Music Makes the World Go Round

picture from http://defleppard.com/music

Individual Homework Assignment!

Objectives:
- To practice writing classes
- To work with multiple classes

Background:
Most music has a title, is performed by an artist, is recorded on an album, and fits in a category (such as jazz or classical or pop). You'll be using the Song class and the CD class to create a music library. From the library, you'll generate a play list.

Assignment:
Write a class named MusicLibrary. The instance data should consist of a list of CDs. You'll need a constructor for the class as well as the following methods:

- add_item: Adds a CD to your library. It requires that a CD object be sent as an argument.

- remove_item: Removes a CD from your library. It requires that a CD object be sent as an argument.

- get_list: Returns the list of CDs in your library (the of CD objects)

- generate_playlist: Returns a list of random songs from your music library. It requires the number of songs desired in the playlist.

- generate_genre_list: Returns a list of all albums of the genre requested. It requires a string that tells the genre wanted.

- **generate_artist_list**: Returns a list of all albums by the artist requested. It requires a string with the name of the artist.

Once the class is written, you'll need to create a MusicLibrary object. Use the files provided to populate your MusicLibrary.

Sample Execution:

```
>>>
Test 1:  5 points each run if it matches the sample execution
"Celtic Woman: A New Journey" by Celtic Woman:
"The Sky and the Dawn and the Sun" by Celtic Woman from "Celtic Woman:
A New Journey"
"The Prayer" by Celtic Woman from "Celtic Woman: A New Journey"
"Newgrange" by Celtic Woman from "Celtic Woman: A New Journey"
"Over the Rainbow" by Celtic Woman from "Celtic Woman: A New Journey"
"Granuaile's Dance" by Celtic Woman from "Celtic Woman: A New Journey"
"The Blessing" by Celtic Woman from "Celtic Woman: A New Journey"
"Dulaman" by Celtic Woman from "Celtic Woman: A New Journey"
"Beyond the Sea" by Celtic Woman from "Celtic Woman: A New Journey"
"The Last Rose of Summer" by Celtic Woman from "Celtic Woman: A New
Journey"
"Caledonia" by Celtic Woman from "Celtic Woman: A New Journey"
"Lascia Ch'io Pianga" by Celtic Woman from "Celtic Woman: A New
Journey"
"Carrickfergus" by Celtic Woman from "Celtic Woman: A New Journey"
"Vivaldi's Rain" by Celtic Woman from "Celtic Woman: A New Journey"
"The Voice" by Celtic Woman from "Celtic Woman: A New Journey"
"Scarborough Fair" by Celtic Woman from "Celtic Woman: A New Journey"
"Mo Ghile Mear" by Celtic Woman from "Celtic Woman: A New Journey"

Test 2:  Worth 5 points each run if it matches the sample execution
"Celtic Woman: A New Journey" by Celtic Woman

Test 1:  5 points each run if it matches the sample execution
"Hysteria" by Def Leppard:
"Women" by Def Leppard from "Hysteria"
"Rocket" by Def Leppard from "Hysteria"
"Animal" by Def Leppard from "Hysteria"
"Love Bites" by Def Leppard from "Hysteria"
"Pour some Sugar on Me" by Def Leppard from "Hysteria"
"Armageddon It" by Def Leppard from "Hysteria"
"Gods of War" by Def Leppard from "Hysteria"
"Don't Shoot Shotgun" by Def Leppard from "Hysteria"
"Run Riot" by Def Leppard from "Hysteria"
"Hysteria" by Def Leppard from "Hysteria"
"Excitable" by Def Leppard from "Hysteria"
"Love and Affection" by Def Leppard from "Hysteria"

Test 2:  Worth 5 points each run if it matches the sample execution
"Hysteria" by Def Leppard

Test 1:  5 points each run if it matches the sample execution
"Piano Guys" by Piano Guys:
"Titanium/Pavane" by Piano Guys from "Piano Guys"
"Peponi(Paradise)" by Piano Guys from "Piano Guys"
```

