

**CS1110 – Spring 2017 – “Population Report”**  
**Asgn 4 - 100 points – due MONDAY FEB 27**  
**[That due date is BEFORE the in-Lab Test #1]**

Objectives – learn/practice the following new concepts:

- *Input & output data files*
- *Calculating stats (total, average, n, minimum, maximum) for a stream of data*
- *use a pre-existing method and call it*
- *stream of data [input file]*
- *printf's for creating nicely formatted report*

**BASIC REQUIREMENTS**

- A top comment including your name, lab section day/time, asgn number & name of application
- Appropriate descriptive variable naming, including use of camel case (and variables start with a small letter)
- incremental development
- follow these written specs (and other things specified by your lab instructor)
- output goes to a DATA FILE (though you MAY write to the Console window for your own debugging work)
- follow written specs in terms of which algorithms/approaches to use and the output formatting, etc.
- indent/align program code to show program logic (use NetBeans' dropDown menu Source, then choose Format)
- do not type beyond the red line in NetBeans

**PROJECT OVERVIEW**

This project uses some of the data from the WorldData.csv file to create the Population Report (written to the data file). This includes various statistics like average, lowest, highest, etc. in various categories.

**INPUT FILE:** WorldData.csv (a text file which has “Comma Separated Values”). This file contains basic data for every country in the world (based on data from 2015). The 1<sup>st</sup> 4 records (lines) contain “meta-data”. The rest of the records contain the actual data. Each data record contains these fields, in this order:

~~Number – ignore this field for this program~~

Country Name

Population

~~Yearly Change – ignore this field~~

~~Net Change – ignore this field~~

~~Population Density (Population/Km<sup>2</sup>) – ignore this field~~

Land Area (Km<sup>2</sup>) [FYI: to convert to squareMiles, multiply by 0.386102]

Migrants (net migration in (+) or out (-))

~~Fertility Rate – ignore this field~~

Median Age

Urban Pop % [contains % symbol which needs to be removed before processing data]

~~World Share % – ignore this field~~

**PROCESSING:**

- A. **SKIP THESE RECORDS** (when doing ANY stats calculations or storing data in the parallel arrays):
1. the header records – i.e., the 1<sup>st</sup> 4 records in the file
  2. countries which have
    - a. nothing in Migrants field (that is, an empty string, which is “”)
    - b. “N.A.” (“Not Available”) in the Median Age field
    - c. EITHER “N.A.” OR “0.0%” in the Urban Pop % field

- B. When determining the Population, Land Area and Median Age stats – use the data STREAM processing algorithm – that is, do the calculating as you’re reading the data in from the INPUT FILE

**OUTPUT REPORT FILE:** PopulationReport.txt – looks like the following:

[NOTE: The data below isn’t necessarily accurate, I’m just showing you the required formatting].

[NOTE: Use this exact formatting].

#### POPULATION REPORT

for the 198 countries of the world  
(which excludes the 35 countries with “missing/bad” data)

#### POPULATION

Total: 3,123,456,789  
China has the largest population: 1,388,232,693 people  
Antigua and Barbuda has the smallest population: 93,659 people

#### LAND AREA

Total: 123,456,789 sq miles (= 234,567,890 sq km)  
Russia has the biggest area: 6,592,769 sq miles (= 17,075,200 sq km)  
XYZ has the smallest area: 2 sq mile (= 4 sq km)

#### MEDIAN AGE

Average: 28  
Niger has the youngest: 15  
Japan has the oldest: 47

#### MIGRANTS

Number of countries with  
NEGATIVE (outgoing) migration:

500,000 or more	02
Between 100,000 and 499,999	09
Between 30,000 and 99,999	23
Between 10,000 and 29,999	33
Between 1 and 9,999	55

ZERO migration: 05

POSITIVE (incoming) migration:

500,000 or more	01
Between 100,000 and 499,999	14
Between 30,000 and 99,999	14
Between 10,000 and 29,999	09
Between 1 and 9,999	33

#### URBAN POPULATION

Number of countries with %-urban in these ranges:

Less than 25%	35
Between 25.1% and 50%	48
Between 50.1% and 75%	82
Between 75.1% and 90%	14
Greater than 90%	32

## Assignment Submission

- Your project folder should be named la4cs1110\_yourlastnameFirstInitial\_mmddyy, Replace “yourlastnameFirstInitial” and “mmddyy” appropriately.
- Generate a .zip file that contains all of your files in the above java project folder.
- Submit the .zip file via E-learning