

CSCE 145 Homework 6: A Database for Music CDs

Purpose:

The purpose of this assignment is to give you experience in implementing a simple in-memory database management system.

Specification: In-Memory Database for Music CDs

A database system consists of tables of identical records, along with mechanisms to read, write, and search the records. An in-memory database is one that is in your computer's memory and not stored permanently on disk. (Later we will cover how to store it in a file on disk and retrieve it from a stored file.) In this assignment you will first define a database record, e.g., **MusicCD**, that can represent the important properties of a music CD. The properties, at a minimum, are the *title* of the CD (a String), the *name* of the band or artist (a String), the number of *tracks* on the CD (an int), and the *year* of publishing or copyright (an int). The **MusicCD** class will contain a *constructor* that has parameters for each of the properties, *getters* and *setters* for all properties, and a method to *display* a CD.

The database, **MusicDB**, should be an *array* of database records. Choose the array large enough to hold as many CDs as you think you might own. You will then implement methods to *display* the entire database of CDs, to *add* a new CD to the database, to *find* and display a CD given its name by searching through all records in the database, and to *remove* a CD from the database given its name.

A third class, **TestMusicDB** should contain a *main* method that accepts and executes commands from a user until the user enters the command to *quit*. You should use a while-loop for this. I suggest that the commands be just a single character, such as 'q' for *quit*, 'a' for *add*, 'f' for *find*, etc. This is an example of a command-driven interface.

Here is how the command-driven interface should appear and function:

```
Welcome to your personal music database.  The legal commands are
q for quit
d for display
f for find
a for add
r for remove

What is your command?
a
Name of CD: Whiskey On A Sunday
Name of group or artist: Flogging Molly
Number of tracks: 12
Copyright year: 2006
This CD has been added to your music database.

What is your command?
q
Goodbye.
```

Upload your source code to the CSE DropBox at <https://dropbox.cse.sc.edu>

Remember that your source code MUST have appropriate headers and MUST contain appropriate comments.