edit to Main Menu.	After completion of function program returns to main menu.	Selected exit option and returned to Main Menu.	PASS
11	Return from Edit to Main Menu.	Select the exit option from the submenu.	After completion of function program was returned to main menu	PASS
12	Reach Delete function from main menu.	Input the function path from the Main Menu and then function starts.	Inputted path and function started.	PASS
13	Delete function with correct input.	Input details the function needs.	Inputted correct details and record was deleted .	PASS
14	Delete function with invalid input.	Inputted invalid format.	Program displayed message stating invalid input and prompted to enter again.	PASS
15	Return from Delete to Main Menu.	After completion of function program returns to main menu.	Selected exit option and returned to Main Menu.	PASS
16	Return from Delete to Main Menu.	Select the exit option from the submenu.	After completion of function program was returned to main menu	PASS
17	Reach Delete in Bulk function from main menu.	Input the function path from the Main Menu and then function starts.	Inputted path and function started.	PASS

18	Delete in Bulk function with correct input.	Input details the function needs.	Inputted correct details and record was deleted in Bulk .	PASS
19	Delete in Bulk function with invalid input.	Inputted invalid format.	Program terminated the delete in Bulk function and displayed message stating invalid input.	PASS
20	Return from Delete in Bulk to Main Menu.	After completion of function program returns to main menu.	Selected exit option and returned to Main Menu.	PASS
21	Return from Delete in Bulk to Main Menu.	Select the exit option from the submenu.	After completion of function program was returned to main menu	PASS
22	Reach Search by ID function from main menu.	Input the function path from the Main Menu and then function starts.	Inputted path and function started.	PASS
23	Search by ID function with correct input.	Input details the function needs.	Inputted correct details and record was displayed.	PASS
24	Search by ID function with invalid input.	Inputted invalid format.	Program displayed message stating invalid input and prompted to enter again.	PASS
25	Return from Search by ID to Main Menu.	After completion of function program returns to main menu	Selected exit option and returned to Main Menu.	PASS
26	Return from Search by ID to Main Menu.	Select the exit option from the submenu.	After completion of function program was returned to main menu	PASS
27	Reach Search by Title function from main menu.	Input the function path from the Main Menu and then function starts.	Inputted path and function started.	PASS
28	Search by Title function with correct input.	Input details the function needs.	Inputted correct details and record was displayed.	PASS
29	Return from Search by Title to Main Menu.	After completion of function program returns to main menu	Selected exit option and returned to Main Menu.	PASS
30	Return from Search by Title to Main Menu.	Select the exit option from the submenu.	After completion of function program was returned to main menu	PASS
31	Reach Search by Artist function from main menu.	Input the function path from the Main Menu and then function starts.	Inputted path and function started.	PASS
32	Search by Artist function with correct input.	Input details the function needs.	Inputted correct details and record was displayed.	PASS
33	Return from Search by Artist to Main Menu.	After completion of function program returns to main menu	Selected exit option and returned to Main Menu.	PASS

34	Return from Search by Artist to Main Menu.	Select the exit option from the submenu.	After completion of function program was returned to main menu	PASS
35	Reach Search by Year function from main menu.	Input the function path from the Main Menu and then function starts.	Inputted path and function started.	PASS
36	Search by Year function with correct input.	Input details the function needs.	Inputted correct details and records displayed.	PASS
37	Search by Year function with invalid input.	Inputted invalid format.	Program displayed message stating invalid input and prompted to enter again.	PASS
38	Return from Search by Year to Main Menu.	Select the exit option from the submenu.	Selected exit option and returned to Main Menu.	PASS
39	Return from Search by Year to Main Menu.	Select the exit option from the submenu.	After completion of function program was returned to main menu	PASS
40	Reach Search by Decade function from main menu.	Input the function path from the Main Menu and then function starts.	Inputted path and function started.	PASS
41	Search by Decade function with correct input.	Input details the function needs.	Inputted correct details and records displayed.	PASS
42	Return from Search by Decade to Main Menu.	Select the exit option from the submenu.	Selected exit option and returned to Main Menu.	PASS
43	Reach Search by Genre function from main menu.	Input the function path from the Main Menu and then function starts.	Inputted path and function started.	PASS
44	Search by Genre function with correct input.	Input details the function needs.	Inputted correct details and records displayed.	PASS
45	Return from Search by Genre to Main Menu.	After completion of function program returns to main menu	Selected exit option and returned to Main Menu.	PASS
46	Return from Search by Genre to Main Menu.	Select the exit option from the submenu.	After completion of function program was returned to main menu	PASS
47	Reach Duplicate function from main menu.	Input the function path from the Main Menu and then function starts.	Inputted path and function started.	PASS
48	Duplicate function works correctly.	Display duplicates if they exist.	Duplicates shown to the TUI.	PASS
49	Return from Duplicate to Main Menu.	After completion of function program returns to main menu	Selected exit option and returned to Main Menu.	PASS
50	Display All function works correctly.	All records are shown to the TUI.	All records were displayed to the TUI.	PASS
51	Return from Display All to Main Menu.	After completion of function program returns to main menu	Selected exit option and returned to Main Menu.	PASS
52	Decade's function works correctly.	A timeline displayed with the records in there right decade.	Timeline was shown to the TUI with the records in decade.	PASS

53	Return from Decades to Main Menu.	After completion of function program returns to main menu	Selected exit option and returned to Main Menu.	PASS
54	Shuffle Pick function works correctly.	A randomly selected record is shown to the TUI.	Records was randomly selected and displayed to the TUI.	PASS
55	Return from Shuffle Pick to Main Menu.	After completion of function program returns to main menu	Selected exit option and returned to Main Menu.	PASS
56	Exit function works correctly.	The program to write the records to the file, display where the file can be reached and close the program.	Records where written, the file location was displayed, and program closed.	PASS