

605.201 Module 10 Java I/O Assignment

Introduction:

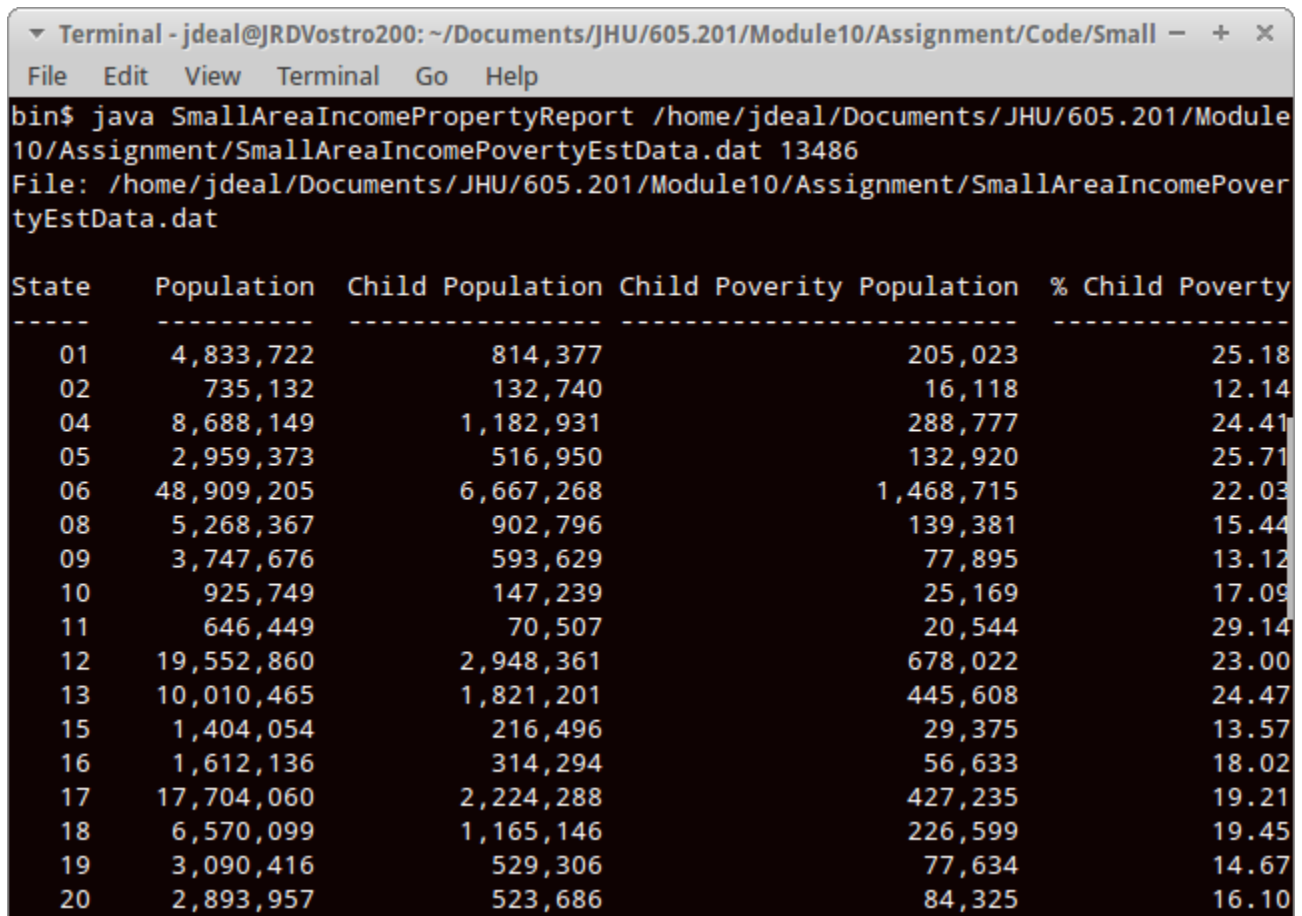
This assignment is to provide practice in using the Java I/O techniques discussed in the Module 10 video lectures and readings. Although the main focus of this assignment is Java I/O techniques, Java design and implementation techniques discussed in earlier modules should be incorporated in to this assignment.

Problem:

Supplied is a data file from the US Census which contains data from US school districts and reports statistics related to child poverty (<http://www.census.gov/did/www/saipe/data/highlights/2013.html>). It is desired to have a summary report which calculate basic statistics at the state level.

