### Title: Media Store

### System Description:

The system simulates an online Media Store. There are 10 classes in the System. (Relations will be show in Class Hierarchy). Media store has a vector of Media, a vector of customer and one Manager, It organized this way, so the data is safe inside the class.

A Customer can list all the media (sorted by type and number Sold), purchase the media, deposit credit and purchase media.

The manager can add content to the music store, Remove content, Check total Number sold for any particular media, Check total sales and retrieve information about any customer.

MediaStore  
Attribute: medisObjects Vector; customers Vector; manager  
Method: updateAverageRanking();

Media   
Attribute: name, author, time, genre, averageRanking, price, numberSold, rating, feedback Vector;  
Method: updateRating(); getType(); toString();

Album  
Attribute: type;   
Method: getType(); toString();

Movie  
Attribute: type; yearOfRelease  
Method: getType(); toString();

AudioBook  
Attribute: type  
Method: getType(); toString();

Account  
Attribute: ID, name, address  
Method: getType(); toString(); foundMedia()

Customer  
Attribute: purchaseHistory Vector; credit  
Method: listAllMedias(); purchase(); deposit(); ifPurchased(); giverFeedBack(); displayPurchaseHistory(); toString();

Manager  
Attribute: password  
Method: addMedia(); removeMedia(); CheckTotalNumberSold(); CheckTotalSale(); RetrieveCunstomerInfo(); foundCustomer(); addCustomer();

MediaSoldComparator  
Attribute:  
Method: compare();

## Class Hierarchy:

Movie

MediaStore

AudioBook

Customer

Manager

Account

Album

Media

## Sample Runs:

Skyfall0 has been added

Skyfall0 is already in the library

Skyfall1 has been added

Skyfall2 has been added

You add a customer with ID: jiz51180

jiz51180 already exist

You add a customer with ID: jiz51181

You add a customer with ID: jiz51182

List of all media in the Media Store:

Media Type: Movie Name: Skyfall0 Director: Sam Mendes Time: 2:23:00 Genre: Action & Adverture Average Ranking: 1 Price: 14.99 NumberSold: 0 Rating: 0.00 Year of release: 2012

Media Type: Movie Name: Skyfall1 Director: Sam Mendes Time: 2:23:00 Genre: Action & Adverture Average Ranking: 1 Price: 14.99 NumberSold: 0 Rating: 0.00 Year of release: 2012

Media Type: Movie Name: Skyfall2 Director: Sam Mendes Time: 2:23:00 Genre: Action & Adverture Average Ranking: 1 Price: 14.99 NumberSold: 0 Rating: 0.00 Year of release: 2012

Skyfall0 has been removed

Skyfall0 can't not be found in library

List of all media in the Media Store:

Media Type: Movie Name: Skyfall1 Director: Sam Mendes Time: 2:23:00 Genre: Action & Adverture Average Ranking: 1 Price: 14.99 NumberSold: 0 Rating: 0.00 Year of release: 2012

Media Type: Movie Name: Skyfall2 Director: Sam Mendes Time: 2:23:00 Genre: Action & Adverture Average Ranking: 1 Price: 14.99 NumberSold: 0 Rating: 0.00 Year of release: 2012

Two Lanes of Freedom0 has been added

American Sniper0 has been added

Two Lanes of Freedom1 has been added

American Sniper1 has been added

Two Lanes of Freedom2 has been added

American Sniper2 has been added

The Lumineers has been added

Skyfall1 has been purchased

You already purchased Skyfall1

Skyfall2 has been purchased

Two Lanes of Freedom0 has been purchased

Two Lanes of Freedom1 has been purchased

American Sniper0 has been purchased

American Sniper2 has been purchased

Skyfall1 has been purchased

Skyfall1 has been purchased

Can't find Skyfall0 in the library

Total number of Skyfall1 sold: 3

Total Sale: 131.84

Account ID: jiz51181 Name: Jie Zheng Address: Burrowes Street, State College Number of Purchase: 1 Credit 185.01

Purchase History:

Media Type: Movie Name: Skyfall1 Director: Sam Mendes Time: 2:23:00 Genre: Action & Adverture Average Ranking: 1 Price: 14.99 NumberSold: 3 Rating: 0.00 Year of release: 2012

Account ID: jiz51180 Name: Jie Zheng Address: Burrowes Street, State College Number of Purchase: 6 Credit 98.14

Purchase History:

Media Type: Movie Name: Skyfall1 Director: Sam Mendes Time: 2:23:00 Genre: Action & Adverture Average Ranking: 1 Price: 14.99 NumberSold: 3 Rating: 0.00 Year of release: 2012

Media Type: Movie Name: Skyfall2 Director: Sam Mendes Time: 2:23:00 Genre: Action & Adverture Average Ranking: 1 Price: 14.99 NumberSold: 1 Rating: 0.00 Year of release: 2012

