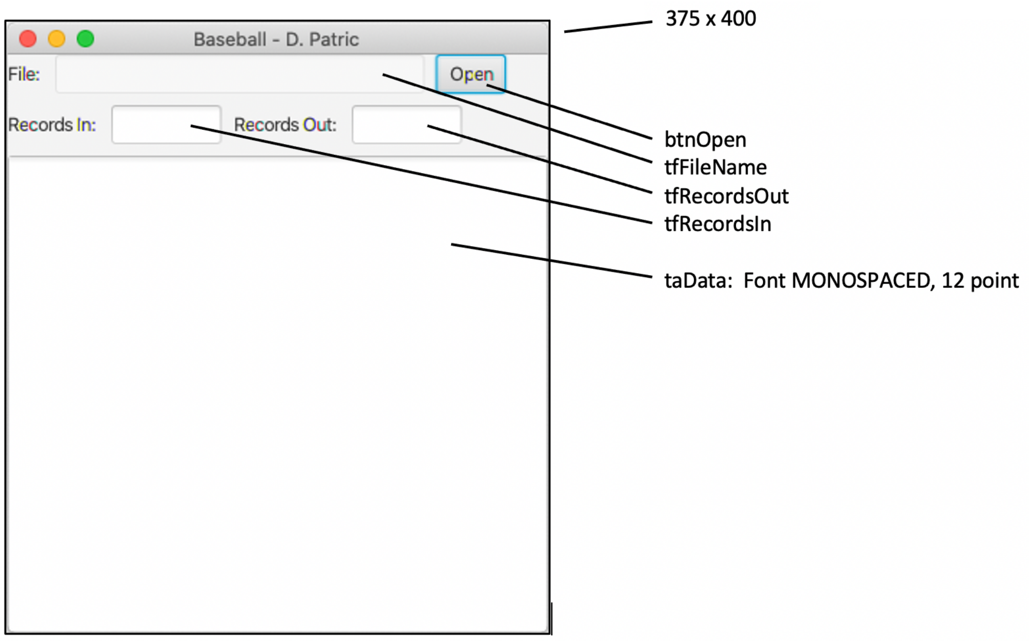
RIT | Golisano College of Computing and Information Sciences
School of Information

ISTE-121
HW02 - Binary and CSV (Text) I/O

Problem Statement:

An extract of some names and personal information has been made from a baseball database. This assignment is to read the data from a comma separated value text file (CSV), write the data into a binary file, then read it back in, writing the data to the screen showing that the data in the binary file is intact and correct.

You must implement the following GUI:



When the user clicks the Open button, display a FileChooser that shows CSV files in the current directory and let the user choose one. You will create a similarly named .dat file. Example: Given filename BaseballNames2.csv, the output file is named BaseballNames2.dat.

Input Datafile layout:

Two CSV datafiles have been provided for testing, BaseballNames1.csv and BaseballNames2.csv. Each contains a header line as the first line of the file. A blank line may or may not follow. Your program must account for either a blank or non-blank line (record) regardless of what the sample file shows. The program must also account for leading and trailing spaces or tabs in the data (see the String method **trim** for help with this), along with various errors.

The file layout is as follows:

Field name	**Data type**
First Name	Text
Last Name	Text
Birth Day	Whole number
Birth Month	Whole number
Birth Year	4-digit year
Weight	Whole number
Height	Number with decimal part

File BaseballNames1.csv contains no errors, and your program must be able to process this one cleanly before you move to the next datafile.

File BaseballNames2.csv <u>may</u> have a value for each expected field or may not. Since this was a database extract, some missing (null) fields show up in the data. Some records may have one or more missing fields.

Write errors to the taData text area and only valid records to the .dat file. When an error is encountered in a line read in from the CSV, write the line and first error found to taData. Then continue to process the rest of the file. Your program will then read your created *.dat data file and print it to taData. Reporting multiple errors per record is a bonus, described below.

Correctly writing the above with Javadocs, can gain you full credit for this homework.

My Solution

Together with the two csv files, the Downloads for HW02 include a jar file for my solution called BaseballA.jar. You can run this to see how your program should run. The bonuses are not provided in this solution.

The program BaseballB.jar is my solution with the bonus levels (both of them) in place.

