

## Music Inventory Program:

User can choose to find music by Artist. After an artist is searched for and selected by the user, option to view album is available. For a selected artist, the program will show albums by the artist. If the user selects an album, the album will be displayed, as well as the year, and the track list of the album in order. For a selected song, the program will show artist, album, time of the song, and the next song on the album.

## Music Database:

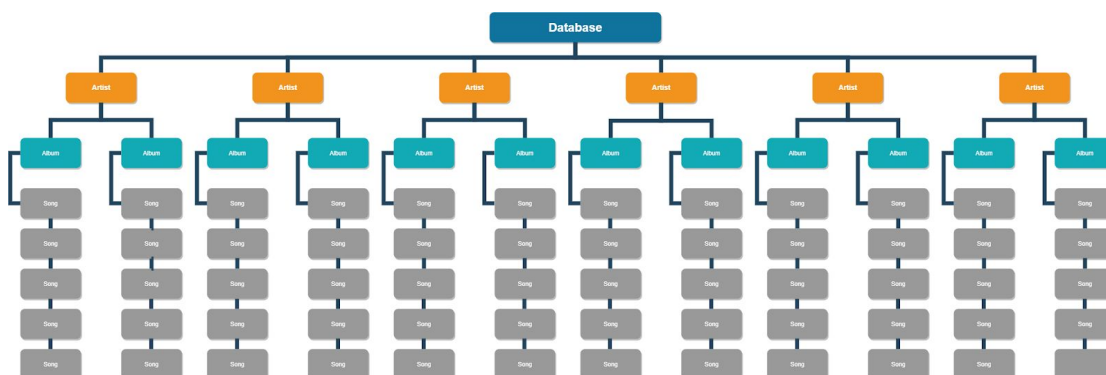
- Hash table of artists - used because it allows for artists to be searched more efficiently.
  - Hash table has a linked list at each index. Collisions are handled by being added to the linked list.
- Each artist has a vector of albums.
  - Vector is used here because it can easily store the small number of albums an artist has, without losing much efficiency compared to a hash table.
- Each album has a linked list of songs in it.
  - Linked list is utilized so that the next song of the album can be easily displayed.

## Program run-through write-up:

On execution, the program displays a greeting message and prompts user to search for artist, album, or song.

After the user inputs a search, hash table and each of the nodes are searched for the query. If it exists it is displayed, otherwise an error is printed.

## Rough Diagram of Program:



- Orange Boxes are Artists
- Cyan Boxes are Albums
- Grey Boxes are Songs

**Data:**

Data Examples are formatted Artist Name,Album Name,Year,Song Name,Song Length

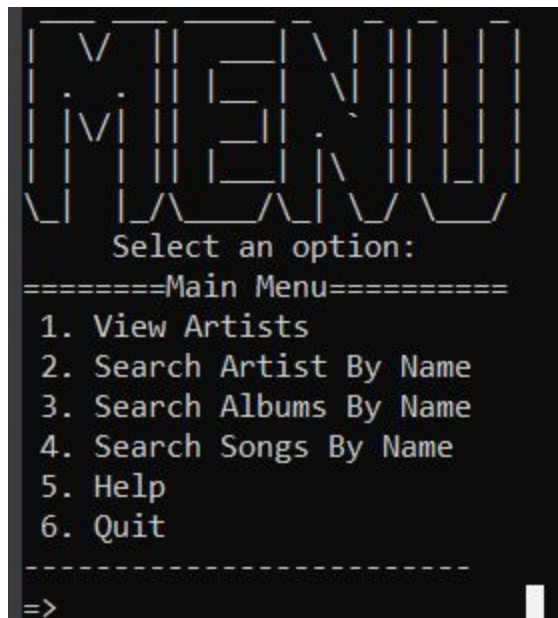
These are a few examples of the data I used:

Daft Punk, Homework, 1995, Da Funk, 329.53424

Kanye West, Graduation, 2007, Good Morning, 195.13424

Kanye West,Late Orchestration,2003,Jesus Walks,193.67138

### Results + Sample Output of Functionalities:



## Main Menu

View Artists

---

```
=> 1
0 | | *
1 | | *
2 | | *
3 | | *
4 | | Gorillaz
5 | | Eminem
6 | | *
7 | | #Poundsign#
8 | | $jammie the Money
9 | | (We Are) Performance
10 | | (Love) Tattoo
11 | | 'Til Tuesday
12 | | *
13 | | 1 Mile North
14 | | *
15 | | *
16 | | *
17 | | Fall Out Boy
18 | | Coldplay
19 | | Kanye West
20 | | *
21 | | *
22 | | *
23 | | Daft Punk
24 | | *
25 | | *
```

```

=> 2
Please enter an artist to search the database for:
=> Gorillaz
search got: Gorillaz
Gorillaz's Albums:
-----
1. Gorillaz
-----
If you would like to view an album, please type it's name. Otherwise, type quit to go back.
=> quit
    Select an option:
=====Main Menu=====
1. View Artists
2. Search Artist By Name
3. Search Albums By Name
4. Search Songs By Name
5. Help
6. Quit
-----
=>

```

Search Artist and quit from that menu

```

=> 3
Please type the name of an album you would like to search for:
=> Homework
Homework's Songs:
-----
1. Da Funk
2. Fresh
3. Funk Ad
4. Indo Silver Club
5. Revolution 909
6. Rock'n Roll
7. Wdpk 837 Fm
-----
    Select an option:
=====Main Menu=====
1. View Artists
2. Search Artist By Name
3. Search Albums By Name
4. Search Songs By Name
5. Help
6. Quit
-----
=> 4
Please type the name of a song you would like to search for:
=> Funk Ad
Funk Ad by Daft Punk
-----
Album: Homework
Length - 0:51
Next song on the album - Indo Silver Club

```

Search Album

Search Song

