**Worksheet 20.1**

# James Bond© Database

1. Describe the output of the following program that uses data from the James Bond© movie series. Ratings foreach of the movies are averages compiled from many movie critics by [www.all-reviews.com](http://www.all-reviews.com). The text file *bond.txt* will be provided.

**import** java.util.\*;

**import** java.io.\*;

**public** **class** BondMovieSeries{

**private** ArrayList <Movie> movieList = **new** ArrayList <Movie>();

**public** BondMovieSeries(String fileName){

loadData(fileName);

}

**private** **void** loadData(String fileName){

String movieTitle;

String bondName;

**int** yearReleased;

**double** movieRating;

**int** lengthHours;

**int** lengthMinutes;

Scanner inFile;

**try**{

inFile = **new** Scanner(**new** File(fileName));

**int** numReleases = inFile.nextInt();

inFile.nextLine();//needed to flush EOL

**for** (**int** i = 0; i < numReleases; i++){

movieTitle = inFile.nextLine();

bondName = inFile.nextLine();

yearReleased = inFile.nextInt();

movieRating = inFile.nextDouble();

lengthHours = inFile.nextInt();

lengthMinutes = inFile.nextInt();

inFile.nextLine(); //needed to flush EOL

movieList.add(new Movie(movieTitle, bondName, yearReleased,

movieRating, lengthHours, lengthMinutes));

}

}**catch**(IOException e){

System.out.println("Error: " + e.getMessage());

}

}

**public** **void** displayInfo(){

System.out.printf("%-35s", "Film Title");

System.out.printf("%-15s", "Bond Actor");

System.out.printf("%7s", "Year");

System.out.printf("%8s", "Rating");

System.out.printf("%10s", "Minutes");

System.out.println();

System.out.println();

Iterator <Movie> itr = movieList.iterator();

Movie temp;

**while**(itr.hasNext()){

temp = itr.next();

System.out.printf("%-35s",temp.getTitle());

System.out.printf("%-15s",temp.getBondActor());

System.out.printf("%7d",temp.getYearFilmReleased());

System.out.printf("%8.1f",temp.getFilmRating());

System.out.printf("%10s",temp.getFilmHrs()\*60 + temp.getFilmMin());

System.out.println();

System.out.println();

}

}

**public** **void** sort(){

bubbleSort(movieList);

}

**public** **void** bubbleSort(ArrayList <Movie> list){

**for** (**int** outer = 0; outer < list.size() - 1; outer++){

**for** (**int** inner = 0; inner < list.size()-outer-1; inner++){

**if** (list.get(inner).compareTo(list.get(inner + 1)) > 0){

Movie temp = list.get(inner);

list.set(inner,list.get(inner + 1));

list.set(inner + 1,temp);

}

}

}

}

}//-------------------- End of BondMovieSeries class --------------------//

**public** **class** Movie implements Comparable{

**private** String myTitle; // title of Bond film

**private** String myBondActor; // name of actor who portrayed James Bond

**private** **int** myYear; // year film was released

**private** **double** myFilmRating;// from all-reviews.com

**private** **int** myLengthHours; // hours (truncated) portion of film length

**private** **int** myLengthMinutes;// minutes beyond truncated hours

**public** Movie(String title, String name, **int** yr, double rating, **int** hrs, **int** min){

myTitle = title;

myBondActor = name;

myYear = yr;

myFilmRating = rating;

myLengthHours = hrs;

myLengthMinutes = min;

}

**public** String getTitle(){

**return** myTitle;

}

**public** String getBondActor(){

**return** myBondActor;

}

**public** **int** getYearFilmReleased(){

**return** myYear;

}

**public** **double** getFilmRating(){

**return** myFilmRating;

}

**public** **int** getFilmHrs(){

return myLengthHours;

}

public int getFilmMin(){

**return** myLengthMinutes;

}

**public** **int** compareTo(Object other){

**return** (**int**)(myFilmRating\*10) - (**int**)((((Movie)other).myFilmRating)\*10);

}

**public** String toString(){

**return** (myTitle + " " + myBondActor + " " + myYear + " " + myFilmRating

+ " " + myLengthHours + " hr " + myLengthMinutes + " min");

}

}//-------------------- End of Movie class --------------------//

**public** **class** driver{

**public** **static** **void** **main**(String[] args)

{

BondMovieSeries seriesData = **new** BondMovieSeries("bond.txt");

seriesData.sort();

seriesData.displayInfo();

}

}//-------------------- End of driver class --------------------//

2. Revise the *BondMovieSeries* class to calculate and display (to the screen) the average rating AND average length forall James Bond movies. Your enhancements should include methods called *displayAveRating* and *displayAveMinutes* in this class*.* Your additional output should look as follows.

The average rating fora James Bond Movie is 2.41 out of a possible 4.0

The average length fora James Bond Movie is 2 hrs and 6.2 minutes

3. Revise the program to sort the movies by year of release.