Media Type: Album Name: Two Lanes of Freedom0 Artist: Tim MCGraw Time: 43:24 Genre: Country Average Ranking: 1 Price: 13.99 NumberSold: 1 Rating: 0.00

Media Type: Album Name: Two Lanes of Freedom1 Artist: Tim MCGraw Time: 43:24 Genre: Country Average Ranking: 1 Price: 13.99 NumberSold: 1 Rating: 0.00

Media Type: Audio Book Name: American Sniper0 Author: Chris Kyle Time: 10:22 Genre: Biography Average Ranking: 1 Price: 21.95 NumberSold: 1 Rating: 0.00

Media Type: Audio Book Name: American Sniper2 Author: Chris Kyle Time: 10:22 Genre: Biography Average Ranking: 1 Price: 21.95 NumberSold: 1 Rating: 0.00

Account ID: jiz51181 Name: Jie Zheng Address: Burrowes Street, State College Number of Purchase: 1 Credit 385.01

Purchase History:

Media Type: Movie Name: Skyfall1 Director: Sam Mendes Time: 2:23:00 Genre: Action & Adverture Average Ranking: 1 Price: 14.99 NumberSold: 3 Rating: 0.00 Year of release: 2012

Do you want to give feedback for Skyfall1 ? (Y/y for Yes, N/n for No)

y

Give you feedback. (5 means best, 1 means worst)

7

You didn't give a value between 1 and 5. Give you feedback. (5 means best, 1 means worst)

5

You can't rate Skyfall2 because you did not purchase it

Do you want to give feedback for Skyfall1 ? (Y/y for Yes, N/n for No)

y

Give you feedback. (5 means best, 1 means worst)

4

List of all media in the Media Store:

Media Type: Audio Book Name: American Sniper0 Author: Chris Kyle Time: 10:22 Genre: Biography Average Ranking: 1 Price: 21.95 NumberSold: 1 Rating: 0.00

Media Type: Audio Book Name: American Sniper2 Author: Chris Kyle Time: 10:22 Genre: Biography Average Ranking: 1 Price: 21.95 NumberSold: 1 Rating: 0.00

Media Type: Audio Book Name: American Sniper1 Author: Chris Kyle Time: 10:22 Genre: Biography Average Ranking: 2 Price: 21.95 NumberSold: 0 Rating: 0.00

Media Type: Movie Name: Skyfall1 Director: Sam Mendes Time: 2:23:00 Genre: Action & Adverture Average Ranking: 1 Price: 14.99 NumberSold: 3 Rating: 4.50 Year of release: 2012

Media Type: Movie Name: Skyfall2 Director: Sam Mendes Time: 2:23:00 Genre: Action & Adverture Average Ranking: 2 Price: 14.99 NumberSold: 1 Rating: 0.00 Year of release: 2012

Media Type: Album Name: Two Lanes of Freedom0 Artist: Tim MCGraw Time: 43:24 Genre: Country Average Ranking: 1 Price: 13.99 NumberSold: 1 Rating: 0.00

Media Type: Album Name: Two Lanes of Freedom1 Artist: Tim MCGraw Time: 43:24 Genre: Country Average Ranking: 1 Price: 13.99 NumberSold: 1 Rating: 0.00

Media Type: Album Name: Two Lanes of Freedom2 Artist: Tim MCGraw Time: 43:24 Genre: Country Average Ranking: 2 Price: 13.99 NumberSold: 0 Rating: 0.00

Media Type: Album Name: The Lumineers Artist: Artist unkonwn Time: 45:34 Genre: Alternative Average Ranking: 2 Price: 9.99 NumberSold: 0 Rating: 0.00

## Discussion:

I will list some of the code that is elegant or efficient. We assign Album with type 3, AudioBook with type 2 and Movie with type 3. We wrote MediaSoldComparator class which implement “Comparator<Media>” and sort with Collections sort function. (first sort by type and then sort by numberSold). We try to validate every input to make sure identical media can not be add to library, customer with same ID can not be created, feed back that is out of [1,5] ranger will not be accepted, etc. We try to keep the system as dynamic as possible. Rating will be update after a customer giving a feedback. And Data will be sort and averageRaking will be update when we display it. We use Vector instead of Array so we don’t need to track size of array and it’s convenient to remove an item from a vector (size will be automatically shrink). We have a lot test case in the driver class to make sure every thing goes well. We try to add identical media, remove a media that is not in the library, purchase the same media, etc. Our codes are tough enough to handle the tasks. But our codes do have limitation. Media with same name and different type will be treated as identical media. We can add another parameter to check type to handle this case. Another limitation is our sort function is not constant time so it is not going to be efficient enough to handle million and billion medias.