Desired Implementation:

Java 8 implementation to read the supplied text data and produce a report similar to the below:



The image shows a terminal window titled "Terminal - jdeal@JRDVostro200: ~/Documents/JHU/605.201/Module10/Assignment/Code/Small". The command executed is `bin$ java SmallAreaIncomePropertyReport /home/jdeal/Documents/JHU/605.201/Module10/Assignment/SmallAreaIncomePovertyEstData.dat 13486`. The output is a report with the following data:

State	Population	Child Population	Child Poverty Population	% Child Poverty
01	4,833,722	814,377	205,023	25.18
02	735,132	132,740	16,118	12.14
04	8,688,149	1,182,931	288,777	24.41
05	2,959,373	516,950	132,920	25.71
06	48,909,205	6,667,268	1,468,715	22.03
08	5,268,367	902,796	139,381	15.44
09	3,747,676	593,629	77,895	13.12
10	925,749	147,239	25,169	17.09
11	646,449	70,507	20,544	29.14
12	19,552,860	2,948,361	678,022	23.00
13	10,010,465	1,821,201	445,608	24.47
15	1,404,054	216,496	29,375	13.57
16	1,612,136	314,294	56,633	18.02
17	17,704,060	2,224,288	427,235	19.21
18	6,570,099	1,165,146	226,599	19.45
19	3,090,416	529,306	77,634	14.67
20	2,893,957	523,686	84,325	16.10

Terminal - jdeal@JRDVostro200: ~/Documents/JHU/605.201/Module10/Assignment/Code/Small - + x						
File	Edit	View	Terminal	Go	Help	
32	2,790,136		483,411		99,599	20.60
33	1,472,055		205,461		19,714	9.60
34	10,552,547		1,488,882		222,992	14.98
35	2,085,287		368,816		103,790	28.14
36	19,901,043		3,066,336		666,553	21.74
37	9,848,060		1,673,310		386,419	23.09
38	723,393		113,921		12,685	11.13
39	11,570,743		1,958,998		398,688	20.35
40	3,851,487		682,548		144,867	21.22
41	3,931,430		627,584		118,023	18.81
42	12,773,801		1,999,741		342,181	17.11
44	1,065,907		159,355		31,368	19.68
45	4,790,785		787,482		194,639	24.72
46	844,877		148,002		24,675	16.67
47	6,778,703		1,091,900		260,103	23.82
48	26,452,422		5,101,161		1,198,322	23.49
49	2,900,872		642,722		85,745	13.34
50	940,840		92,223		11,990	13.00
51	8,260,405		1,352,420		190,734	14.10
53	6,971,406		1,151,175		197,126	17.12
54	1,854,304		279,484		64,539	23.09
55	5,956,920		963,445		157,356	16.33
56	582,360		99,290		11,701	11.78
bin\$						

There should be two separate “programs” (main()), one to read the text data file and write a reformatted file to be read by the second program which will create the report to standard out. Note before the report is displayed, a single line with “File: “ then the path of the input file for the report is displayed.

The first program will have 3 run-time parameters, the data source file path, the destination file path, and the number of records in the data file (13486) .

The second program will have 2 run-time parameters, the input file path and the number of records.

Features and Restrictions:

This assignment is an individual effort. Collaboration with other students on design approaches, implementation techniques, etc. as well as using the course's Discussion Board and other course resources are encouraged but the design, implementation, and submitted files *must* be your own creation.

A good reference for the Java 8 API is at: <http://docs.oracle.com/javase/8/docs/api/>

The programs should use standard (SE) Java 8 code and compile without errors or warnings. It should also run without errors or warnings when given valid input.

The programs should provide reasonable parameter validation (correct number of parameters,

reasonable values, etc.).

The programs should not use any Java collections (ArrayList, Map, Vector, etc.) except standard Java arrays. Collections are introduced in a later module.

The file produced by the first program should not be deleted after running the report program.

The program's code should be reasonable formatted and commented as demonstrated so far in the course.

Resources:

File: SmallAreaIncomePovertyEstData.txt – contains the small area poverty data. It is a standard 8-bit readable text file.

File: SmallAreaIncomePovertyEstLayout.txt – contains information about the field layout of the SmallAreaIncomePovertyEstData.txt file.

Submitted Files:

Please submit the following files in a single compressed zip file (.zip):

- Source files needed to recreate both of your programs
- The compiled .class files for your programs and any needed custom classes
- The supplied text files and any other additional files needed to run your programs
- Short word processed file (.odt, .doc, .docx) explaining how to run your program.