"Code Name Vivaldi" by Piano Guys from "Piano Guys"
"Beethoven's 5 Secrets" by Piano Guys from "Piano Guys"
"Over the Rainbow/Simple Gifts" by Piano Guys from "Piano Guys"
"Cello Wars" by Piano Guys from "Piano Guys"
"Arwen's Vigil" by Piano Guys from "Piano Guys"
"Moonlight" by Piano Guys from "Piano Guys"
"A Thousand Years" by Piano Guys from "Piano Guys"
"Michael Meets Mozart" by Piano Guys from "Piano Guys"
"The Cello Song" by Piano Guys from "Piano Guys"
"Rolling in the Deep" by Piano Guys from "Piano Guys"
"What Makes You Beautiful" by Piano Guys from "Piano Guys"
"" by Piano Guys from "Piano Guys"

Test 2: Worth 5 points each run if it matches the sample execution
"Piano Guys" by Piano Guys

Test 1: 5 points each run if it matches the sample execution
"The Christmas World of Tony Sandler and Ralph Young" by Sandler And
Young:
"The Christmas Song" by Sandler And Young from "The Christmas World of
Tony Sandler and Ralph Young"
"O Holy Night" by Sandler And Young from "The Christmas World of Tony
Sandler and Ralph Young"
"Santa Claus Is Coming To Town" by Sandler And Young from "The
Christmas World of Tony Sandler and Ralph Young"
"Susa-Ninna/Silent Night" by Sandler And Young from "The Christmas
World of Tony Sandler and Ralph Young"
"White Christmas" by Sandler And Young from "The Christmas World of
Tony Sandler and Ralph Young"
"Jingle Bells" by Sandler And Young from "The Christmas World of Tony
Sandler and Ralph Young"
"Have Yourself a Merry Little Christmas" by Sandler And Young from "The
Christmas World of Tony Sandler and Ralph Young"
"Mister Santa" by Sandler And Young from "The Christmas World of Tony
Sandler and Ralph Young"
"I Sing Noel" by Sandler And Young from "The Christmas World of Tony
Sandler and Ralph Young"
"Hark! The Herald Angels Sing" by Sandler And Young from "The Christmas
World of Tony Sandler and Ralph Young"
"Do You Hear What I Hear?" by Sandler And Young from "The Christmas
World of Tony Sandler and Ralph Young"

Test 2: Worth 5 points each run if it matches the sample execution
"The Christmas World of Tony Sandler and Ralph Young" by Sandler And
Young

Test 1: 5 points each run if it matches the sample execution
"X" by Def Leppard:
"Now" by Def Leppard from "X"
"Unbelievable" by Def Leppard from "X"
"You're So Beautiful" by Def Leppard from "X"
"Everyday" by Def Leppard from "X"
"Long Long Way to Go" by Def Leppard from "X"
"Four Letter Word" by Def Leppard from "X"
"Torn to Shreds" by Def Leppard from "X"
"Love Don't Lie" by Def Leppard from "X"
"Gravity" by Def Leppard from "X"
"Cry" by Def Leppard from "X"

```
"Girl Like You" by Def Leppard from "X"
"Let Me Be the One" by Def Leppard from "X"
"Scar" by Def Leppard from "X"

Test 2:  Worth 5 points each run if it matches the sample execution
"X" by Def Leppard

Test 3:  Worth 20 points, runs only once
My Playlist:
"Women" by Def Leppard from "Hysteria"
"Animal" by Def Leppard from "Hysteria"
"Moonlight" by Piano Guys from "Piano Guys"
"Excitable" by Def Leppard from "Hysteria"
"Moonlight" by Piano Guys from "Piano Guys"

Test 4:  Worth 15 points, runs only once
"Celtic Woman: A New Journey" by Celtic Woman
"Piano Guys" by Piano Guys

Test 5: Worth 15 points, runs only once
"Hysteria" by Def Leppard
"X" by Def Leppard
```

Requirements:

- Your program should use the correct comment block at the very beginning of your program
- Your program should made good use of whitespace

Deliverables:

- Source Code: Be sure to submit the source code electronically in myCourses. You may submit the file more than once before the deadline if you find and correct an error after you submitted it the first time. You may not submit a correction after the deadline however.

Grading:

The grading is based on how much of the driver program executes. There are 5 tests. The first 2 tests are run once per file (there are 5 files). Each run is worth 5 points. That means that the first 2 tests are worth a total of 50 points.

Generating a random playlist from all music in the music library is worth 20 points.

Generating a list of all CDs in a particular genre (or category) is worth 15 points.

The last 15 points is for generating a list of all CDs by the same artist. It is also worth 15 points.