Bonus levels:

- **Bonus level 1** is to report all errors in any one record. Level 1 allows printing the original record for each error reported. See sample output for Bonus Level 1.

- **Bonus level 2** is to report all errors, but only display the original record once. **Also**, handle records with not enough fields (7) without a fatal error. See sample output for Bonus Level 2. Level 2 adds to the points from Level 1.

Output datafile layout:
The binary output (.dat) file must have the fields in the same order as the input. No headings are written in the output file, only the data. The appropriate binary I/O data types must be used, text must be written as text, numbers must be written as the appropriate numeric data type. You must use the appropriate methods of DataInputStream and DataOutputStream for all I/O to the ".dat" file.

Output report:
At the end of reading the csv file, and writing the dat file, display how many records were read from the csv file in tfRecordsIn and how many records were written to the dat file in tfRecordsOut. Remember to count the heading and blank lines as records read in, but not written out. Similarly, records with errors are records read in but not written out.

Use formatted printing, so the output report looks impressive. Spacing does not have to be exactly as shown, but it should be close.

Hints:

- Dates are provided in the western format of "month, day, year".

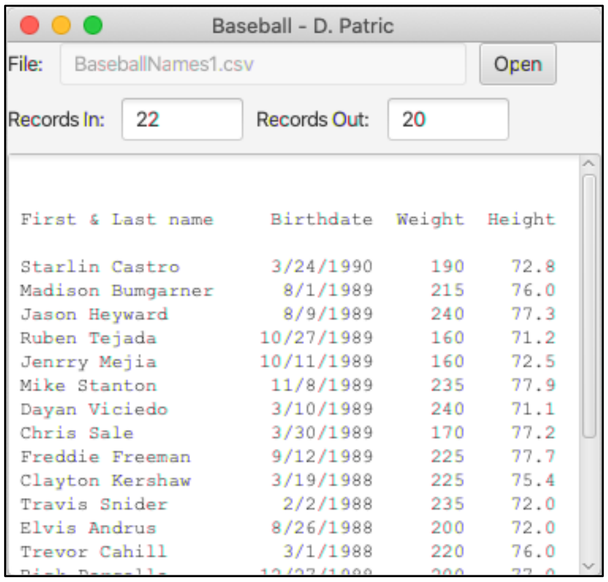
- I suggest getting BaseballNames1.csv to work first. Save a backup copy of the code, then start on BaseballNames2.csv.

- Make sure you hand in something before the due date. Any bonus points won't make up for the late deductions.

Submission
Submit to the HW02 Assignment folder your best version of the file processing. Do NOT submit more than one version, as the wrong one may be graded, lowering your grade.
This homework is due into the Assignment folder by the date/time shown on the folder.

Sample outputs:

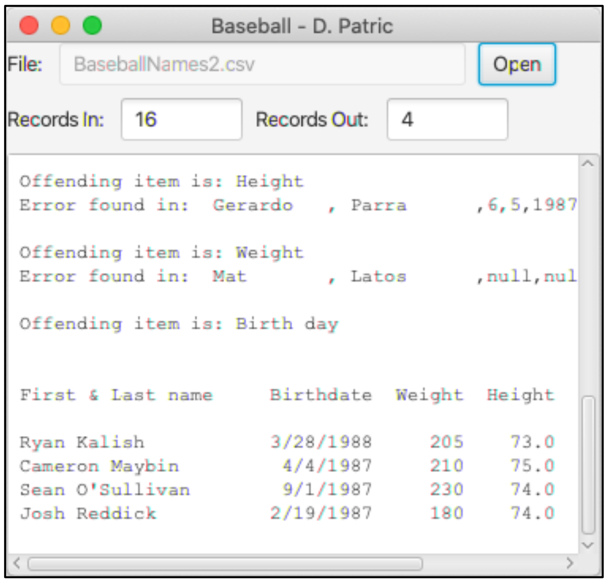
BaseballNames1.csv - no errors. Use this for initial testing only.



```
First & Last name      Birthdate  Weight  Height

Starlin Castro         3/24/1990     190    72.8
Madison Bumgarner       8/1/1989     215    76.0
Jason Heyward           8/9/1989     240    77.3
Ruben Tejada          10/27/1989     160    71.2
Jenrry Mejia          10/11/1989     160    72.5
Mike Stanton           11/8/1989     235    77.9
Dayan Viciedo          3/10/1989     240    71.1
Chris Sale             3/30/1989     170    77.2
Freddie Freeman        9/12/1989     225    77.7
Clayton Kershaw        3/19/1988     225    75.4
Travis Snider           2/2/1988     235    72.0
Elvis Andrus           8/26/1988     200    72.0
Trevor Cahill           3/1/1988     220    76.0
```

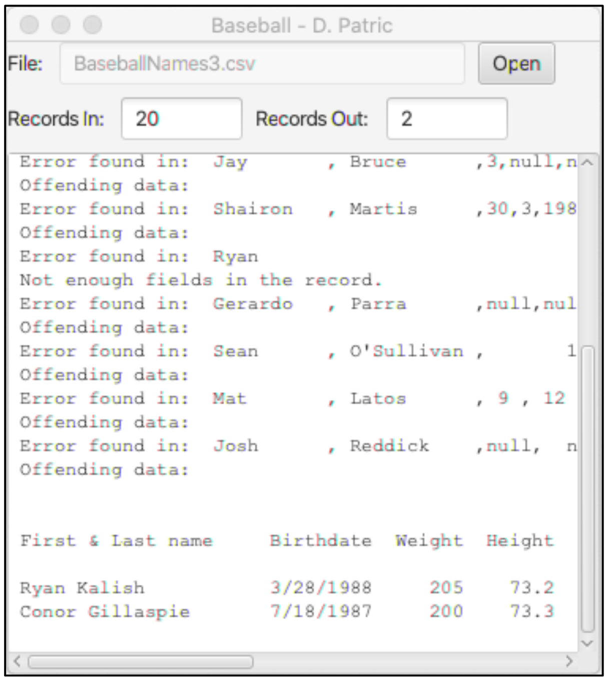
There are more lines than are shown here, as indicated by the vertical scrollbar.

Single error reported per record (BaseballNames2.csv).



```
Offending item is: Height
Error found in:  Gerardo    , Parra      ,6,5,1987

Offending item is: Weight
Error found in:  Mat        , Latos      ,null,nul

Offending item is: Birth day


First & Last name      Birthdate  Weight  Height

Ryan Kalish            3/28/1988     205    73.0
Cameron Maybin          4/4/1987     210    75.0
Sean O'Sullivan         9/1/1987     230    74.0
Josh Reddick           2/19/1987     180    74.0
```

Multiple errors reported per record (BaseballNames3.csv) and record with insufficient fields.



```
Error found in:  Jay       , Bruce      ,3,null,n
Offending data:
Error found in:  Shairon   , Martis     ,30,3,198
Offending data:
Error found in:  Ryan
Not enough fields in the record.
Error found in:  Gerardo   , Parra      ,null,nul
Offending data:
Error found in:  Sean      , O'Sullivan ,       1
Offending data:
Error found in:  Mat       , Latos      , 9 , 12
Offending data:
Error found in:  Josh      , Reddick    ,null,  n
Offending data:


First & Last name     Birthdate  Weight  Height

Ryan Kalish           3/28/1988     205    73.2
Conor Gillaspie       7/18/1987     200    73.3
```

Beginning output is omitted to show end result.

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ISTE-121 HW02 Gradesheet
Binary I/O

Item	**Possible points**	**Earned points**
FileChooser used to get name of csv file	5	
Parses input file data properly	10	
Handles heading and blank line as expected	5	
Correctly writes binary file (and with proper name)	10	
Reports Records In and Records Out correctly	5	
Reads binary file using appropriate DataInputStream methods	10	
Writes formatted report to screen, including dates formatted as shown Report is clean and properly aligned	15	
Complete Javadoc and comments in code	10	
All file I/O operations are properly included in the code	10	
All errors and exceptions are handled with messages via an Alert or written to taData	10	
Code works as expected	**10**	
Bonus points levels: Bonus 1 - Report all errors that occur on a record Bonus 2 - Report the original record once for all reported errors found in that record (includes points from bonus 1)	 +5 +5	
Deductions: • Late • Coding standard violations, etc. • Submitted something other than a zip file (-5) • Duplication of code that has the same functionality		
Total:	100	

Comments: